UNIVERSIDAD PARA LA COOPERACION INTERNACIONAL
(UCI)

PROJECT MANAGEMENT PLAN FOR THE PROJECT ENTITLED “IMPROVING ENVIRONMENTAL BUSINESS PRACTICES OF MARINE RECREATION PROVIDERS WITHIN THE NORTHERN COASTAL COMPLEX” IN SAN PEDRO TOWN, BELIZE

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DEDICATION

To my beloved father in heaven, RAFAEL CHUN SR., who has always been my greatest inspiration in life to never give up.

To my mother, MARTITA CHUN, who has been there with me through my greatest sweat, tears, and triumphs.

To my siblings, MONICA, ROSABEL, PHILIBERT, and KIANA, who I hope to inspire even if just a little and,

To the one person without whom, none of my success on this project would have been possible, CEM…

All of you, many thanks!

Let there be an opening into the quiet that lies beyond the chaos. Where you find the peace you did not think possible and see what shimmers within the storm.

~ John O'Donohue~

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ABBREVIATIONS AND ACRONYMS

BPA	Belize Port Authority
BTB	Belize Tourism Board
BTIA	Belize Tourism Industry Association
COMPACT	Community Management of Protected Areas Conservation Programme
CZMAI	Coastal Zone Management Authority and Institute
DAN	Divers Alert Network
DOE	Department of the Environment
DRP	Disaster Response Plan
EEFs	Enterprise Environmental Factors
FIU	Financial Intelligence Unit
GDP	Gross Domestic Product
GEF	Global Environment Facility
GPM	German Specialist Group
HCMR	Hol Chan Marine Reserve
ICB	International Competency Baseline
IPMA	International Project Management Association
ISO	International Organization for Standardization
NEMO	National Emergency Management Organization
NPAS	National Protected Areas System
PADI	Professional Association of Diving Instructors
PM	Project Management
PMBOK® Guide	A Guide to the Project Management Body of Knowledge
PMI	Project Management Institute
SDGs	Sustainable Development Goals
SGP	Small Grants Programme
SPTGA	San Pedro Tourist Guide Association
SPTOA	San Pedro Tour Operators Association
UCI	University for International Cooperation

WBS	Work Breakdown Structure
WWF	World Wildlife Fund

EXECUTIVE SUMMARY (ABSTRACT)

The Belize Barrier Reef Reserve System is the largest reef in the northern hemisphere providing a habitat for numerous endangered species as well as contributing significantly to Belize's Gross Domestic Product via its fishing and eco-tourism industries. In fact, in recent years, the communities on Ambergris Caye have come to rely on the reef system as their main source of economic development. It is evident that the tourism industry is thriving and with that comes an increased awareness and call to action for controlled environmental business practices and conservation of the marine ecosystem. The San Pedro Tour Operators Association (SPTOA), pioneers in the tourism sector, have made significant contributions in the promotion of sustainable marine recreation through collaborative projects with governmental and non-governmental agencies.

The project "Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex" is a project concept developed by the SPTOA to equip tour operators with the right skills to engage in safe and sustainable marine recreation practices and to promote enhanced accessibility and safety of the marine recreational destinations. The Association is a membership organization comprised of tour operators who advocate for responsible tourism through projects. They, however, lack the institutional capacity to properly plan and adequately manage projects. The Final Graduation Project (FGP) provides the technical assistance needed by developing a project management plan for the SPTOA project at hand. The project management plan investigated the ten knowledge areas of project management and outlined the adequate tools and techniques to properly administer a project. This project management plan marks the start of a new approach for the SPTOA in carrying out projects and further building the credibility of the Association. Additionally, the project management plan employed a dedicated approach utilizing strategic, focused and sustainable project activities predicting success of this and future projects.

The general objective was to develop a comprehensive Project Management Plan for the project titled "Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex" in San Pedro Town, Belize. The specific objectives were: to develop the integration management plan that will unify and coordinate the processes and project management activities, to create a scope management plan to define all the project work required to successfully complete the project, to create a schedule management plan that will define the approach for creating and monitoring a project schedule that will effectively manage the timely completion of the project, to develop a cost management plan that focuses on key processes necessary for establishing a project budget and ensuring the project is completed within the approved budget, to develop a quality management plan that defines the project's quality policies, procedures and requirements in order to effectively manage project and product quality from planning to final delivery, to create a resource management plan to identify, acquire and manage all resources needed in order to successfully complete the project, to create a communications management plan that details

the communication needs and expectations for the project with timely and effective communication strategies to disseminate key information, to develop a risk management plan that outlines the project risk management approach from identifying to categorizing and effectively responding to project risks, to develop a procurement plan that identifies the processes necessary to purchase or acquire goods, services or results needed for the project, and to create a stakeholder engagement plan that ensures the proper identification and categorization of stakeholders with appropriate engagement strategies throughout the project.

The research methodology for the Final Graduation Project was based on theory, method, and analysis. Both primary and secondary information sources were utilized for data collection and analysis. The project utilized a general classification of research methods: qualitative and quantitative research, as well as research methods according to nature of study: descriptive and analytical research. Qualitative research was performed for the development of areas such as resource, communications and, stakeholder management by using key informant interviews and indirect observations, and review of secondary data and case studies. Other areas of the project such as schedule, cost and procurement management were developed by using some level of quantitative research to categorize, rank, measure and define the data collected. Descriptive and analytical research were used to make classifications, comparisons and focus on factual and readily available information for analysis and critical evaluation in key project areas.

The Project Management Plan development process concluded that there is much value in the Project Charter and a well-defined Project Management Plan. Key findings showed that there must be strict adherence to schedule, resources and cost if the seven deliverables are to be met within the project duration of 251 days and project funding of US$194,000 as provided by COMPACT/GEF. The project is ranked a medium-risk venture and consequently, there must be clear and open communication between the project team and all relevant stakeholders, with careful consideration of the two high-risk events in project management and financing conditions, and sound procurement practices if deliverables are to be met in accordance with the acceptance criteria for quality and completion.

The SPTOA is embarking on a new journey in the project management arena. It is the hope that the Project Management Plan developed under this project will be utilized for management of the SPTOA's first comprehensive project. Keen attention should be paid to project details such as project slippage, cost tracking, the quality acceptance criteria, resource development, risk minimization, efficient and transparent procurement methods, and finally, active and proactive stakeholder engagement. By following the guidelines presented in this plan, it is expected that the proposed SPTOA project, will result in the substantially augmented capacity and technical abilities of SPTOA Executive thus improving their overall status and credibility as an executing agency for projects.

1 INTRODUCTION

1.1. Background

The San Pedro Tour Operators Association (SPTOA) is a membership organization that was formed from members of the San Pedro Tourist Guide Association (SPTGA) due to the need to have greater management and oversight of the resources surrounding tourism activities in San Pedro and Caye Caulker, Ambergris Caye, Belize District, Belize. Tourism is the number one revenue earner on the island exponentially growing year after year. As the industry expanded, tour operators displayed increasing concern on the risk of endangerment to the marine resources and the future of sustainable tourism. Consequently, the SPTOA was formed as an exemplary body to implement regulations on efficient and sustainable tourism for the benefit of all, as a pre-emptive initiative to promote viable business practices in tourism. The Association was incorporated in 2016 under the Companies Act, Chapter 250 of the Laws of Belize, Revised Edition 2011.

The SPTOA has launched several conservation and sustainable livelihood initiatives at the local level. These initiatives have for the most part been planned without the adequate expertise required of such projects. Some of the projects have achieved some success despite the lack of technical expertise. It must be noted that these projects had the potential for high success. It can only be surmised that technical assistance would have enhanced the project. On the other hand, “Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex,” features a more focused project that aims to foster meaningful involvement of all stakeholders in conservation and restoration of coral reefs, improved business practices and quality of the destination. Several of the SPTOA programs and projects have been used to inform this current project. For example, “The Kids in Action Program” designed to train children ages 12 and older in scuba diving during the summer is incorporated in this new project. The “Kids in Action Program” involved tour guides, sport fishers, dive masters and biologists in the community to serve as instructors and mentors. Additionally, this program aimed to attract at-risk youth who would

otherwise be engaged in counterproductive activities in the community. By engaging children in the program, they would be trained in scuba diving, volunteering in conservation and educational programs as well as being offered job training, job placements, and scholarship offerings, where possible.

Another program that influenced the new project is the “Coral Reef Nursery”. The Coral Reef Nursery program aimed to engage in the restoration of degraded reefs off San Pedro Town. The program is being coordinated by two trained young women who were once certified under the Kids in Action Program many years ago. Their training in fragmentation techniques proved useful in restoring degraded reefs used as snorkel and diving sites, in addition to conducting monitoring and research of the nurseries. Co-funding for the Coral Reef Nursery as well as the project for improved business practices is through a 3-tier conservation membership program that raises financial support from the private sector. Membership and benefits derived are based on financial contributions in three tiers:

a. *Hawksbill* – voluntary or in-kind contributions
b. *Loggerhead* – Financial Contributions of US$1,000 to US$5,000
c. *Green* – Financial Contributions over US$5,000

As part of the SPTOA mandate in implementing capacity building opportunities for membership and improving business practices, a safety training project was implemented to train four instructors as emergency trainers in first response (First Aid, CPR, etc.). The trained instructors will be coordinating a safety training program where at least 10 courses will be offered each summer for tour guides and tour operators to receive the requisite training and tools (pocket masks, first aid kits, etc.). The revenue generated from this program will also be used to fund other conservation efforts by the SPTOA, including the project at hand.

Extensive stakeholder consultation has been conducted and the SPTOA plans to strategically work closely with key community partners in executing the Project “Improving Environmental Business Practices of Marine Recreation Providers

Within The Northern Coastal Complex.” A seascape approach is being taken to ensure that actions have regional connectivity and impact. Mobilization of funds is being facilitated by a dedicated and experienced project development partner, Community Management of Protected Areas Conservation Programme (COMPACT), a global initiative led by the Global Environment Facility (GEF) and Small Grants Programme (SGP).

1.2. Statement of the problem

Since the inception of the SGP in Belize in 1993, more than 220 projects have benefitted from funding in areas of conservation and sustainable livelihood (Belize Enterprise for Sustainable Technology, 2016). The conservation grant programme requires co-financed support by grantees for activities being proposed. This means current limitations on fund administration, capacity building, and outreach activities. The SPTOA, therefore, has identified co-financing support, cash and in-kind for the project but a funding gap still exists for activities that are indispensable for the completion of this project. Part of this gap is the development of a project management plan. The SPTOA is a membership organization that is comprised of a variety of business owners who share the same interests in advocating for responsible tourism and enhancing synergies, however, there exists a deficit in the SPTOA. The Association, like many others in Belize, lacks the institutional capacity to properly plan and adequately manage projects. The SPTOA does not have a functional structure in place (organizational chart) and one of its major needs is technical assistance to develop a sound structure with institutional strengthening for their administrative and programmatic functions. The Association currently does not have a Project Manager and Project Team to oversee its ongoing projects and programs. This is primarily because of funding constraints. Consequently, this has led to a non-exposure of proper project management practices and guidelines. The lack of technical capacity has been a limiting factor in obtaining funding for several projects. Most naturally, funding agencies are reluctant to fund without a guarantee for successful completion of projects. This improbability has been the main cause for loss of credibility and consideration for funding of projects and programs.

1.3. Purpose

To satisfactorily implement the project “Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex”, the SPTOA recognizes the need for an operational Project Management Plan that will guide the initiating, planning, executing, monitoring and controlling, and closing of the project. With this mind, the purpose of this project is to develop a comprehensive Project Management Plan that will introduce the dawn of a new approach for the SPTOA in project implementation thereby, boosting the credibility of the Association. The SPTOA anticipates becoming a recognized leader and catalyst for change in the community through a strengthened membership with project-oriented strategies to safeguard the health of the country’s marine resources.

The project will investigate the ten knowledge areas of project management as described by the Project Management Institute (PMI) and will include useful tools and techniques to properly administer a Project Management Plan. All proposed project management activities will be clearly outlined and justified for the SPTOA to successfully execute its project, on time and within budget. Areas to be covered include project integration, scope, time, cost, quality, human resources, communications, risk, procurement, and stakeholder management.

The SPTOA has experienced many inefficiencies in the management of its projects and there is much room for improvement in its functional structure and economic potential of its members. The absence of appropriate project management tools has limited the SPTOA in achieving its optimal potential. As a result, there are many untapped resources hindering the achievement of potential objectives. It is imperative that the Association demonstrates a comprehensive strategic plan that incorporates sound project management knowledge and techniques.

A comprehensive Project Management Plan will include a “roadmap” that has been established for the successful implementation of projects. This roadmap will enable

the SPTOA to tap into more donor funding, which the organization has been unable to attract since it lacks a dedicated project manager and project management structure.

Likewise, operational and cost-efficiency is an added benefit that can be realized from sound project management. The Association has been able to effectively connect with the community of Ambergris Caye. SPTOA as part of its long-term goals expects continuous engagement in community initiatives. A comprehensive Project Management Plan will provide much guidance on stakeholder engagement thus enabling greater stakeholder integration and buy-in. all things considered, the Project Management Plan will facilitate a dedicated approach in ensuring strategic, focused and sustainable project activities to achieve the success of this and future projects.

1.4. General objective

To develop a comprehensive Project Management Plan for the project entitled “Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex” in San Pedro Town, Belize.

1.5. Specific objectives

1. To develop the integration management plan that will unify and coordinate the processes and project management activities.
2. To create a scope management plan to define all the project work required to successfully complete the project.
3. To create a schedule management plan that will define the approach for creating and monitoring a project schedule that will effectively manage the timely completion of the project.
4. To develop a cost management plan that focuses on the key processes necessary for establishing a project budget and ensuring the project is completed within the approved budget.

5. To develop a quality management plan that defines the project's quality policies, procedures and requirements in order to effectively manage project and product quality from planning to final delivery.
6. To create a resource management plan to identify, acquire and manage all resources needed in order to successfully complete the project.
7. To create a communications management plan that details the communication needs and expectations for the project with timely and effective communication strategies to disseminate key information.
8. To develop a risk management plan that outlines the project risk management approach from identifying to categorizing and effectively responding to project risks.
9. To develop a procurement plan that identifies the processes necessary to purchase or acquire goods, services or results needed for the project.
10. To create a stakeholder engagement plan that ensures the proper identification and categorization of stakeholders with appropriate engagement strategies throughout the project.

2 THEORETICAL FRAMEWORK

2.1 Company/Enterprise framework

The San Pedro Tour Operators Association (SPTOA) was incorporated in 2016 under the Companies Act, Chapter 250 of the Laws of Belize, Revised Edition 2011 and is registered as a Designated Non-Financial Business in accordance with Regulation 6 of the Money Laundering and Terrorism (Prevention) Regulations No. 9 of 2014 by the Financial Intelligence Unit (FIU) of Belize.

The business framework of the San Pedro Tour Operators Association (SPTOA) describes the management structure established to achieve its long-term goals and objectives and ensures the growth of the Association. Tourism and marine recreation are essential contributors to economic growth but what organizations like the SPTOA envision is a balance between environmental quality and sustainable tourism development.

Overall, the theoretical framework will incorporate effective marine recreation practices with project management knowledge, skills, tools, and techniques.

2.1.1 Company/Enterprise background

The SPTOA is a membership organization, located on the island of Ambergris Caye (see Figure 1); dedicated to the promotion and protection of Belize's marine resources utilizing vibrant and sustainable tourism practices (San Pedro Tour Operators Association, 2019).

The Association has been advocating for responsible tourism activities by spearheading transformative programs and projects throughout the community since its establishment in 2016. A foreseen increase in maritime activities and the need for sustainable management of the marine ecosystem was the compelling factor driving the formation of the SPTOA. The Association was launched with seven board members and two associate members. There has been progressive growth in membership as the mission and vision of the SPTOA is being realized.

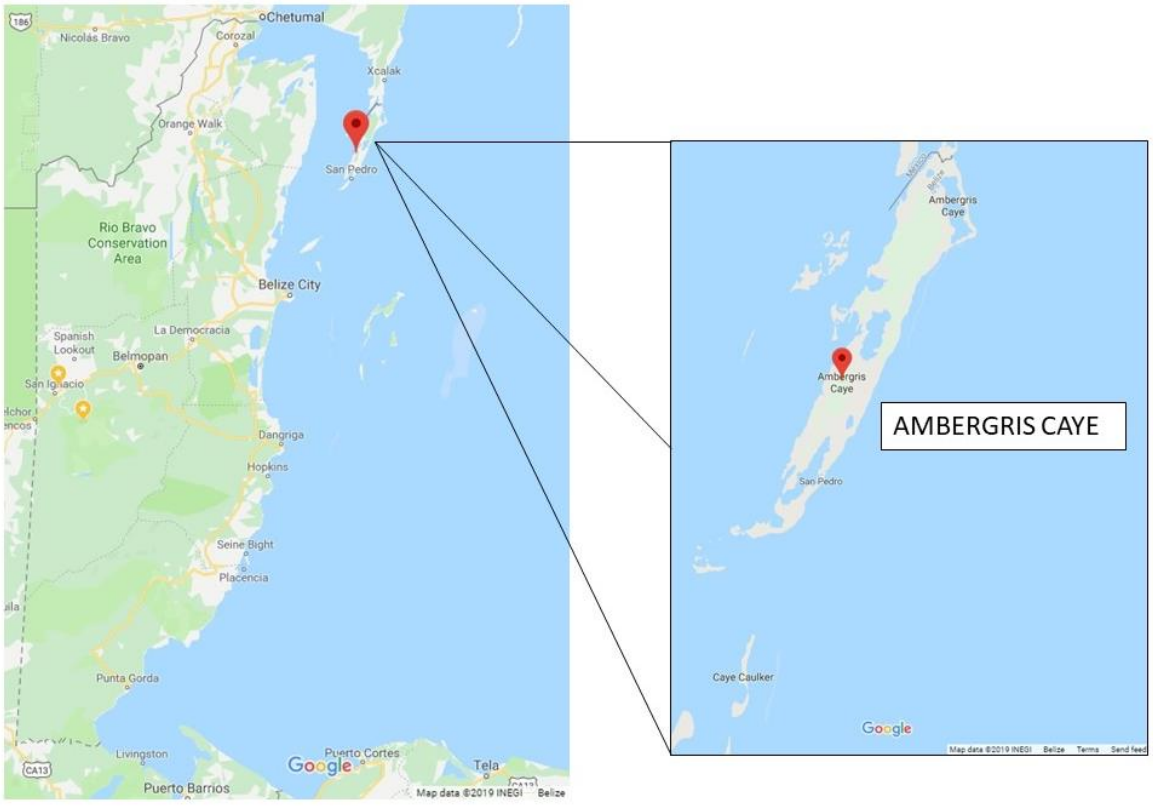

Figure 1 Association Base Location and Project Area: Ambergris Caye, Belize (Source: Google maps, 2019)

2.1.2 Mission and vision statements

a. Mission Statement

According to SPTOA, their mission is, “San Pedro Tour Operators is a membership organization that fosters sustainable growth of the local tourism economy, and its members through the promotion of responsible business principles and standards” (San Pedro Tour Operators, 2019). Every project and program instituted is aligned with the work the Association engages – the promotion of efficient and sustainable tourism for the benefit of all stakeholders. It is evident that the mission illustrates the determination to make a positive change in the environmental business practices that surround marine recreation on the island of Ambergris Caye. SPTOA’s mission is clearly reflected in the project, “Improving Environmental

Business Practices of Marine Recreation Providers Within The Northern Coastal Complex" as it is directed towards conservation and destination.

This mission is one that demonstrates the determination to make a positive change in the environmental business practices that surround marine recreation on the island of Ambergris Caye. The project, "Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex" is one especially geared towards conservation and destination development through institutional strengthening and compliance mechanisms.

b. Vision Statement

The SPTOA's vision is built upon the values of leadership and advocacy. Local authorities have been incorporating sustainability as one of the core values propelling the tourism industry forward. The vision incorporates current market needs being met along with its corresponding environmental and community requirements. The Association, in connection with its supporters, outlined five objectives in its vision (San Pedro Tour Operators Association, 2019). These five objectives are:

1. Participation in policy and planning committees at a national and international level.
2. Identifying training opportunities focused on marine life conservation for members
3. Lobbying for support to garner competitive incentives for all members.
4. Engaging the community, especially the youth, to spread conservation and civic pride.
5. Establishing and promoting tourism regulations and standards.

2.1.3 Organizational structure

The SPTOA is an organization comprising twenty-eight (28) members of which seven (7) are Directors who hold managerial positions (see Figure 2). All members are tour operators on the island of Ambergris Caye. Mr. Everette Anderson, Belize Diving Adventures; representative, serves as the current Chairman. Mr. Roberto

Gonzalez, Chuck & Robbie's representative, functions as the Vice-Chairman. Mr. Enrique Sutherland, Ramon's Dive Shop representative, is the Treasurer. Ms. Marisela Marin representing Go Fish Belize serves as the Secretary. Mr. Ched Cabral, Reef Adventures' representative; Mr. Steve Bowen (representing Belize Ocean Diver), and Mr. David Cal (representing B&D Belize Magical Adventures) function as Directors.

There is no functional structure in place where programs and projects are managed. Currently, the Directors execute the programs and projects with assistance from its members. However, without a formal structure the Association faces difficulties in effective implementation and management of its activities. In addition, the Directors also manage day to day activities as there exists no administrative staff to handle those responsibilities. The SPTOA has highlighted this as the primary area of weakness of the Association. The project, "Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex" will seek to develop a functional organizational structure for the SPTOA as part of its institutional strengthening objective. This formalized structure will offer a clear division within the SPTOA organization with definitive separation between executive responsibilities, managerial functions and project implementation functions. The hierarchical structure will also provide clear reporting and responsibility alignment with functions throughout the entire organization. The main benefit of this is that the SPTOA will be able to operate in similar fashion as larger organizations that have pre-established enterprise environmental factors and organizational process assets, albeit at a much smaller scale.

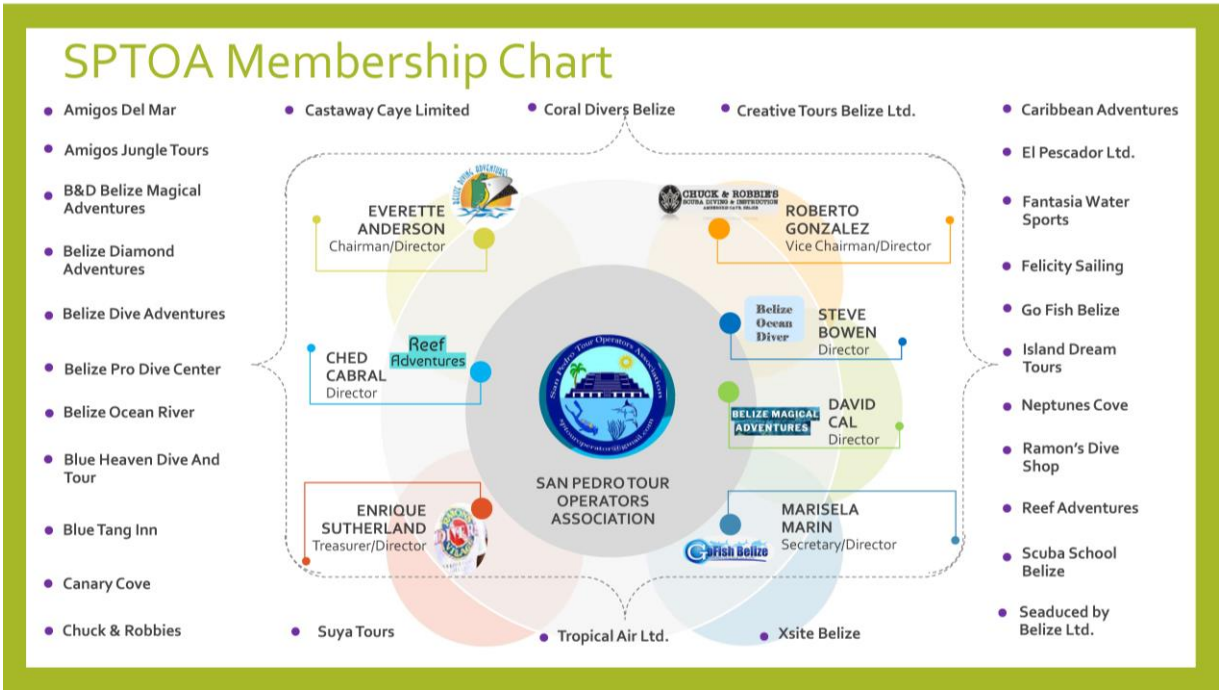

Figure 2 Membership Chart for the San Pedro Tour Operators Association (Source: compiled by Author, M. Chun, 2019)

2.1.4 Products offered

The SPTOA is made up of tour operators who hold various businesses on the island of Ambergris Caye. These operators offer services such as fishing, scuba diving and snorkeling tours to locals and tourists (E. Anderson, personal communication, May 22, 2019). Operators are licensed tour guides, PADI instructors, dive masters, boat captains, or employ such personnel if not one themselves.

Apart from being business owners, the members of the SPTOA demonstrate conservation in action. For example, SPTOA manages programs such as the Kids In Action, Coral Reef Nursery, Water Quality Monitoring, Beach Clean-up Campaigns and Safety Training (E. Anderson, personal communication, May 22, 2019). The Kids In Action Program is organized to train children to become certified open water divers, whereas the Coral Reef Nursery program is a restoration effort of degraded reefs off San Pedro Town (San Pedro Tour

Operators Association, 2019). Both these programs illustrate the Association's commitment to its mission.

SPTOA is also involved in Water Quality Monitoring as part of bilateral cooperation to monitor water quality of the Chetumal, Mexico/Corozal, Belize region. The SPTOA has engaged in this program to better understand the impact of sargassum decay to dive sites around San Pedro Town. As a consequence, beach clean ups and safety training for tour guides and operators are regular activities undertaken by the SPTOA.

The conservation activities carried out by the SPTOA require substantial involvement of community members and partnerships with governmental and non-governmental agencies. The project "Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex" is one such example of conservation efforts on the part of the SPTOA.

2.2 Project Management concepts

This literature review section will first look at the definition of a project, then delve into the project management discipline, followed by an explanation of the project life cycle, project management processes, process groups, knowledge areas and key concepts and theory relevant to the project entitled "Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex." The review ends with a summarization of the project management knowledge to be applied to the project to improve environmental business practices in marine recreation.

2.2.1 Project

A project in its simplest definition is a "temporary endeavor undertaken to create a unique product, service or result" (Project Management Institute, 2017, p.4). On the other hand, Bannerman (as cited in Bento, Gomes & Romão, 2019), refers to projects as discrete, multidimensional activities that serve as vehicles of change for promoting an organization's investments with the objective of obtaining business

benefits and improved internal processes. Similarly, Gomes & Romão (2015) posit that every project is a unique investment or piece of work designed for some sponsoring organization with the intent to obtain some business benefit(s). Furthermore, Dougherty, Lo, Ponchione & Young (2018) examined thirty projects across multiple disciplines that sought to explore the limitless potential that projects offer. From dramatic installations at the Fun House in Washington, DC to integrated wellness for the soul in the Golden Bridge in Da Nang, Vietnam, and adventurous literature in Utopia, Aalst, Belgium and Sinan Books in Shanghai, China, projects can be undertaken for various purposes and can endure for centuries.

Projects can produce social, economic, material or environmental benefits (Project Management Institute, 2017, p.5). Correspondingly, the project, “Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex” seeks to achieve social and environmental gains for the marine ecosystems assuring current and future enjoyment of the island of Ambergris Caye. Therefore, if projects are driven by a need to achieve results and it is implemented through structured change, then project management offers guaranteed success.

2.2.2 Project management

Project Management (PM) dates back to the Cold War in the 1950s, however, much growth was noticeable between 1960 to 1985 when the size and complexity of projects changed and formal processes had to be put into place (Kerzner, 2009 as cited in Lo, Shen, & Chen, 2017). PM is essential for the success of projects as it organizes project activities and its resources in order to meet project objectives (Goncalves, Wangenheim, Hauck & Petri, 2017). For example, adequate project management anticipates how to best manage limited resources and project constraints to meet project requirements.

There are numerous PM standards and guidelines published by diverse organizations and associations over time. A Guide to the Project Management

Book of Knowledge (PMBOK® Guide) issued by the Project Management Institute (PMI) is the most commonly adopted and internationally recognized manual. Additionally, International Project Management Association (IPMA) proposed the International Competency Baseline (ICB), and International Organization for Standardization (ISO) presented ISO 10006, the Standard for quality management in PM. GPM, the German Specialist Group, presented PM-Kanon, the standard that defines basic elements of PM (Lo, Shen, & Chen, 2017). Chart 1 summarizes some internationally recognized standards compiled by Ahlemann, Teuteberg & Vogelsang, (2009), (as cited in Lo, Shen, & Chen, 2017).

Chart 1 Summary of Internationally Recognized Standards (Source: Lo, Shen & Chen, 2017)

Standard	Description
DIN	PM standards issued by the German Institute for Standardisation (DIN 69901-69905)
ICB	International Competence Baseline issued by theIPMA
ISO 10006	Standard for quality management in PM issued by the ISO
OPM3	Organizational Project Management Maturity Model issued by the PMI
PMBOK	Guide to the Project Management Body of Knowledge issued by the PMI
PM-Fachmann/Project Manager	German implementation/version of the ICB issued by the German Association for Project Management (GPM)
PM-Kanon	Standard defining basic elements of PM issued by the GPM
PMMM	PM maturity model developed by Harold Kerzner
PRINCE	PM standard developed and issued by the British Office of Government Commerce

Chin, Spowage & Yap (2012) greatly credit PMI for the development of PMBOK® as it is considered a comprehensive and well-structured approach for the management of projects that can be applied regardless of the size or nature of the project.

PM is defined as “the application of knowledge, skills, tools, and techniques to project activities to meet project requirements” (Project Management Institute, 2017, p.10). In like manner, IPMA (2006) (as cited in Lo, Shen, & Chen, 2017) defined PM as the “planning, organizing, monitoring and controlling of all aspects

of a project and the management and leadership of all involved to achieve the project objectives safely". Similarly, ISO (2012) (as cited in Lo, Shen, & Chen, 2017) defined PM as "the application of methods, tools, techniques, and competencies to a project." While definitions vary from organization to organization, they are markedly similar in the application of tools and techniques. The application of tools and techniques complemented by human skills and knowledge, namely project management and leadership, are evident in the highly recognized PM definitions. PM offers a means of strategic planning, best practices, and recommended work processes to deliver projects.

The very first approach to PM success was using the iron triangle criteria of time, cost and quality. However, it was quickly recognized that overall project success must consider the objectives of all stakeholders throughout the life cycle of a project and at all levels of the organizational structure (Bento, Gomes & Romão, 2019). Other factors, namely, integration, scope, human resources, communication, risk, procurement, and stakeholder management are also essential considerations for success. A better representation of the Project Management Triangle is demonstrated in Figure 3 where all the success factors are integrated into six broad categories.

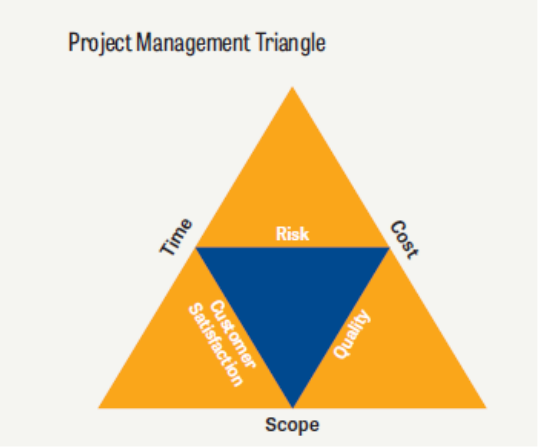

Figure 3 Project Management Triangle (Source: Balakian, 2017)

For the development of the project deliverables of the project entitled, “Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex,” a PMI project management approach will be utilized and all success factors will be considered for the completion of the project.

2.2.3 Project life cycle

The concept of a project life cycle has been well developed in project management literature. Projects are temporary endeavors, which means they have a definite beginning and end (Project Management Institute, 2017, p. 5). Projects are conceptualized from an idea which marks a definitive start, later developed into a finished product and then subsequently concluded (Cohen, 2018). Organizations manage projects by dividing the activities into several phases to have stricter control of ongoing operations. According to the PMBOK® Guide, a project life cycle is a series of phases that a project abides by from inception to completion (Project Management Institute, 2017, p. 18).

Nediger (2019) states that project management is more than scheduling meetings, assigning tasks and reminding team members of deadlines. The project life cycle is a useful framework designed to help project managers guide their projects successfully. It helps in identifying critical issues and probable sources of major conflict as well as a means of prioritizing these issues over the progression of project implementation. Of importance is the need to continually refocus the organization’s attention, energy, and resources on project requirements according to phases of the project. The project life cycle according to the Project Management Institute (2017, p. 18), has four phases: starting, organizing and preparing, carrying out the work and ending the project, linked to the process groups and knowledge areas (see Figure 4).

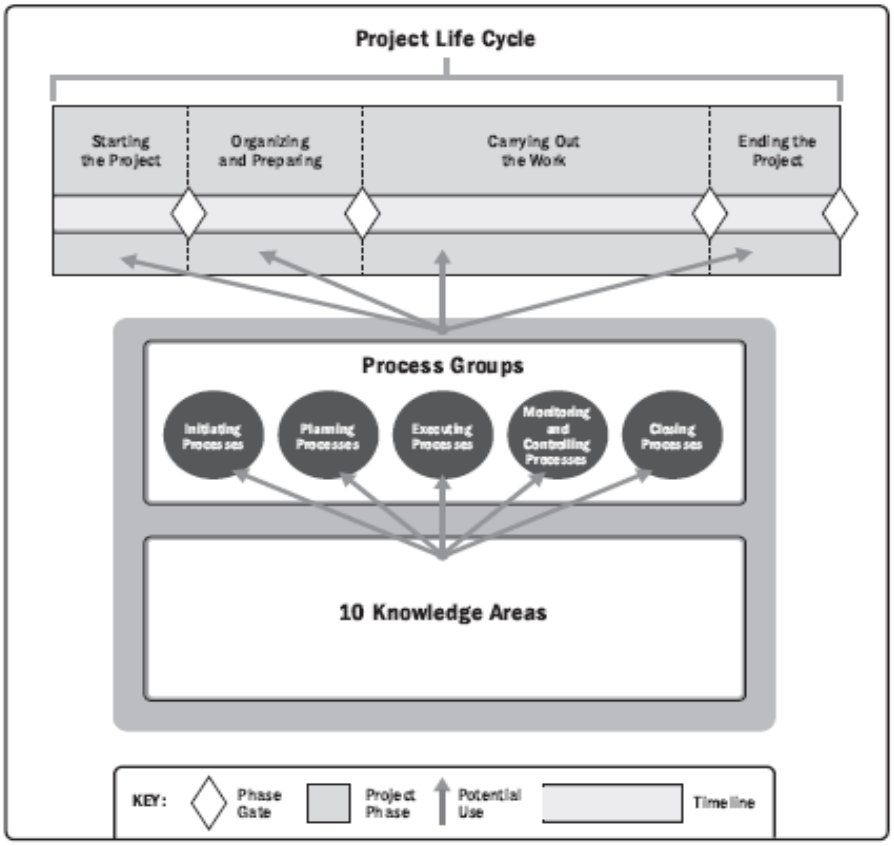

Figure 4 Project Life Cycle (Source: Project Management Institute, 2017, p. 18)

The typical illustration of a traditional project life cycle will include project initiation, planning, execution and closure as shown in Figure 5. The project life cycle can be predictive or adaptive and the phases define the level of effort needed to complete tasks.

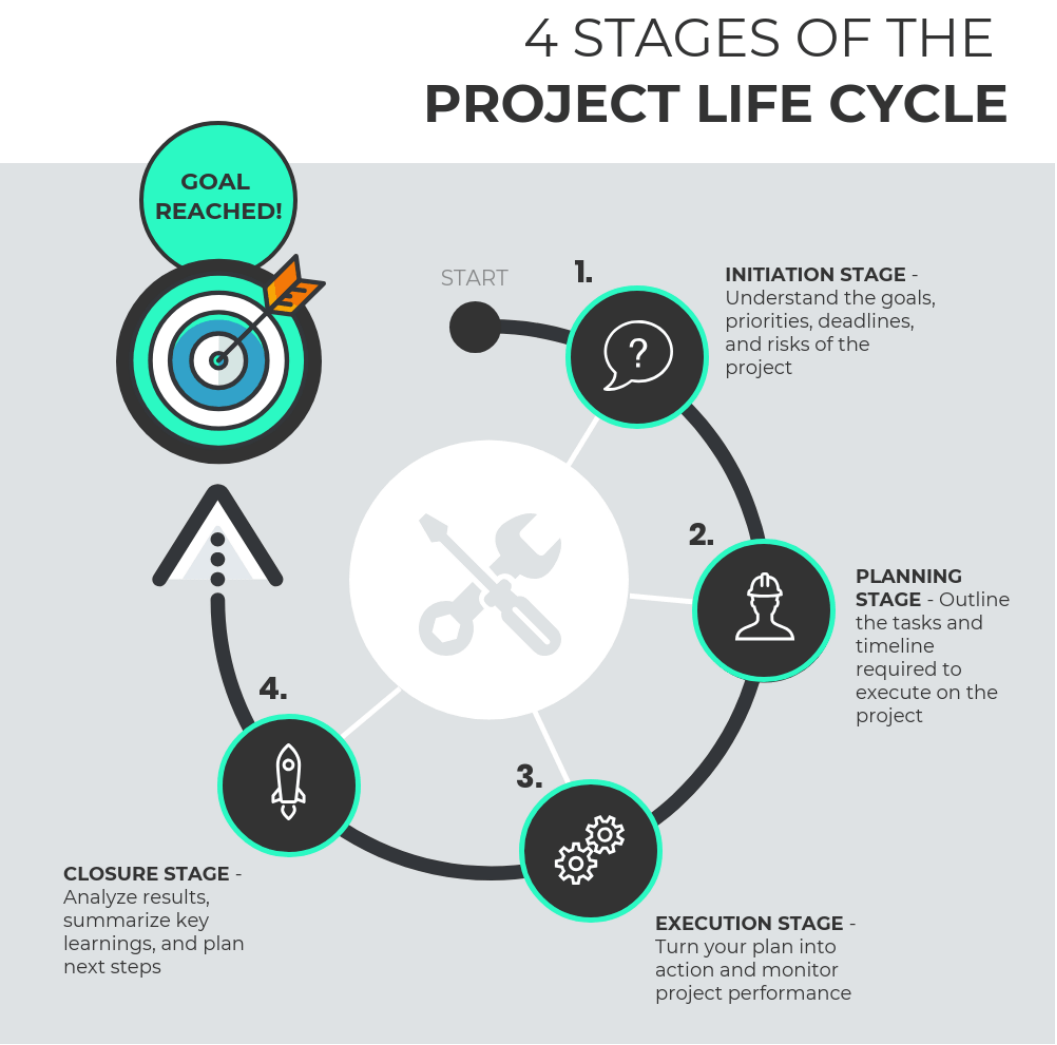

Figure 5 The 4 Stages of the Project Life Cycle (Source: Nediger, 2019)

Nediger (2019) highlights the usefulness of the project life cycle framework as a strategic and tactical tool prior to commencement rather than a post hoc project measurement scale against time or resources. The project life cycle helps in ease of communication between the project team and stakeholders, ensuring goals are achievable with the available resources; mitigating risks and keeping projects on track.

2.2.4 Project management processes

According to the PMBOK® Guide, PM is accomplished through the application and integration of 49 processes (Project Management Institute, 2017). The project life cycle allows for these processes to be grouped into five process groups, from

initiation to closure as illustrated in Figure 6. To manage these processes 10 knowledge areas are mapped with the processes. The project, “Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex” will only utilize the initiating, planning, monitoring and controlling process groups. Executing and Closing are process groups outside the scope of the project and are excluded.

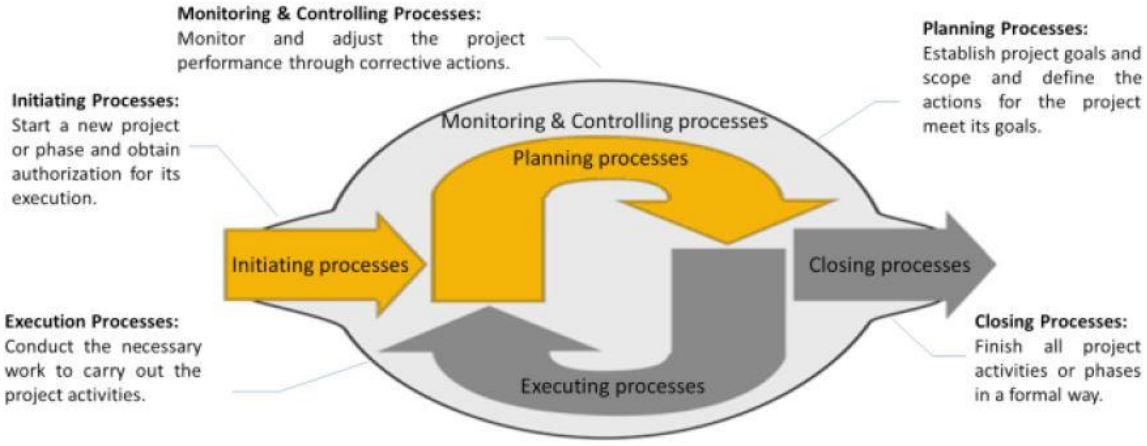

Figure 6 PM process groups (Source: Goncalves, Wangenheim, Hauck & Petri, 2017)

Project management processes are defined as a “systematic series of activities directed toward causing an end result where one or more inputs will be acted upon to create one or more outputs” (Project Management Institute, 2017, p. 18). The first process group, initiating looks at defining project goals, project justification, defining milestones and obtaining commitment from stakeholders (Goncalves, Wangenheim, Hauck & Petri, 2017). The main output is the project charter, which is the approved document that ensures the project is equipped with the necessary resources for project execution. The planning process group covers processes for the elaboration of a project management plan. The project management plan will include areas such as project integration, scope, schedule, cost, quality, resources, communications, risk, procurement, and stakeholder management (Lo, Shen & Chen, 2017). All these ten knowledge areas will be incorporated in the project entitled, “Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex.” The executing process group is

performed to complete the work defined in the project management plan and closing is to formally complete the project, a phase or a contract (Project Management Institute, 2017, p. 23).

2.2.5 Project management knowledge areas

Processes are also categorized by Knowledge Areas. The Project Management Institute (2017, p. 23) defines a Knowledge Area as "an identified area of project management defined by its knowledge requirements and described in terms of its component processes, practices, inputs, outputs, tools, and techniques." These ten (10) Project Management Knowledge Areas are essential components to properly manage a project (Goncalves, Wangenheim, Hauck & Petri, 2017). Shenoy (2016) provides a summary of the 10 Knowledge Areas as per the PMBOK® Guide, Sixth Edition (see Figure 7).

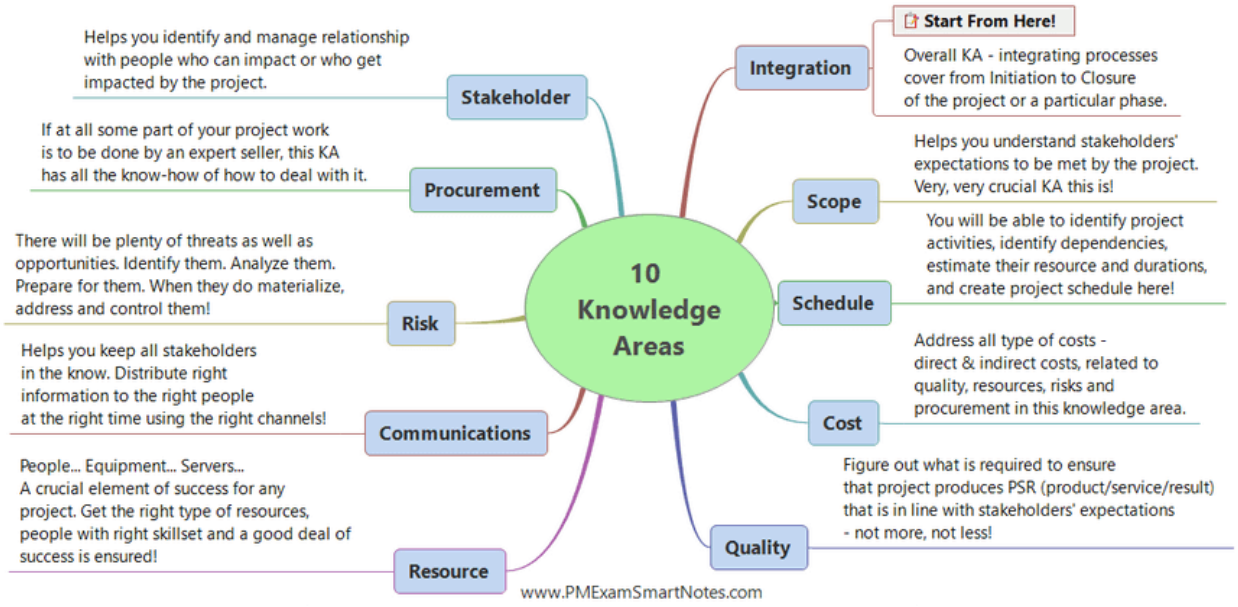

Figure 7 Project Management Ten Knowledge Areas (Source: Shenoy, 2016)

Chart 2 Mapping of ten knowledge areas to process groups (Source: compiled by Author, M. Chun, 2019 with reference to PMBOK® Guide, Project Management Institute, 2017)

Knowledge Areas	Project Management Process Groups					
	Initiating	**Planning**	**Executing**	**Monitoring and Controlling**	**Closing**	
[4] Project Integration Management	4.1 Develop Project Charter	4.2 Develop Project Management Plan	4.3 Direct and Manage Project Work 4.4 Manage Project Knowledge	4.5 Monitor and Control Project Work 4.6 Perform Integrated Change Control	4.7 Close Project or Phase	7
[5] Project Scope Management		5.1 Plan Scope Management 5.2 Collect Requirements 5.3 Define Scope 5.4 Create WBS		5.5 Validate Scope 5.6 Control Scope		6
[6] Project Schedule Management		6.1 Plan Schedule Management 6.2 Define Activities 6.3 Sequence Activities 6.4 Estimate Activity Durations 6.5 Develop Schedule		6.6 Control Schedule		6
[7] Project Cost Management		7.1 Plan Cost Management 7.2 Estimate Costs 7.3 Determine Budget		7.4 Control Costs		4
[8] Project Quality Management		8.1 Plan Quality Management	8.2 Manage Quality	8.3 Control Quality		3
[9] Project Resource Management		9.1 Plan Resource Management 9.2 Estimate Activity Resources	9.3 Acquired Resources 9.4 Develop Team 9.5 Manage Team	9.6 Control Resources		6
[10] Project Communications Management		10.1 Plan Communications Management	10.2 Manage Communications	10.3 Monitor Communications		3
[11] Project Risk Management		11.1 Plan Risk Management 11.2 Identify Risks 11.3 Perform Qualitative Risk Analysis 11.4 Perform Quantitative Risk Analysis 11.5 Plan Risk Responses	11.6 Implement Risk Responses	11.7 Monitor Risks		7
[12] Project Procurement Management		12.1 Plan Procurement Management	12.2 Conduct Procurements	12.3 Control Procurements		3
[13] Project Stakeholder Management	13.1 Identify Stakeholders	13.2 Plan Stakeholder Engagement	13.3 Manage Stakeholder Engagement	13.4 Monitor Stakeholder Engagement		4
	2	**24**	**10**	**12**	**1**	**49**

The mapping of the ten knowledge areas to the various process groups (Chart 2) demonstrates the complexity of the PM process. To assist in the implementation, PM tools with diverse functionalities and characteristics as well as PM techniques can be utilized to undertake projects (Goncalves, Wangenheim, Hauck & Petri, 2017). In the PMBOK® Guide, PMI (2017, p. 685) offers 132 tools and techniques categorized accordingly:

1. Data gathering tools and techniques
2. Data analysis tools and techniques
3. Data representation tools and techniques
4. Decision-making tools and techniques
5. Communication skills tools and techniques
6. Interpersonal and team skills tools and techniques
7. Ungrouped tools and techniques

A technique, according to PMI (2017, p. 724) is a defined systematic procedure employed by a human resource to perform an activity to produce a product or result or deliver a service, and that may employ one or more tools."

Additionally, a tool, according to PMI (2017, p. 725) is something tangible, such as a template or software program, used in performing an activity to produce a product or result.

For the project entitled, "Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex" all knowledge areas will be explored and the relevant subsidiary plans will be developed in accordance with the PMBOK® Guide. Relevant tools and techniques will be utilized for each knowledge area.

2.3 Other applicable theory/concepts related to the project topic and context

While the PM process is of utmost importance to any project undertaken, a review of literature for the tourism sector, marine recreation, habitats, and ecosystems will also add value to the project at hand. This is most relevant as this project proposes to address a problem that is caused by marine recreation via tourism activities. It would be remiss to neglect this topic as its negative impact on the marine ecosystem can be detrimental in the long-term.

2.3.1 Coastal Zone Management Authority and Institute (CZMAI) Belize Integrated Coastal Zone Management Plan

The CZMAI's 'Vision for Our Coast' is defined as "A sustainable future where healthy ecosystems support and are supported by, thriving local communities and a vibrant economy" (Coastal Zone Management Authority & Institute, 2016). The SPTOA works closely with the CZMAI and the project entitled, "Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex" is aligned with the vision outlined in the 2016 Coastal Zone Management Plan.

2.3.2 Marine Recreation Zone

According to CZMAI (2016), the marine recreation zone in Belize includes activities such as diving, jet-skiing, kayaking, snorkeling, swimming, and windsurfing. Ports, water taxi, and shipping lanes are grouped into the marine transportation zone. This project, will make particular references to the marine recreation zone and not particularly the marine transportation zone.

2.3.3 Habitats

Belize's coral reef provides critical ecosystem services to the country; these include providing habitat for commercially valuable fish, opportunities for recreation and tourism, and protection from coastal erosion and hurricanes (CZMAI, 2012). McField et al. (1996); Kramer, et. al. (2000) (as cited in CZMAI, 2016) are of the

view, that prior to 1998, Belize's reef was in relatively "good condition as they were considered some of the healthiest reef in the Caribbean". However, there have been escalating threats that have severely affected the reefs. The 2015 Report Card for the Mesoamerican Reef resulted in 47% of the 94 assessed sites being marked to be in poor condition, while 21% was critical and 28% fair. In fact, only 4% were found to be healthy (Healthy Reefs Initiative, 2015 as cited in CZMAI, 2016). These alarming percentages indicate that the coral reefs are in a crisis and a project such as, "Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex" has the potential to significantly improve the habitats created by the coral reef system.

2.3.4 Tourism

Tourism is the single largest contributor to Belize's economic growth (CZMAI, 2016). The Belize Tourism Board (2017) stated that tourism has developed into one of Belize's main industries and number one foreign exchange earner. The coastal zone is especially attractive because of its natural features such as the barrier reef, atolls, and cayes. The Belize Tourism Board (BTB) records tourism revenues on an annual basis. In 2017, the overnight tourist arrivals totaled 427,076 of which 41.6% visited Ambergris Caye (Belize Tourism Board, 2017). Figure 8 shows that in 2017, 71.1% of visitors participated in snorkeling, 26.2% in island tour, 18.7% in fishing, 11.5% in sailing and 23.6% in canoe/kayaking. The record number of visitors to the island of Ambergris Caye demonstrates the importance of the "Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex" project that seeks to improve business practices and quality of destination.

2017	USA	CANADA	EUROPE	CARIBBEAN	CENTRAL AMERICA	OTHER	TOTAL
Diving	17.6%	25.1%	18.4%	18.2%	6.3%	23.6%	18.6%
Snorkeling	72.1%	65.6%	76.0%	27.3%	37.5%	61.1%	71.1%
Island Tour	25.8%	29.8%	25.9%	63.6%	34.4%	25.2%	26.2%
Caving	33.0%	34.8%	25.7%	27.3%	12.5%	15.6%	30.5%
Birding	8.3%	8.7%	9.1%	18.2%	3.1%	3.2%	8.1%
Gaming	1.2%	0.7%	0.4%	0.0%	3.1%	1.0%	1.0%
Other	11.4%	10.7%	6.3%	27.3%	15.6%	6.4%	10.2%
Fishing	23.1%	14.4%	8.1%	9.1%	6.3%	8.0%	18.7%
Sailing	12.3%	10.0%	10.2%	18.2%	0.0%	9.6%	11.5%
Canoe/Kayaking	26.1%	22.7%	19.5%	27.3%	9.4%	11.5%	23.6%
Jungle trekking	31.5%	32.1%	24.4%	27.3%	9.4%	14.3%	29.0%
Cultural Event	15.0%	16.4%	13.7%	27.3%	15.6%	7.0%	14.4%
None	7.1%	9.7%	6.9%	9.1%	18.8%	18.5%	8.2%
DK/NS	0.2%	1.7%	2.1%	0.0%	6.3%	1.9%	0.8%

Figure 8 Participation in tourism activities by overnight visitors (Source: Belize Tourism Board, 2017)

2.3.5 The Belize Coastal Tourism Project

Diedrich (2006) conducted a study of the environmental, socio-cultural and economic impact of tourism on Belize's coastal communities of Belize City, San Pedro, Caye Caulker, Placencia, Hopkins, and Punta Gorda. A major finding indicated that as tourism developed in these communities, there were associated positive and negative impacts. Belize's future as a tourism destination will depend largely on the measures put in place to conserve the existing resources. A recommendation from the study suggested the development of best practices for hotels and tour operators and the continuation of existing initiatives to improve environmental standards. Marine recreation providers were highlighted as the link between tourists and the fragile coral reef ecosystems. Mitigation of the negative impacts of marine recreation that presently exist will be complemented by the project, "Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex."

2.3.6 Tour Operators in Belize

Statutory Instrument No. 90 of 1999 of the Belize Tourism Board Act, Chapter 23A of the Laws of Belize defines “tour operator” as:

(a) a Belizean citizen, or permanent resident with the business of tour operator defined as his occupation or his permanent residency permit who falls into one of the various categories set out in sub-regulation (2),

or

(b) an entity which is controlled by a majority of Belizeans or permanent residents of Belize, or a company whose majority shareholding is owned by Belizeans citizens or permanent residents, which falls into one of the various categories set out in sub-regulation (2)

Sub regulation (2) reads:

(a) an individual, company or entity that operates and markets tour packages internationally, and also executes complete tour packages of any nature to guests, including transportation within Belize, lodgings, meals, and guided tours to pre-selected tourist sites in Belize by air, sea or land, including guided dive and snorkeling tours to pre-selected tourist sites within the territorial waters of Belize;

(b) an individual, company or entity that executes countrywide tour packages of any nature to guests and offers lodgings, meals and guided tours to pre-selected tourist sites in Belize by air, sea or land;

(c) an individual, company, or entity that executes localized tour packages of any nature to guests and offers lodgings, meals and guided tours to pre-selected tourist sites in Belize by air, sea or land;

(d) an individual, company or entity (including without limitation all types of hotels and tourist accommodation as defined in the Hotels and Tourism Accommodation Act) that is involved in executing ground handling operation tour services, either of a complete nature or a segment thereof, and which

works or represents international interests, or works with international tour individuals, companies or entities in partnership through satellite operations, strategic alliances or otherwise.

3 METHODOLOGICAL FRAMEWORK

This chapter provides information on the research methodology that will be used to develop a comprehensive Project Management Plan for the project entitled "Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex" in San Pedro Town, Belize. The central aim of the project is to create a plan that is reliable, practical and effective based on theory, method, and analysis.

3.1 Information sources

The project has various information needs. The information source is determined by the type of information needed and an understanding of whether it can be acquired internally or externally. Before defining information source, it is essential to understand information and source.

There are many definitions for *information;* however, there is no single one, unanimously accepted. Arora (n.d.) provides a few definitions of information in the context of information sources:

- Information is the act of telling or imparting knowledge
- Information is facts communicated or learned
- Information is interpreting data to make it useful
- Information is knowledge acquired from others

Timely, up-to-date, relevant and quality information is important to any project. Arora (n.d.) defines *source* as a place or person from which you can obtain something useful or valuable. According to Arora, sources indicate the current development in a field, avoid duplication in research, give answers to specific queries, help in understanding unfamiliar terms, provide meaning for terms, and provide a broadened view of a subject.

Information sources can then be defined as "the various means by which information is recorded for use by an individual or organization" (Koren, 2013) or

“anything that might inform a person about something or provide knowledge to somebody (Ashikuzzaman, 2018).

The various types of information sources can be divided into two broad categories, documentary and non-documentary sources. Figure 10 indicates the two types of information sources and the subcategories under each. Each project has various information needs. The information source is determined by the type of information needed and an understanding of whether it can be acquired internally or externally. Before defining information source, it is essential to understand what information and source are.

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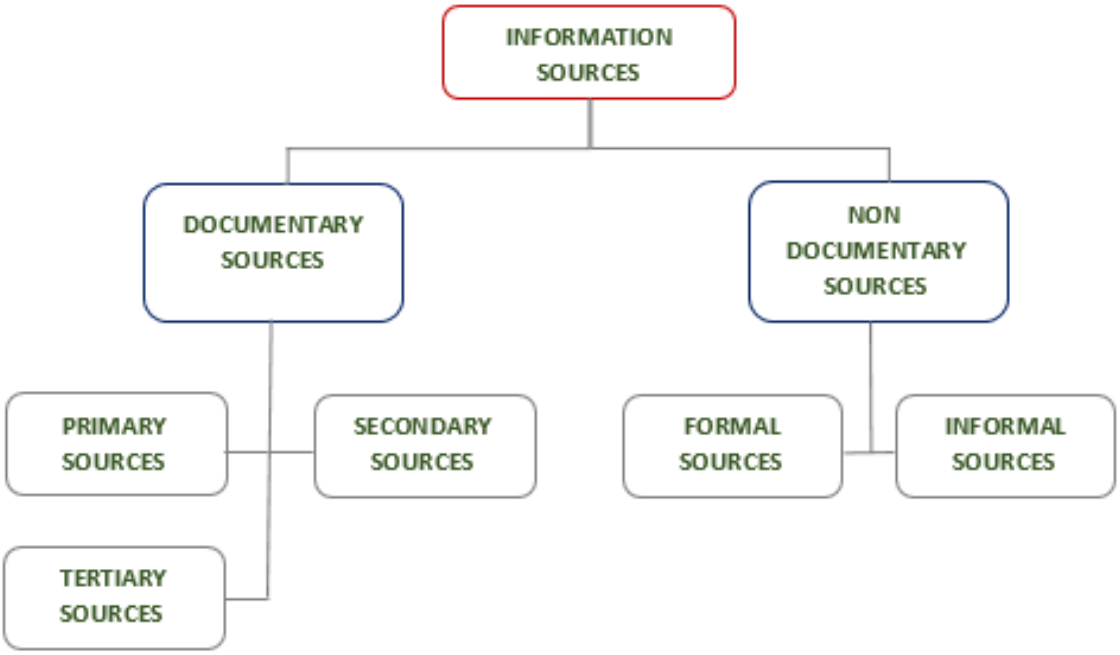


Figure 9 Types of information sources (Source: Ashikuzzaman, 2018)

Documentary sources are generally published or recorded documents of knowledge such as books, periodicals, articles, dictionaries, newspapers, dissertations, guidebooks, etc. (Ashikuzzaman, 2018). Documentary sources can be primary, secondary or tertiary (materials in which the information from secondary sources has been digested, reformatted and condensed to put into a convenient, easy to read form).

Non-documentary sources are those sources and resources of information that are not contained in any document and can include formal and informal sources (Arora, n.d.). Formal sources are those of research organizations, societies, industries, government departments, etc. Informal sources are human sources, conversations with colleagues, experts, mass media, etc.

3.1.1 Primary sources

Primary sources are the first published records of original research or source material closest to the person, information, period or idea being studied (Ashikuzzaman, 2018). McQuade Library (2019) defines primary sources as

"original materials on which other research is based, including original written works and research published in scholarly/academic journals". Primary sources can include diaries, court records, surveys, books, periodicals, conference papers, research reports, government documents, standards, minutes of meetings, interviews, videos, and personal communication.

3.1.2 Secondary sources

Secondary sources of information are "removed" in some way from their original form (Arora, n.d.) or as defined by Ashikuzzaman (2018), sources which are either compiled from or refer to primary sources. McQuade Library (2019) defines secondary sources as "those that describe or analyze primary sources". Some secondary sources include reference materials such as dictionaries, encyclopedias, textbooks, and historical studies, and books and articles that interpret, review or synthesize original research/fieldwork.

For the purpose of this project, documentary and non-documentary sources were used. Documentary sources included primary and secondary sources only. Chart three outlines the primary and secondary sources that were used for each specific objective.

Chart 3 Information sources (Source: compiled by author, M. Chun, June 2019)

Objectives	Information sources	
	Primary	**Secondary**
1. To develop the integration management plan that will unify and coordinate the processes and project management activities.	Personal interviews, emails, telephone conversations, meeting minutes, publications by SPTOA, SPTOA legal documents, COMPACT/GEF/SGP Guidelines & Publications, SPTOA previous projects documents, SPTOA Organizational Process Assets	PMBOK® Guide, Government Reports and Publications, Historical data and information, Previous Research, Periodicals, Bibliographies, Dictionaries,

Objectives	Information sources	
	Primary	**Secondary**
	(OPAs), BTB Act and Regulations, Internal Stakeholder Requirements	Encyclopedia, Handbooks, Manuals, PM textbooks, Website Articles, EEFs
2. To create a scope management plan to define all the project work required to successfully complete the project.	Personal interviews, emails, telephone conversations, meeting minutes, publications by SPTOA, SPTOA legal documents, COMPACT/GEF/SGP Guidelines & Publications, SPTOA previous projects documents, SPTOA OPAs, BTB Act and Regulations, Internal Stakeholder Requirements	PMBOK® Guide, Government Reports and Publications, Historical data and information, Previous Research, Periodicals, Bibliographies, Dictionaries, Encyclopedia, Handbooks, Manuals, PM textbooks, Website Articles, EEFs
3. To create a schedule management plan that will define the approach for creating and monitoring a project schedule that will effectively manage the timely completion of the project.	Personal interviews, emails for historical data on previous projects & lessons learnt, telephone conversations, meeting minutes, SPTOA Calendar of Events, SPTOA strategic plans, Existing contracts between SPTOA and donors, Scope Management Plan, Project Charter, Internal Stakeholder Requirements	PMBOK® Guide, Government Reports and Publications, Historical data and information, Previous Research, Periodicals, Bibliographies, Dictionaries, Encyclopedia, Handbooks, Manuals, PM textbooks, Website Articles, EEFs

Objectives	Information sources	
	Primary	**Secondary**
4. To develop a cost management plan that focuses on the key processes necessary for establishing a project budget and ensuring the project is completed within the approved budget.	Personal interviews, emails, telephone conversations, meeting minutes, SPTOA Financial Reports and historical costs from previous projects, Quotations from suppliers/contractors, COMPACT/GEF/SGP Guidelines & Publications, Risk Register, Scope Management Plan, Project Charter, BTB Financial Reporting Requirements, Internal Stakeholder Requirements	PMBOK® Guide, Government Reports and Publications, Historical data and information, Previous Research, Periodicals, Handbooks, Manuals, PM textbooks, Website Articles, EEFs
5. To develop a quality management plan that defines the project's quality policies, procedures and requirements in order to effectively manage project and product quality from planning to final delivery.	Personal interviews, emails, telephone conversations, meeting minutes, COMPACT/GEF/SGP Guidelines & Publications, SPTOA previous projects documents, SPTOA OPAs, BTB Act and Regulations, BTB Financial Reporting Requirements, SPTOA legal documents, Integrated Coastal Zone Management Plan, Belize Port Authority Guidelines, National Protected Areas System (NPAS) Plan, Hol Chan Marine Reserve Guidelines and Bacalar Chico Reserve Guidelines, Fisheries Act, International Best	PMBOK® Guide, ISO21500, Government Reports and Publications, Historical data and information, Previous Research, Periodicals, Bibliographies, Dictionaries, Encyclopedia, Handbooks, Manuals, PM textbooks, Website Articles, EEFs

Objectives	Information sources	
	Primary	**Secondary**
	Practices for Marine Conservation and Use (World Wildlife Fund [WWF], Oceana etc.), International Conventions, National Emergency Management Organization (NEMO) Disaster Response Plan (NDRP), Internal Stakeholder Requirements	
6. To create a resource management plan to identify, acquire and manage all resources needed in order to successfully complete the project.	Personal Interviews, emails, telephone conversations, meeting minutes, SPTOA previous projects documents, SPTOA OPAs, Scope Management Plan, Project Charter, historical costs and information from previous SPTOA projects, COMPACT/GEF/SGP Guidelines & Publications, BTB Financial Reporting Requirements, Internal Stakeholder Requirements	PMBOK® Guide, Government Reports and Publications, Historical data and information, Previous Research, Periodicals, Bibliographies, Dictionaries, Encyclopedia, Handbooks, Manuals, PM textbooks, Website Articles, EEFs
7. To create a communications management plan that details the communication needs and expectations for the project with timely and effective communication strategies to disseminate	Personal Interviews, emails, telephone conversations, meeting minutes, SPTOA previous projects documents, SPTOA OPAs, Scope Management Plan, Project Charter, BTB Act and Regulations, COMPACT/GEF/SGP Guidelines	PMBOK® Guide, Government Reports and Publications, Historical data and information, Previous Research, Periodicals, Bibliographies, Dictionaries,

Objectives	Information sources	
	Primary	Secondary
key information.	& Publications, BTB Financial Reporting Requirements, Stakeholder Requirements	Encyclopedia, Handbooks, Manuals, PM textbooks, Website Articles, EEFs
8. To develop a risk management plan that outlines the project risk management approach from identifying to categorizing and effectively responding to project risks.	Personal Interviews, emails, telephone conversations, meeting minutes, SPTOA previous projects documents (including historical costs and technical data), SPTOA OPAs and EEFs, Scope Management Plan, Project Charter, COMPACT/GEF/SGP Guidelines & Publications, SPTOA legal documents, BTB Act and Regulations, Stakeholder Assessment, Capacity Assessment, BTB Financial Reporting Requirements, Internal Stakeholder Requirements	PMBOK® Guide, Government Reports and Publications, Historical data and information, Previous Research, Periodicals, Bibliographies, Dictionaries, Encyclopedia, Handbooks, Manuals, PM textbooks, Website Articles
9. To develop a procurement plan that identifies the processes necessary to purchase or acquire goods, services or results needed for the project.	Personal Interviews, emails, telephone conversations, meeting minutes, SPTOA previous projects documents (including historical costs and technical data), SPTOA OPAs and EEFs, Scope Management Plan, Cost Management Plan, Project Charter, COMPACT/GEF/SGP	PMBOK® Guide, Government Reports and Publications, Historical data and information, Previous Research, Market Research Data, Periodicals, Bibliographies,

Objectives	Information sources	
	Primary	**Secondary**
	Guidelines & Publications (procurement guidelines), BTB Act and Regulations, BTB Financial Reporting Requirements, Internal Stakeholder Requirements	Dictionaries, Encyclopedia, Handbooks, Manuals, PM textbooks, Website Articles, Internationally Recommended Procurement Guidelines
10. To create a stakeholder engagement plan that ensures the proper identification and categorization of stakeholders with appropriate engagement strategies throughout the project.	Personal Interviews, emails, telephone conversations, meeting minutes, SPTOA previous projects documents (including historical costs and technical data), SPTOA OPAs and EEFs, Scope Management Plan, Project Charter, COMPACT/GEF/SGP Guidelines & Publications, BTB Act and Regulations, BTB Financial Reporting Requirements, Stakeholder Requirements	PMBOK® Guide, Government Reports and Publications, Historical data and information, Previous Research, Periodicals, Bibliographies, Dictionaries, Encyclopedia, Handbooks, Manuals, PM textbooks, Website Articles

3.2 Research methods

Dudovskiy (2018) explains that research methods is a broad term but data collection and data analysis represent the core. One definition of research methods is “a systematic and scientific procedure of data collection, compilation, analysis, interpretation, and implication pertaining to any business problem” (Dudovskiy, 2018).

The general classification of the types of research methods according to Dudovskiy (2018), is *qualitative* and *quantitative* research but when looking at research methods according to nature of study, the two types of research methods are: *descriptive* and *analytical*. He further affirms that research methods according to the purpose of the study are divided into the categories of *applied research* and *fundamental research* and when looking at research methods according to research design, these are: *exploratory* and *conclusive research*.

3.2.1 Qualitative Research Method

Herbst & Coldwell (as cited in Dudovskiy, 2018) state that "information is considered qualitative in nature if it cannot be analyzed by means of mathematical techniques." The concepts in qualitative research methods are expressed in motives and generalizations with the findings presented in the form of words, images or transcripts.

3.2.2 Quantitative Research Method

Herbst & Coldwell (as cited in Dudovskiy, 2018) states that quantitative research "describes, infers, and resolves problems using numbers. Emphasis is placed on the collection of numerical data, the summary of those data and the drawing of inferences from the data." The concepts in quantitative research methods are expressed in the form of variables and it is a type of empirical investigation where the results are illustrated in the form of tables, graphs, and pie-charts.

3.2.3 Descriptive Research Method

Kumar (as cited in Dudovskiy, 2018) states that descriptive research usually involves surveys and studies to identify the facts and it mainly deals with "description of the state of affairs as it is at present." Yang (n.d.) explains that descriptive research attempts to determine, describe, or identify what *is*.

3.2.4 Analytical Research Method

According to Kumar (as cited in Dudovskiy, 2018), in analytical research “the researcher has to use facts or information already available and analyze these in order to make critical evaluation of the material.” Yang (n.d.) states that analytical research attempts to establish *why* something is that way or how it came to be.

3.2.5 Applied Research Method

Kumar (as cited in Dudovskiy, 2018) states that applied research is sometimes referred to as action research and the method “tries to eliminate a theory by adding to the basics of a discipline.”

3.2.6 Fundamental Research Method

Kumar (as cited in Dudovskiy, 2018) states that fundamental research also called basic or pure research, “aims to solve a problem by adding to the field of application of a discipline.”

3.2.7 Exploratory Research Method

Chawla & Sodhi (as cited in Dudovskiy, 2018) state that exploratory studies only “aim to explore the research area and do not attempt to offer final and conclusive answers to research questions.” The design of exploratory research is loosely structured.

3.2.8 Conclusive Research Method

Chawla & Sodhi (as cited in Dudovskiy, 2018) state that conclusive studies “aim to provide final and conclusive answers to research questions” and is well structured and systematic in design.

For the Final Graduation Project, the general classification for types of research methods and research methods according to the nature of study will be utilized.

These include qualitative research, quantitative research, descriptive research and analytical research methods as demonstrated in Chart 4.

Chart 4 Research methods (Source: compiled by author, M. Chun, June 2019)

Objectives	Research methods			
	Qualitative	**Quantitative**	**Descriptive**	**Analytical**
1. To develop the integration management plan that will unify and coordinate the processes and project management activities.	This method will be used to provide an in-depth and narrative description of project management and project integration through semi-structured interviews, secondary data review, and case studies.		The aspects of description, classification, measurement, and comparison of this method will be used to describe the components of project management and project integration as they exist to develop the project charter and scope management plan.	The facts, information readily available and other literature will be used for analysis and critical evaluation of project management and project integration for the development of the project charter.
2. To create a scope management plan to define all the project work required to successfully	This method will be used to provide an in-depth and narrative description of scope		The aspects of description, classification, measurement, and comparison of this method	The facts, information readily available and other literature will be used for analysis

Objectives	Research methods			
	Qualitative	**Quantitative**	**Descriptive**	**Analytical**
complete the project.	management based on direct and indirect observations, semi-structured interviews with key informants, secondary data review and case studies.		will be used to describe the components of project management and project integration as they exist to develop the project charter and scope management plan.	and critical evaluation of project management and project integration for the development of the project charter.
3. To create a schedule management plan that will define the approach for creating and monitoring a project schedule that will effectively manage the timely completion of the project.	This method will be used to provide an in-depth and narrative description of schedule management based on direct and indirect observations, semi-structured interviews with key informants, secondary data review and case studies.	This systematic investigation method will be used to gather information through earned value analysis, reserve analysis, trend analysis, and reserve analysis.	The aspects of description, classification, measurement, and comparison of this method will be used to describe the components of schedule as they exist to develop the schedule management plan.	The facts, information readily available and other literature will be used for analysis and critical evaluation of schedule management for the development of the schedule management plan.

Objectives	Research methods			
	Qualitative	**Quantitative**	**Descriptive**	**Analytical**
4. To develop a cost management plan that focuses on the key processes necessary for establishing a project budget and ensuring the project is completed within the approved budget.	This method will be used to provide an in-depth and narrative description of cost management based on direct and indirect observations, semi-structured interviews with key informants, secondary data review and case studies.	This systematic investigation method will be used to gather information through non-probability sampling where the researcher's knowledge and experience will be used for cost estimations. Earned value analysis, reserve analysis, and trend analysis will also be used.	The aspects of description, classification, measurement, and comparison of this method will be used to describe the components of cost as they exist to develop the cost management plan.	The facts, information readily available and other literature will be used for analysis and critical evaluation of cost management for the development of the cost management plan.
5. To develop a quality management plan that defines the	This method will be used to provide an in-depth and narrative		The aspects of description, classification, measurement,	The facts, information readily available and other

Objectives	Research methods			
	Qualitative	Quantitative	Descriptive	Analytical
project's quality policies, procedures and requirements in order to effectively manage project and product quality from planning to final delivery.	description of quality management based on direct and indirect observations, semi-structured interviews with key informants, secondary data review and case studies.		and comparison of this method will be used to describe the components of quality as they exist to develop the quality management plan.	literature will be used for analysis and critical evaluation of quality management for the development of the quality management plan.
6. To create a resource management plan to identify, acquire and manage all resources needed in order to successfully complete the project.	This method will be used to provide an in-depth and narrative description of resource management based on direct and indirect observations, semi-structured interviews with key informants, secondary data review and case studies.		The aspects of description, classification, measurement, and comparison of this method will be used to describe the components of resources as they exist to develop the resources management plan.	The facts, information readily available and other literature will be used for analysis and critical evaluation of resource management for the development of the resource management plan.

Objectives	Research methods			
	Qualitative	**Quantitative**	**Descriptive**	**Analytical**
7. To create a communications management plan that details the communication needs and expectations for the project with timely and effective communication strategies to disseminate key information.	This method will be used to provide an in-depth and narrative description of communications management based on direct and indirect observations, semi-structured interviews with key informants, secondary data review and case studies.		The aspects of description, classification, measurement, and comparison of this method will be used to describe the components of communication as they exist to develop the communications management plan.	The facts, information readily available and other literature will be used for analysis and critical evaluation of communication management for the development of the communication management plan.
8. To develop a risk management plan that outlines the project risk management approach from identifying to categorizing and effectively responding to project risks.	This method will be used to provide an in-depth and narrative description of risk management based on direct and indirect observations, semi-structured interviews with key informants, secondary data	This systematic investigation method will be used to gather information through the data analysis technique, SWOT Analysis to evaluate	The aspects of description, classification, measurement, and comparison of this method will be used to describe the components of risk as they exist to develop the risk management	The facts, information readily available and other literature will be used for analysis and critical evaluation of risk management for development of the risk management plan.

Objectives	Research methods			
	Qualitative	**Quantitative**	**Descriptive**	**Analytical**
	review and case studies.	performance and develop effective strategies for improvement.	plan.	
9. To develop a procurement management plan that identifies the processes necessary to purchase or acquire goods, services or results needed for the project.	This method will be used to provide an in-depth and narrative description of procurement management based on direct and indirect observations, semi-structured interviews with key informants, secondary data review and case studies.	This systematic investigation method will be used for market research to collect reliable and accurate data.	The aspects of description, classification, measurement, and comparison of this method will be used to describe the components of procurement as they exist to develop the procurement management plan.	The facts, information readily available and other literature will be used for analysis and critical evaluation of procurement management for the development of the procurement management plan.
10. To create a stakeholder engagement plan that ensures the proper identification and categorization of stakeholders with	This method will be used to provide an in-depth and narrative description of stakeholder management based on direct	This systematic investigation method will be used to gather information through	The aspects of description, classification, measurement, and comparison of this method will be used to describe the	The facts, information readily available and other literature will be used for analysis and critical evaluation of

Objectives	Research methods			
	Qualitative	Quantitative	Descriptive	Analytical
appropriate engagement strategies throughout the project.	and indirect observations, semi-structured interviews with key informants, secondary data review and case studies.	survey research to ask questions to a sample of respondents.	components of stakeholder engagement as they exist to develop the stakeholder engagement plan.	stakeholder management for the development of the stakeholder engagement plan.

3.3 Tools

The PMBOK® Guide offers 132 recommended project management tools and techniques for the application in projects (PMI, 2017, p. 685). There are six (6) major categories of these tools and techniques and one (1) ungrouped category:

1. Data gathering tools and techniques
2. Data analysis tools and techniques
3. Data representation tools and techniques
4. Decision-making tools and techniques
5. Communication skills tools and techniques
6. Interpersonal and team skills tools and techniques
7. Ungrouped tools and techniques

A tool, according to PMI (2017, p. 725) is something tangible, such as a template or software program, used in performing an activity to produce a product or result. A technique, according to PMI (2017, p. 724) is a defined systematic procedure employed by a human resource to perform an activity to produce a product or result or deliver a service, and that may employ one or more tools."

For the project entitled, "Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex" various tools and

techniques will be utilized to meet the project objectives. Chart 5 outlines the tools and techniques that will be used.

Chart 5 Tools and techniques(Source: compiled by author, M. Chun, June 2019)

Objectives	Tools and Techniques
1. To develop the integration management plan that will unify and coordinate the processes and project management activities.	*Data Gathering*: Brainstorming, Checklists, Interviews *Data Analysis*: Alternatives Analysis, Document Analysis *Other Tools & Techniques*: Expert Judgement, Active Listening, Leadership, Meeting Management, Change Control Tools, Meetings, Project Charter template, Project Management Plan template, Project Management Software (Microsoft Office 2016)
2. To create a scope management plan to define all the project work required to successfully complete the project.	*Data Gathering*: Benchmarking, Brainstorming, Interviews *Data Analysis*: Document analysis, Alternatives Analysis *Data Representation*: Mind Mapping, *Interpersonal*: Facilitation, Observation/Conversation *Other Tools & Techniques*: Expert Judgement, Context Diagram, Decomposition, Meetings, Product Analysis, Project Management Software (Microsoft Office 2016), Requirements Traceability Matrix template, Requirements Documentation template, Requirements Management Plan template, Work Breakdown Structure, Scope Management Plan template
3. To create a schedule management plan that will define the approach for creating and monitoring a project schedule that will effectively manage the timely completion of the project.	*Data Analysis*: Alternatives Analysis, Earned Value Analysis, Reserve Analysis, Trend Analysis, Variance Analysis, Performance Reviews *Other Tools & Techniques*: Analogous estimating, Bottom-up estimating, Critical path method, Decomposition, Dependency determination and integration, Expert Judgement, Leads and lags, Meetings, Project Management Software (Microsoft Project 2013, Microsoft

Objectives	Tools and Techniques
	Office 2016), Schedule Management Plan template, Activity List template
4. To develop a cost management plan that focuses on the key processes necessary for establishing a project budget and ensuring the project is completed within the approved budget.	*Data Analysis*: Alternatives Analysis, Cost of Quality, Earned Value Analysis, Trend Analysis, Variance Analysis, Reserve Analysis, *Other Tools & Techniques*: Parametric Estimating, Bottom-up Estimating, Cost Aggregation, Expert Judgement, Funding Limit Reconciliation, Historical Information Review, To-Complete Performance Index, Meetings, Project Management Software (Microsoft Project 2013, Microsoft Office 2016), Cost Management Plan template
5. To develop a quality management plan that defines the project's quality policies, procedures and requirements in order to effectively manage project and product quality from planning to final delivery.	*Data Gathering*: Benchmarking, Brainstorming, Checksheets, Checklists, Interviews *Data Analysis*: Alternatives Analysis, Cost of Quality, Cost-benefit Analysis, Document Analysis, Performance Reviews, Process Analysis, Root Cause Analysis *Data Representation*: Affinity Diagrams, Cause and Effect Diagrams, Flow Charts, Hierarchical Charts, Mind Mapping, *Decision-Making*: Multicriteria Decision Analysis *Other Tools & Techniques*: Audits, Expert Judgement, Inspection, Problem Solving, Project Reporting, Quality Improvement Methods, Test and Inspection Planning, Project Management Software (Microsoft Office 2016), Quality Management Plan template
6. To create a resource management plan to identify, acquire and manage all	*Data Analysis*: Alternatives analysis, Cost-benefit analysis, Performance reviews, Trend analysis *Data Representation*: Hierarchical Charts, Responsibility

Objectives	Tools and Techniques
resources needed in order to successfully complete the project.	Assignment Matrix (including RACI Chart), Text-oriented Formats *Decision-Making*: Multicriteria Decision Analysis *Interpersonal Skills*: Conflict Management, Decision-making, Emotional Intelligence, Influencing, Leadership, Meeting Management, Motivation, Negotiation, Networking, Team Building *Other Tools & Techniques*: Analogous Estimating, Bottom-up Estimating, Colocation, Communication Technology, Expert Judgement, Meetings, Problem Solving, Organizational Theory, Pre-assignment, Problem Solving, Recognition and Rewards, Training, Virtual Teams, Resource Management Plan template, Resource Calendar template, Resource Breakdown Structure
7. To create a communications management plan that details the communication needs and expectations for the project with timely and effective communication strategies to disseminate key information.	*Data Representation*: Stakeholder Engagement Assessment Matrix *Communication Skills*: Communication Competence, Feedback, Communication Tools and Technology (Email, Whatsapp, Telephone Calls), File Sharing Tools (Google Drive, Dropbox), Presentation (Microsoft Office, Canva.com) *Interpersonal*: Active listening, Communication Styles Assessment, Cultural Awareness, Conflict Management, Meeting Management, Networking, Observation/Conversation, Political awareness, *Other Tools & Techniques*: Communication Requirements Analysis, Expert Judgement, Meetings, Communications Management Plan template, Communications Matrix

Objectives	Tools and Techniques
8. To develop a risk management plan that outlines the project risk management approach from identifying to categorizing and effectively responding to project risks.	*Data Gathering*: Brainstorming, Checklists, Interviews *Data Analysis*: Alternatives Analysis, Assessment of Other Risk Parameters, Cost-benefit Analysis, Decision-tree Analysis, Document Analysis, Reserve Analysis, Risk Data Quality Assessment, Risk Probability, and Impact Assessment, Root Cause Analysis, Sensitivity Analysis, Stakeholder Analysis, SWOT Analysis, Technical Performance Analysis *Data Representation*: Flowcharts, Probability and Impact Matrix *Decision-Making*: Multicriteria Decision Analysis *Interpersonal Skills*: Influencing, Facilitation *Other Tools & Techniques*: Analogous Estimating, Contingent Response Strategies, Expert Judgement, Meetings, Project Reporting, Representations of Uncertainty, Risk Categorization, Source Selection Analysis, Strategies for Opportunities, Strategies for Overall Project Risk, Strategies for Threats, Project Management Software (Microsoft Office 2016), Risk Management Plan template, Risk Register template
9. To develop a procurement management plan that identifies the processes necessary to purchase or acquire goods, services or results needed for the project.	*Data Gathering*: Market Research *Data Analysis*: Performance Reviews, Proposal Evaluation, Trend Analysis *Other Tools & Techniques*: Expert Judgement, Meetings, Source Selection Analysis, Project Management Software (Microsoft Office 2016), Procurement Management Plan template
10. To create a stakeholder engagement plan that ensures the proper identification and	*Data Gathering*: Benchmarking, Brainstorming, Questionnaires/Surveys *Data Analysis*: Alternatives Analysis, Assumption and

Objectives	Tools and Techniques
categorization of stakeholders with appropriate engagement strategies throughout the project.	Constraint Analysis, Document Analysis, Root Cause Analysis, Stakeholder Analysis *Data Representation*: Mind Mapping, Prioritization/Ranking, Stakeholder Engagement Assessment Matrix, Stakeholder Mapping/Representation *Decision-Making*: Multicriteria Decision Analysis *Communication Skills*: Communication Competence, Presentations *Interpersonal Skills*: Active Listening, Communication Styles Assessment, Conflict Management, Cultural Awareness, Leadership, Networking, Observation/Conversation, Political Awareness *Other Tools & Techniques*: Expert Judgement, Meetings, Project Management Software (Microsoft Office 2016), Stakeholder Engagement Plan template, Stakeholder Register template, Stakeholder Engagement Assessment Matrix

3.4 Assumptions and constraints

The PMBOK® Guide defines an assumption as “a factor in the planning process that is considered to be true, real, or certain, without proof or demonstration” (Project Management Institute, 2017, p. 699).

A constraint is defined by the PMBOK® Guide as “a limiting factor that affects the execution of a project, program, portfolio, or process” (Project Management Institute, 2017, p. 701).

Managing projects means identifying project requirements, addressing stakeholder needs, managing resources and also balancing competing project constraints (PMI

(2017, p. 542). The PMBOK® Guide highlights six project constraints but notes they are not limited to just scope, schedule, cost, quality, resources, and risk.

For the final graduation project, some basic assumptions are being made based on the 10 knowledge areas and objectives. All six project constraints will be addressed in the FGP as shown in Chart 6.

Chart 6 Assumptions and constraints(Source: compiled by author, M. Chun, June 2019)

Objectives	Assumptions	Constraints
1. To develop the integration management plan that will unify and coordinate the processes and project management activities.	▪ The SPTOA will be the primary source of information for the creation of the project charter. ▪ The SPTOA has all the relevant information and data for the development of the project charter. ▪ The SPTOA will be available for timely meetings and sharing of relevant project information. ▪ The project charter act as a guidance document for implementation of the project by the SPTOA. ▪ The objectives of the project are clear, concise and in line with the SPTOA mandate and COMPACT GEF/SGP	▪ Limited information sources or historical data is available for regulation in business practices for marine recreation providers. ▪ Local regulations must be in line with existing international policies and conventions on marine resources. ▪ No project manager is installed therefore limiting technical support for project charter creation.

Objectives	Assumptions	Constraints
	Guidelines.	
2. To create a scope management plan to define all the project work required to successfully complete the project.	▪ The project charter is signed and approved by the SPTOA. ▪ The SPTOA has adequate knowledge and a clear understanding of its project needs in order for the scope to be defined, developed and verified. ▪ Information sources for development of the scope management plan are adequate and relevant. ▪ Changes to the project scope will be controlled and integrated to prevent scope creep. ▪ All roles and responsibilities for scope management will be clearly defined.	▪ Limited information sources or historical data is available for regulation in business practices for marine recreation providers. ▪ Local regulations must be in line with existing international policies and conventions on marine resources.
3. To create a schedule management plan that will define the approach for creating and monitoring a project schedule that will effectively manage the timely completion of the	▪ The project duration is adequate for the successful completion of all deliverables. ▪ Activities can be carried out simultaneously without impacting the critical path. ▪ Microsoft Project 2013 is an	▪ Project duration is limited to one year.

Objectives	Assumptions	Constraints
project.	adequate tool for the development of the project schedule.	
4. To develop a cost management plan that focuses on the key processes necessary for establishing a project budget and ensuring the project is completed within the approved budget.	▪ Project cost estimation methods are adequate and relevant. ▪ Identified and committed funding by the SPTOA is realistic and available at project initiation.	▪ Project cost budgeting is heavily influenced by the scope definition.
5. To develop a quality management plan that defines the project's quality policies, procedures and requirements in order to effectively manage project and product quality from planning to final delivery.	▪ Existing policies and guidelines of regulatory and international agencies are adequate to meet quality requirements and provide quality metrics.	▪ The SPTOA currently does not have any OPAs for quality requirements and metrics.
6. To create a resource management plan to identify, acquire and manage all resources needed in order to successfully complete the project.	▪ The available budget is appropriate to acquire the resources needed to successfully complete the project. ▪ The resource estimation methods are adequate.	▪ SPTOA currently does not have a dedicated project team.

Objectives	Assumptions	Constraints
7. To create a communications management plan that details the communication needs and expectations for the project with timely and effective communication strategies to disseminate key information.	▪ The selected methods of communication are readily and easily available for a smooth implementation. ▪ All relevant stakeholders have been identified for project communication.	▪ The use of virtual teams and non-immediate communication methods creates communication lags.
8. To develop a risk management plan that outlines the project risk management approach from identifying to categorizing and effectively responding to project risks.	▪ Scope definition and statement of the problem are comprehensive enough to capture all project risks. ▪ Stakeholder identification and analysis are comprehensive enough to identify and respond to project risks. ▪ Risk responses can be properly implemented by the project team.	▪ The capacity of the SPTOA to implement risk responses is limited.
9. To develop a procurement management plan that identifies the processes necessary to purchase or acquire goods, services or results needed for the project.	▪ Donor policy and guidelines and BTB Financial Requirements are properly outlined to provide guidance for procurement procedures of the project. ▪ SPTOA members will develop	▪ No institutional capacity in donor procurement guidelines exists.

Objectives	Assumptions	Constraints
	the adequate capacity to implement donor requirements for procurement.	
10. To create a stakeholder engagement plan that ensures the proper identification and categorization of stakeholders with appropriate engagement strategies throughout the project.	▪ All relevant stakeholders have been identified and adequate analysis has been conducted for stakeholder engagement. ▪ The communication plan for stakeholder engagement adequately identifies the methods, frequency, and type of communication.	▪ The sensitivity of a tourism project in the marine environment increases the stakeholder listing significantly, therefore, requiring more project resources to be allocated for stakeholder engagement.

3.5 Deliverables

A deliverable is defined as “any unique and verifiable product, result, or capability to perform a service that is required to be produced to complete a process, phase, or project” (Project Management Institute, 2017, p. 704).

The deliverables matched to each objective for the project entitled, “Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex” are outlined in Chart 7.

Chart 7 Deliverables(Source: compiled by author, M. Chun, June 2019)

Objectives	Deliverables
1. To develop the integration management plan that will unify and coordinate the processes and project management activities.	▪ Project Charter ▪ Project Management Plan (Change Management Plan and Lessons Learned Register included)
2. To create a scope management plan to define all the project work required to successfully complete the project.	▪ Scope Management Plan (Scope Baseline included) ▪ Requirements Management Plan (Requirements Documentation, and Requirements Traceability Matrix included)
3. To create a schedule management plan that will define the approach for creating and monitoring a project schedule that will effectively manage the timely completion of the project.	▪ Schedule Management Plan (Gantt Chart and Schedule Baseline included)
4. To develop a cost management plan that focuses on the key processes necessary for establishing a project budget and ensuring the project is completed within the approved budget.	▪ Cost Management Plan (Cost Baseline included)
5. To develop a quality management plan that defines the project's quality policies, procedures and requirements in order to effectively manage project and product	▪ Quality Management Plan

Objectives	Deliverables
quality from planning to final delivery.	
6. To create a resource management plan to identify, acquire and manage all resources needed in order to successfully complete the project.	▪ Resource Management Plan (Organizational Structure and Resource Breakdown Structure included)
7. To create a communications management plan that details the communication needs and expectations for the project with timely and effective communication strategies to disseminate key information.	▪ Communications Management Plan (Communications Matrix included)
8. To develop a risk management plan that outlines the project risk management approach from identifying to categorizing and effectively responding to project risks.	▪ Risk Management Plan (Risk Register included)
9. To develop a procurement management plan that identifies the processes necessary to purchase or acquire goods, services or results needed for the project.	▪ Procurement Management Plan (Procurement Strategy included)
10. To create a stakeholder engagement plan that ensures the	▪ Stakeholder Engagement Plan (Stakeholder

Objectives	Deliverables
proper identification and categorization of stakeholders with appropriate engagement strategies throughout the project.	Register included)

4 RESULTS

4.1 Project Integration Management

The Project Management Plan for the project entitled, “Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex” was completed by integrating the activities that identify, define, combine, unify, and coordinate the various processes within the Project Management Process Groups.

Specific objective one addresses the Project Integration Management knowledge area that highlights the development of the **Project Charter** and the **Project Management Plan**. The Integration Management Plan will unify and coordinate project process and activities with the Project Charter formally approving the project, defining key stakeholders and granting the authority to the Project Manager to execute project activities. The Project Charter was developed using a template provided in the University for International Cooperation (UCI) Stakeholder and Scope Management Course.

After the Project Charter was developed, the Change Management Plan and Lessons Learnt Register were also created to guide the develop of the Project Management Plan for the project entitled, “Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex.” The Change Management Plan provides the direction for managing the change control process for the project and documents the roles and responsibilities of the key change control personnel. The Lessons Learned Register assists in the process of project closure where all activities for the project are finalized.

Data was gathered through personal interviews, emails, meeting minutes and Association documents and publications including, the COMPACT/GEF/SGP guidelines. The tools and techniques used to develop the Project Charter, Change Management Plan and Lessons Learned Register were brainstorming, interviews, observation, and expert judgement.

Project Charter

4.1.1 Introduction

The project, “Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex” is a project initiative being undertaken by the San Pedro Tour Operators Association on the island of San Pedro Town, Ambergris Caye, Belize. The project aims to implement tangible community activities that will empower tour operators as active leaders in the community. The project will be focused on institutional strengthening of the SPTOA, destination development, and quality and safety for marine recreation providers and users. Simply put, this project is utilizing an approach that will create long-term value for an organization, the SPTOA, as good intentions are no longer enough. Very notable is the collaboration with key stakeholders such as tour guides and operators, local residents, NGO’s and Government.

4.1.2 Purpose

The purpose of the project is to improve the marine recreation business practices, increase the quality of the destination by equipping tour operators with the right tools to engage in safe and sustainable marine recreation practices, and to build the capacity of the SPTOA and its members through tangible community activities that empower tour operators.

4.1.3 Scope

The proposed project will improve the quality of marine recreation for visitors to the island of San Pedro, Ambergris Caye and enhance accessibility and safety of the marine recreational destinations. The project will include the upgrading of 28 dive and snorkel sites off Ambergris Caye and will include capacity-building opportunities for members of the SPTOA as well as its partners.

The Project Execution Schedule will consist of the following major milestones:

1. SPTOA Functional Matrix Structure Established
2. Terms of Reference for Project Management Team and SPTOA Executive

Established

3. Establishment of Project Team Complete
4. SPTOA Administrative Office Established
5. Formalization of SPTOA By-Laws
6. Institutional training of SPTOA Executive in Project Management and Administration Complete
7. Establishment of Training Plan and Guidelines for Marine Recreation Providers
8. Training Sessions and Workshops in Marine Conservation and Sustainable Business Practices Complete
9. Procurement of Mooring Buoys Complete
10. Mooring Buoys Implementation and Maintenance Plan Established and Disseminated
11. Mooring Buoys Installed
12. Establishment of Coral Restoration and Conservation Plan for dive and snorkel sites
13. Establishment of Regional Emergency Management Plan for Marine Recreation Providers
14. Project Complete

4.1.4 Intended Audience

This initiative has several key stakeholders who will benefit the most from the successful implementation of this project. Among the stakeholders are included tour operators who are the members of the SPTOA, the tourists who visit Ambergris Caye, Belize, local communities of Ambergris Caye and neighboring Caye Caulker Village, organizations such as Belize Tourism Board and Hol Chan Marine Reserve, and the Government of Belize.

4.1.5 Overview

4.1.5.1 Project Title and Description

Project Title: Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex

Project Sponsor: San Pedro Tour Operators Association (SPTOA), COMPACT/Small Grants Programme (SGP)

Project Manager: TBD

Location: San Pedro Town, Belize

Project Duration: 1 year [Jan – Dec 2020]

Budget: 194,000 USD

Project Description: A project designed to strengthen institutional capacity and membership by promoting meaningful involvement in safe and sustainable marine business practices, and destination development on the island of San Pedro Town, Belize.

4.1.5.2 Business Case

The 2030 Agenda for Sustainable Development triggered a plan of action for people, planet and prosperity. Nations around the globe launched local, national and regional initiatives to combat the world's sustainability challenges. Belize, in like manner, continues to support the 2030 Agenda and the Seventeen (17) United Nations Sustainable Development Goals (SDGs) that stimulate action for a better and more sustainable future for all. The SDGs cover global challenges related to poverty, inequality, climate, environmental degradation, prosperity, peace, and justice (United Nations, n.d.).

Similarly, because of Belize's critical dependence on natural resources, there is the need to sustainably manage and utilize these resources. This project initiative is aligned with and will broadly contribute to achieving the following SDGs:

Goal 8. **Decent Work and Economic Growth** – promote sustained, inclusive and economic growth, full and productive

Goal 14. **Life Below Water** – promote conservation and sustainable use of the oceans, seas and marine resources for sustainable development

Goal 17. **Partnership for the Goals** – strengthen the means of implementation and revitalize the global partnership for sustainable development

The Belize Barrier Reef Reserve System is the largest reef in the northern hemisphere that provides a habitat for many threatened species and contributes significantly to Belize's Gross Domestic Product through fisheries and eco-tourism. As a matter of fact, the island communities on Ambergris Caye rely heavily on the reef system as their source of income. The evident boom in tourism in recent years, established the need for controlled environmental business practices and conservation of the marine ecosystem. Undoubtedly, this project will help to promote economic expansion in the tourism industry, especially on the island of San Pedro, Ambergris Caye. This, however, can only be accomplished by creating a new gateway to safe and sustainable marine recreation and revitalized marine resources. This initiative is being spearheaded by the SPTOA and will include the involvement of governmental and non-governmental agencies among others.

The major benefits of the project include:

1. Increased economic activity in San Pedro, Ambergris Caye and contribution to the tourism sector and GDP through enhanced accessibility to marine recreational destinations;
2. Restored habitat for treasured corals that form a part of the Belize Barrier Reef Reserve System;
3. A structured and dedicated approach to marine recreation with clearly established policies and guidelines for marine recreation providers;
4. Increased institutional capacity of the SPTOA in areas of project design, administration and implementation;
5. Trained and reliable marine recreation providers with scalable capacity building opportunities for new and existing members;
6. Regional connectivity and impact by utilizing a seascape approach; and

7. Increased community involvement and integration with other community initiatives.

4.1.5.3 Pre-assigned Resources and Main Requirements

Provisions have been made for some important pre-assigned resources:

a) Access to the dive and snorkel sites outside the Hol Chan Marine Reserve
b) Tax incentives: duty and tax waiver on mooring buoys
c) Dedicated SPTOA funds for the creation of a new project team

Other requirements for the successful completion of the project include:

i. Competent and dedicated Project Manager and Project Team
ii. Availability of adequate technical expertise and equipment
iii. Secured funding: COMPACT/SGP

4.1.5.4 Project Objectives, Deliverables, Risks, Constraints, and Assumptions

4.1.5.4.1 Objectives

I. To establish a functional matrix structure for the governance of the SPTOA and its programs and projects.
II. To increase the capacity and technical abilities of the SPTOA members in the areas of marine conservation and safe and responsible marine business practices
III. To increase institutional capacity for proposal writing to enable the sustainability of conservation programs.
IV. To improve the functionality, accessibility, and safety of 28 identified dive and snorkel sites outside the HCMR.

4.1.5.4.2 Project Deliverables

The expected project deliverables are the following:

D-1: A functional structure for the SPTOA with clearly outlined authority, roles, and responsibilities

D-2: Training policy and training manuals for safe and sustainable marine business practices

D-3: Training sessions for a minimum of 30% of SPTOA members and 10% of partners

D-4: A sustainability action plan and roadmap for funding opportunities in marine conservation

D-5: 28 upgraded dive and snorkel sites off Ambergris Caye, equipped with mooring buoys

D-6: Established regional mooring buoy installation and maintenance plan

D-7 Established regional emergency management policy, plans, and guidelines for marine recreation providers

4.1.5.4.3 Risks, Constraints, Assumptions

Chart 8 Project Risks, Constraints, Assumptions(Source: compiled by author, M. Chun, August 2019)

	Risk Description	Probability (H/M/L)	Impact (H/M/L)
Risks	Non-granting of COMPACT/SGP funds	L	H
	Delay in contracting competent project team	L	H
	User conflict within the 28 identified dive and snorkel sites	M	M
	Untimely communication between government agencies and communication	M	M

	with stakeholders		
	Equipment failure or breakdown	L	H
	Increased cost of mooring buoys outside anticipated costs	L	M
	Natural disasters may occur during the implementation phase and cause delays and or loss of resources	M	H
	Acceptance of regional plans by international partners	L	M
	Acceptance and buy-in to the project by SPTOA members and partners	L	H
Constraints	Funding for the project is based on a co-financing agreement. COMPACT funds are limited to approved sums.		
	Weak project implementation and management capacity of SPTOA executive and members		
	No existing project management unit or team		
	The project focus is limited to 28 dive and snorkel sites outside of the Hol Chan Marine Reserve		
Assumptions	Project purpose and objectives are aligned with COMPACT/SGP initiatives		
	The scope of the project has been properly defined and all change control processes have been established.		
	The SPTOA and the Project Team are fully available for the duration of the project.		

	All project approvals and Government access will be granted for project implementation without delays.
	Counterpart funding from SPTOA is timely and adequate.

4.1.6 Project Stakeholders

Stakeholders are identified based on their direct and indirect interaction (involvement and benefit) with the project as well as their level of influence/power and interests in the project. They are ranked using a 5-tier structure of very low, low, medium, high to very high.

Chart 9 Project Stakeholders(Source: compiled by author, M. Chun, August 2019)

	Stakeholder	Interest in Project	Level of Influence	Level of Interest
1	SPTOA	Sponsoring body that will supply the funds and guidance of the project. Proposals, studies, plans and other operational procedures will be approved by the SPTOA.	Very High	Very High
2	COMPACT/SGP	Sponsoring body that will supply the funds and guidance of the project. Proposals, studies, plans and other operational procedures will be approved by the SPTOA.	Very High	Very High
3	Conservation Membership Program Donors	Partners who dedicate their resources to community programs for the conservation of marine life.	Very Low	High
4	Ministry of Tourism and Civil Aviation	Responsible for oversight on all matters relating to the development of tourism for and on behalf of the Government of Belize	Very High	Medium
5	Hol Chan Marine	Responsible body for the	Medium	High

	Stakeholder	Interest in Project	Level of Influence	Level of Interest
	Reserve	management and monitoring of the HCMR		
6	Belize Tourism Board	Statutory body that holds the function as a strategic partner between the government and the private sector to develop, market and implement tourism programs for local and international tourism	High	High
7	Belize Fisheries Department	Responsible for the management of Belize's aquatic and fisheries resources with a view to optimize the present and future benefits through sustainable management.	Very High	High
8	Ambergris Caye Sportfish Guide Association	Partner agency of the SPTOA; marine recreation providers	Low	High
9	San Pedro Tour Guide Association	Partner agency of the SPTOA; marine recreation providers	Low	Very High
10	Project Manager	Responsible for the overall project administration and delivery	High	Very High
11	Project Team	Responsible for the execution of the project	Medium	Very High
12	Local Residents	Personal responsibility for source of income and livelihood	Medium	Medium
13	Environmental Moorings International	Included as part of the certification process where devices are verified to meet a given level of quality and safety based on agreed standards.	Low	Medium
14	Island Visitors	Tourism and Marine Recreation Users	Low	Low
15	Department of the	Responsible to maintain and update	High	Medium

	Stakeholder	Interest in Project	Level of Influence	Level of Interest
	Environment	national environmental standards and intervene when there is an imminent or actual threat to the environment, including recreational water locations		
16	Belize Port Authority	Regulatory body for mooring and docking of marine vessels	Very High	Medium
17	Local Government (San Pedro Town Council and Caye Caulker Village Council)	Administration and governance of the municipality and village	Low	Medium
18	Belize Tourism Industry Association	Umbrella organization for tourism service providers	Low	Medium

4.1.7 Project Authorization

The Project Charter and all other plans must be approved from the Project Sponsor.

The Change Management Plan

4.1.8 Introduction

During a project, issues may arise that make it necessary to make changes. These changes are addressed through the Integrated Change Control process of the project. The Change Management Plan will cover the topic of change requests and the process of any modification to project documents, deliverables, or baselines.

4.1.8.1 Purpose of the Change Management Plan

The Change Management Plan documents the necessary information required to effectively manage project change from project inception to delivery. The purpose

of this document is to provide the project manager, project team, project sponsor and all relevant stakeholders with the standard process for managing changes on the project, “Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex.”

4.1.9 Scope of Change Management

The scope of the project has been defined in the Project Charter. The work breakdown of the project and timeline are detailed in the Scope Management Plan and Schedule Management Plan, respectively.

The Change Management Process is the mechanism used to initiate, record, assess, approve and resolve project changes. Project changes are needed when it is deemed necessary to change the scope, time or cost of one or more previously approved project deliverables. Most changes will affect the budget and/or schedule of the project. Any stakeholder of the project may submit a change request.

4.1.10 Change management Process

The Change Management process establishes an orderly and effective procedure for tracking the submission, coordination, review, evaluation, categorization, and approval for release of all changes to the project’s baselines.

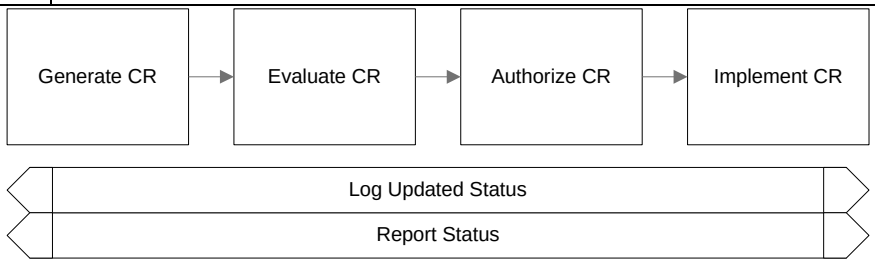
4.1.10.1 Change Request Process Flow Requirements

The Project team will follow the following change request (CR) process outlined below.

Chart 10 Change Request Process (Source: compiled by author, M. Chun, August 2019)

Step	Description
Generate CR	A submitter completes a CR Form and sends the completed form to the Project Manager.
Log CR	The Project Manager enters the CR into the CR Log. The CR’s status is

Step	Description
Status	updated throughout the CR process as needed.
Evaluate CR	▪ The Project Manager review the CR and provide an estimated level of effort to process, and develop a proposed solution for the suggested change. ▪ The Project Manager will make decisions to analyze and decisions to proceed with changes if the changes do not impact scope, budget or schedule or result in an increase in risk for the project. ▪ Changes which do impact scope, budget or schedule will be forwarded to the Project Sponsor for review. Where there are available resources to absorb the impact of the change on the project, the Project Sponsor will make the final decision based upon the information provided by the Project Manager. ▪ In cases where there is not enough resources to cover the impact of the change on the project, The Project Sponsor will seek technical advice outside the project to make a final decision.
Authorize	Approval to move forward with incorporating the suggested change into the project/product by the Project Sponsor.
Implement	If approved, make the necessary adjustments to carry out the requested change and communicate CR status to the submitter and other stakeholders.



4.1.10.2 Change Request Form and Change Management Log

The documentation and tracking of all change requests will be managed using the defined procedure and facilitated by the use of a Change Request Form and Change Management Log. The project team will ensure that the Change Request Form and the Change Management Log, at a minimum, includes the following information:

Chart 11 Change Request Form and Change Management Log Details (Source: compiled by author, M. Chun, August 2019)

Element	Description
Date	The date the CR was created
CR#	Assigned by the Project Manager
Title	A brief description of the change request
Description	Description of the desired change, the impact, or benefits of a change should also be described
Submitter	Name of the person completing the CR Form and who can answer questions regarding the suggested change
Phone	Phone number of the submitter
E-Mail	Email of the submitter
Product	The product that the suggested change is for
Version	The product version that the suggested change is for
Priority	A code that provides a recommended categorization of the urgency of the requested change (High, Medium, Low)

The Change Request Form Template as seen below will be used to submit changes during the life of the project.

Chart 12 Change Request Form Template (Source: compiled by author, M. Chun, August 2019)

Change Request Form

SUBMITTER - GENERAL INFORMATION				
CR#				
Submitter Name				
Brief Description of Request				
Date Submitted				
Date Required				
Priority	☐ Low	☐ Medium	☐ High	☐ Mandatory
Reason for Change				
Other Artifacts Impacted				
Assumptions and Notes				
Attachments or References	☐ Yes	☐ No		
	Link:			

INITIAL ANALYSIS		
Hour Impact		
Duration Impact		
Schedule Impact		
Comments		
Recommendations		

CHANGE CONTROL DECISION				
Decision	☐ Approved	☐ Approved w/Conditions	☐ Rejected	☐ More Info
Decision Date				
Decision Explanation				
Conditions				

4.1.11 Roles and Responsibilities

Chart 13 outlines the responsibilities of persons involved in the change control process for the project.

Chart 13 Change Management Roles and Responsibilities (Source: compiled by author, M. Chun, August 2019)

Role	Responsibilities
Project Manager	▪ Identify and record the change request in Change Management Log. ▪ Validate change request with project team members as appropriate. ▪ Assess and evaluate change for necessity to the project. ▪ Update change request and incorporate into appropriate plans. ▪ Update work plan baseline for agreed changes ▪ Consult with the Project Sponsor on CRs ▪ Close CRs ▪ Communicate decisions on CRs to all stakeholders
Project Sponsor	▪ Make a decision on change requests ▪ Sign off on approved changes
Project Team	▪ Assist Project Manager in recording of CRs and updating appropriate plans in accordance with approved changes

4.1.12 Lessons Learned

Capturing the lessons learned is an integral part of the project. While the Lessons Learned Register is finalized during the project closeout process, capturing lessons learned should occur throughout the project lifecycle to ensure accurate and timely information.

For the project, “Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex,” the Lessons Learned Register

will not only describe what went wrong during a project and suggestions on how to avoid similar occurrences for future project, but it will also document the successes of the project and how similar projects can benefit from this information. The Lessons Learned Register will be communicated to the Project Sponsor to be included as part of the organizational process assets.

The following is the Lessons Learned Register that will be utilized for the project:

Chart 14 Lessons Learned Register (Source: compiled by author, M. Chun, August 2019)

LESSONS LEARNED REGISTER								
Project Name:	Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex							
ID	**Date Identified**	**Entered By**	**Category**	**Subject**	**Problem/Success**	**Impact**	**Recommendations & Comments**	**Follow-up Needed?**

4.2 Project Scope Management

Project Scope Management includes all the work processes required to successfully complete the project. Consequently, managing the project scope is a critical component of the project. The Scope Management Plan was developed with inputs from the Project Charter, the Quality Management Plan and Resource Management Plan. To accurately define scope and gain a full understanding of the project needs and requirements, personal interviews and telephone conversations, were conducted. Additionally, SPTOA reports, publications and COMPACT/SGP guidelines, emails, and meeting minutes were reviewed. Local regulations applicable to marine conservation and recreation were also reviewed to further develop the Scope Management Plan.

The Requirements Management Plan, and more specifically, the Requirements Traceability Matrix, was developed as in important input to the Scope Management Plan. The Requirements Traceability Matrix, is a subsidiary plan that describes how the project and product requirements will be analyzed, documented and managed. This Plan is included as part of the results and attached to the Scope Management Plan.

Tools and techniques utilized for the development of the Scope Management and Requirements Management Plan included brainstorming, checklists, expert judgement, decomposition, observation, and document analysis. The Scope Management Plan is detailed below.

4.2.1 Introduction

Project Scope Management includes all required processes an assurance that the project has taken into consideration all the work required, and has excluded all other work not necessary to complete the project successfully. The Scope Management Plan provides the scope framework for this project. It describes how the project scope will be defined, developed, monitored, controlled, and validated. The main components of the plan for this project include:

- A project scope statement and scope management approach
- The Work Breakdown Structure (WBS)
- The scope baseline that will be approved and maintained
- Verification and control measures
- Scope change control
- Formal acceptance of the completed project deliverables

The Scope Management Plan was developed using the six-step process of Project Scope Management: Plan Scope Management, Collect Requirements, Define Scope, Create WBS, Validate Scope and Control Scope.

4.2.2 Scope Management Approach

The Project Manager will assume overall responsibility for project scope management. Established is a clearly defined scope statement. This scope statement needs to be reviewed with key stakeholders, especially the project sponsor, potential suppliers, and users of the project deliverables. The Work Breakdown Structure (WBS), already developed, must be reviewed with the Project Sponsor to ensure that all the work required to complete the project is included in the WBS. The Project Manager, Project Sponsor, and key stakeholders will then establish and approve documentation for measuring project scope such as deliverable quality checklists and work performance measurements. All requests for changes to project scope that can potentially cause significant changes on project requirements must follow the formal change control procedures outlined in the Change Management Plan. Change requests are to be submitted to the Project Manager who will then evaluate the requested scope change. Upon acceptance of the scope change request the Project Manager will submit the scope change request to the Project Sponsor for acceptance. After approval of scope changes by the Project Sponsor, the Project Manager will update all project documents and communicate the scope change to all stakeholders. For verification of completed project deliverables, the Project Manager will work with the Project Sponsor to develop a process for verifying successful completion of project deliverables. In general, the Project Sponsor is responsible for the acceptance of the final project deliverables and project scope based on feedback and input from the Project Manager and key stakeholders.

4.2.3 Roles and Responsibilities

The individuals listed below will assume the following scope management responsibilities:

Chart 15 Scope Management Roles and Responsibilities (Source: compiled by author, M. Chun, August 2019)

	Role	Responsibilities
1	Project Sponsor: SPTOA & COMPACT/SGP	▪ Approve Scope Management Plan ▪ Approve or deny scope change requests as

	Role	Responsibilities
		appropriate ▪ Evaluate the need for scope change requests ▪ Define acceptance criteria for deliverables ▪ Review and accept project deliverables ▪ Overall decision-making responsibility for scope management activities
2	Project Manager	▪ Overall responsibility for scope management ▪ Measure and verify project scope ▪ Submit deliverables identified in the WBS to the Project Sponsor ▪ Facilitate scope change requests as needed ▪ Facilitate impact assessments of scope change requests ▪ Organize and facilitate scheduled change control meetings ▪ Communicate outcomes of scope change requests and update WBS for the project team ▪ Update project documents upon approval of all scope changes ▪ Communicate issues and weekly progress on the scope of the specific work components and elements identified in the WBS according to the *Communications Management Plan*
3	Technical Lead	▪ Help develop the project scope statement ▪ Measure and verify project scope ▪ Validate scope change requests ▪ Participate in impact assessments of scope change requests ▪ Participate in team-level scope change reviews.
4	Project Officer	▪ Help develop the project scope statement ▪ Participate in defining change resolutions ▪ Participate in team-level scope change

	Role	Responsibilities
		reviews. ▪ Evaluate the need for scope changes and communicate them to the project manager as necessary
5	Administrative Assistant	▪ Participate in team-level scope change reviews. ▪ Evaluate the need for scope changes and communicate them to the project manager as necessary
6	Technical Assistant	▪ Participate in team-level scope change reviews. ▪ Evaluate the need for scope changes and communicate them to the project manager as necessary

4.2.4 Scope Definition

Development of the project began with an examination of the Project Charter, applicable codes, laws, and regulations, as well as stakeholders' requirements.

The complete requirements gathering, and definition process is described in the Requirements Management Plan and all known project requirements are set forth in the Requirements Traceability Matrix.

The project scope baseline is comprised of the Project Scope Statement, the Work Breakdown Structure, and the WBS Dictionary.

4.2.5 Project Scope Statement

The SPTOA, having been an integral part of marine conservation effort in San Pedro, Ambergris Caye, and surrounding marine areas, have recognized the number of critical gaps in the usage, care, understanding, and protection of marine resources. Consequently, the SPTOA has adopted four pillars to its mandate: (1) improve quality of marine recreation providers and safety of marine recreation

users, (2) address stakeholder and community awareness and participation in marine conservation, (3) regional integration of best practices and, (4) emergency response for marine activities.

In order to achieve these pillars, the SPTOA has identified an area of intervention needed internally: capacity building and institutional strengthening of its executive members to write, review and deliver project proposals to the donor agencies that attracts additional funding and overall sustainability of the SPTOA.

The project, “Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex,” includes the establishment of a functional structure for the SPTOA, where administrative and project management responsibilities are clearly outlined, capacity building opportunities for SPTOA members and its partners in safe and sustainable marine business practices, and upgrade of 28 dive and snorkel sites for enhanced accessibility and safety of marine recreational destinations outside the HCMR.

Project Description and How it Meets the Business Need
The project will improve the quality of marine recreation for visitors to the island of Ambergris Caye, enhance accessibility and safety of 28 marine recreational destinations outside the HCMR and will provide scalable capacity building opportunities in safe and sustainable marine practices for SPTOA members and its partners. The project also includes a component of institutional strengthening of the SPTOA Executive in proposal writing, budgeting, reporting and project management.

Project Benefits
The project will provide benefits to tour operators who are members of the SPTOA, SPTOA partners and agencies, island visitors, general residents of San Pedro Town and Caye Caulker, and the overall country of Belize. Project benefits include:
1. Contribution to the achievement of the following SDGs: **Goal 8. Decent Work an Economic Growth**, **Goal 14. Life Below Water** and **Goal 17. Partnership for the Goals.**

2. Increased economic activity in San Pedro, Ambergris Caye and contribution to the tourism sector and GDP through enhanced accessibility to marine recreational destinations.
3. Restored habitat for treasured corals that form a part of the Belize Barrier Reef Reserve System.
4. A structured and dedicated approach to marine recreation with clearly established policies and guidelines for marine recreation providers.
5. Increased institutional capacity of the SPTOA in areas of project design, administration and implementation.
6. Trained and reliable marine recreation providers with scalable capacity building opportunities for new and existing members.
7. Regional connectivity and impact by utilizing a seascape approach.
8. Increased community involvement and integration with other community initiatives.

Project Requirements
1. Dedicated SPTOA funds for the creation of new project team
2. Competent and dedicated Project Manager and Project Team
3. A lawyer with familiarization with national legislations, remaining within cost of $3,400 for by-laws review
4. Consultant with experience in marine conservation and project development, remaining within the cost of $24,500
5. Training Facilitator with expertise in advanced marine conservation, coastal birding, and GPS and navigation, remaining within the cost of $24,000
6. Mooring Buoys and technical equipment (hoses, couplers, hammer, installation tool kit, etc.) with specifications for a tropical marine environment
7. Access to dive and snorkel sites outside the HCMR
8. Boat to access dive and snorkel sites
9. Tax Incentives: duty and tax waiver on mooring buoys
10. Service Provider with expertise in the installation of mooring buoys, remaining within budget of $11,300
11. Consultant with expertise in disaster management and preparedness, and marine operations and safety
12. Secured funding from COMPACT/SGP

Project Deliverables
1. A functional structure for the SPTOA with clearly outlined authority, roles, and responsibilities
2. Training policy and training manuals for safe and sustainable marine business practices
3. Training sessions for a minimum of 30% of SPTOA members and 10% of partners
4. A sustainability action plan and roadmap for funding opportunities in marine conservation
5. 28 upgraded dive and snorkel sites off Ambergris Caye, equipped with mooring buoys
6. Established regional mooring buoy installation and maintenance plan
7. Established regional emergency management policy, plans, and guidelines for marine recreation providers

Project Exclusions
1. Project does not include funding and hiring process for the project team.
2. Project does not include maintenance costs after installation of mooring buoys.
3. Project does not include proposal writing for phase II of this project.
4. Project does not include dive and snorkel sites within the HCMR.

Success / Acceptance Criteria
1. Project must be completed on time, within 1 year.
2. Project must be completed within a budget of $194,000.
3. All project deliverables must be met based on requirements in the Requirements Traceability Matrix.

Project Constraints
1. The project must be completed within one (1) year.
2. The project should not exceed $194,000.
3. Funding for the project is based on a co-financing agreement. COMPACT/SGP funds are limited to approved sums.
4. Weak project implementation and management capacity of SPTOA executive and members.
5. Project team will be newly configured for the first SPTOA-managed project.
6. Project focus is limited to 28 dive and snorkel sites outside of the HCMR.

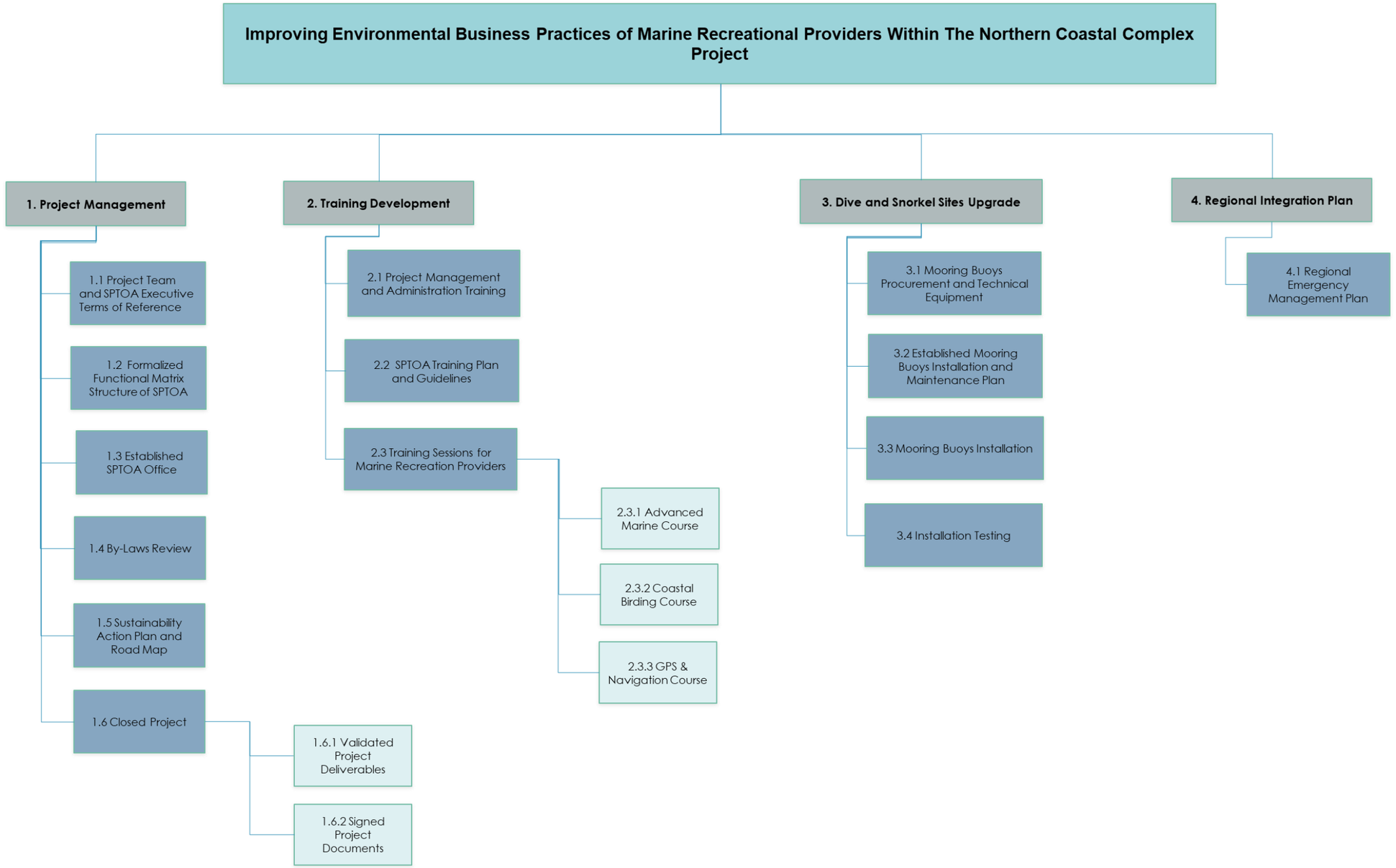
Project Assumptions
1. Project purpose and objectives are aligned with COMPACT/SGP initiatives

2. The scope of the project has been properly defined and all change control processes have been established.
3. The SPTOA and the Project Team are fully available for the duration of the project.
4. All project approvals and Government access will be granted for project implementation without delays.
5. Counterpart funding from SPTOA is timely and adequate.

4.2.6 Work Breakdown Structure

The project's scope is sub-divided into individual work packages in the Work Breakdown Structure. This allows the Project Manager to more effectively manage the project's scope as the project team works on the tasks necessary for project completion. The project is broken down into four components: project management, training development, snorkel, and diving sites upgrade, and regional integration plan. Each of these components is then subdivided further into work packages, which will require no less than 40 hours of work and no more than 48 hours of work per week (see WBS structure below).

Chart 16 Work Breakdown Structure (Source: compiled by author, M. Chun, August 2019)



To better define the work necessary for project completion, the WBS Dictionary was developed. The WBS Dictionary includes a detailed description of work for each element along with the deliverables, budget and resource needed for that element. The WBS Dictionary presents a statement of work for each WBS element.

Chart 17 Work Breakdown Structure (WBS) Dictionary (Source: compiled by author, M. Chun, August 2019)

Level	WBS Code	Element Name	Description of Work	Deliverables	Budget	Resources
1	**1.**	**Project Management**	**Establishment of a functional structure for the governance of the SPTOA and its projects and programs**		**$58,000**	
2	1.1	Project Team and SPTOA Executive Terms of Reference	Establish clearly defined roles and responsibilities for project team members and SPTOA executive members	Terms of reference clearly outlining authority, roles, and responsibilities	$6,200	▪ Dedicated SPTOA funds for the creation of new project team ▪ Lawyer with experience work with projects
2	1.2	Formalized Functional Matrix Structure of SPTOA	Establish a hierarchical structure of the SPTOA and clearly defined reporting lines.	Hierarchical Chart/Organizational Chart	$3,500	▪ Dedicated SPTOA funds for the creation of new project team ▪ Competent and dedicated Project Manager and Project Team ▪ Lawyer with experience work with projects
2	1.3	Established SPTOA Office	Locate a suitable office space to house SPTOA functional team and project team. Purchase office equipment to conduct project work	Office located and functional Procurement of: Personal Computers, Printer, Internet Modem, Desks, Chairs, Microsoft Office	$20,400	▪ Dedicated SPTOA funds for the creation of new project team ▪ Competent and dedicated Project Manager and Project Team
2	1.4	By-Laws Review	Lawyer review of Articles of Association, Memorandum of Association, and By-laws of SPTOA	Revised and Approved AOA, MOA, and By-laws for SPTOA	$3,400	▪ Lawyer with familiarization with national legislations
2	1.5	Sustainability Action Plan and Road Map	Consultant to develop a sustainability action plan and roadmap that adequately identifies key areas of donor funding applicable to the SPTOA area of work	A sustainability action plan and road map for funding opportunities in marine conservation	$24,500	▪ Consultant with experience in marine conservation and project development
	1.6	Closed Project	All deliverables have been met based on requirements.	All project deliverables complete		
3	1.6.1	Validated Project	Verification that all project deliverables meet the	All project deliverables completed	$0	Experience and knowledge

Level	WBS Code	Element Name	Description of Work	Deliverables	Budget	Resources
		Deliverables	acceptance criteria established in the quality management plan	according to criteria		
3	1.6.2	Signed Project Documents	Project deliverables have been finalized and signed by the Project Sponsor	Project deliverables signed off	$0	
1	**2.**	**Training Development**	**Training in Project Management and Administration, Advanced Marine Conservation, Coastal Birding, GPS and Navigation**		**$24,000**	
2	2.1	Project Management and Administration Training	Training to be conducted for SPTOA Executive members in proposal writing, budgets, reporting and project management	Completed training sessions for all SPTOA Executive members	Included in consultant fees for the development of a sustainability action plan and roadmap	▪ Consultant with experience in marine conservation and project development
2	2.2	SPTOA Training Plan and Guidelines	Consultant to develop Training Plan and Guidelines for scalable training opportunities in safe and sustainable marine practices for SPTOA members and partners	SPTOA Training Plan and Guidelines adhering to minimum standards established	Accompaniment to Trainings	▪ Training Facilitator with expertise in advance marine conservation, coastal birding, and GPS and navigation
2	2.3	Training Sessions for Marine Recreation Providers	Training sessions to be completed for SPTOA members and partners	Completed training for SPTOA members and partners		▪ Training Facilitator with expertise in advance marine conservation, coastal birding, and GPS and navigation
3	2.3.1	Advanced Marine Course	Training sessions to be completed for SPTOA members and partners	Completed training for SPTOA members and partners	$8,000	▪ Training Facilitator with expertise in advance marine conservation, coastal birding, and GPS and navigation
3	2.3.2	Coastal Birding Course	Training sessions to be completed for SPTOA members and partners	Completed training for SPTOA members and partners	$8,000	▪ Training Facilitator with expertise in advance marine conservation, coastal birding, and GPS and navigation
3	2.3.3	GPS& Navigation Course	Training sessions to be completed for SPTOA members and partners	Completed training for SPTOA members and partners	$8,000	▪ Training Facilitator with expertise in advance marine conservation, coastal birding, and GPS and navigation
1	**3.**	**Dive and Snorkel Sites**	**Procurement, installation, and testing of**		**$92,000**	

Level	WBS Code	Element Name	Description of Work	Deliverables	Budget	Resources
		Upgrade	**mooring buoys at dive and snorkel sites**			
2	3.1	Mooring Buoys Procurement	Procure mooring buoys, boat and technical equipment based on technical specifications and deployment in a tropical marine environment	Mooring Buoys, boat, and technical equipment (hoses, couplers, hammer, installation tool kit, etc.) procured successfully	$74,000	▪ Tax incentives: duty and tax waiver on mooring buoys
2	3.2	Established Mooring Buoys Installation and Maintenance Plan	Service Provider to establish regional mooring buoy installation and maintenance plan	Mooring buoys installation and maintenance plan that meets national and regional standards	$6,700	▪ Service Provider with expertise in the installation of mooring buoys
2	3.3	Mooring Buoys Installation	Installation of mooring buoys at 28 identified dive and snorkel sites with training provided	Mooring buoys installed at 28 dive and snorkel sites	$6,800	▪ Mooring Buoys and technical equipment (hoses, couplers, hammer, installation tool kit, etc.) with specifications for a tropical marine environment ▪ Access to dive and snorkel sites outside the HCMR ▪ Boat to access dive and snorkel sites
2	3.4	Installation Testing	Perform testing of installed mooring buoys at the 28 dive and snorkel sites	Installation testing completed successfully and ready for use	$4,500	▪ Mooring Buoys and technical equipment (hoses, couplers, hammer, installation tool kit, etc.) with specifications for a tropical marine environment ▪ Access to dive and snorkel sites outside the HCMR ▪ Boat to access dive and snorkel sites
1	**4.**	**Regional Integration Plan**	**Develop Regional Emergency Management Policy, Plans and Guidelines**		**$20,000**	
2	4.1	Regional Emergency Management Plan	Consultant to develop regional emergency management policy, plans and guidelines for marine recreation providers	Regional emergency management policy, plans, and guidelines for marine recreation providers	$20,000	▪ Consultant with expertise in disaster management and preparedness, and marine operations and safety

4.2.7 Scope Verification

The project's deliverables will be accepted through the project's formal acceptance processes. These processes are designed to ensure that individual deliverables and products are approved only if they meet their respective acceptance criteria. The Project Sponsor formally accepts and signs off on project deliverables throughout the implementation of the project.

As this project progresses the Project Manager will verify interim project deliverables against the original scope as defined in the scope statement, WBS and WBS Dictionary. Once the Project Manager verifies that the scope meets the requirements defined in the project plan, the Project Manager and Sponsor will meet for formal acceptance of the deliverable. At this meeting, the Project Manager will present the deliverables as well as validation that the deliverables are accurate, and that the project's scope has been accomplished. This will be confirmed by the signing of a project Deliverable Acceptance Document (DAD). The project team will use a Deliverable Verification Matrix (DVM) to track this process as deliverables are met. Below is a template to be used:

Chart 18 Delivery Verification Matrix Template (Source: compiled by author, M. Chun, August 2019)

Project:	**Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex**					
WBS Level	**WBS ID**	**WBS Element Name**	**Planned Deliverable**	**Deliverable Submitted**	**Variance**	**Comments**

4.2.8 Scope Control

The process of scope control involves monitoring scope elements and drivers over the course of the project for possible changes that can impact the approved project scope baselines. The Project Manager and Technical Lead are responsible for monitoring and addressing any unplanned impacts to scope and must resolve scope change issues before they become critical.

Proposed changes to project scope may be initiated by the Project Sponsor, the Project Manager, team members or other stakeholders through the change control process outlined in the Change Management Plan. All change requests must be submitted to the Project Manager. The Project Manager then reviews the suggested change/s to the scope of the project. The Project Manager can either deny the change request if it does not apply to the intent of the project or convenes a change control meeting between the project team and Project Sponsor. At this meeting, the suggested change request is further reviewed, and an impact assessment of the change performed. If the change request receives approval, the Project Sponsor then formally accepts the change by signing the project change control document. Upon acceptance of the scope change, the Project Manager will update all project documents and communicate the scope change to all project team members and stakeholders.

Requirements Management Plan

4.2.9 Introduction

The purpose of the Requirements Management Plan for the project, “Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex,” is to establish a common understanding of how requirements will be identified, analyzed, documented, and managed for the project. The inputs for the requirements management plan include the Project Charter and Stakeholder Register.

4.2.10 Requirements Management Approach

The approach for requirements management for the project will be broken down into four areas: requirements identification, requirements analysis, requirements documentation, and ongoing requirements management.

Requirements Identification: To collect requirements, various methods are used which include: interviews, focus groups, facilitated workshops, group creativity techniques, questionnaires and surveys, and observation. These will be conducted among the project stakeholders to ensure all requirements are captured.

Requirements Analysis: Requirements will be analyzed to determine if they fit into project or product categories. Additionally, this analysis will determine where in the WBS the requirements fit or what work activities correspond to requirements. Accountability and priority for each requirement will also be determined as part of the analysis. Finally, metrics and the acceptance criteria must be determined for all requirements in order to provide a baseline for understanding when a requirement has been fulfilled to an acceptable level.

Requirements Documentation: Once requirements have been identified and analyzed, they will be documented and assigned to accountable personnel. These requirements will be added to the project plan and the project team will determine what methodology the accountable personnel will use to track and report on the status of each requirement. All requirements will also be added to the project requirements checklist which must be completed before formal project closure is accepted by the project sponsor.

Ongoing Requirements Management: Throughout the project lifecycle, the project manager will ensure all team members are reporting requirement status and raising any issues or concerns with their assigned requirements as appropriate. As the project matures, there may be situations may arise in which requirements necessitate modification. The project team must follow the

established change control process as outlined in the Change Management Plan in order to propose any adjustments to requirements and receive approval from the Project Sponsor. Ongoing requirements management also includes receiving approval of all requirements by all vested parties as part of project closure.

4.2.11 Configuration Management

Every identified project requirement is set forth in a designated register. This is called the Requirements Register. Only the approved requirements will be carried forward for project work. The approved requirements are listed in the Requirements Traceability Matrix.

Change Control: All proposed changes in project requirements must be carefully considered before approval and implementation. All changes will in some way impact the project scope, time, and/or cost; some more significantly than others. All proposed changes to project requirements will be reviewed by the Project Sponsor. The role of the Project Sponsor is to determine the impact of the proposed change on the project, seek clarification on the proposed change, and ensure that approved changes are added to the Requirements Traceability Matrix. The Project Sponsor is responsible for approving all changes in project scope, time, or cost and plays an integral role in the change review and approval process.

4.2.12 Requirements Prioritization Process

The Project Manager will facilitate stakeholder meetings in order to establish priorities for all project requirements. This project uses a three-level scale in order to prioritize requirements. The chart below illustrates these levels and defines how requirements will be grouped:

Chart 19 Requirements Prioritization (Source: compiled by author, M. Chun, August 2019)

Priority Level	Definition
High	These requirements are mission-critical. They are required for project/product success or for progression to next project phase

Priority Level	Definition
Medium	These requirements support product/process operations but can be completed until the next deliverable is due
Low	These requirements are quality and/or functional enhancements and are not desirable if time and resources permit

As the project moves forward and constraints identified, it may be necessary for the project team and stakeholders to meet to determine what requirements must be achieved, which can be re-baselined, or which can be omitted. These determinations will be made in a collaborative effort based on the priorities of the requirements and which level they are assigned in accordance with the chart above. As changes in requirements are made, all project documentation must be updated in the Requirements Traceability Matrix and communicated to all project stakeholders.

4.2.13 Product Metrics

Product metrics for the project will be based on cost, quality, and performance requirements. In order to achieve project success, the deliverables must meet or exceed all established metrics.

Cost

- Mooring buoys procured remain within budget of $44,000 for installation at the 28 dive and snorkels sites.
- Technical equipment must remain within budget of $24,000
- Hired consultants for the project remain within budgeted costs:
  - Lawyer $13,100
  - Sustainability Action Plan Consultant $24,500
  - Mooring Buoys Trainer $11,300
  - Training Facilitator for Safe and Sustainable Business Practices $24,000
  - Emergency Management Consultant $20,000

Quality

- The functional matrix structure established must include revised Articles of Association, Memorandum of Association and By-laws that provide governance of the SPTOA administrative responsibilities as well the management of SPTOA programs and projects.
- There must be established Terms of Reference that clearly define the roles and responsibilities for the SPTOA Executive as well as the Project Team and establish hierarchical structure with reporting lines.
- Training policy and training manuals must adhere at a minimum, to the Belize Standard (BZ CP 5:2016) – Code of Practice for Recreational Scuba Diving Services (Declaration of Compulsory Standard) and the Voluntary Standards for Marine Recreation in the Mesoamerican Reef System.
- The formats and templates of the Sustainability Action Plan and Roadmap are aligned with the donor agencies' policies for funding opportunities.
- The Sustainability Action Plan and Roadmap adequately identifies the key areas of donor funding applicable to the SPTOA areas of work.
- Mooring buoys meet or exceed safety tests after installation at dive and snorkel sites.
- Specifications for mooring buoys are for deployment in a tropical marine environment such as Belize.
- Regional mooring buoy installation and maintenance plan must adhere to national standards such as the Belize Bureau of Standards and gain acceptance from comparable marine conservation agencies in the region.
- Regional Emergency Management Policy, Plans, and Guidelines must adhere to national standards such as those set by the Belize Tourism Board and National Emergency Management Organization (NEMO).

Performance

- At least 30% of SPTOA members and 10% of partners should be trained in safe and sustainable marine business practices.
- All SPTOA Executive Members trained in proposal writing, budgets, reporting and project management.

4.2.14 Requirements Traceability Matrix

Further below is the requirements traceability matrix for the project, “Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex”. The purpose of the requirements traceability matrix is to ascertain that all product requirements are completed in accordance with the project charter. This matrix provides a thread from all product requirements through planning, testing, and user acceptance. All approved changes in project scope or requirements will be modified in the traceability matrix. Based on impacts of the approved changes, the Project Manager is responsible for documenting the necessary changes to the matrix and communicating it to all project stakeholders.

Chart 20 Requirements Traceability Matrix (Source: compiled by author, M. Chun, August 2019)

REQUIREMENTS TRACEABILITY MATRIX									
Project Name:	Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex								
Project Description:	Project will result in strengthened institutional capacity of the SPTOA, enhanced accessibility and safety of marine recreational destinations, improved quality of marine recreation providers and safety of destination users								
ID	***WBS ID***	***Requirement Description***	***Business Needs, Opportunities, Goals, Objectives***	***Project Objective***	***Project Deliverables***	***Product Design/Development Requirement***	***Priority***	***Verification***	***Status***
001	1.1	Established Terms of Reference that define roles and responsibilities for the SPTOA Executive as well as the Project Team.	Increased institutional capacity of the SPTOA in areas of project design, administration and implementation	I. To establish a functional matrix structure for the governance of the SPTOA and its programs and projects	D-1. A functional structure for the SPTOA with clearly outlined authority, roles, and responsibilities	- Dedicated SPTOA funds for creation of new project team - Lawyer with experience work with projects - - Remain within cost of $6,200	High	Clearly defined roles and responsibilities in Terms of Reference	
002	1.2	Formalized functional matrix structure must include a hierarchical structure of the SPTOA and clearly defined reporting lines.	Increased institutional capacity of the SPTOA in areas of project design, administration and implementation	I. To establish a functional matrix structure for the governance of the SPTOA and its programs and projects	D-1. A functional structure for the SPTOA with clearly outlined authority, roles, and responsibilities	- Dedicated SPTOA funds for creation of new project team - Competent and dedicated Project Manager and Project Team - Lawyer with experience work with projects - Remain within cost of $3,500	High	Hierarchical Chart/Organizational Chart	
003	1.3	Established Office Space is adequate to house SPTOA Functional Team and Project Team and administrative support is provided	Secured office space and materials to conduct project work	I. To establish a functional matrix structure for the governance of the SPTOA and its programs and projects	D-1. A functional structure for the SPTOA with clearly outlined authority, roles, and responsibilities	- Dedicated SPTOA funds for creation of new project team - Competent and dedicated Project Manager and Project Team	Medium High	Office Space and Office Equipment	
004	1.4	The functional matrix structure established must include the include revised Articles of Association, Memorandum of Association and By-laws that provide governance of the SPTOA administrative responsibilities as well the management of SPTOA programs and projects.	Increased institutional capacity of the SPTOA in areas of project design, administration and implementation	I. To establish a functional matrix structure for the governance of the SPTOA and its programs and projects	D-1. A functional structure for the SPTOA with clearly outlined authority, roles, and responsibilities	- Lawyer with familiarization with national legislations - Remain within cost of $3,400	High	Revised AOA, MOA and By-Laws	
005	1.5	Sustainability Action Plan and Roadmap adequately identifies key areas of donor funding applicable to the SPTOA areas of work	A structured and dedicated approach to marine conservation and recreation and restored habitat for treasured corals that form a part of the Belize Barrier Reef Reserve System	III. To increase institutional capacity for proposal writing to enable sustainability of conservation programs.	D-4. A sustainability action plan and roadmap for funding opportunities in marine conservation with formats and templates aligned with the donor agencies' policies.	- Consultant with experience in marine conservation and project development - Remain within cost of $24,500	High	Formats and templates of Sustainability Action Plan and Roadmap are aligned with donor agencies policies for funding opportunities	

REQUIREMENTS TRACEABILITY MATRIX									
Project Name:		Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex							
Project Description:		Project will result in strengthened institutional capacity of the SPTOA, enhanced accessibility and safety of marine recreational destinations, improved quality of marine recreation providers and safety of destination users							
ID	***WBS ID***	***Requirement Description***	***Business Needs, Opportunities, Goals, Objectives***	***Project Objective***	***Project Deliverables***	***Product Design/Development Requirement***	***Priority***	***Verification***	***Status***
006	1.6	Closed Project successfully completed on time (1 year), within budget ($194,000) and with all deliverables met based on requirements in the Requirements Traceability Matrix.	Contribution to 3 SDGs: Goal 8. Decent Work and Economic Growth, Goal 14: Life Below Water, Goal 17: Partnership for the Goals	I. To establish a functional matrix structure for the governance of the SPTOA and its programs and projects. II. To increase the capacity and technical abilities of the SPTOA members in the areas of marine conservation and safe and responsible marine business practices. III. To increase institutional capacity for proposal writing to enable sustainability of conservation programs. IV. To improve the functionality, accessibility, and safety of 28 identified dive and snorkel sites outside the HCMR.	All Deliverables D-1 to D-7		High	Completed and accepted deliverables by Project Sponsor based on acceptance criteria in the Quality Management Plan	
007	2.1	Trained SPTOA Executive Members in proposal writing, budgets, reporting and project management	Increased institutional capacity of the SPTOA in areas of project design, administration and implementation	III. To increase institutional capacity for proposal writing to enable sustainability of conservation programs.	D-4. A sustainability action plan and roadmap for funding opportunities in marine conservation with formats and templates aligned with the donor agencies' policies.	- Consultant with experience in marine conservation and project development	High	Trained SPTOA Executive with completed consultant evaluation forms	
008	2.2	SPTOA Training Plan and Guidelines adhere at a minimum, to the Belize Standard (BZ CP 5:2016) - Code of Practice for Recreational Scuba Diving Services (Declaration of Compulsory Standard) and the Voluntary Standards for Marine Recreation in the Mesoamerican Reef System	Trained and reliable marine recreation providers with scalable capacity building opportunities for new and existing members	II. To increase capacity and technical abilities of the SPTOA members in the areas of marine conservation and safe and responsible marine business practices	D-3 Training sessions for a minimum of 30% of SPTOA members and 10% of partners	- Training Facilitator with expertise in advance marine conservation, coastal birding, and GPS and navigation - Must remain within cost of $24,000	High	Manuals cover safe and sustainable marine recreation practices as outlined in Belize Standard (BZ CP 5:2016) - Code of Practice for Recreational Scuba Diving Services (Declaration of Compulsory Standard) and the Voluntary Standards for Marine Recreation in the Mesoamerican Reef System	

REQUIREMENTS TRACEABILITY MATRIX									
Project Name:		Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex							
Project Description:		Project will result in strengthened institutional capacity of the SPTOA, enhanced accessibility and safety of marine recreational destinations, improved quality of marine recreation providers and safety of destination users							
ID	***WBS ID***	***Requirement Description***	***Business Needs, Opportunities, Goals, Objectives***	***Project Objective***	***Project Deliverables***	***Product Design/Development Requirement***	***Priority***	***Verification***	***Status***
	2.3	At least 30% of SPTOA members and 10% of partners should be trained in advanced marine conservation, coastal birding, and GPS and Navigation	Trained and reliable marine recreation providers with scalable capacity building opportunities for new and existing members	II. To increase capacity and technical abilities of the SPTOA members in the areas of marine conservation and safe and responsible marine business practices	D-3 Training sessions for a minimum of 30% of SPTOA members and 10% of partners	- Training Facilitator with expertise in advance marine conservation, coastal birding, and GPS and navigation - Must remain within cost of $24,000	High	Sign Up Sheets and Evaluation Forms from At least 30% of SPTOA members and 10% of attended trainings in safe and sustainable marine business practices	
009	3.1	Procurement of Mooring Buoys is within budget of $44,000 (additionally boat and technical equipment $24,000) and specifications of mooring buoys are adequate for deployment in a tropical marine environment such as Belize	Restored habitat for treasured corals that form a part of the Belize Barrier Reef Reserve System, Increased economic activity on Ambergris Caye and contribution to the tourism sector and GDP through enhanced accessibility to marine recreational destinations	IV. To improve the functionality, accessibility, and safety of 28 identified dive and snorkel sites outside the HCMR	D-5. 28 upgraded dive and snorkel sites off Ambergris Caye, equipped with mooring buoys	- Tax Incentives: duty and tax waiver on mooring buoys	High	Mooring Buoys, boat, and technical equipment meet or exceed specifications for deployment in a tropical marine environment	
010	3.2	Regional mooring buoy installation and maintenance plan must adhere to national standards such as from the Belize Bureau of Standards and gain acceptance from comparable marine conservation agencies in the region	Regional connectivity and impact by utilizing a seascape approach, Restored habitat for treasured corals that form a part of the Belize Barrier Reef Reserve System, Increased economic activity on Ambergris Caye and contribution to the tourism sector and GDP through enhanced accessibility to marine recreational destinations	IV. To improve the functionality, accessibility, and safety of 28 identified dive and snorkel sites outside the HCMR	D-6. Established regional mooring buoy installation and maintenance plan	- Service Provider with expertise in the installation of mooring buoys- Must remain within budget of $11,300	High	Adherence to national standards such as from the Belize Bureau of Standards and gain acceptance from comparable marine conservation agencies in the region	

REQUIREMENTS TRACEABILITY MATRIX									
Project Name:		Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex							
Project Description:		Project will result in strengthened institutional capacity of the SPTOA, enhanced accessibility and safety of marine recreational destinations, improved quality of marine recreation providers and safety of destination users							
ID	***WBS ID***	***Requirement Description***	***Business Needs, Opportunities, Goals, Objectives***	***Project Objective***	***Project Deliverables***	***Product Design/Development Requirement***	***Priority***	***Verification***	***Status***
011	3.3	Mooring buoys successfully installed at 28 identified at 28 dive and snorkel sites	Restored habitat for treasured corals that form a part of the Belize Barrier Reef Reserve System, Increased economic activity on Ambergris Caye and contribution to the tourism sector and GDP through enhanced accessibility to marine recreational destinations	IV. To improve the functionality, accessibility, and safety of 28 identified dive and snorkel sites outside the HCMR	D-5. 28 upgraded dive and snorkel sites off Ambergris Caye, equipped with mooring buoys with training provided for personnel	- Mooring Buoys and technical equipment (hoses, couplers, hammer, installation tool kit, etc.) with specifications for a tropical marine environment - Access to dive and snorkel sites outside the HCMR - Boat to access dive and snorkel sites	High	Physical verification of mooring buoys successfully installed at 28 identified at 28 dive and snorkel sites Trained personnel	
012	3.4	Mooring buoys installed at 28 identified at 28 dive and snorkel sites meet or exceed safety tests conducted and ready for use	Restored habitat for treasured corals that form a part of the Belize Barrier Reef Reserve System, Increased economic activity on Ambergris Caye and contribution to the tourism sector and GDP through enhanced accessibility to marine recreational destinations	IV. To improve the functionality, accessibility, and safety of 28 identified dive and snorkel sites outside the HCMR	D-5. 28 upgraded dive and snorkel sites off Ambergris Caye, equipped with mooring buoys	- Access to dive and snorkel sites outside the HCMR - Boat to access dive and snorkel sites - Service Provider with expertise in the installation of mooring buoys	High	Results of safety test show high rating	
013	4.1	Regional Emergency Management Policy, Plans, and Guidelines must adhere to national standards such as those set by the Belize Tourism Board and National Emergency Management Organization (NEMO)	Regional connectivity and impact by utilizing a seascape approach, Restored habitat for treasured corals that form a part of the Belize Barrier Reef Reserve System, Increased economic activity on Ambergris Caye and contribution to the tourism sector and GDP through enhanced accessibility to marine recreational destinations, Increased community involvement and integration with other community initiatives	IV. To improve the functionality, accessibility, and safety of 28 identified dive and snorkel sites outside the HCMR	D-7. Established regional emergency management policy, plans, and guidelines for marine recreation providers	- Consultant with expertise in disaster management and preparedness, and marine operations and safety	High	Adhere to national standards such as those set by the Belize Tourism Board and National Emergency Management Organization (NEMO)	

4.3 Project Schedule Management

The Project Schedule Management Plan established the criteria and activities for developing, monitoring and controlling the schedule for the project, “Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex.” The plan addresses roles and responsibilities, schedule development, level of accuracy and unit of measure, schedule monitoring, control thresholds, and schedule change management. Key inputs for development of the Schedule Management Plan were the Project Charter, Scope Management Plan and the subsidiary plan, Requirements Management Plan. Information was gathered from personal interviews, emails, telephone conversations, meetings and publications and reports from the SPTOA. The following factors were considered in developing the plan: analogous estimating, expert judgement, the critical path method, and decomposition. Additionally, Microsoft Project 2013 was a critical component in developing the Project Schedule, and the Activity List and Duration Estimates.

Schedule Management Plan

4.3.1 Introduction

This document describes the Project Schedule Management Plan for the project, “Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex.” The purpose of the plan is to establish the criteria and the activities for developing, monitoring, and controlling the project schedule throughout the project’s life cycle. The roles and responsibilities of project participants will be provided and the monitoring and control of any proposed scheduled changes will be addressed.

4.3.2 High-Level Workflows and Activities

This section identifies the list of Schedule Management processes, activities, and tasks that will be defined and implemented to establish and manage the project

schedule. The identified Schedule Management processes include, but are not limited to:

- **Plan Schedule Management** – Process of establishing the policies, procedures, and documentation for planning, developing, managing, executing, and controlling the project schedule.
- **Develop Project Schedule** – An integrated process consisting of defining activities, sequences, estimating and analyzing activity durations, required resources, and schedule constraints to complete the project deliverables.
- **Monitor and Control Schedule** – The process of monitoring and reporting on the progress of project activities as well as managing progress and changes to the schedule baseline to achieve project objectives. If necessary, based on factors such as project size and complexity, the process may be broken down into sub-processes such as:
    - **Schedule Activity and Progress Updates** – The process of establishing how and at what intervals project activity and progress updates will be collected during the project.
    - **Schedule Monitoring** – The process of establishing how schedule progress updates are compared to the schedule baseline.
    - **Schedule Control** – The process of establishing the control tools and techniques for how the schedule will be managed and how changes will be addressed.
    - **Schedule Reporting** – The process of defining what schedule reporting metrics and reports are necessary for the project, at what intervals reporting should occur, and to what audiences.

4.3.3 Roles & Responsibilities

The roles and responsibilities of stakeholders involved in the various activities of the Schedule Management processes are as follows:

Chart 21 Project Schedule Management Roles and Responsibilities (Source: compiled by author, M. Chun, August 2019)

Role	Responsibility
Project Sponsor	• Approve the Project Schedule Management Plan • Reviews and approves final schedule baseline and schedule progress reports. • Approves any significant changes to the schedule through the schedule change control process.
Project Manager	• Ultimately responsible for the schedule and to complete the project according to the schedule. • Leads the team in the development of the Schedule Management Plan and the Project Schedule. • Leads the project team in Schedule Management related activities. • Reviews, evaluates and provides feedback on schedule progress reports and time-risk recommendations from the Technical Lead. • Reports schedule deviations and, if necessary, provides the Project Sponsor with options for getting the project schedule back on track and under control. • Provides regular status information in meetings with the Project Sponsor.
Administrative Assistant	• Reports the time estimates for the Administrative Assistant and Technical Assistant to the Project Manager and Project Sponsor Representative (Board Chairman). • Notifies the Project Manager and Technical Lead of workload changes that may affect the schedule. • Works with the Project Manager and Technical

Role	Responsibility
	Lead on resource schedule-related items for risks, issues, and possible changes.
Technical Lead	• Assists in the development of the Schedule Management Plan. • Responsible for the daily schedule-related analysis and update activities. • Leads the schedule management activities, communicates schedule status, maintains the project schedule and provides updates. • Makes schedule risk, issue and change recommendations to the Project Manager. • Is considered the subject matter expert for the Schedule Management processes.
Project Officer	• Notifies the Project Manager and Project Scheduler about possible schedule risks and issues. • Assists with schedule estimating activities. • Provides accurate time estimates for project work packages. • Provides accurate progress reporting during the project.

4.3.4 Schedule Management Process

The schedule for the project will be based on the Project Charter, Resource Requirements, WBS, and WBS Dictionary for the project as outlined in the Scope Management Plan. The WBS breaks down the project work into manageable work packages. Resources, time required to complete the task, and task dependencies are considered in determining accurate task definition, sequencing, and estimating of all work detailed in the WBS. The project schedule is a result of all required project work in the correct sequence while accounting for all task dependencies and required resources as defined in the WBS Dictionary.

Once developed the Project Sponsor will review the schedule, communicate any necessary modifications to the Project Manager, and approve the schedule once all required changes have been made.

4.3.4.1 Schedule Development

The Project Schedule was created as a Gantt Chart in Microsoft Project 2013 (MS Project 2013). Task durations associated with each task were first identified. Next, a dependency analysis was conducted to determine the order in which the work should occur. Tasks, their associated activities, and durations were then entered to MS Project 2013 with both predecessor and successor tasks assigned at the activity level. Task sizing was done within the project's established work package limits for both effort and duration. Named resources were assigned to each task. Ultimately, the completed project schedule will require approval and then baselined.

A Project Calendar (Chart 22) with base assumptions were used to accurately produce the Activity List and Duration Estimates (Chart 23) presented below.

Chart 22 Project Calendar (Source: compiled by author, M. Chun, August 2019)

PROJECT CALENDAR		
Project Start: **Thur, 2 Jan 20**	Work Week: 40 hours	
Project Finish: **Thurs, 31 Dec 20**	Monday - Friday	
Work Days per month: 20	Date Format: DD/MM/YY	
Hours per day: 9	Work Hours: 8:00am-12:00pm 1:00pm - 5:00pm	
Lunch Time: 1 hour per day	Non-working days for project duration: 12 days	
Non-Working Times and Holiday		
Description	**Day**	**Date**
New Year's Day	Wednesday	1-Jan-20
National Heroes and Benefactors Day	Monday	9-Mar-20
Good Friday	Friday	10-Apr-20
Holy Saturday	Saturday	11-Apr-20
Easter Sunday	Monday	13-Apr-20
Labour Day	Friday	1-May-20
Sovereign's Day (in lieu of Sunday, May 24th)	Monday	25-May-20
St. George's Caye Day	Thursday	10-Sep-20
Independence Day	Monday	21-Sep-20
Pan American Day	Monday	12-Oct-20
Garifuna Settlement Day	Thursday	19-Nov-20
Christmas Day	Friday	25-Dec-20
Boxing Day (in lieu of Saturday, Dec 26th)	Monday	28-Dec-20

Chart 23 Activity List and Duration Estimates (Source: compiled by author, M. Chun, August 2019)

ID	Task Name	Duration	Milestone	Start	Finish	Predecessors	Resource Names
1	**Improving Environmental Business Practices Project**	**251 days**	**No**	**Thu Jan 2, '20**	**Thu Dec 31, '20**		
2	Project Start	0 days	Yes	Thu Jan 2, '20	Thu Jan 2, '20		Project Manager,Project Sponsor
3	**1. Project Management Work Completed**	**238 days**	**Yes**	**Thu Jan 2, '20**	**Thu Dec 10, '20**	**2**	
4	1.1.1 Hire Lawyer for By-Laws Review and Formalization of SPTOA Structure	13 days	No	Wed Jan 15, '20	Fri Jan 31, '20	2	Project Sponsor
5	1.1 Develop Project Team and SPTOA Terms of Reference	20 days	No	Mon Feb 3, '20	Fri Feb 28, '20	4	Lawyer,Project Sponsor
6	1.2 Formalize Functional Matrix Structure of SPTOA	20 days	No	Mon Mar 2, '20	Mon Mar 30, '20	4	Lawyer,Project Manager,Project Sponsor
7	1.3 Establish SPTOA Office	22 days	No	Thu Jan 2, '20	Fri Jan 31, '20	2	Administrative Assistant,Project Manager,Project Sponsor
8	1.4 Conduct By-Laws Review	20 days	No	Mon Mar 30, '20	Tue Apr 28, '20	4	Lawyer
9	1.5.1 Hire Consultant for Sustainability Action Plan and Roa	53 days	No	Wed Jan 15, '20	Mon Mar 30, '20	2	Project Manager,Project Sponsor,F
10	1.5 Develop Sustainability Action Plan and Road Map	176 days	No	Tue Mar 31, '20	Thu Dec 10, '20	9	Sustainability Action Plan Consulta
11	**2. Training Development Performed**	**173 days**	**Yes**	**Mon Apr 6, '20**	**Fri Dec 11, '20**		
12	2.1 Conduct Project Management and Administration Training	5 days	No	Mon Apr 6, '20	Tue Apr 14, '20	2	Sustainability Action Plan Consultant
13	2.2.1 Hire Training Facilitator for Trainings in Marine Conservation	57 days	No	Tue Apr 14, '20	Fri Jul 3, '20	2	Project Manager,Project Sponsor,Project Team
14	2.2 Develop SPTOA Training Plan and Guidelines	66 days	No	Mon Jul 6, '20	Wed Oct 7, '20	13	Training Facilitator in Marine Conservation
15	2.3.1 Conduct training session in Advanced Marine Course	5 days	No	Mon Oct 19, '20	Fri Oct 23, '20	13	Project Officer,Technical Assistant,Technical Lead,Training Facilitator in Marine Conservation
16	2.3.2 Conduct training session in Coastal Birding	5 days	No	Mon Nov 16, '20	Fri Nov 20, '20	13	Project Officer,Technical Assistant,Technical Lead,Training Facilitator in Marine Conservation
17	2.3.3 Conduct training session in GPS and Navigation	5 days	No	Mon Dec 7, '20	Fri Dec 11, '20	13	Project Officer,Technical Assistant,Technical Lead,Training Facilitator in Marine Conservation

18	**3. Dive and Snorkel Sites Upgraded**	**84 days**	**Yes**	**Mon May 4, '20**	**Fri Aug 28, '20**		
19	3.1 Procure Mooring Buoys and Technical Equipment	42 days	No	Mon May 4, '20	Wed Jul 1, '20	2	Administrative Assistant,Project Manager,Project Officer,Project Sponsor,Technical Lead
20	3.2 Establish Mooring Buoys Installation and Maintenance Plan	40 days	No	Mon Jul 6, '20	Fri Aug 28, '20	19	Mooring Buoy Product/Service Provider
21	3.3 Install Mooring Buoys	40 days	No	Mon Jul 6, '20	Fri Aug 28, '20	19	Mooring Buoy Product/Service Provider,Project Manager,Technical Assistant,Technical Lead
22	3.4 Perform testing of Mooring Buoys Installed	40 days	No	Mon Jul 6, '20	Fri Aug 28, '20	19	Mooring Buoy Product/Service Provider,Project Manager,Technical Assistant,Technical Lead
23	**4. Regional Integration Plan Developed**	**166 days**	**Yes**	**Tue Apr 14, '20**	**Tue Dec 8, '20**		
24	4.1.1 Hire Consultant for development of Regional Emergency Management Plan	57 days	No	Tue Apr 14, '20	Fri Jul 3, '20	2	Project Manager,Project Sponsor,Project Team
25	4.1 Develop Regional Emergency Management Plan	109 days	No	Mon Jul 6, '20	Tue Dec 8, '20	24	Emergency Management Consultant
26	1.6.1 Validate Project Deliverables	8 days	No	Mon Dec 14, '20	Wed Dec 23, '20	3	Project Manager,Project Sponsor
27	1.6.2 Sign off and add project documents to repository	3 days	No	Tue Dec 29, '20	Thu Dec 31, '20		Project Manager,Project Sponsor
28	1.6 Project Closed	1 day	Yes	Thu Dec 31, '20	Thu Dec 31, '20		Project Manager,Project Sponsor

4.3.4.2 Units of Measure and Level of Accuracy

There are four types of dependencies (logical relationships) used to create links between scheduled tasks. The Finish to Start dependency was more commonly used for scheduling the project.

- **Finish-to-Start (FS):** The initiation of the successor activity depends upon the completion of the predecessor activity.
- **Finish-to-Finish (FF):** The completion of the successor activity depends upon the completion of the predecessor activity.
- **Start-to-Finish (SF):** The completion of the successor activity depends upon the initiation of the predecessor activity.
- **Start-to-Start (SS):** The initiation of the successor activity depends upon the initiation of the predecessor activity.

Tasks are linked together and sequenced to identify the relationships between deliverables, sub-deliverables, activities, tasks, and subtasks. The following rules were applied when creating task dependencies:

a. All tasks should also have at least one successor and one predecessor so there are no unlinked tasks.
b. Start and Finish dates should not be entered when creating new tasks.
c. For purposes of modeling the critical path, all dependencies should be linked to a detailed task or deliverable and not to a summary task.
d. Early dates (the earliest date on which a task can start or finish) are calculated in the forward pass of time analysis.
e. Late dates (the latest date on which a task can start or finish) are calculated using backward pass time analysis.
f. Constraints will be applied sparingly (only when required) in order to maintain a flexible, realistic schedule.

The project estimates for task duration were prepared using analogous estimating and expert judgement. Analogous estimating offers less risk than expert

judgement, however when data from past projects was unavailable, the estimates were done using expert judgement.

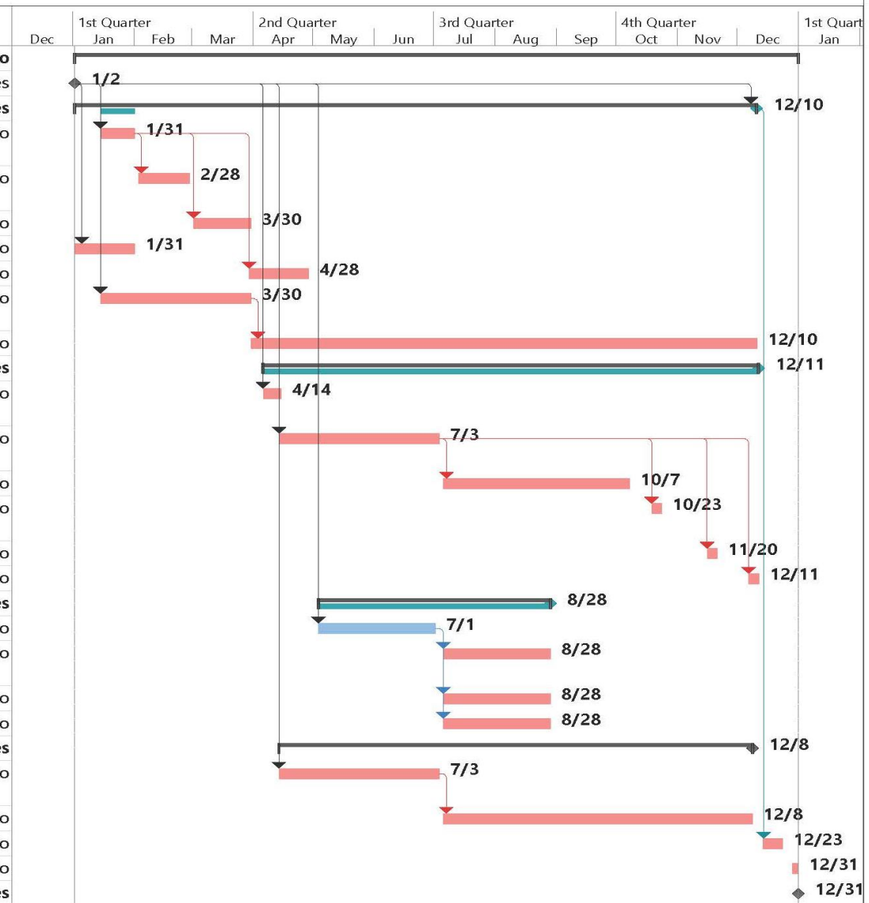
Human resource measurements are hours, days, weeks, and months. No other fractions or portions of identified measures are used for the project. For measuring the project resource's activity durations, the level of accuracy for the project is considered plus or minus 10%.

4.3.5 Project Schedule

Chart 24 Project Schedule (Gantt chart) (Source: compiled by author, M. Chun, August 2019)

"IMPROVING ENVIRONMENTAL BUSINESS PRACTICES OF MARINE RECREATIONAL PROVIDERS WITHIN THE NORTHERN COASTAL COMPLEX"
PROJECT SCHEDULE

ID	Task Name	Duration	Start	Finish	Predecessors	Milestone
1	**Improving Environmental Business Practices Project**	**251 days**	**Thu Jan 2, '20**	**Thu Dec 31, '20**		**No**
2	Project Start	0 days	Thu Jan 2, '20	Thu Jan 2, '20		Yes
3	**1. Project Management Work Completed**	**238 days**	**Thu Jan 2, '20**	**Thu Dec 10, '20**	**2**	**Yes**
4	1.1.1 Hire Lawyer for By-Laws Review and Formalization of SPTOA Structure	13 days	Wed Jan 15, '20	Fri Jan 31, '20	2	No
5	1.1 Develop Project Team and SPTOA Terms of Reference	20 days	Mon Feb 3, '20	Fri Feb 28, '20	4	No
6	1.2 Formalize Functional Matrix Structure of SPTOA	20 days	Mon Mar 2, '20	Mon Mar 30, '20	4	No
7	1.3 Establish SPTOA Office	22 days	Thu Jan 2, '20	Fri Jan 31, '20	2	No
8	1.4 Conduct By-Laws Review	20 days	Mon Mar 30, '20	Tue Apr 28, '20	4	No
9	1.5.1 Hire Consultant for Sustainability Action Plan and Road Map	53 days	Wed Jan 15, '20	Mon Mar 30, '20	2	No
10	1.5 Develop Sustainability Action Plan and Road Map	176 days	Tue Mar 31, '20	Thu Dec 10, '20	9	No
11	**2. Training Development Performed**	**173 days**	**Mon Apr 6, '20**	**Fri Dec 11, '20**		**Yes**
12	2.1 Conduct Project Management and Administration Training	5 days	Mon Apr 6, '20	Tue Apr 14, '20	2	No
13	2.2.1 Hire Training Facilitator for Trainings in Marine Conservation	57 days	Tue Apr 14, '20	Fri Jul 3, '20	2	No
14	2.2 Develop SPTOA Training Plan and Guidelines	66 days	Mon Jul 6, '20	Wed Oct 7, '20	13	No
15	2.3.1 Conduct training session in Advanced Marine Course	5 days	Mon Oct 19, '20	Fri Oct 23, '20	13	No
16	2.3.2 Conduct training session in Coastal Birding	5 days	Mon Nov 16, '20	Fri Nov 20, '20	13	No
17	2.3.3 Conduct training session in GPS and Navigation	5 days	Mon Dec 7, '20	Fri Dec 11, '20	13	No
18	**3. Dive and Snorkel Sites Upgraded**	**84 days**	**Mon May 4, '20**	**Fri Aug 28, '20**		**Yes**
19	3.1 Procure Mooring Buoys and Technical Equipment	42 days	Mon May 4, '20	Wed Jul 1, '20	2	No
20	3.2 Establish Mooring Buoys Installation and Maintenance Plan	40 days	Mon Jul 6, '20	Fri Aug 28, '20	19	No
21	3.3 Install Mooring Buoys	40 days	Mon Jul 6, '20	Fri Aug 28, '20	19	No
22	3.4 Perform testing of Mooring Buoys Installed	40 days	Mon Jul 6, '20	Fri Aug 28, '20	19	No
23	**4. Regional Integration Plan Developed**	**166 days**	**Tue Apr 14, '20**	**Tue Dec 8, '20**		**Yes**
24	4.1.1 Hire Consultant for development of Regional Emergency Management Plan	57 days	Tue Apr 14, '20	Fri Jul 3, '20	2	No
25	4.1 Develop Regional Emergency Management Plan	109 days	Mon Jul 6, '20	Tue Dec 8, '20	24	No
26	1.6.1 Validate Project Deliverables	8 days	Mon Dec 14, '20	Wed Dec 23, '20	3	No
27	1.6.2 Sign off and add project documents to repository	3 days	Tue Dec 29, '20	Thu Dec 31, '20		No
28	1.6 Project Closed	1 day	Thu Dec 31, '20	Thu Dec 31, '20		**Yes**



Date: September 2019

Task	Inactive Task	Manual Summary Rollup	External Milestone	Manual Progress
Split	Inactive Milestone	Manual Summary	Deadline	
Milestone	Inactive Summary	Start-only	Critical	
Summary	Manual Task	Finish-only	Critical Split	
Project Summary	Duration-only	External Tasks	Progress	

Author: Melissa Chun

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4.3.6 Schedule Monitoring and Control

4.3.6.1 Schedule Monitoring

Project team members will report their work time and progress weekly on a percent-complete status of deliverables and tasks. The Project Manager and Technical Lead will review the project status and report progress at weekly at team meetings.

Project team members will also report task progress on a monthly basis to the Project Manager. The Technical Lead will update the project schedule with monthly actuals of team member effort and inform the Project Manager of the overall condition of the project schedule in terms of variance from plan. The Technical Lead will report on positive or negative trends regarding schedule performance using the Project Master Schedule (Gantt Chart), Monthly Project Report and Sponsor Monthly Project Report.

4.3.6.2 Project Schedule Metrics

Earned Value Management (EVM) is often used for measuring and monitoring schedule however, a more simplified approach will be used for this project due to the project size and limited complexity. The following basic measurements will be used to track and report performance:

- Schedule Variance (SV) by activity
- Planned vs. Actual Task Completions using Schedule Performance Index (SPI)
- Estimate to Complete (ETC)
- Critical Path Analysis
- New tasks added (or deleted) since the last reporting period

In addition, the project will track two additional data points in order to improve estimation accuracy. The following are the additional data points:

- **Percentage of Tasks on Time** – Measures the percentage of tasks that finish on or ahead of their planned finish date.
- **Percentage of Tasks on Budget (Effort)** – Measures the percentage of tasks that are completed within their allocated time budget.

4.3.6.3 Schedule Control

Schedule control begins when the project schedule is first baselined. This baseline reaffirms the project's scope and sets the expectation of how and when the scope materializes. All proposed changes to scope will drive a schedule change management process. A change occurs only if there is a change in requirements.

Schedule control addresses anticipating or correcting schedule variance. To do this, control tools and techniques are used to detect and forecast serious deviations from the baseline. Some control techniques reveal the status of the schedule and others suggest corrective action to bring the project back on schedule.

Below is a list of schedule control techniques that will be used in the project, "Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex."

Chart 25 Schedule Control Techniques (Source: compiled by author, M. Chun, August 2019)

Technique	Definition
Performance Reviews	Performance reviews measure, compare, and analyze schedule performance, such as actual start and finish dates, percent complete, and remaining duration for the work in progress.
Critical Path Method	Critical Path is used to predict project duration by analyzing the sequence of activities (network path) that has the least amount of scheduling flexibility. Earlier dates are calculated by a forward

Technique	Definition
	pass using a specified start date. Later dates are calculated by a backward pass starting from a specified completion date. The critical path will be reviewed: • Monthly • When a new baseline is required • When entering a new project phase • When mitigating schedule-related risks • As needed to ensure the critical path is maintained
Variance Analysis	Variance Analysis is used to determine the causes of a variance, such as the difference between an expected result and an actual result.
Adjust Leads and Lags	**Lead** -- A modification of a logical relationship that allows an acceleration of the successor activity. For example, when a task has a finish-to-start dependency with a 10-day lead, the successor activity can start as much as 10 days before the predecessor activity has finished. **Lag** -- A modification of a logical relationship that directs a delay in the successor activity. For example, when a task has a finish-to-start dependency with a 10-day lag, the successor activity can't start until 10 days after the predecessor activity has finished. Adjusting leads and lags are used to find ways to bring lagging project activities into alignment with the plan.

4.3.6.4 Control Thresholds

In order to measure project schedule performance, the schedule variance threshold will be used for the project. The following metrics will be compiled and reported by the Project Manager:

- Schedule Variance (SV) will be reported monthly and is the project's Planned Value (PV) subtracted from Earned Value (EV).

- Schedule Performance Index (SPI) will be reported monthly and is the project's EV/PV.

The project schedule baseline will form an essential part of this EVM process. If the SPI has a variance between 0.9 and 1.0 or above 1.2, the Project Manager must report the reason for the exception. If the SPI has a value less than 0.9, the Project Manager must report the reason for the exception and provide management with a detailed corrective plan to bring the project's performance back to acceptable levels within five working days from when the cost variance is first reported.

Chart 26 Schedule Variance Threshold (Source: compiled by author, M. Chun, August 2019)

Performance Measure	Green	Yellow	Red
Schedule Performance Index (SPI)	≥ 1.0	between 0.9 and 1.0	< 0.9

4.3.6.5 Schedule Change Management

Project Schedule Changes can include scope changes and baseline changes. Scope changes are any additions, modifications or deletions to project deliverables. Baseline changes can be client-driven or regulatory-driven and it can come from internal or external sources.

If the Project Manager determines that a change exceeds the established thresholds or boundaries, a change request is to be submitted to the Project Sponsor.

A change request is necessary if either of the following two conditions is true:

- The proposed change is estimated to increase or reduce the work package duration by 10% or more when compared against the baseline.
- The proposed change is estimated to increase or reduce the overall project duration by 10% or more when compared against the baseline.

Once the schedule change request is reviewed and approved, the Project Manager and Technical Lead record the change request result, store the documents in the project repository, modify the schedule according to the approved change, and communicate the change and impacts to the project team and stakeholders.

If the project team feels a schedule re-baseline is necessary, a separate change request is submitted for consideration and approval.

4.4 Project Cost Management

The Cost Management Plan was prepared with inputs from the Project Charter, the Scope Management Plan, and Schedule Management Plan. Information sources for the Cost Management Plan were personal interviews, emails, telephone conversations and SPTOA reports and publications. To complete the Cost Management Plan analogous estimating and expert judgement were utilized. Compilation of data was done using Microsoft Office Word and Excel. The Cost Management Plan for the project is presented below.

4.4.1 Introduction

4.4.1.1 Purpose

This cost management plan provides an outline of project estimation, allocation, and control of costs for the required resources to complete all project activities. The project's cost plan will serve as a safety net to keep project costs within the limits of the budget. The cost management plan analyzes how the project costs will be planned, funded and controlled. The aim of this plan is to define the necessary budget to execute the project and to monitor and control the project costs to match the approved budget. There are several cost components associated with this project as well as many metrics, cost variance considerations, and reporting which this plan will outline. To complete this project successfully, all key project members and stakeholders must adhere to and work within this cost management plan and the overall project plan it supports.

4.4.1.2 Scope

The cost management plan for the project, “Improving Environmental Business Practice of Marine Recreation Providers Within The Northern Coastal Complex” includes many internal and external cost components. All metrics and variance analysis must be applied to these cost components throughout the project lifecycle. These components include:

Internal

- Establishment of functional structure
- Project Management
- Capital equipment

External

- Implementation activities

This cost management plan does not include any monthly recurring costs (MRC) which will be required upon the completion of the project and does not include cost for the hiring of a new project team.

4.4.2 Cost Management Roles and Responsibilities

This section provides the roles and responsibilities of the various stakeholders as it relates to project cost management.

Chart 27 Project Cost Management Roles and Responsibilities (Source: compiled by author, M. Chun, August 2019)

	Role	Responsibilities
1	SPTOA & COMPACT/SGP	▪ The sponsoring body that is the supplier of funds and the main customer. ▪ The SPTOA and COMPACT/SGP will be responsible for reviewing and approving the project’s cost management plan and approving the project’s budget. ▪ Additionally, the SPTOA and COMPACT/SGP is the approving authority for any additional funding that may be required.

	Role	Responsibilities
2	Project Manager	▪ Responsible for the overall project administration and delivery. ▪ Responsible for the WBS which covers all the work to be performed. ▪ The Project Manager is authorized to execute the expenditure of project funds as is necessary in accordance with the cost management plan and allocated budget. No additional funds may be expended without prior approval from the Project Sponsor. ▪ Responsible for establishing metrics and variance analysis tools in order to provide status updates once a month to the Project Sponsors.
3	Project Team	▪ Responsible for the execution of assigned work in accordance with the cost management plan. ▪ Assist the Project Manager in the implementation of metrics and variance analysis tools to meet project deliverables within the allocated budget constraints.
4	Equipment Supplier	▪ Provide the necessary equipment for project implementation at an agreed cost.
5	Training Consultants	▪ Provide related support to the project at an agreed cost.

4.4.3 Cost Management Approach

The cost management processes have been incorporated into the cost management approach developed for the project, “Improving Environmental Business Practices of Marine Recreation Providers Within the Northern Coastal Complex.” The Cost Accounts will be created at the second level of the WBS, by the creation of Control Accounts at this level for cost tracking. A Project Management Information System (PMIS) is most recommended; however, given the constraints of the SPTOA these costs can still be managed effectively without the use if a PMIS.

Project financial cost performance will be measured and controlled using Earned Value Management.

4.4.3.1 Cost Planning and Estimating

Cost planning of the cost management plan was prepared based on the needs of the project. The project resources and requirements were finalized through the cost estimating process. These cost estimations included labor, equipment, facilities, services, and contingency costs. As demonstrated in the project budget, estimating was done at the activity level. The estimating process is important because it forms the project cost baseline and ultimately the project budget. The WBS element costs were totaled and this formed the request for funding for the project. The cost baseline will be used to further measure and monitor cost performance of the project making it a part of cost control. The project cost baseline may only be changed with the authorization by the Project Sponsor.

A 10% Contingency Reserve has been allocated for the project and will be the sole responsibility of the SPTOA, the co-sponsors of the project. COMPACT/SGP funding remains fixed to the approved sum. No Management Reserve has been established for the project. Cost estimates were done using expert judgement, analogous, and historical estimating. The summary of the Activity Cost Estimates is as follows:

Chart 28 Activity Cost Estimates (Source: compiled by author, M. Chun, August 2019)

Total Cost Estimate	**$194,000.00**
Contingency Reserve (10%)	$19,400.00
Cost Baseline	$213,400.00
Management Reserve (0%)	0
Total Project Budget	**$213,400.00**

4.4.3.2 Project Budget and Cost Baseline

The project budget is the combined costs of project activities or project work packages. The key benefit of this process is that it determines the cost baseline to be used for monitoring and controlling project performance. In cost control, the project budget is to be used for comparing budgeted costs versus actual costs. The process of developing the project budget is done once or at predefined points in the project.

Some of the information that is key in developing project budgets are:

1. Activity Cost Estimates
2. Basis of Estimates
3. Scope Baseline
4. Project Schedule
5. Contracts

The project budget once approved establishes the total cost of the project thus allowing stakeholders to understand how much money will be needed and its timeline. When the approved budget is signed, the Project Manager will review the cost allocation against the approved budget and adjust allocations, if required, to reflect the approved funding for the project. The cost allocations are then baselined after obtaining approval from the Project Sponsor.

The budget for the project, “Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex” is detailed below. Several estimating techniques such as expert judgement, parametric, analogous and historical estimation techniques can be used to determine a project budget. Similarly, for this project the total costs were aggregated by use of the analogous estimating and expert judgement. The total cost of the project is detailed in Chart 29.

Chart 29 Project Budget (Source: compiled by author, M. Chun, August 2019)

WBS ID	ID	Task Name	Unit of Measurement	Quantity	Unit Cost (USD)	Subtotal (USD)	Total (USD)	Contingency Reserve (USD)	Cost Baseline (USD)
	2	Project Start							
1.	3	Project Management Work Completed							
1.1.1	4	Hire Lawyer for By-Laws Review and Formalization of SPTOA Structure							
1.1	5	Develop Project Team and SPTOA Terms of Reference	days	13	$477	$6,200.00	$6,200.00	$620.00	$6,820.00
1.2	6	Formalize Functional Matrix Structure of SPTOA	days	20	$175	$3,500.00	$3,500.00	$350.00	$3,850.00
1.3	7	Establish SPTOA Office					$20,400.00	$2,040.00	$22,440.00
		Facilities:							
		Office Rental	months	12	$400	$4,800.00			
		Project Time:							
		Administrative Assistant	months (50% of time on project work)	6	$600	$3,600.00			
		Technical Assistant	months (75% time on project work)	9	$600	$5,400.00			
		Equipment:							
		Personal Computers	Each	3	$840	$2,520.00			
		Printer	Each	1	$705	$705.00			
		Network Server	Each	1	$1,500	$1,500.00			
		Desks	Each	5	$225	$1,125.00			
		Chairs	Each	5	$150	$750.00			
1.4	8	Conduct By-Laws Review	days	20	$170	$3,400.00	$3,400.00	$340.00	$3,740.00
1.5.1	9	Hire Consultant for Sustainability Action Plan and Road Map							
1.5	10	Develop Sustainability Action Plan and Road Map	days	176	$139	$24,500.00	$24,500.00	$2,450.00	$26,950.00
2.	11	Training Development Performed							
2.1	12	Conduct Project Management and Administration Training				included in the cost for 1.1.5			
2.2.1	13	Hire Training Facilitator for Trainings in Marine Conservation					$24,000.00	$2,400.00	$26,400.00
2.2	14	Develop SPTOA Training Plan and Guidelines				included in the cost for 1.2.3.1 - 1.2.3.3			
2.3.1	15	Conduct training session in Advanced Marine Course	days	5	$1,600	$8,000.00			

WBS ID	ID	Task Name	Unit of Measurement	Quantity	Unit Cost (USD)	Subtotal (USD)	Total (USD)	Contingency Reserve (USD)	Cost Baseline (USD)
2.3.2	16	Conduct training session in Coastal Birding		5	$1,600	$8,000.00			
2.3.3	17	Conduct training session in GPS and Navigation		5	$1,600	$8,000.00			
3.	18	Dive and Snorkel Sites Upgraded							
3.1	19	Procure Mooring Buoys and Technical Equipment					$74,000.00	$7,400.00	$81,400.00
		Mooring Buoys	Each	28	$1,571	$44,000.00			
		Technical Equipment	Miscellaneous			$24,000.00			
		Boat	Each	1	$6,000	$6,000.00			
3.2	20	Establish Mooring Buoys Installation and Maintenance Plan	Each	1	$6,700	$6,700.00	$6,700.00	$670.00	$7,370.00
3.3	21	Install Mooring Buoys	Each	28	$243	$6,800.00	$6,800.00	$680.00	$7,480.00
3.4	22	Perform testing of Mooring Buoys Installed	Testing Program	1	$4,500	$4,500.00	$4,500.00	$450.00	$4,950.00
4.	23	Regional Integration Plan Developed							
4.1.1	24	Hire Consultant for development of Regional Emergency Management Plan							
4.1	25	Develop Regional Emergency Management Plan	days	109	$183	$20,000.00	$20,000.00	$2,000.00	$22,000.00
1.6.1	26	Validate Project Deliverables							
1.6.2	27	Sign off and add project documents to repository							
1.6	28	Project Closed							
						TOTALS	**$194,000.00**	**$19,400.00**	**$213,400.00**

The S-Curve is a time-phased view of the project cost baseline. With the help of the project schedule, the costs of the different activities were allocated in the months in which they will occur and the total required funds have been determined on a monthly basis for the duration of the entire project.

Chart 30 Project Cost Baseline (Source: compiled by author, M. Chun, August 2019)

WBS ID	ID	Task Name	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
	2	Project Start												
1.	**3**	**Project Management Work Completed**												
1.1.1	4	Hire Lawyer for By-Laws Review and Formalization of SPTOA Structure												
1.1	5	Develop Project Team and SPTOA Terms of Reference		$6,820										
1.2	6	Formalize Functional Matrix Structure of SPTOA			$3,850									
1.3	7	Establish SPTOA Office	$22,440											
1.4	8	Conduct By-Laws Review				$3,740								
1.5.1	9	Hire Consultant for Sustainability Action Plan and Road Map												
1.5	10	Develop Sustainability Action Plan and Road Map				$3,050	$3,050	$3,050	$3,050	$3,050	$3,050	$3,050	$3,050	$2,550
2.	11	**Training Development Performed**												
2.1	12	Conduct Project Management and Administration Training												
2.2.1	13	Hire Training Facilitator for Trainings in Marine Conservation										$8,800	$8,800	$8,800
2.2	14	Develop SPTOA Training Plan and Guidelines												
3.	18	**Dive and Snorkel Sites Upgraded**												
3.1	19	Procure Mooring Buoys and Technical Equipment					$81,400							
		Mooring Buoys												
		Technical Equipment												
		Boat												
3.2	20	Establish Mooring Buoys Installation and Maintenance Plan							$3,685	$3,685				
3.3	21	Install Mooring Buoys							$3,740	$3,740				
3.4	22	Perform testing of Mooring Buoys Installed							$2,475	$2,475				
4.	23	**Regional Integration Plan Developed**												
4.1.1	24	Hire Consultant for development of Regional Emergency Management Plan												
4.1	25	Develop Regional Emergency Management Plan							$4,000	$3,600	$3,600	$3,600	$3,600	$3,600
1.6.1	26	Validate Project Deliverables												
1.6.2	27	Sign off and add project documents to repository												
1.6	28	**Project Closed**												
		Cost Baseline Per Month	**$22,440**	**$6,820**	**$3,850**	**$6,790**	**$84,450**	**$3,050**	**$16,950**	**$16,550**	**$6,650**	**$15,450**	**$15,450**	**$14,950**
		Cumulative Project Costs	**$22,440**	**$29,260**	**$33,110**	**$39,900**	**$124,350**	**$127,400**	**$144,350**	**$160,900**	**$167,550**	**$183,000**	**$198,450**	**$213,400**

The cost baseline per month and cumulative costs (S-Curve) from Chart 30 above have been depicted in the graph below.

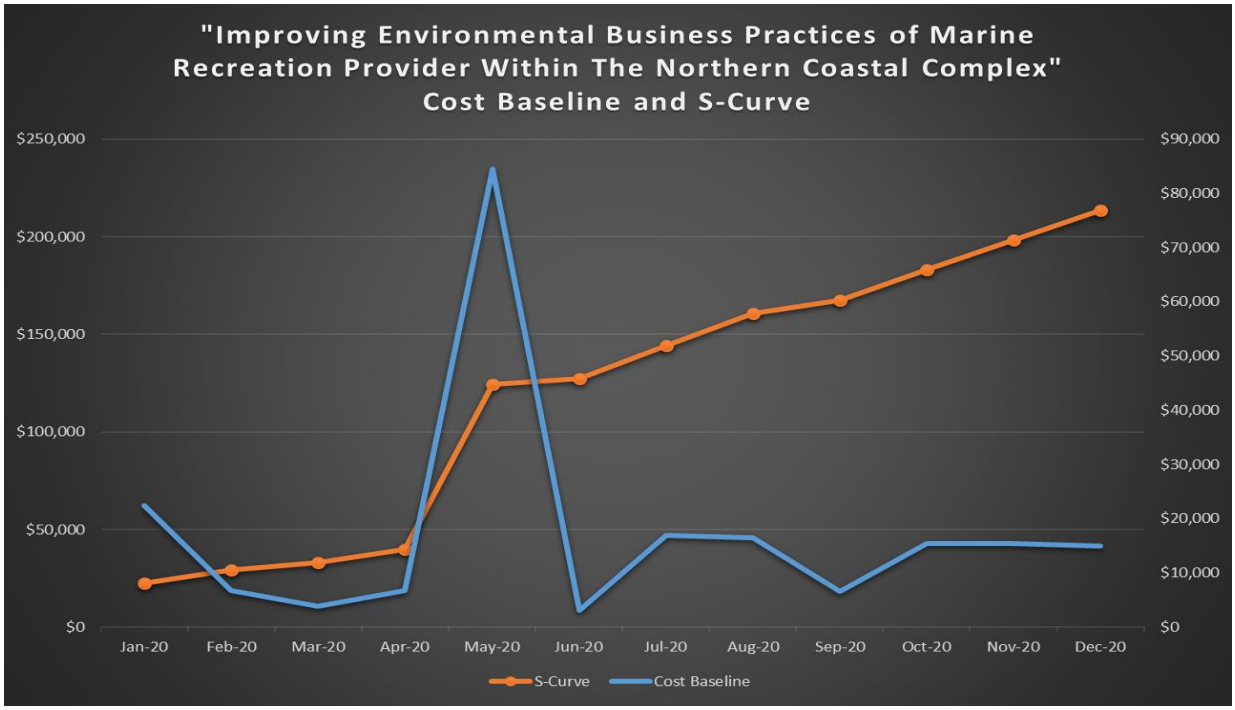


Figure 10 Project Cost Baseline Curve and S-Curve (Source: compiled by author, M. Chun, August 2019)

4.4.3.3 Cost Metrics and Reporting

In order to measure project performance, several metrics will be used to capture cost and schedule performance for the project. The following metrics will be compiled and reported by the Project Manager:

- Cost Variance (CV) will be reported monthly and is the project's Actual Costs (AC) subtracted from Earned Value (EV)
- Schedule Variance (SV) will be reported monthly and is the project's Planned Value (PV) subtracted from EV
- Cost Performance Index (CPI) will be reported monthly and is the project's EV/AC
- Schedule Performance Index (SPI) will be reported monthly and is the project's EV/PV

The project cost and schedule baseline will form an essential part of this EVM process. If the SPI or CPI has a variance between 0.9 and 1.0 or above 1.2, the Project Manager must report the reason for the exception. In the event that, the SPI or CPI has a value less than 0.9, the Project Manager must report the reason for the exception and provide management with a detailed corrective plan to bring the project's performance back to acceptable levels within five working days from when the cost variance is first reported.

Chart 31 Cost Variance Threshold (Source: compiled by author, M. Chun, August 2019)

Performance Measure	Green	Yellow	Red
Schedule Performance Index (SPI)	≥ 1.0	between 0.9 and 1.0	< 0.9
Cost Performance Index (CPI)	≥ 1.0	between 0.9 and 1.0	< 0.9

One chart will be created for each of the above metrics. The Project Manager will present these charts to the Project Sponsor at the Monthly Project Status Meeting.

4.4.3.4 Cost Control Measures

The cost control activities which will be used throughout the project to monitor cost control in the project entitled, "Improving Environmental Business Practices of Marine Recreation Providers In The Northern Coastal Complex" are detailed in this section. Cost control in project management is critical since it provides the team with the ability to maintain an organized approach to handling tasks and recognizing project costs. Monitoring the status of the project is also important in updating the project costs and managing changes to the cost baseline. Cost performance is ultimately what determines a positive or negative project outcome.

The Project Manager will be responsible for managing and reporting on the project's costs throughout the duration of the project. The Project Manager is also responsible for accounting for cost deviations and presenting the Project Sponsor with options in getting the project back on budget. The Project Sponsor has the overall authority to approve changes to the project to bring it back within budget. All

cost control measures will be reviewed by the Project Sponsor before a decision is made. Upon approval from the Project Sponsor, the Project Manager will lead the implementation of the authorized control measure. The Project Manager must also complete any change requests required in accordance with the project's change control process in the Change Management Plan.

Cost control first starts with a suitable amount of control over the budget being established. The Project Manager must then exercise strict cost supervision, trying to avoid going over budget unexpectedly. Project cost control will be performed throughout the project and will include:

1. Capturing the entire scope in the work breakdown structure
2. Collaborative input from all relevant stakeholders
3. Cost categories established for use in the project
4. Promoting project management team trust
5. Taking actions immediately to address deviations from the cost baseline
6. Increases to the authorized budget approved only through the Integrated Change Control Process.
7. Utilizing, the project schedule in conjunction with the work breakdown structure to closely monitor costs.

An established project cost is required to procure all the products, services and resources to deliver the project successfully; however, cost over-runs are possible. Therefore, to maintain cost control for the project, there are various useful measures are in place. Combined, these measures are known as the cost control procedures.

The cost control procedure has been grouped into four major activities:

A. Monitor cost performance (actual vs. budget) to detect variances,
B. Identify and document changes and adjust the budget as required,
C. Implement only approved changes and ensure that any unauthorized changes to scope and cost baselines are not effected,

D. Communicate changes to the Project Sponsor, the Project Team and Project Stakeholders.

In essence, to detect variances, costs will be monitored by period, WBS component, and activity for the project. Earned Value Management (EVM) will also be used to find variances, whereby a comparison of work performed, and work planned will be evaluated. The EMV metrics for the project is detailed in Section 4.4.3.3.

Furthermore, all the factors that create changes to the cost baseline will be monitored. The monthly project status report includes a section for cost management reporting. This information will be useful in first identifying the variances and then documenting these variances. Corrective actions, if any will then be planned. If a change is triggered based on the cost thresholds, the Project Manager will present the options for corrective actions to the Project Sponsor who will then approve an appropriate action to bring the project back on budget.

The Project Manager has various options for corrective action when a cost variance threshold is surpassed. These actions can be increasing the project budget, reducing the scope or some other action. A formal change request will be made using the cost change control process. Only the Project Sponsor can approve a Cost Variance Action Plan. All approved cost variance corrective actions will include the means by which the effectiveness of the actions in the plan will be measured. These approved change requests will take effect immediately and managed accordingly. All corrective actions will form a part of the project management plan and the project will be updated to reflect such.

All approved change requests will be acted on in a timely manner with actual changes, associated costs and resources required made known to the Project Sponsor, the Project Team and appropriate Project Stakeholders accordingly.

4.5 Project Quality Management

The Quality Management Plan was developed after an analysis of the project scope and stakeholder prioritization. Expert judgement was used to analyze the project and stakeholders' requirements. Other tools and techniques used to prepare the plan were data gathering, brainstorming, and benchmarking. Primary information sources were COMPACT/SGP Guidelines, regulatory requirements, and internationally accepted quality standards. Additionally, a review of case studies and available data was conducted to develop a relevant and applicable quality management plan. The main inputs for the Quality Management Plan were the Project Charter and the Resource Management Plan.

Quality Management Plan

4.5.1 Introduction

4.5.1.1 Purpose of the Quality Management Plan

The Quality Management Plan provides a reference point for quality assurance (QA) and quality control (QC) processes during the project, "Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex." The Quality Management Plan defines the project's quality policies, procedures, criteria for and areas of application, and roles, responsibilities, and authorities.

The Quality Management Plan defines the acceptable level of quality and describes how the project will ensure this level of quality in its deliverables and processes. The Quality Control (QC) activities monitor and verify that project deliverables meet defined quality standards. Quality assurance (QC) activities monitor and verify that the processes used to manage and create the deliverables are followed and are effective.

4.5.2 Quality Management Approach, Planning & Overview

4.5.2.1 Quality Planning

The Project Manager will determine the quality standards and requirements for the project and will be primarily based on COMPACT/SGP relevant conventions and national/regional plans and programs. There are currently no established quality standards for the SPTOA, therefore, the recommended guiding standards for this project is the Voluntary Standards for Marine Recreation In The Mesoamerican Reef System. These standards are divided into three standards:

- ICRAN MAR 1 Standard Requirement for Recreational Scuba Diving Services in the Mesoamerican Reef System
- ICRAN MAR 2 Standard Requirements for Recreational Snorkeling Services in the Mesoamerican Reef System
- ICRAN MAR 3 Standard Requirements for Recreational Boat Operations in the Mesoamerican Reef System

The Voluntary Standards for Marine Recreation were developed based on the due process practices defined in the Standards Engineering Society's Standard SES-2 and the Model Standards Development Procedure.

4.5.2.2 Project Quality Management Strategy and Objectives

Execution of the project, "Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex", shall comply with and governed by:

1. Grant Agreement between the SPTOA and COMPACT/SGP
2. National legislation frameworks, policies, and programmes for marine conservation
3. The Work Plan and Budget established in the Project Management Plan

The project will maintain standard English language for communication and dissemination of all relevant project documents and updates. The Quality Management Plan identifies these key components:

Chart 32 Quality Management Plan Key Components (Source: compiled by author, M. Chun, September 2019)

Quality Review	Quality Measure	Quality Evaluation Methods
Project Deliverables	• Deliverable Quality Standards and Requirements • Completeness and Correctness Criteria	Quality Control Activities
Project Processes	• Process Quality Standards • Stakeholder Expectations • Corrective action for non-conformities	Quality Assurance Activities

The quality objectives of the project are:

1. To ensure deliverables support improved project management proficiency;
2. Deliverables meet the requirements of the project sponsor, project manager, partners, and other priority stakeholders;
3. Deliverables align with industry best practices and usability;
4. Project processes conform to recommended project management standards, and
5. Project processes are efficiently performed and regularly documented and reported.

The following are the established quality acceptance criteria for the project deliverables.

Chart 33 Quality Acceptance Criteria (Source: compiled by author, M. Chun, September 2019)

	Deliverable	Acceptance Criteria	Verification
D-1.	Functional structure of the SPTOA with clearly outlined authority, roles, and responsibilities	• Established Terms of Reference (TOR) that define roles and responsibilities for the SPTOA Executive and Project Team. • Hierarchical chart of the SPTOA with clearly defined reporting lines. • Established office space is adequate to house SPTOA functional team and project team and administrative support is provided through the procurement of project equipment. • Revised Articles of Association, Memorandum of Association and By-laws that provide governance of the SPTOA administrative responsibilities as well as the management of the SPTOA programs and projects.	• Clearly defined roles and responsibilities in TOR • Hierarchical Chart/Organizational Chart • Office Space and Office Equipment • Revised AOA, MOA and By-laws
D-2.	Training Policy and training manuals for safe and sustainable marine business practices	• SPTOA Training Plan and Guidelines adhere at a minimum, to the Belize Standard (BZ CP 5:2016) - Code of Practice for Recreational Scuba Diving Services (Declaration of	• Manuals cover safe and sustainable marine recreation practices as outlined in Belize Standard (BZ CP 5:2016) -

	Deliverable	Acceptance Criteria	Verification
		Compulsory Standard) and the Voluntary Standards for Marine Recreation in the Mesoamerican Reef System.	Code of Practice for Recreational Scuba Diving Services (Declaration of Compulsory Standard) and the Voluntary Standards for Marine Recreation in the Mesoamerican Reef System
D-3.	Training sessions for a minimum of 30% of SPTOA members and 10% of partners	• 5-Day Training Courses conducted in Advanced Marine Conservation, Coastal Birding and GPS and Navigation for a minimum of 30% of SPTOA members and 10% of SPTOA partners.	• Sign Up Sheets and Evaluation Forms from At least 30% of SPTOA members and 10% of attended trainings in safe and sustainable marine business practices
D-4.	A sustainability action plan and roadmap for funding opportunities in marine conservation	• Sustainability Action Plan and Roadmap adequately identifies key areas of donor funding applicable to the SPTOA areas of work • Trained SPTOA Executive Members in proposal writing, budgets, reporting and project management	• Formats and templates of Sustainability Action Plan and Roadmap are aligned with donor agencies policies for funding opportunities • Trained SPTOA Executive with completed consultant evaluation forms
D-5.	28 upgraded dive and snorkels sites off	• Procurement of Mooring Buoys is within budget of $44,000 for	• Mooring Buoys, boat, and technical

	Deliverable	Acceptance Criteria	Verification
	Ambergris Caye, equipped with mooring buoys	mooring buoys, $24,000 for technical equipment and $6,000 for boat. • Specifications of mooring buoys are adequate for deployment in a tropical marine environment such as Belize and meet the Standards of Moorings International Inc. • Mooring buoys installed at 28 identified at 28 dive and snorkel sites meet or exceed safety tests conducted and ready for use	equipment meet or exceed specifications for deployment in a tropical marine environment • Physical verification of mooring buoys successfully installed at 28 identified at 28 dive and snorkel sites • Trained personnel who can install and maintain the mooring buoys • Results of safety test show high rating
D-6.	Established regional mooring buoys installation and maintenance plan.	• Regional mooring buoy installation and maintenance plan must adhere to national standards such as from the Belize Bureau of Standards and gain acceptance from comparable marine conservation agencies in the region	• Installation and Maintenance Plan clearly outlines steps to install and maintain mooring buoys procured. • Addresses safety issues
D-7.	Established regional emergency management policy, plans, and guidelines for marine recreation providers.	• Regional Emergency Management Policy, Plans, and Guidelines must adhere to national standards such as those set by the Belize Tourism Board and National Emergency Management Organization (NEMO)	• Adherence to national standards such as those set by the Belize Tourism Board and National Emergency Management Organization (NEMO)

4.5.2.3 Quality Roles, Responsibilities

Chart 34 Quality Roles and Responsibilities (Source: compiled by author, M. Chun, September 2019)

Role	Quality Responsibility
Project Manager	• Establishment and oversight of the Quality Management Plan • Communicate with the project team regularly to direct project activities and remain current on project quality status • Communicate quality risks and issues to internal and external stakeholders • Monitor milestones, activities, timelines, resources, budgets and critical path • Develop and track project metrics • Oversee contractor activities
Project Team	• Identify, report, review and analyze project deliverables, focusing on quality characteristics such as completeness, consistency, fitness of use, etc. • Collect and analyze project metrics
External Contractors/Consultants	• Execute project activities such as installation of mooring buoys, development of maintenance plans, and emergency management policy, plans and guidelines • Perform user acceptance testing before final release and implementation
Regulatory Bodies (BPA, Fisheries Dept., Department of Environment)	• Approval of project works completed, particularly for safety and quality
Other Interested Parties (Belize Tourism Board)	• Impact on Tourism
Project Sponsor	• Acceptance of completed project deliverables

4.5.3 Project Quality Metrics and Measurements

The quality metrics is an objective measure of the quality of a product or process. The established quality metrics assesses the progress of the quality of the project product and processes. It is used as a method to quantitatively evaluate the project's level of quality as project work efforts are executed and measured against the corresponding metric.

Quality management applies to deliverables, documents, work products, processes, and procedures. QC activities monitor and verify that project deliverables meet defined quality standards. QA activities monitor and verify that the processes used to manage and create the deliverables are followed effectively. Quality improvement activities seek to ensure that there is continuous improvement of quality processes and procedures and an ability to respond to corrective actions resulting from audits and reviews.

4.5.3.1 Methods and Tools

Chart 35 Quality Management (Source: compiled by author, M. Chun, September 2019)

Quality Area	Metric	Measurement	Threshold Tolerance
Change Control	Number of Opened & Closed Change Requests	Total new change requests created in the reporting period, rejected, deferred or closed in the reporting period	No tolerance threshold. This metric will be reported on a weekly basis
Risk	Unmitigated Risks	Number of unmitigated risks along the critical path of the project or for key deliverables	No more than 2 unmitigated risks (2 medium or 1 high risk)

Quality Area	Metric	Measurement	Threshold Tolerance
Risk	Average Aging of Risks	Total Calendar Days Active for Active Risks/ Number of Active Risks	Once identified new risks are documented and submitted to the Project Manager no later than 5 business days
Schedule	SPI	EV/PV	SPI must be one or greater, or else less work is being completed than the planned work. Project is behind schedule
Deliverables	Contractual Deliverable Timeliness	Number of Deliverables submitted on time/Total Number of Deliverables (per reporting period)	No more than 12 working days the deliverables are submitted late
Deliverables	Emergency Response Plan	Acceptance by Regional Partners (Yes/No)	No “Non-Acceptance” by Regional Partners
Test	Inspection and Testing of Mooring Site	Pass/Fail Status on the Capacity and Functionality of Mooring Buoys	No “Fail” Status
Scope of Works/ Implemented Project Activities	% of Compliance	Total Compliant Activities/Total Project Activities	Minimum compliance of 70% with international best practices

4.5.4 Quality Assurance

Quality Assurance (QA) is the preventative steps taken to increase the likelihood of delivering a deliverable and achieving the quality targets set. The focus is to prevent deficiencies through planned and systematic activities in a proactive approach. QA determines compliance to project policies and procedures with the

ultimate goal of building quality into the final products, rather than having to test it later. As has been noted, QA is focused on the processes used in the project.

To secure quality assurance the following activities have been instituted:

1. *Clear roles and responsibilities and minimum qualification requirements for the project team*

To determine the competency of the project team and adequacy for the performance of duties, minimum qualification requirements and clear roles and responsibilities will be established. The use of a RACI Matrix will be utilized to outline reporting channels and responsibilities.

2. *Frequent communication within the project*

Standard operating procedures will guide the process of communication and activity completion. Activities to be completed will be detailed using a checklist. Ultimate reporting will be done to the Project Sponsor who signs off on all high-level decisions. Regular communication will be carried out to clarify functions and responsibilities as well as to discuss and resolve any problems or changes to plans. Project team feedback is critical for continuous improvement.

3. *Conduct Surveys to determine the progress of training sessions on safe and sustainable marine practices*

Feedback is a very important component in quality assurance. This helps in capturing the metrics established in quality management and other performance information. Surveys will be done to evaluate the metrics of effectiveness, appropriateness and overall applicability.

4. *Minimum technical specifications for mooring buoys and technical equipment for use in a tropical environment*

Pre-determined technical specifications for use in the procurement process will provide quality assurance in obtaining the best options for mooring buoys and other technical equipment.

5. *Conduct test runs on mooring buoys to determine the functionality of the equipment*

Full-Scale Testing of the installation of the mooring buoys will be done to ensure the installation is safe and fully operational.

6. *Quality assurance evaluation of training consultants and other service providers*

The adequacy and ability to provide the service required will be evaluated guaranteeing participant satisfaction and continuous improvement. The capacity to produce in a timely manner with optimal standards will be carefully evaluated.

Quality assurance for the project will be performed by observation of project processes, defining deliverables checklist, conducting peer reviews, and conducting quality product reviews. QA tools and techniques include:

- Referencing historical data to understand areas where quality issues are likely to occur in projects of this nature
- Adherence and compliance with international best practices for marine activities and reiterating the quality standards that need to be met to clarify the level of quality required
- Evaluation assistance from SPTOA members and partners with sector-specific expertise (external evaluators) to appraise deliverables
- Recruiting skilled staff and consultants to produce the deliverables and undertake the processes
- Conducting peer review and quality product review to provide confidence in the quality of the project artifacts
- Performing formal Change Control to minimize the likely number of quality issues

4.5.5 Quality Control

The focus of quality control is on the deliverables of the project. Quality control monitors project deliverables to verify that the deliverables are of acceptable quality and are complete and correct. Tools used to maintain quality control are assessments of metrics, checklists, process audits, stage-gate/milestone audits and testing inspections. The following processes are established to ensure the quality of the deliverables:

1. *Defined milestones*

The milestones will be reviewed by a formal review against the means of verification by the project team during monthly status meetings. For the milestone to be declared met, evidence must be provided. Review of submissions for cost estimates and the timelines for completion of activities against the established control limits for each will allow for a determination of the degree of variation or deviation from these limits. When milestones have not been met, corrective actions must be taken.

2. *Review Process*

The quality of the deliverables including reports, policies, and plans are managed through an extensive review process. Before any deliverable can be released it must pass a deliverable review process which is based on the acceptable criteria defined. The criteria cover technical, structure/content, usability. Team review meetings with documented meeting minutes and a checklist to review the activities and areas of conformance and non-conformance will be carried out.

3. *Identification of risks, possible causes and develop mitigation or eventual solutions*

Use of quality control tools such as the Cause and Effect Diagram will be utilized to evaluate areas of risk and to determine corrective actions. This is to be done at the planning stage, as part of the ongoing process and at the end of the project for future projects.

4. *Use of control measurements to analyze and evaluate the quality standards and processes*

Evaluate the adequacy of measurement instruments for quality tests. This will be done periodically to analyze project performance against expected standards.

5. *Benchmarks for consultants and service providers*

Each potential consultants and service providers will be assessed using a scoring checklist. A threshold or benchmark will be set assuring that new consultants and service providers meet or exceed the set threshold.

4.5.6 Corrective Actions and Quality Reporting

The QA and QC tools and techniques support testing activities, creation of monthly status reporting and production of records that are to be stored in a repository. If non-conformities are identified, they should be documented in the appropriate form and corrective actions applied.

Corrective actions should ensure:

- Effective handling of all complaints
- Reports on non-conformities
- Investigation of the cause of non-conformities
- Recording the results of the investigation
- Determining the corrective/preventing actions intended to eliminate the cause of the nonconformity
- Application of controls to ensure that corrective actions are taken and effective

4.6 Project Resource Management

The Resource Management Plan is a critical component of a successful project. To best understand the existing structure of the SPTOA personal interviews, telephone conversations and face-to-face discussions were done to and the needs

of the Association, moving forward. A review of regulatory requirements, organizational history, and project needs was also done.

To meet the objective of developing a Resource Management Plan the skills utilized were expert judgement, meeting management skills, and problem-solving skills. The Resource Management Plan was developed with inputs from the Project Charter and Scope Management Plan.

A major constraint of the SPTOA when it comes to projects is that it does not currently have in place a functional structure to plan, implement and manage projects. A functional structure for the SPTOA was prepared so that operational activities can managed efficiently in conjunction with project work. The Project Resource Management Plan was prepared as follows:

Resource Management Plan

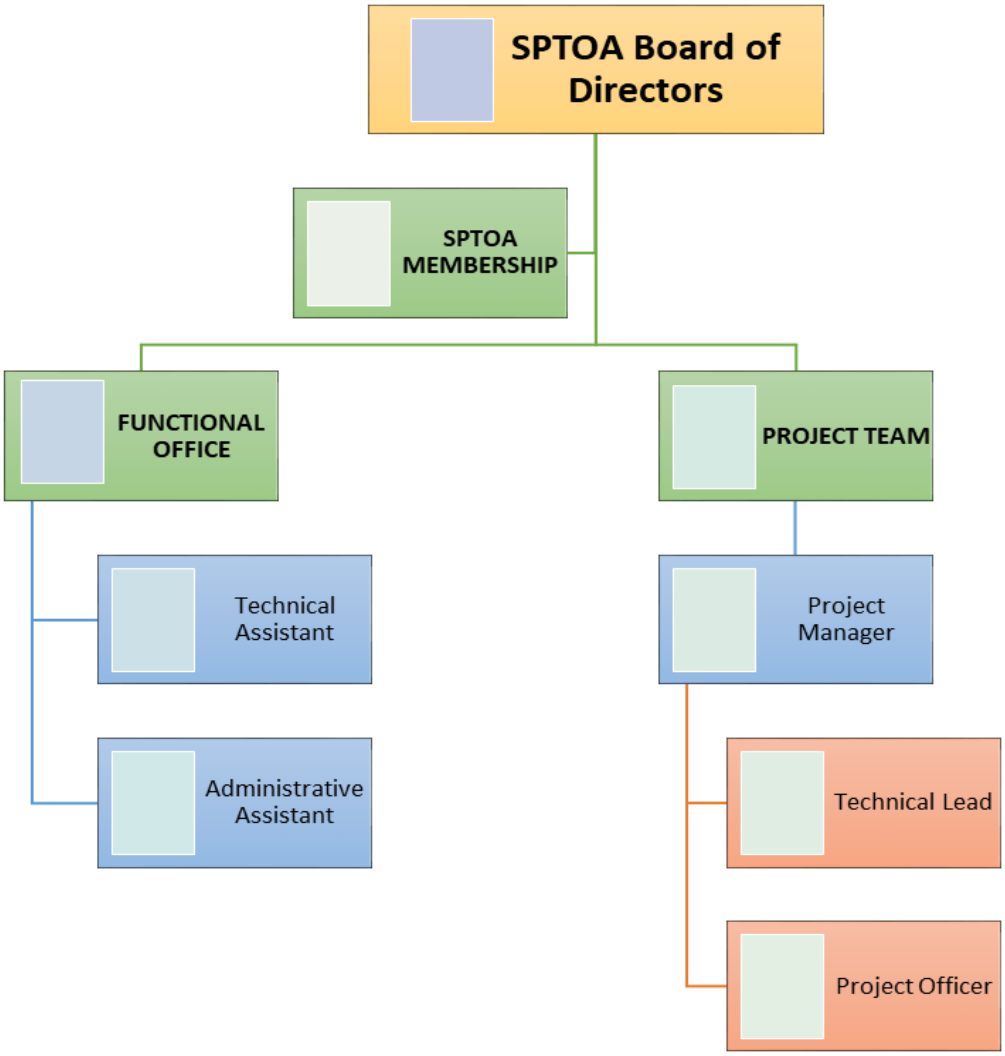
4.6.1 Introduction

The resource management plan provides guidance on how the project resources will be categorized, allocated, managed and released. The plan is divided into team management and physical resources management.

The San Pedro Tour Operators Association is the responsible body for the overall completion of the project. Management of staff will be carried out by the Chairman of the Association. A pre-determined project team spearheaded by a Project Manager will hold responsibilities for execution of the project.

The SPTOA currently does not have a functional structure in place but the proposed organizational chart is as follows:

Chart 36 Proposed SPTOA Organizational Chart (Source: compiled by author, M. Chun, September 2019)



4.6.2 Resources Allocated

To effectively execute the project, the following are the project resource allocations:

Chart 37 Project Resources Allocated (Source: compiled by author, M. Chun, September 2019)

Resources	Resource Description	Source	Allocation
Project Team (Full and Part-Time Staff)	Project Sponsor Representative - Chairman	Internal	40% of time/effort
	Project Manager	Internal	100% of time/effort

Resources	Resource Description	Source	Allocation
	Technical Lead	Internal	100% of time/effort
	Project Officer	Internal	100% of time/effort
	Support Staff:		
	Administrative Assistant	Internal	50% of time/effort
	Technical Assistant	Internal	75% of time/effort
Consultant/ Service Provider	Lawyer – Revision of By-laws and Formalization of SPTOA Structure	External	3 months
	Consultant for Sustainability Action Plan	External	9 months
	Service Provider for Installation of Mooring Buoys & Provision of Technical Training	External	6 months
	Training Facilitator – Marine Course, Coastal Birding & GPS & Navigation	External	6 months
	Consultant for Emergency Management Policy, Plan & Guidelines	External	6 months
Facilities	SPTOA Office	Internal	Full-time
	Training Venue	Internal	Provided by SPTOA Member
Equipment	Personal Computers and Printer	External	Full-time
	Network Server	External	Full-time
	Desks and Chairs	External	Full-time
	Boats	External	Full-time
	Mooring Buoys and Other Technical Equipment	External	Full-time
Other	Teleconferencing – Skype and Zoom	Internal	Full-time
	Conference Calls – LAN Line, Whatsapp	Internal	Full-time
	Email and Dropbox, Google Docs for work-in-progress reports	Internal	Full-time

4.6.3 Resource Requirements

The resource requirements identify the types and quantities of resources required for each activity. The project team must possess a specific skill level. Each team member's function consists of a certain level of risk. The table provides an overview of tasks, skill level required, and risk level associated with the various project resources. Resources outlined for the project, not only includes human resources but also facilities and equipment. The following are the scales for the skill level for human resources, the expected lifespan of facilities and equipment and, risk level associated with the resources:

***Skill Level*: 5 = Expert, 4 = Specialist, 3 = Professional, 2 = Skilled, 1 = Average**

***Expected Lifespan*: A = >5 years, B = 4 years, C = 3 years, D = 2 years, E = <1 year**

***Risk Level*: H = High, M = Medium, L = Low**

4.6.4 Detailed Resource Requirements

The Detailed resource requirements for the project have been developed and outlined in Chart 38.

Chart 38 Detailed Resource Requirements (Source: compiled by author, M. Chun, September 2019)

Resource	Skill Level or Expected Lifespan	Associated Task (s)	Duration Required	Available Time Period (Per Quarter)	Unit of Cost ($)	Cost ($)	Level of Risk (High, Medium, Low)
Project Team (Full and Part Time Staff)							
Project Sponsor Rep. - Chairman	2	Review and accept project deliverables	12 months	Upon Request	0	0	H
Project Manager	5	Manage project, oversee duration, budget, quality, and efficiency of the team. Main communicator	12 months	Full-time	3,000.00	36,000.00	H
Technical Lead	4	Responsible for all technical aspects of the project with specific emphasis on marine science and conservation	12 months	Full-time	1,900.00	22,800.00	H
Project Officer	3	Responsible for procurement, logistics and general administration activities	12 months	Full-time	1,600.00	19,200.00	H
					Non-Project Costs	**$78,00.00**	
Administrative Assistant	3	Provide logistical & administrative support to the project team along with financial reporting for project activities. The AA will also maintain communication between SPTOA and project team	6 months (50% of Time)	Upon Request	600.00	3,600.00	M
Technical Assistant	2	Provide assistance to Technical Lead, especially in technical areas	9 months (75% of Time)	Full-time	600.00	5,400.00	M
Consultant/Service Provider							
Lawyer	4	Revision of Articles of Association, Memorandum of Association & By-laws, Formalization of SPTOA Structure	3 months	Q1	13,100.00	13,100.00	M
Sustainability Action Plan Consultant	4	Establishment of Action Plan and training in proposal writing, budgets, reporting, project management	9 months	Q2 – Q4	24,500.00	24,500.00	H
Mooring Buoys Provider/Trainer	5	Installation of mooring buoys & technical training on maintenance	6 months	Q3 - Q4	18,000.00	18,000.00	H
Training Facilitator	4	Training in advanced marine course, coastal birding & GPS and navigation	6 months	Q3 – Q4	24,000.00	24,000.00	M
Emergency Management Consultant	5	Establishment of a compliant and reporting mechanism for tourism compliance and enforcement	6 months	Q3 – Q4	20,000.00	20,000.00	H
Facilities							

Resource	Skill Level or Expected Lifespan	Associated Task (s)	Duration Required	Available Time Period (Per Quarter)	Unit of Cost ($)	Cost ($)	Level of Risk (High, Medium, Low)
SPTOA Office	A	Execution of project activities	3 months	Q1	4,800.00	4,800.00	M
Training Venue	B	Execution of project activities	As required	Q3 – Q4	Internally supplied	N/A	L
Equipment							
Personal Computers	C	Execution of project activities	3 months	Q1	6,600.00	6,600.00	H
Printer	C						
Network Server	C						
Desks	C						
Chairs	C						
Mooring Buoys	A	Execution of project activities	6 months	Q1 – Q2	44,000.00	44,000.00	H
Technical Equipment	A	Execution of project activities	6 months	Q1 – Q2	24,000.00	24,000.00	H
Boat	A	Execution of project activities	6 months	Q1 - Q2	$6,000.00	$6,000.00	M
					Total Project Costs	**$194,000.00**	

4.6.5 Basis of Estimates

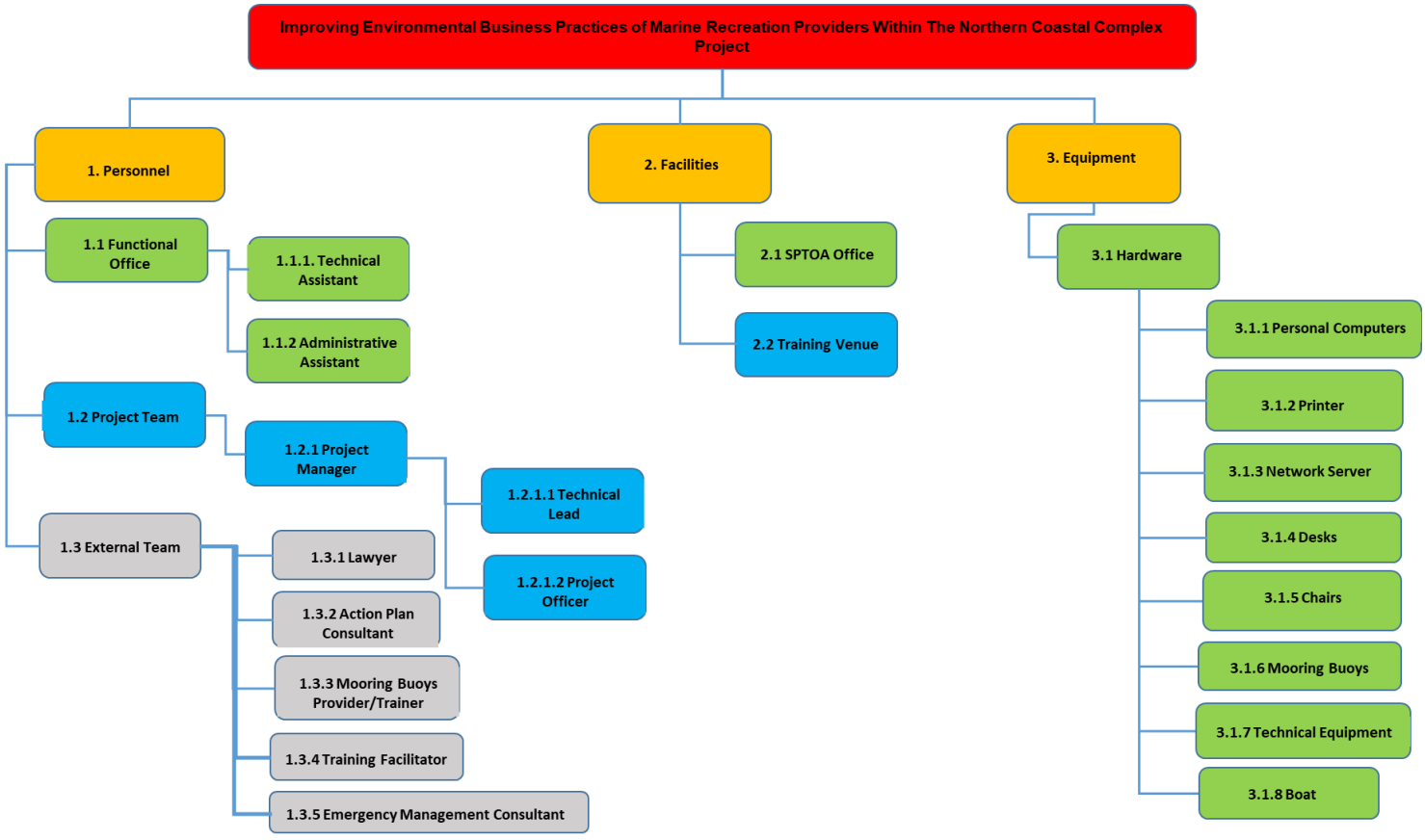
The basis of estimates includes the method used to develop the estimate, resources used to develop the estimate, assumptions associated with the estimate, known constraints, range of estimates, the confidence level of estimate and documentation of identified risks influencing the estimate.

The estimates for the project were done using analogous estimating and expert judgement. The main assumption made is that the pre-assigned resources will be available for the duration of the project.

4.6.6 Resources Breakdown Structure

The resource breakdown structure is the hierarchical representation of resources required for the project by category and type.

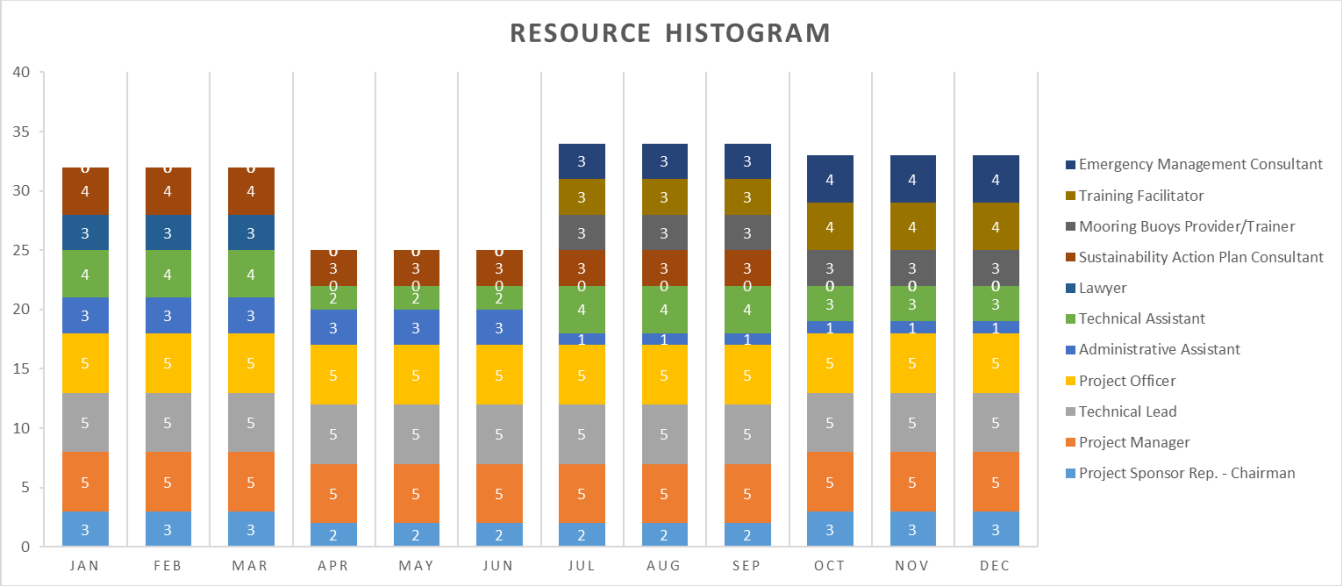
Chart 39 Resource Breakdown Structure (Source: compiled by author, M. Chun, September 2019)



4.6.7 Resources Histogram and Resource Calendar

The Resource Histogram is a visual representation of the specific time the resources will be needed for the project and the required level of effort to successfully complete the project. The resource histogram will be used in conjunction with the resource calendar to keep track of schedules and time management of resources.

Chart 40 Resource Histogram (Source: compiled by author, M. Chun, September 2019)



The following key was used to measure the level of effort required from the resources to successfully complete the project:

Level of Effort	Rating
Maximum	5
Vigorous	4
Moderate	3
Light	2
Very Light	1
No Effort	0

A resource calendar will be utilized for the identification of working days, weekends and public and bank holidays when each specific resource is available. The project will maintain a dedicated project team for the duration of the project and the Technical Assistant and Administrative Assistant of the SPTOA will be made available when necessary. A template has been provided in Chart 41.

Chart 41 Resource Calendar Template (Source: compiled by author, M. Chun, September 2019)

SPTOA MONTHLY RESOURCE CALENDAR

PROJECT:	**Improving Environmental Business Practices for Marine Recreation Providers Within The Northern Coastal Complex**
MONTH:	**January 2020**

Time Req. for Project	**TRP**	**Vacation Leave**	**VL**	**Sick Leave**	**SL**
Public Holiday	**PH**	**Time on Other Project**	**TOP**		

Resource	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Week 1				**1**	**2**	**3**	**4**
Project Manager							
Technical Lead							
Project Officer							
Technical Assistant							
Administrative Assistant							
Boat Transportation							
Week 2	**5**	**6**	**7**	**8**	**9**	**10**	**11**
Project Manager							
Technical Lead							
Project Officer							
Technical Assistant							
Administrative Assistant							
Boat Transportation							
Week 3	**12**	**13**	**14**	**15**	**16**	**17**	**18**
Project Manager							
Technical Lead							
Project Officer							
Technical Assistant							
Administrative Assistant							
Boat Transportation							
Week 4	**19**	**20**	**21**	**22**	**23**	**24**	**25**
Project Manager							
Technical Lead							
Project Officer							
Technical Assistant							
Administrative Assistant							
Boat Transportation							
Week 5	**26**	**27**	**28**	**29**	**30**	**31**	
Project Manager							
Technical Lead							
Project Officer							
Technical Assistant							
Administrative Assistant							
Boat Transportation							

Prepared By:		**Date:**	
Approved By:			

4.6.8 Acquisition of Resources

The SPTOA currently does not have a project team however before the commencement of this project, a full team as detailed in this plan will be present. The project team is then considered pre-assigned resources. The consultants and service providers, as well as the physical resources, will be hired in accordance with the procedures under the Procurement Management Plan.

4.6.9 Project Team Assignments

The following RACI Chart shows the relationship between project tasks and team members. Any proposed changes to project responsibilities must be reviewed and approved by the Project Sponsor. Changes will be proposed in accordance with the project's change requests process. As changes are made, all project documents will be updated and redistributed accordingly.

Chart 42 RACI Chart (Source: compiled by author, M. Chun, September 2019)

RACI Chart Activity	Project Sponsor Rep. - Chairman	Project Manager	Technical Lead	Project Officer	Admin Assistant	Technical Assistant	Consultants/ Service Providers
Project Definition and Start-Up	A	R	C	C	I	I	I
Formalization of SPTOA Structure	C	A	I	I	I	I	R
Establishment of SPTOA Office	A	R	I	I	R	I	
Sustainability Action Plan and Road Map Development	A	R	C	C	I	I	R
Training in Project Management and Administration	C	A	I	I	I	I	R
Training in Advanced Marine Course, Coastal	C	A	C	C	I	I	R

RACI Chart

Activity	Project Sponsor Rep. - Chairman	Project Manager	Technical Lead	Project Officer	Admin Assistant	Technical Assistant	Consultants/ Service Providers
Birding, GPA and Navigation							
Procurement, Installation, and Testing of Mooring Buoys	C	A	C	R	R	I	I
Regional Emergency Management Plan Development	C	A	C	I	I	I	R
Validation of Project Deliverables	R	A	I	I	I	I	I
Sign Off and Add Project Documents to Repository	R	A	I	I	I	I	
Project Closure	A	R	R	R	I	I	I

R = Responsible A = Accountable C = Consult I = Inform

Key:

Responsible (R) This task falls within the project member's primary area of responsibility. They must also ensure that the task finished on time and the quality level of the deliverables are satisfactory. This group performs the tasks in collaboration with the people who are Accountable (A) for them.

Accountable (A) This group of people is held accountable for the results of the task even though they are not directly performing the work. They are accountable for the timely execution of the task, the quality of the deliverables, and any other success criteria.

Consulted (C) This group needs to be consulted. They wish to provide input into the task because they possess knowledge or

	resources that need to be incorporated into the task's work and deliverables.
Informed (I)	This group wants to know the results of the task. They have no other stake in the project other than to receive the deliverables or simply be informed of the results.

4.6.10 Team Development and Performance Assessments

It is expected that improving competencies, team member interaction and the overall team environment will enhance project performance. Team development will include teamwork and apprenticeship between the project team and the functional office team, where enhancement of competencies of the Technical Assistant and the Administrative Assistant will be a focus. The Technical Assistant will work closely with the Project Manager and the Technical Lead who hold key responsibilities for the project, Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex. The Administrative Assistant will work closely with the Project Officer who maintains responsibilities for procurement, logistics, and administration and reporting for the project.

The Project Manager and Project Sponsor Representative are responsible for providing an appropriate and dynamic working environment where team members can work collaboratively to meet the objectives of the project.

As part of team development and high team performance, the following behaviors will be promoted:

1. Open and effective communication
2. Team-building opportunities
3. Management of conflicts in a constructive manner
4. Collaborative problem solving
5. Collaborative decision making

At the commencement of the project, the Project Team will meet with the Project Sponsor Representative to review the terms of reference for each team member and establish clear roles and responsibilities. After completion of the project, a performance review will be done to evaluate the performance of all team members. Consequently, the management of the project team will be carried out by the Project Manager and any possible conflict will be communicated by the Project Manager to the Project Sponsor Representative.

4.6.11 Control Resources

The control resources process will be performed throughout the project. The verification of physical resources assigned and allocated to the project as planned will be carefully monitored in terms of planned versus actual utilization and corrective action will be taken where necessary. Resource expenditures will be monitored using the project budget and performing a cost-benefit analysis to determine the best corrective action if any project cost deviations are necessary. If the project requires any additional physical resources, this will be done through negotiation with the Project Sponsor Representative of the project. All change requests that occur as a result of carrying out the Control Resources process will be processed for review and disposition through the Change Control process. These changes can be to the Resource Management Plan, Schedule Baseline or Cost Baseline. The corresponding project documents will be updated as necessary. These include the Assumption Log, Issue Log, Lessons Learned Register, Resource Assignments, Resource Breakdown Structure or Risk Register. There is no Project Management Information System, therefore, resource management will be done using Microsoft Excel only.

The Resources Net Change will be monitored using the following template provided below.

Chart 43 Resources Net Change Template (Source: compiled by author, M. Chun, September 2019)

San Pedro Tour Operators Association

Project	Improving Environmental Business Practices for Marine Recreation Providers Within The Northern Coastal Complex
Date:	

Control Resources Process
Resource Net Change

Resources	Resources Allocated	Resources Required	Resource Utilization	Net Change	Explanation

4.7 Project Communications Management

To create a Communications Management Plan that details the communications needs and expectations for the project with timely and effective communication strategies, the Project Charter, the Resource Management Plan and, the Stakeholder Engagement Matrix were used. The organizational process assets and enterprise environmental factors were also taken into consideration for the development of the most applicable communication strategies for the project. Expert judgement was used to evaluate all communication styles and communication methods. Personal interviews, emails and telephone conversations were the primary information sources for development of the Communications Management Plan.

The plan includes the main communications objectives, requirements, methods as well as the communication escalation process to be used in cases of difficult communication. The project communications matrix, embedded in the Project Communications Management Plan, provides the project with key information on its audience, importance of and, frequency of communication.

Communications Management Plan

4.7.1 Introduction

The purpose of the Communications Management Plan is to ensure that the project provides relevant, accurate and consistent information to project stakeholders and other appropriate audiences. This plan identifies target audiences, methods of communication, frequency of communication, message criteria, feedback, and guidelines.

4.7.2 Communications Objectives

The key communication objectives for the project, “Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex” are:

1. Comprehension and use of a proper communication framework
2. Clear and consistent communication to recipients
3. Accurate and timely information about the project

4.7.3 Communications Management Assumptions

The success of this plan is based on the following:

- The SPTOA will provide all the necessary support to the project team for the execution of the communication plan by utilizing the presented guidelines and methods of communication.

- There will be open and clear lines of communication
- Consistent and informative messages will be communicated

4.7.4 Stakeholder Communication Requirements

This section identifies the number of stakeholders involved in this project and the communication requirements for each audience.

Chart 44 Stakeholder Communication Requirements (Source: compiled by author, M. Chun, September 2019)

Stakeholder	Role	Location	Communication Type
Project Sponsor – Board of Directors and SPTOA members	Sponsoring body that supplies the funds and guidance of the project	San Pedro Town & Belmopan	Face-to-Face & Virtual
Project Sponsor – COMPACT/SGP	Sponsoring body that supplies the funds and guidance of the project	Belmopan	Face-to-Face & Virtual
Project Manager	Responsible for overall project administration and delivery	San Pedro Town	Face-to-Face & Virtual
Project Team	Responsible for the execution of the project	San Pedro Town	Face-to-Face & Virtual
Conservation Membership Program Donors	Project partners who have contributed to the project	San Pedro Town	Face-to-Face & Virtual
Government Regulatory Bodies	Oversight of tourism and marine resources	San Pedro Town, Belize City & Belmopan	Face-to-Face & Virtual
Hol Chan Marine Reserve	Management and monitoring of the HCMR	San Pedro Town	Face-to-Face & Virtual
Ambergris Caye Sportfish Guide Association	Partner agency: marine recreation provider	San Pedro Town	Virtual
San Pedro Tour Guide Association	Partner agency: marine recreation provider	San Pedro Town	Face-to-Face & Virtual
Local Residents	Marine recreation users and providers	San Pedro Town	Face-to-Face
Island Visitors	Tourism and Marine	San Pedro Town	Virtual

Stakeholder	Role	Location	Communication Type
	Recreation Users		
Consultants/Service Providers	Service Provider	San Pedro Town/Virtual	Face-to-Face & Virtual

4.7.5 Communications Directory

The following table will be used to record the contact information for all persons identified in this communications management plan. The email addresses and phone numbers in this table will be used to communicate with these people.

Chart 45 Project Communications Directory Template (Source: compiled by author, M. Chun, September 2019)

Role	Name	Title	Organization/ Department	Email	Phone
Project Sponsor					
Project Manager					
Project Stakeholders	See Stakeholder Register	See Stakeholder Register	See Stakeholder Register	See Stakeholder Register	See Stakeholder Register
Project Team					

4.7.6 Communication Methods and Technologies

The successful completion of the project requires excellent communication among all team members. The project team needs to be able to communicate using appropriate technology so that information can be exchanged in a reliable and timely manner, thereby avoiding miscommunication. The following factors will determine the appropriate balance of the type of communication technology to be used for the duration of the project:

- Sensitivity and confidentiality of the information
- Reliability of the proposed technology to be used

- Sensitivity of the type of information being shared
- Convenience in using the technology
- Urgency to share the information

The project will be utilizing an *interactive communication model* that incorporates the human elements of the sender, receiver, and feedback. Every message that will be conveyed must be clear and acknowledged as received and understood by the receiver so that feedback can be provided. For the project to be successfully completed, feedback is most important.

The project involves a two-way vertical and two-way lateral communication throughout the project where information shared will be a combination of real-time exchange of information among parties, recipient-specific communication at times and information sharing with large audiences or bulk information sharing at times. The communication methods utilized therefore will be interactive, push and pull communication. Interpersonal communication, small group communication, and mass communication will be utilized.

The following are the appropriate technologies for the various methods of communication:

1. **Interactive communication:** Communication undertaken in real-time involving two or more stakeholders will be through the use of technology tools such as face-to-face meetings or video conferencing, audio conferencing, skype and zoom meetings. This form of communication will be used when an immediate response or feedback is required, and when the information being communicated is sensitive with the possibility of being misinterpreted. Regular phone calls will also be utilized for clarification but kept at a minimum as part of the project's cost-savings measures.
2. **Push communication:** This method of communication will be used to direct messages to the intended recipients through the use of emails, faxes, memos, reports, and letters. This kind of communication is preferable when

an immediate response is not required or if the matter being conveyed is not urgent or sensitive.

3. **Pull communication:** This method of communication allows stakeholders to access information at their own convenience and is usually best suited to large groups or involves volumes of data. Pull communication provides group access to common information and will be accessed when the need arises which will include cloud storage sites such as Dropbox, Google Drive, FTP sites and a lessons learned database. This communication is a preferred option for communication with SPTOA membership.

4.7.7 Project Communications Matrix

The Project Communications Matrix as seen in Chart 46 details the project's communications requirements, the medium of communication and frequency of communication with all stakeholders.

Chart 46 Communications Matrix (Source: compiled by author, M. Chun, September 2019)

Communication Type	Objective of Communication	Medium	Frequency	Audience	Owner	Deliverable	Format
Kickoff Meeting	Introduce the project team and the project. Review project objectives and management approach.	• Face to Face	Once	• Project Sponsor (COMPACT/ SGP & SPTOA) • Project Team • Regulatory Agencies • Other Stakeholders	Project Manager	• Agenda • Meeting Minutes	• Soft copy archived on project Circulated via email
Project Team Meetings	Review status of the project with the team.	• Face to Face • Conference Call/Skype/Zoom	Weekly	• Project Team	Project Manager	• Agenda • Meeting Minutes • Project schedule	• Soft copy archived on project Circulated via email
Technical Meetings	Discuss and develop technical design solutions and regulatory requirements for the project.	• Face to Face • Conference Call/Skype/Zoom	As Needed	• SPTOA Board of Directors • Project Team • Government Regulatory Agencies	Project Manager	• Agenda • Meeting Minutes • Project Status Report • Project Plans	• Soft copy archived on project Circulated via email • Hard Copy available at the meeting
Monthly Project Status Meetings	Report on the status of the project to management.	• Face to Face • Conference Call	Monthly	• Project Sponsor (SPTOA members & COMPACT/ SGP)	Project Manager	• Slide updates • Project schedule • Achieved Milestones	• Soft copy archived on project Circulated via email
Project Status Reports (External)	Report the status of the project including ongoing activities and future plans	• Email	Monthly	• Project Sponsor (SPTOA members) • Project Team • Stakeholders	Project Manager	• Project Status Report • Project schedule	• Soft copy archived on project Circulated via email
Project Status Reports (Internal/ Confidential)	Report the status of the project including activities, progress, costs, and issues.	• Email	Weekly	• SPTOA Board of Directors • Project Team	Technical Lead	• Project Status Report • Project schedule	• Soft copy archived on project Circulated via email
Consultant/ Service Provider Kick-Off Meeting	Introduce the project team and the project. Review project objectives and approach	• Face to Face	Once	• Project Sponsor (SPTOA) • Project Team	Project Manager	• Agenda • Meeting Minutes	• Soft copy archived on project Circulated via email

Communication Type	Objective of Communication	Medium	Frequency	Audience	Owner	Deliverable	Format
Consultant Progress Reports	Report the status of the project including activities, progress, costs, and issues.	• Email	Monthly	• SPTOA Board of Directors • Project Team	Consultant/ Service Provider	• Progress Report	• Soft copy archived on project Circulated via email
Project Completion Report with Final Deliverables	Report on the conclusion of project activities, lessons learned and recommendations.	• Email • Delivery of Hard Copy	Once	• Project Sponsors • Project Team	Project Manager	• Final Deliverables	• Soft copy archived on project Circulated via email • Hard Copy for File
Close Out Meeting	Close off project activities with a presentation of deliverables, lessons learned and forward plans	• Face to Face	Once	• Project Sponsor (COMPACT/ SGP & SPTOA • Project Team • Stakeholders	Project Manager	• Agenda • Meeting Minutes • Completion Report • Deliverables	• Soft copy archived on project Circulated via email
Information Session	Presentation of project results for general knowledge	• Face to Face • NewsPrint • Website	Once	• General Public	Project Manager	• Agenda • Project Results Report • Brochure/ Pamphlet	• Soft copy archived on project Circulated via email Hard Copies for dissemination

4.8.8 Monitoring Communications

The Project Manager will conduct informal reviews of project communication on a routine basis. This will encourage team members to remain focused and professional when communicating project information.

Work Performance Information from project activities will be collected on performance results such as:

- Deliverables Status & Completion Sign Off
- Progress Reports
- Mooring Buoys Testing Updates
- Feedback Reports

The Work Performance Information will be used to create awareness and generate decisions and actions needed. The following tools and techniques will be utilized to ensure that the right message with the right content is delivered to the right audience through the right channel in a timely manner.

1. Stakeholder Assessment Matrix (Audit) – routine audits will be conducted to ensure that valuable communication is being archived and distributed. The audits will be conducted every quarter and will seek to:
    - Gauge stakeholders' attitudes about the project progress
    - Determine what team members are saying (and not saying) about working on the project
    - Ensure that valuable project information is being recorded and archived

    The audit will measure the following:

    - frequency of information dissemination;
    - mode of communication being used;
    - who receives information, and the type of information received;
    - satisfaction level of stakeholders regarding information received.

2. Meetings: The Project Manager will control the flow of communication and the sharing of information about the project. The project team will use meetings for the purpose of communicating project and sharing project information. The following rules will be applied to ensure that meetings remain focused and achieve their purpose:
    - All meetings should have a time limit and the project manager should endeavor to honor it.
    - Recurring meetings should be scheduled in advance
    - Meeting with the team should be regular (however, need not be often)
    - Each meeting should have a specific purpose and agenda
    - The agenda should be distributed to the meeting attendees before the meeting
    - The team should stick to the agenda during the meeting
    - The project manager will chair all meetings
    - Minutes of each meeting must be documented and published
3. Observation: Discussion and dialogue will be held with the project team to better understand what is going on in the project and determine the most appropriate way to update and communicate project performance, identify issues with the team and conflicts among team members and/or stakeholders.

4.8.9 Communication Escalation Process

As issues or complications arise with regards to project communications it may become necessary to escalate the issue if a resolution cannot be achieved within the project team. Project stakeholders may have many different conflicting interests therefore to resolve communication issues that may have an impact on the project the communication escalation process is as follows:

Chart 47 Communication Escalation Process (Source: compiled by author, M. Chun, September 2019)

COMMUNICATION ESCALATION PROCESS			
Priority Level	**Definition**	**Decision Authority**	**Timeframe for Resolution**
Level 1	Major impact to project with significant impact to schedule, budget or scope	Project Sponsor	Within 2 working days
Level 2	Moderate impact to project with potential impacts to schedule, budget, and scope	Project Manager	Within 3 working days
Level 3	Minor impact with potential delays in schedule but no impact to cost	Project Manager	Within 5 working days

4.7.10 Change Requests

Changes to the communication process, format or content may be proposed by any recipient or communication creator. A draft version will be used to generate discussion with the appropriate stakeholders prior to presenting the proposal. The Project Manager must receive the requested change request via email to approve the proposed change for it to be implemented. When approved, the new content must be disseminated with an explanation of the change with appropriate revision and version markings included in the updated version.

4.8 Project Risk Management

Project Risk Management is the combined processes of risk management planning, identification, analysis, response planning, response implementation, and monitoring risk on a project. Before risk management begins it is imperative that a foundation is established for providing structured project information. To develop the Risk Management Plan, the Project Charter, Scope Management Plan, Cost Management Plan, and Communications Management Plan were utilized. Work scope, schedule, resources and cost elements with minimum and maximum

baseline thresholds were defined prior to the Risk Management Plan. These were all key inputs for the Risk Management Plan. Personal interviews, emails, telephone conversations and meeting with the SPTOA allowed for a greater understanding of the enterprise environmental factors and organization process assets of the project. These enhanced the risk analysis performed. Tools and techniques utilized for the development of the Risk Management Plan were brainstorming, risk probability and impact assessment, stakeholder analysis, and expert judgement. The Risk Management Plan clearly outlines the project risks identified, rating and scoring of these risk and response strategies that can be implemented to alleviate these risks. The plan starts out with the risk identification process and ends with strategies for monitoring project risks.

Risk Management Plan

4.8.1 Introduction

4.8.1.1 Purpose

Project Risk Management includes the systematic processes of risk management planning, identification, analysis, response planning, response implementation, and monitoring project risks. It includes maximizing the probability and impact of positive events and minimizing the probability and impact of adverse events in order to optimize the chances of project success. The Risk Management Plan defines risk management activities and how the project team will handle risks to achieve project objectives.

This project is considered a medium risk project as it has an overall risk score of 10 on a scale from 0 to 25. The project risk score is the average of the risk scores of the most significant risks to this project. A risk score below 7 is a low risk project, a score between 7 and 14 is a medium risk project and a score above 14 is a high-risk project.

4.8.1.2 Risk Definition

Risk is an uncertain event or condition that, if it occurs, has a positive or negative effect on a project's objectives. Risk is a measure of one's inability to achieve overall project objectives within define project requirements and constraints. The three components of risk are:

I. The probability of occurrence,
II. The impact of the risk on the project
III. The time within which the consequence will occur if the risk is not mitigated.

4.8.2 Risk Management Approach

The Risk Management Approach established for the project is a methodical process that starts from identifying risk to the point of implementing and monitoring project risks. For the purpose of this project, Risk Management will include Plan Risk Management, Identify Risks, Perform Qualitative Risk Analysis, Plan Risk Responses, and Monitor Risk Responses. The Plan does not take into account Perform Quantitative Risk Analysis due to the rating of the project and the size of the project. Implement Risk Responses will be carried out on a needs basis by the project team.

The first step in Project Risk Management is the Plan Risk Management process. This process first began when the project was conceived. In project formulation and evaluation, risk identification was an important consideration. These risks have been included in the Project Charter. The Project Charter is the main input for the Plan Risk Management process, where the Project Risk Management Plan will be developed. A Risk Register will capture the details of identified individual project risks. The individual project risks identified will be groups into risk categories using a Risk Breakdown Structure (RBS). The development of other key components of the Risk Management Plan includes risk strategy, methodology, and roles and responsibilities. After completion the risks associated with the project, "Improving Environmental Business Practices of Marine Recreation Providers Within The

Northern Coastal Complex" will be identified, scored and ranked. Risk Responses will be developed to address individual project risks. Monitoring activities relevant to project risks will also be outlined. Improvements will be captured as part of the lessons learned knowledge base.

4.8.3 Risk Identification

The Risk Identification process includes identifying individual project risks as well as sources of overall project risk. A list of the identified project risks is detailed in the Risk Register and the Risk Breakdown Structure groups the risks according to potential source of risk.

4.8.3.1 Risk Breakdown Structure

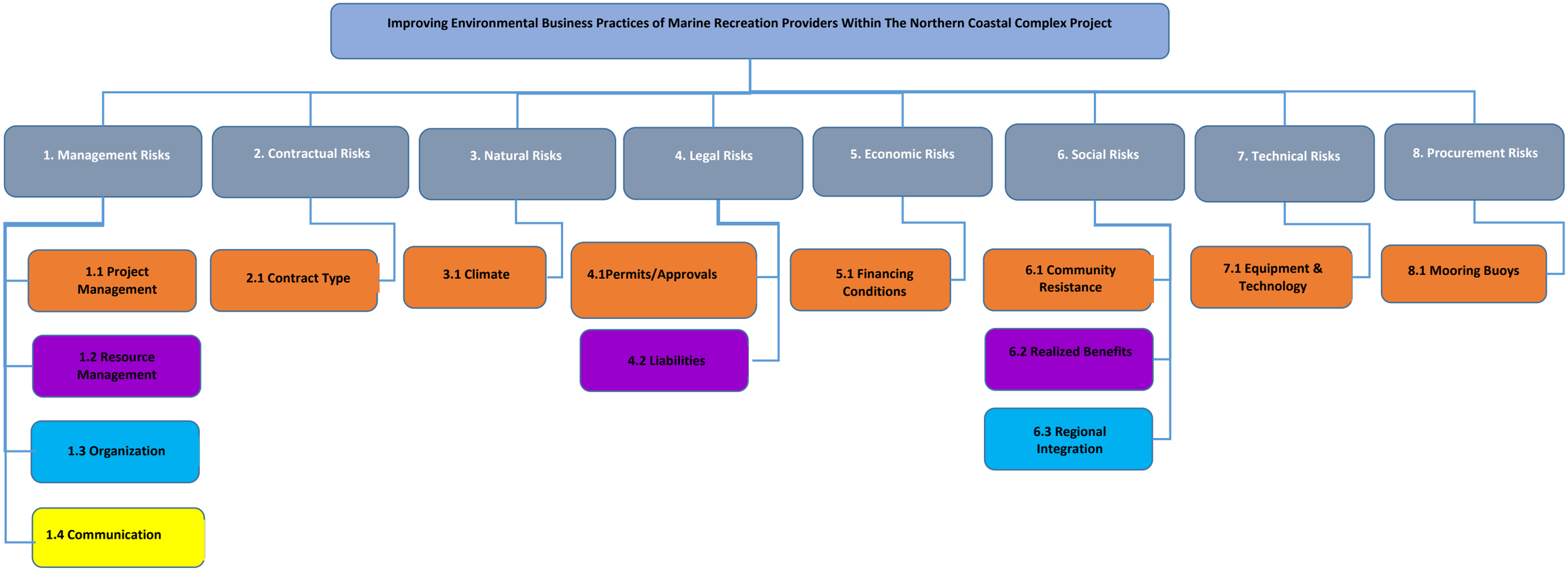
The risk breakdown structure is a hierarchical representation of potential sources of risk and will help in considering the full range of sources from which individual project risks may arise.

Chart 48 Project Risk Breakdown Structure Tabular Form (Source: compiled by author, M. Chun, September 2019)

RBS LEVEL 0	RBS LEVEL 1	RBS LEVEL 2
0. All Sources of Project Risk	**1. Management Risk**	1.1 Project Management
		1.2 Resource Management
		1.3 Organization
		1.4 Communication
	2. Contractual Risk	2.1 Contract Type
	3. Natural Risk	3.1 Climate
	4. Legal Risk	4.1 Permits/Approvals
		4.2 Liabilities
	5. Economic Risk	5.1 Financing Conditions
	6. Social Risks	6.1 Community Resistance
		6.2 Realized Benefits
		6.3 Regional Integration

RBS LEVEL 0	RBS LEVEL 1	RBS LEVEL 2
	7. Technical Risk	7.1 Equipment & Technology
	8. Procurement Risk	8.1 Mooring Buoys

Chart 49 Project Risk Breakdown Structure (Source: compiled by author, M. Chun, September 2019)



4.8.4 Probability and Impact Scales

When risks are identified they are evaluated on a two (2) dimensional matrix using a qualitative rating of the probability of the event occurring and the impact scale (impact on project objectives). Risks are analyzed by combining the probability and impact to produce a level of risk. This form of evaluation provides a good graphical representation of how serious the risk is and where it lies within a group of risks.

The risk analysis provides critical information in determining what risks need to be treated and what risks are accepted.

4.8.4.1 Probability of Occurrence

The following chart defines the probability of occurrence.

Chart 50 Probability Scale (Source: compiled by author, M. Chun, September 2019)

Probability of Risks	
Rating	**Interpretation**
1	Event is not expected to happen within the next 12 weeks and may only occur in exceptional situations
2	Event has been an infrequent occurrence in past projects. Event is expected to happen within the next 8 to 12 weeks
3	Event has an even chance to occur at some time within the next 6 to 8 weeks of the project
4	Event has occurred in past projects and is expected to happen in the next 4 to 6 weeks
5	Event is expected to happen within 4 weeks. It has occurred in past projects and conditions exist for it to occur in this project

4.8.4.2 Risk Impact

The following chart defines the risk impact categories on the project. Negative risks will have the schedule, cost and quality impacts as outlined in the chart. Positive risks will display the opposite of the impact description.

Chart 51 Impact Scale (Source: compiled by author, M. Chun, September 2019)

+/- Impact on Project Objectives				
Impact Scale	**Description**	**Schedule**	**Cost**	**Quality**
1 - very low	Impact is insignificant and may be safely ignored (acceptable)	Delay in delivery < 2 weeks	<$8,000	No significant difference in quality
2 - low	Impact is minor with routine management procedures (tolerable)	Delay in delivery 2 - 3 weeks	$8,001 - $12,000	A minor reduction in quality
3 - moderate	Moderate impact, but can be managed with effort using standard procedure (broadly acceptable)	Delay in delivery 3 - 4 weeks	$12,001 - $16,000	Important areas of the project affected
4 - high	Critical event, potential for major costs or delays (undesirable)	Delay in delivery 4 - 6 weeks	$16,001 - $20,000	A lower quality that is not acceptable
5 - very high	Catastrophic event, potential for large finance costs or delays or damage to the project organization's reputation (intolerable)	Delay in delivery > 6 weeks	> $20,000	Way below quality standards, significantly impacting project deliverables

4.8.4.3 Risk Score

Many risks can be effectively controlled or reduced to acceptable levels. The risk score is a value calculated that is a product of probability of occurrence and impact. The score to compare risks is a part of the risk prioritization process. The

Probability and Impact Matrix is the matrix used to develop the risk score as outlined in chart below. The values range from 1 (very low exposure) to 25 (very high exposure). Risks with a value between 1 and 6 are generally considered low risks, risks between 7 to 14 are moderate risks and values between 15-25 are considered high risks. The actions to be taken are outlined in the table.

Chart 52 Probability x Impact (PxI) Table (Source: compiled by author, M. Chun, September 2019)

PxI Table			
Score	**Category**	**Action**	**Description**
From 1-6	Green	Tolerate & Monitor (Generally Acceptable - OK to Proceed)	Actions within the scope of the planned project and normal management attention should result in controlling acceptable risk
From 7-14	Yellow	Manage & Monitor (As Low as Reasonably Possible - Start Mitigation Efforts)	Special action and management attention may be required to control acceptable risk
From 15-25	Red	Mitigate (Intolerable - Seek Support, Place event on hold)	Significant additional action and high priority management attention will be required to control acceptable risk

4.8.4.4 Probability and Impact Matrix

The probability of occurrence and impact is scored using the chart below and actions to be taken are outlined in the PxI table above.

Chart 53 Probability x Impact (PxI) Matrix (Source: compiled by author, M. Chun, September 2019)

Probability and Impact Matrix											
		THREATS					OPPORTUNITIES					
Probability of Occurrence	Least Likely (1)	1	2	3	4	5	5	4	3	2	1	Least Likely (1)
	Unlikely (2)	2	4	6	8	10	10	8	6	4	2	Unlikely (2)
	Possible, Even chance (3)	3	6	9	12	15	15	12	9	6	3	Possible, Even chance (3)
	Likely (4)	4	8	12	16	20	20	16	12	8	4	Likely (4)
	Highly Likely (5)	5	10	15	20	25	25	20	15	10	5	Highly Likely (5)
		Very Low (1) Acceptable	Low (2) Tolerable	Moderate (3) Broadly Acceptable	High (4) Undesirable	Very High (5) Intolerable	Very High (5)	High (4)	Moderate (3)	Low (2)	Very Low (1)	
		Negative Impact on Project					Positive Impact on Project					

4.8.5 Risk Register

Every project must maintain a risk register in order to track risks and associated risk strategies. The Risk Register for this project is a log of all identified risks, their causes, and consequences, risk owners and triggers as well as which category they belong to. Each risk was assigned a score based on the probability and impact it could potentially have on the project. and their risk strategies have been identified. The risk register also contains the risk strategies for each risk with their associated costs for implementation.

The Project Manager will maintain the risk register and will provide the status of each assigned risk at the weekly project team meetings. The risks in the risk register are presented from high (red) to low (green) based on the PxI score.

Chart 54 Project Risk Register (Source: compiled by author, M. Chun, September 2019)

RISK REGISTER												
Project Name:	**Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex**								**Project Sponsor:**	**SPTOA & COMPACT/SGP**		
RBS Code	**Cause**	**Risk**	**Consequence**	**Probability**	**Impact**	**Probability x Impact [PxI]**	**Trigger**	**Owner**	**Strategy**		**Cost (USD)**	**Comments on Cost**
1.1	Limitations in technical capacity of the SPTOA	Effective management and timely implementation of project	Schedule and scope delays	4	4	16	Delays in decision-making of > 1 month	Project Manager & Project Sponsor	**Mitigate**: Project Management Training will be held for SPTOA functional team to eliminate or lessen their existing limitations. This training will include both technical and skills training such as time management that will aim to lessen the delay in schedule and minimize unnecessary change in scope of works.		0	Hiring of consultant to conduct training and capacity building. Cost has been budgeted in project scope.
5.1	Co-Financing Agreements can lead to limitations in funding	Aspects of the project will not have adequate financing available	Project Scope may have to be reduced	3	5	15	Co-financing amounts not identified or earmarked when 60% of sponsor funds have been spent	Project Manager & Project Sponsor	**Mitigate**: Identify alternate source of funding.		1,500	Proposal writing to access alternate funding
1.2	Limitations in technical capacity of SPTOA and Project Team	Ineffective procurement procedures and processes (inexperience in donor procurement processes)	Schedule delays and possible cost overruns	3	4	12	Delays in approval and accessing resources within two weeks of deadlines set in resource calendar	Project Officer and Administrative Assistant	**Mitigate:** Strict guidelines and criteria requirements set out in the Procurement Management Plan for contracting and obtaining goods and services. In-country training for Project Officer or Admin Assistant in basic in procurement procedures.		600	Training costs for procurement procedures
2.1	Sole Source Contract Type	Dependent on one supplier for mooring buoys and technical equipment	Elevated Prices due to non-competitive pricing	4	3	12	Quoted prices significantly higher than benchmarked prices	Project Manager & Project Officer	**Mitigate:** seek alternative supplier that can meet specifications		0	
7.1	Equipment Specifications &	Equipment rating and specifications do not	Equipment failure	2	5	10	Sole supplier indicate that	Project Manager & Technical	**Mitigate:** seek alternative supplier that		0	The identification of alternative

RISK REGISTER											
Project Name:	**Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex**								**Project Sponsor:**	**SPTOA & COMPACT/SGP**	
RBS Code	**Cause**	**Risk**	**Consequence**	**Probability**	**Impact**	**Probability x Impact [PxI]**	**Trigger**	**Owner**	**Strategy**	**Cost (USD)**	**Comments on Cost**
	Rating	meet the requirements for the prescribed activity (adequate for vessels to utilize buoys) and type of environment					equipment of this nature cannot be supplied	Lead	can meet specifications **Mitigate:** modification to scope and quality requirements		supplier does not have a cost however it would have implications on procurement cost.
5.1	Financing Conditions	Unsuccessful project risks future funding opportunities	Impact to donor confidence of SPTOA abilities to successfully implement projects	2	5	10	Project is behind schedule, above cost and not achieving deliverables	Project Manager & Project Sponsor	**Escalate** to Project Sponsor for intervention **Mitigate:** Enhanced documentation of project activities to demonstrate reason for project failure that was outside the control of the project team		Unable to be determined until event occurs
8.1	Shipping Issues	Delays in shipping of mooring buoys and technical equipment	Delay in schedule and increased costs that can lead to cost overruns	3	3	9	Notification from shipping agent of delay > 2 weeks	Project Managers & Project Officer	**Accept** the risk and use contingency reserve for additional cost **Mitigate**: identify alternative shipping routes and providers		Unable to be determined until event occurs
1.4	Weak Matrix Organizational Structure	Timely communication between government agencies	Delays in obtaining permits and approval from other government agencies	3	3	9	Delays in obtaining permits/approvals of > 1 month of normal processing time	Project Manager & Technical Lead	**Mitigate:** Refer to the communication plan and stakeholder engagement plan for strategies identified. **Escalate** to Project Sponsor for intervention with government agencies.	0	
8.1	Supplier Issues	Supplier of mooring buoys and technical equipment are unable to supply the items within the specified procurement period	Delay in schedule	2	4	8	Notification from supplier of delay > 3 weeks	Project Managers & Project Officer	**Accept** the risk and adjust schedule **Mitigate:** identify alternate supplier		Unable to be determined until event occurs
3.1	Extreme Weather Events	Damage or destruction of installed mooring buoys and technical equipment	Additional costs for repair or procurement of new equipment	2	4	8	Survey of mooring buoys after event	Project Officer & Technical Lead	**Accept** the cost and use contingency reserves for repair or procurement	0	
4.1	Improper submission and meeting criteria for permits/approvals	Delays in obtaining environmental clearance from DOE or BPA or Fisheries Dept.	Schedule delays or scope reduction	2	4	8	Delays in obtaining permits/approvals of > 1 month of	Project Manager & Technical Lead	**Escalate** to Project Sponsor for intervention with government agencies.	0	

RISK REGISTER											
Project Name:	**Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex**								**Project Sponsor:**	**SPTOA & COMPACT/SGP**	
RBS Code	**Cause**	**Risk**	**Consequence**	**Probability**	**Impact**	**Probability x Impact [PxI]**	**Trigger**	**Owner**	**Strategy**	**Cost (USD)**	**Comments on Cost**
							normal processing time				
8.1	Procurement issues	Cost overrun due to consultant's recommended requirements for mooring buoys being more costly than budgeted for.	Cost overrun	2	4	8	Quoted prices significantly higher than benchmarked prices	Project Manager	**Mitigate:** scope reduction by reducing the number of mooring buoys to be procured and installed **Mitigate:** seek additional funding from project sponsor through a change request		Unable to be determined until event occurs
1.3	Weak Matrix Organizational Structure	Admin Assistant & Technical Assistant's time allocation between functional tasks and project work	Time delays in oversight of project due to limited human resources and inadequate time allocation for project work	2	4	8	Delays in decision-making of > 1 month	Project Manager and Project Sponsor Representative	**Mitigate:** Strict adherence to Resource Calendar and Resource Planning. Two weeks away from project move to next strategy **Escalate** to Project Sponsor Rep (Board Chairman) if tasks are behind schedule	0	
6.1	Disturbance to community livelihood	Community opposition to the project	Additional time and resources need to be allocated for stakeholder engagement	1	4	4	Reporting on community acceptance in status reports	Project Manager & Project Officer	**Mitigate:** Refer to the communication plan and stakeholder engagement plan for strategies identified and possible use of a temporary or part-time communications officer.		Stakeholder engagement plan and communication management plan should adequately address this
1.4	Weak Matrix Organizational Structure	Timely communication with stakeholders	Issues with stakeholder support because of non-transmission of information	1	3	3	Disgruntled communities or stakeholders identified in monthly progress reports	Project Manager & Technical Lead	**Mitigate:** Refer to the communication plan and stakeholder engagement plan for strategies identified and possible use of a temporary or part-time communications officer.	0	Stakeholder engagement plan and communication management plan should adequately address this
4.2	Liabilities for Injury	SPTOA Liability for injuries related to buoy use	Additional costs can become costly and result in cost overruns	1	3	3	Reported incidents	Project Manager & Technical Lead	**Transfer/Mitigate:** Liability disclaimer for use of buoys given to all potential users with a requirement for marine	0	

RISK REGISTER											
Project Name:	**Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex**								**Project Sponsor:**	**SPTOA & COMPACT/SGP**	
RBS Code	**Cause**	**Risk**	**Consequence**	**Probability**	**Impact**	**Probability x Impact [PxI]**	**Trigger**	**Owner**	**Strategy**	**Cost (USD)**	**Comments on Cost**
									recreation providers to have their own insurance		
6.2	Disturbance to community livelihood	Project benefits are not seen as applicable to daily livelihood for local residents	Community resistance to project	1	3	3	Reporting on community acceptance in status reports	Project Manager & Project Officer	**Mitigate:** Refer to the communication plan and stakeholder engagement plan for strategies identified and possible use of a temporary or part-time communications officer.		Stakeholder engagement plan and communication management plan should adequately address this
6.3	Regional Integration and Applicability	Non-acceptance of regional plans by international partners	No regional emergency response plan is enacted	1	3	3	Non-acceptance by international partners	Project Manager & Technical Lead	**Mitigate:** redesigning emergency response plan based on international agencies' inputs and re-engage counterparts to gain acceptance of the plan	5,000	40% of budgeted cost for rework
									TOTAL	**$7,100**	4% of Project Budget

4.8.6 Risk Qualification and Prioritization

Once risks are identified it is important to determine the probability and impact of each risk in order to allow the project manager to prioritize the risk avoidance and mitigation strategy. Risks that are more likely to occur and have a significant impact on the project will be the highest priority risks while those which are more unlikely or have a low impact will be a much lower priority. This is usually done with a probability – impact matrix. This section explains how risks were qualified and prioritized for this project.

In order to determine the severity of the risks identified by the team, a probability and impact factor was assigned to each risk. This process allowed for the risks to be prioritized based on the effect they may have on the project. The probability and impact scales were used along with the probability-impact matrix to facilitate the team in moving each risk to the appropriate place on the chart and establishing a risk score.

A total of 18 project risks were identified with a risk reserve of USD 7,100 which is 4% of the project budget (USD 194,000). Risk scoring in the qualitative risk analysis included three main categorizations:

- *low risk* (scores of 1 to 6),
- *moderate risks* (scores of 7 to 14) and,
- *high risks* (scores of 15 to 25)

Two areas of high risk, eleven areas of medium risk, and five areas of low risk were identified.

High-risk areas for the project include project management and financing conditions. The probability of these risks is likely and the impact on the project is very high. The analysis shows that the project is prone to schedule and scope delays, and reduction in project scope due to limitations in technical capacity of the

SPTOA and co-financing agreements. These risks are intolerable and must be mitigated as soon as the triggers have been initiated.

Moderate risks identified in the project should be monitored and kept as low as reasonably possible. Special action to maintain the acceptable risk level is vital. The nine areas of risk that resulted in a score of 7 to 14, require a higher level of monitoring and commencement of some risk response. These were resource management, contract type, equipment and technology, financing conditions, mooring buoys, climate, permits/approval, and organization. The use of a watchlist is recommended to manage these highly sensitive areas. If trigger events have occurred that would indicate that the risk has moved to an intolerable level and must be mitigated immediately.

Low risks pose no immediate significant threat to the project and so they are tolerable and generally acceptable for the project to proceed with the risk response strategies identified in the risk register. Of the five identified, community resistance is the main risk that would be susceptible to a change requiring more specific attention. The qualitative risk analysis performed showed that communication liabilities, realized benefits and regional integration pose the least risk to the project.

4.8.7 Risk Monitoring

This section should discuss how the risks in the project will be actively monitored. One effective way to monitor project risks is to add those risks with the highest scores to the project schedule with an assigned risk owner. This allows the Project Manager to see when these risks need to be monitored more closely and when to expect the risk owner to provide status updates at the weekly project team meetings. The key to risk monitoring is to ensure that it is continuous throughout the life of the project and includes the identification of trigger conditions for each risk and thorough documentation of the process.

The most likely and greatest impact risks have been added to the project plan to ensure that they are monitored during the time the project is exposed to each risk. A risk owner has been assigned to each risk. During the weekly project team meeting, the risk owner for each risk will discuss the status of that risk; however, only risks that fall in the current time period will be discussed. Risk monitoring will be a continuous process throughout the life of this project. As risks approach on the project schedule the Project Manager will ensure that the appropriate risk owner provides the necessary status updates which include the risk status, identification of trigger conditions, and the documentation of the results of the risk response.

Regular team meetings and communication with project stakeholders is recommended to identify new risks, evaluate current risks and risk management process as well as to close risks that allow for an update of the risk register. Communication is an important component as all stakeholders should understand the risk and trade-offs that must be made for the project to succeed. Risk responses should be appropriate for the significance of the risk, cost-effective in meeting the challenge, realistic within the project context, agreed upon by all parties involved and owned by a responsible person.

4.9 Project Procurement Management

Project Procurement Management ensures oversight and management of all procurement processes for the project. The decision to purchase or acquire goods or services externally means a rigorous process of planning, conducting and controlling procurements. In order to carry out these activities, a Procurement Management Plan provides the necessary guidance. To develop the project's Procurement Management Plan, the Project Charter, Resource Management Plan, and Cost Management Plan were used as inputs.

Primary information sources for the development of the plan were personal interviews, emails, telephone conversations, meetings with the SPTOA and review of SPTOA documents and publications. Other sources of information were COMPACT/SGP Guidelines and Publications as well as the UN Procurement Handbook and other Financial Agencies Procurement Manuals. Data gathering tool of market research was used as well, as other tools and techniques such as expert judgement, source selection analysis, and trend analysis were used.

The Procurement Management Plan presents the procurement management approach to be taken under this project and addresses types of contracts to be used, procurement constraints, potential procurement risks and management of these risks, cost determination and the decision criteria. Vendor Management and performance metrics are also key components of the Procurement Management Plan.

Procurement Management Plan

4.9.1 Introduction

The Procurement Management Plan outlines the procurement requirements for the project and sets out the guidelines and processes for procurement coordination with other project aspects. This document provides a timetable of key procurement activities, types of contracts to be used, stakeholder roles and responsibilities related to procurement, the contract approval process and decision criteria. Also included are the procurement metrics to be used to manage contracts. Any constraints and procurement risks will also be presented with mitigation measures that will be followed to achieve project results. The Procurement Management Plan is updated annually or as needed throughout the execution of the project.

4.9.2 Procurement Management Approach

The Project Manager will maintain oversight and management of all procurement activities under the project, “Improving Environmental Business Practices of Marine

Recreation Providers Within The Northern Coastal Complex" with key assistance from the Project Officer who holds responsibilities for procurement and logistics. The Administrative Assistant of the SPTOA will provide logistical support to the project team in ensuring that all items needed for successful completion of the project are procured. The Project Manager will review the procurement list with the Project Sponsor Representative for approval. A complete make or buy analysis is not applicable to the project. All procurement will be conducted through vendor selection and a determination will be made on whether to lease (rental) or buy the item or service. The cost of leasing will be compared with the cost of buying an identical item.

All procurement activities carried out should reflect fairness, integrity, and transparency. The principle of "Best Value for Money" as followed by the COMPACT/SGP will be applied to this project.

4.9.3 Procurement Definition

For successful completion of the project, the items and services required have been outlined based on the procurement method, process, evaluation method and procurement period.

Chart 55 Procurement Reference Guide (Source: compiled by author, M. Chun, September 2019)

Item/Service	Cost	Justification	Procurement Method	Procurement Process	Evaluation Method	Procurement Period	Duration (days)
SPTOA Office	$4,800.00	Main office for project team	Competitive Shopping (lease)	Request for quotes	Least Cost	2-Jan-20 to 31-Jan-20	22
Training Venue	$0.00	To conduct trainings in safe and sustainable marine practices	Competitive Shopping (lease)	Request for quotes	Least Cost	As required in Oct, Nov & Dec '20	Immediate Request
Personal Computers	$2,520.00	For project team to carry out duties	Competitive Shopping	Request for quotes	Least Cost	2-Jan-20 to 31-Jan-20	22
Printer	$705.00	For project team to carry out duties	Competitive Shopping	Request for quotes	Least Cost	2-Jan-20 to 31-Jan-20	22
Network Server	$1,500.00	To house repository for project data, communication and dissemination of information	Competitive Shopping	Request for quotes	Least Cost	2-Jan-20 to 31-Jan-20	22
Desks	$1,125.00	For project team to carry out duties	Competitive Shopping	Request for quotes	Least Cost	2-Jan-20 to 31-Jan-20	22
Chairs	$750.00	For project team to carry out duties	Competitive Shopping	Request for quotes	Least Cost	2-Jan-20 to 31-Jan-20	22
Mooring Buoys (acquisition)	$44,000.00	For installation at dive and snorkel sites	Direct Contracting	Pricing based on specifications	Expert judgement	4-May-20 to 1-Ju-20	42
Technical Equipment	$24,000.00	For installation of mooring buoys	Direct Contracting	Pricing based on specifications	Expert judgement	4-May-20 to 1-Ju-20	42
Boat	$6,000.00	For installation of mooring buoys and conducting marine activities	Competitive Shopping	Request for quotes	Least Cost	2-Jan-20 to 31-Jan-20	22
Lawyer	$13,100.00	Revision of Articles of Association, Memorandum of Association & By-laws, Formalize SPTOA Structure	Fixed Budget	Request for bids	Quality and Cost Based	15-Jan-20 to 31-Jan-20	13 days
Sustainability Action Plan Consultant	$24,500.00	Establishment of Action Plan and training in proposal writing, budgets, reporting & project management	Quality and Cost-Based Selection	Request for bids	Quality and Cost Based	15-Jan-20 to 30-Mar-20	53 days
Mooring Buoys Installation/Training Facilitator	$18,000.00	Installation of mooring buoys & facilitation of technical training on installation and maintenance when mooring buoys are installed	Sole Source	Pricing based on specifications	Expert judgement	4-May-20 to 1-Jul-20	42

Item/Service	Cost	Justification	Procurement Method	Procurement Process	Evaluation Method	Procurement Period	Duration (days)
Safe and Sustainable Marine Practices Training Facilitator	$24,000.00	Facilitation of training in advanced marine course, coastal birding & GPS and navigation	Quality and Cost-Based Selection	Request for bids	Quality and Cost Based	14-Apr-20 to 3-Jul-20	57
Emergency Management Consultant	$20,000.00	Establishment of a regionally accepted compliant and reporting mechanism for tourism compliance and enforcement	Quality and Cost-Based Selection	Request for bids	Quality and Cost Based	14-Apr-20 to 3-Jul-20	57

4.9.4 Types of Contract to be used

For the purpose of this project, Lump sum contracts or Fixed-price contracts will be utilized. The supplier agrees to perform the work for one fixed price, regardless of the ultimate cost. Firm fixed price (FFP) will be the specific contract type of use. The scope of works and duration of services required will be clearly defined and the price of the contract will not change unless the scope of work changes. Payments will be linked to outputs (deliverables). The items to be procured in this Procurement Management Plan will be contracted with credible third party vendors who will undergo the approval process described in Section 4.9.10 of this Plan.

4.9.5 Procurement Risks and Risk Management

The supply risk for the project can be analyzed using Kraljic's Purchasing Portfolio (as cited in UN Procurement Practitioner's Handbook, 2006).

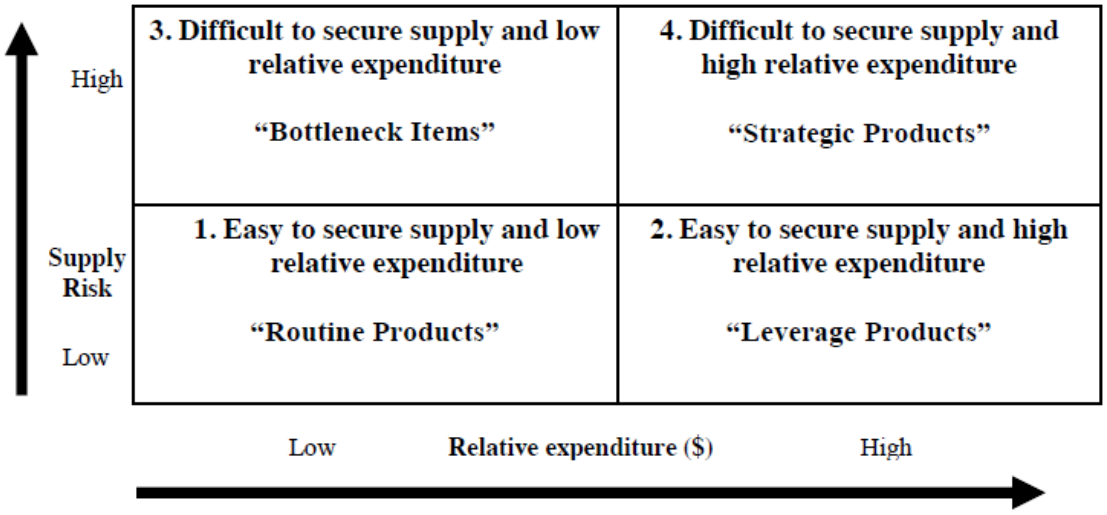


Figure 11 Kralijic's Purchasing Portfolio (Source: UN Procurement Practitioner's Handbook, 2006)

An analysis of the procurement list has deemed equipment and facilities as routine products, which are easy to supply (low risk) and has low relative expenditure (low spend). Consultants and service providers are rated as leverage products, which are easy to supply (low risk) but with a high relative expenditure (high spend). The mooring buoys and technical equipment are rated as strategic products (high risk

and high spend) therefore, the procurement of the items still have a probable occurrence of potential risk during implementation. The associated procurement risks for consideration in line with this analysis have been identified for consideration:

Chart 55 Procurement Risks and Risk Responses (Source: compiled by author, M. Chun, September 2019)

	Procurement Risk	**Risk Response**
1.	Delays in shipping of mooring buoys and technical equipment, affecting cost and schedule	- Accept the risk and use contingency reserve for additional cost - Identify alternative shipping routes and providers
2.	Supplier of mooring buoys and technical equipment are unable to supply the items within the specified procurement period	- Identify alternative sources of supply in advance
3.	The specifications provided by the manufacturer does not meet the requirements for the prescribed activity and environment	- Scope reduction by reducing the number of mooring buoys to be procured and installed - Seek additional funding from project sponsor through a change request
4.	Cost overrun due to consultant's recommended requirements for mooring buoys being more costly than budgeted for.	- Scope reduction by reducing the number of mooring buoys to be procured and installed - Seek additional funding from project sponsor through a change request

4.9.6 Cost Determination

Cost determination for the project is based on the procurement method. This project utilizes Competitive Shopping and Direct Contracting for procurement of goods and works such as facilities and routine products (equipment). For the selection and contracting of consultants, Fixed Budget, Quality and Cost-Based Selection and Sole Source are used as the procurement methods.

Procurement of Goods and Works – Competitive Shopping

Price quotations from a minimum of three suppliers will be requested to assure competitive prices. Request for quotations must indicate the description and quantity of the goods or specifications of works, as well as the desired deliver or completion time and place.

Procurement of Goods and Services – Direct Contracting

No price advantage can be obtained through direct contracting since there is a single source. Specifications of goods to be procured and quantity is provided to supplier after which contracting is finalized.

Selection and Contracting of Consultants – Fixed Budget

The Request for Proposal (RFP) shall indicate the available budget and request the consultants to provide their best technical and price proposals in separate envelopes, within the budget. The Terms of Reference (TOR) should be particularly well prepared to ensure that the budget is adequate for consultants to perform the expected tasks.

Selection and Contracting of Consultants – Quality and Cost-Based Selection

To determine cost, a cost estimate and budget is to be submitted along with the proposal where the work to be accomplished is clearly outlined, who will perform the work and the experience of the consultant in performing similar work.

Selection and Contracting of Consultants – Sole Source

Cost determination is only through direct negotiation with a single consultant since there are no other proposals to consider. Scope of works is finalized for contract signing.

4.9.7 Standardized Procurement Documentation

The project team consistently follows standard documentation policies in all project activities. As part of project procurement, the following standard documents will be produced to ensure proper documentation of all the procurement activities involved. The Project Officer will hold primary responsibility for procurement and as a result the Project Officer will also be responsible for contracts management. A repository will be developed and maintained where all templates, documents and reports are stored for project procurement management. The standard documents for project procurement will include:

1. Terms of Reference/Scope of Work Template

   The TOR should define the scope of work required and respective supplier and stakeholder responsibilities. The main content of the TOR includes Background, Justification for Consultancy, Development Objective, Immediate Objective, Outputs, Activities, Inputs, Timing, and Reporting.

2. Request for Proposal Template
3. Request for Quotation Template
4. Budget Guideline

   Suppliers' fees, daily subsistence allowance, transportation costs, other relevant costs

5. Bidding Documents

   Invitation to bid, instructions to bidders, form of bid, form of bid, form of contract, conditions of contract, specifications and drawings, relevant technical data, list of goods or bill of quantities, delivery time or schedule of completion, and necessary appendices.

6. Method of evaluation and evaluation criteria
7. Internal Source Selection Evaluation Forms
8. Non-disclosure agreement
9. Letter of intent
10. Contract Template
11. Procurement Performance Evaluation Form
12. Lessons Learned Form

4.9.8 Procurement Constraints

- *Cost*
  The main procurement constraint of the project is cost. The project budget has been established and a contingency reserve is available but there are costly aspects of the project that are subject to change.

- *Time Constraints for Vendor/Consultant Selection*
  The time allotted for the selection of vendors and consultants is short given the nature of the project.

- *Use of Sole Source Selection*
  Sole Source Selection does not allow for competitive pricing.

- *Limited Procurement Capacity*
  There is no assigned Procurement Officer for the project. Procurement responsibilities are assigned to the Project Officer with assistance from the SPTOA's Administrative Assistant.

- *COMPACT/SGP Procurement Procedures*
  Familiarity with COMPACT/SGP procurement procedures is important for the project team established.

4.9.9 Contract Approval Process

The contract approval process commences when a determination is made to procure a good or service. Goods and services for the project are procured externally. The Project Officer is responsible for preparation of the solicitation documents that are to be provided to vendors. Approval of the documents must be obtained from the Project Manager before issued externally. When proposals, bids or price quotations are received the evaluation is done by the project team according to the established decision criteria. Procurement under $2,500.00 only require the approval of the Project Manager but purchases over this limit must be approved by the Project Sponsor. The project team's Internal Source Selection Evaluation Forms are provided to the Project Sponsor for consideration.

4.9.10 Decision Criteria

The decision criteria will be determined based on contract type.

I. Competitive Shopping

For goods procured under Competitive Shopping, the quotations will be evaluated based on cost. A minimum of three quotations is required for evaluation. The quotation with the lowest evaluated cost, but not necessarily the lowest submitted price, shall be selected for award, provided that the vendor with lowest evaluated cost has the capability and resources to effectively carry out the contract as offered in the quotation. The terms of the accepted offer shall be incorporated in a purchase order or small contract.

II. Direct Contracting

For procurement under direct contracting to be justified, the item must be suitable, the number of new items must be generally less that the existing number, the price must be reasonable, and the advantages of another make or source of the item must have been considered and rejected on grounds acceptable to the Project Sponsor. There must be no advantage that could be

obtained by further competition. Expert judgement will be used to evaluate the proposal.

III. Fixed Budget

Fixed Budget Selection is only to be used for simple assignments where the the TOR and staff input can be precisely defined and where the cost cannot exceed a fixed budget amount. Evaluation of proposals under Fixed Budget follow the same decision criteria under Quality and Cost-Based selection. Any proposal that exceed the budgetary limit shall not be further evaluated. The consultant who has submitted the highest ranked technical proposal shall be selected for contract negotiations and signature.

IV. Quality and Cost-Based Selection

Technical and financial proposals submitted will be evaluated and although price is a factor in the overall selection, quality remains the main consideration in the selection of the consultant. The technical evaluation is to be carried out first, independently from the price proposal.

The technical proposal will be evaluated for:

- The consultant's professional qualifications, experience and relevant experience for the assignment, including geographical area similar to that of the project;
- The thoroughness of the consultant's methodology and approach, including its comments on the TOR;
- The qualifications and expertise of the key staff proposed for the assignment.

Each criteria shall be graded on a scale of 0 to 100 points, according to a predetermined grading scale, detailed in the Data Sheet of the RFP. The points will be weighted to become scores.

The financial proposal will be evaluated based on:

- Realistic cost estimates of staff time and other critical inputs included in the technical proposal to ensure that the financial proposal adequately reflects the technical commitments of the consultant.
- The lowest evaluated financial proposal is given a score of 100 and the scores of the other proposals are calculated by dividing the lowest proposal by the price of the respective other proposals. The methodology and formula for determining the financial scores must be explained in the RFP.

Final Evaluation:

The total scores of the combined quality and cost evaluation using the relative weights to quality and price for the assignment shall be calculated and provided to the Project Sponsor for a “no-objection”. After a no-objection from the Project Sponsor, the proposal with the highest combines score shall be recommended consultant.

V. Sole Source

For procurement with a Sole Source, a single consultant would be required to prepare a technical and financial proposal. There is no competition and comparative analysis therefore the project must take all cautionary measures to ensure that efficiency and transparency are maintained. Expert judgement will be used to evaluate the proposal.

4.9.11 Vendor Management

Procurement management will also include maintaining contract files for all procurement items or services. The Project Officer has direct responsibility for vendor management under this project. The Project Officer will be responsible for coordination and planning of relevant activities as well as documentation in a contract file throughout the procurement process.

Each contract file will contain:

1. Original Contract and all amendments
2. All related communication with the supplier (internal and external, hard copy and electronic)
3. Copy of the winning offer
4. Award documents
5. Minutes of Meetings
6. Notes of phone conversations
7. Reports
8. Pictures, videos
9. Proof of receipt of goods
10. Proof of payment
11. Supplier assessment report
12. Acceptance report for client

Vendor management will include regular monitoring of the contracts. The Project Officer is responsible for following up and ensuring that the actions of the supplier and the project team are in line with the contractual responsibilities, reflecting amendments to the contracts where applicable and ensuring any claim or disputes are resolved amicably according to the terms of the contract. Payment for the goods or services will be the responsibility of the Project Manager but contract close out is the responsibility of the Project Officer.

When contracts are awarded, the Project Officer will monitor performance, collect information, and measure actual contract achievement. For small procurements a telephone call or email is satisfactory to ensure everything is according to plan. For more complex projects, reports, regular progress meetings, formal testing, and technical reviews must be done. For performance-based contracts, performance indicators developed in the contract will be used. The Project Officer will maintain cost control, schedule control, compliance with specifications, terms of reference, statement of work, and compliance with terms and conditions, reporting requirements and administrative aspects of performance.

4.9.12 Performance Metrics for Procurement Activities

The following metrics will be used to measure vendor performance for this project's procurement activities:

I. Efficiency of the competitive process
II. Cost reduction/containment
III. Supplier management
IV. Efficiency of internal systems and processes
V. Product/Service Quality

The following metric table will be used to measure performance. The performance is rated on a 1-3 scale as indicated below:

Chart 56 Procurement Performance Evaluation Template (Source: compiled by author, M. Chun, September 2019)

Vendor	Product Quality	On Time Delivery	Documentation Quality	Development Costs	Development Time	Cost per Unit	Transactional Efficiency
Vendor #1							
Vendor #2							

1 – Unsatisfactory
2 – Acceptable
3 – Exceptional

4.10 Project Stakeholder Management

To effectively manage key project stakeholders a Stakeholder Engagement Plan is an important component of the Project Management Plan. Project Stakeholder Management includes the identification of stakeholders who can impact or be impacted by the project, analysis of these stakeholders' expectations and impact on the project, and the development of strategies to manage and monitor the

participation and involvement in the project. Before the Stakeholder Management Plan was prepared, the Stakeholder Register was developed as part of the Identify Stakeholders Process. This can be seen in Chart 53.

The Stakeholder Engagement Plan was prepared after completion of the Stakeholder Register. The Stakeholder Engagement Plan is the main document for the identification of the strategies to promote productive involvement and the most effective use of their participation in project execution. Key inputs to this plan were the Project Charter, the Communications Management Plan, the Resource Management Plan, Scope Management Plan, and Schedule Management Plan. Information was gathered through personal interviews, emails, telephone conversations, meetings with the SPTOA members and review of SPTOA reports and publications. These personal interactions allowed for a better understanding of the Enterprise Environmental Factors and Organizational Process Assets. COMPACT/SGP guidelines were also reviewed along with regulatory reporting requirements from the Government regulatory bodies. A systematic review was done to gather information in order to develop the best management strategies for stakeholder engagement. Brainstorming, alternatives analysis, root cause analysis, prioritization and ranking, and stakeholder analysis were performed to adequately develop the Project Stakeholder Engagement Plan as seen below.

Chart 57 Project Stakeholder Register (Source: compiled by author, M. Chun, September 2019)

Project Stakeholder Register											
Project	**Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex**										
ID	**Stakeholder**	**Roles-Responsibilities**	**Category**	**Influence**	**Impact**	**Main Expectations**	**Major Requirements**	**Communication Requirements**	**Power**	**Interest**	**Engagement Strategy**
				Low-Medium-High					**Low-High**		
1	SPTOA Board of Directors	Project Sponsor	Internal	High	High	• Project will be completed successfully and meet project objectives	• Timely and continuous reporting of project activities • Effective use of project resources to complete project on time, within scope and budget	• Face to Face • Conference Call/Skype/Zoom • Emails • Hard Copy Reports	High	High	• Invite to multi-sectoral meeting where project benefits and benefits realization will be presented • Personal contact maintained • Invite to Stakeholder Progress Meeting once per quarter • Invite to general information session on project closure
2	COMPACT/SGP	Project Sponsor	External	High	High	• Project will be completed successfully and meet project objectives	• Timely and continuous reporting of project activities • Effective use of project resources to complete project on time, within scope and budget	• Face to Face • Conference Call/Skype/Zoom • Emails • Hard Copy Reports	High	High	• Invite to multi-sectoral meeting where project benefits and benefits realization will be presented • Personal contact maintained • Invite to Stakeholder Progress Meeting once per quarter • Invite to general information session on project closure
3	SPTOA Members	Silent – Project Sponsor	Internal	Medium	High	• Project will be completed successfully and meet project objectives • Training opportunities will benefit the members	• Timely reporting on project progress	• Emails • General Meetings	Low	High	• Invite to multi-sectoral meeting where project benefits and benefits realization will be presented • Invite to Stakeholder Progress Meeting once per quarter • Updates at membership meetings • Invite to general information session on project closure
4	Conservation Membership Program Donors	Project Partner	External	Low	Medium	• Project will be completed successfully and meet project objectives	• Timely reporting on project progress	• Face to Face • General Meetings	Low	High	• Invite to multi-sectoral meeting where project benefits and benefits realization will be presented • Invite to Stakeholder Progress Meeting once per quarter • Invite to general information session on project closure
5	Ministry of Tourism and Civil Aviation	Regulatory Body – oversight on tourism development	External	Medium	High	• Project objectives are in line with the Ministry's strategic plans for tourism development in Belize	• Timely and continuous reporting of project activities • Adherence to local regulations and international standards	• Face to Face • Conference Call/Skype/Zoom • Email	High	High	• Invite to multi-sectoral meeting where project benefits and benefits realization will be presented • Set up one-on-one meeting to share key project information and seek feedback • Invite to Stakeholder Progress Meeting once per quarter • Invite to general information session on project closure

Project Stakeholder Register

Project	Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex										
ID	**Stakeholder**	**Roles-Responsibilities**	**Category**	**Influence**	**Impact**	**Main Expectations**	**Major Requirements**	**Communication Requirements**	**Power**	**Interest**	**Engagement Strategy**
				Low-Medium-High					**Low-High**		
6	Project Manager	Overall project administration and delivery	Internal	High	High	• Project will be completed successfully and meet project objectives	• Frequent communication with project sponsor, project team and other stakeholders • Provision of all necessary resources for completion of the project.	• Face to Face • Conference Call/Skype/Zoom • Email • Telephone/Whatsapp	High	High	• Invite to multi-sectoral meeting where project benefits and benefits realization will be presented • Invite to Stakeholder Progress Meeting once per quarter • Invite to general information session on project closure
7	Project Team	Execution of the Project	Internal	Medium	Medium	• Project will be completed successfully and meet project objectives	• Frequent communication on project progress, completion of milestones, and work to be completed	• Face to Face • Conference Call/Skype/Zoom • Email • Telephone/Whatsapp	Low	High	• Invite to multi-sectoral meeting where project benefits and benefits realization will be presented • Invite to Stakeholder Progress Meeting once per quarter • Invite to general information session on project closure
8	Hol Chan Marine Reserve	Interested Party – responsible body for management and monitoring of the HCMR	External	Medium	High	• The project will coincide with HCMR management of the coral reef in the Ambergris Caye area	• Timely reporting on project progress • Information is disseminated to the general public in a timely manner	• Emails • General Meetings	Low	High	• Invite to multi-sectoral meeting where project benefits and benefits realization will be presented • Set up one-on-one meeting to share key project information and seek feedback • Invite to Stakeholder Progress Meeting once per quarter • Establish an installation taskforce for mooring buoys installation and invite a HCMR representative to be a part of the team, with specific emphasis on training component • Invite to general information session on project closure
9	Belize Tourism Board	Statutory Body – develop, market and implement tourism programs locally and internationally	External	High	High	• Project objectives are in line with the BTB's strategic plans for tourism development in Belize	• Timely and continuous reporting of project activities • Adherence to local regulations and international standards	• Face to Face • Conference Call/Skype/Zoom • Email	High	High	• Invite to multi-sectoral meeting where project benefits and benefits realization will be presented • Invite to Stakeholder Progress Meeting once per quarter • Invite to general information session on project closure
10	Belize Fisheries Department	Regulatory Body – management of Belize's aquatic and fisheries resources	External	High	High	• Project will achieve its objectives and promote sustainable marine practices and marine conservation	• Timely and continuous reporting of project activities • Adherence to local regulations and international standards	• Face to Face • Conference Call/Skype/Zoom • Email	High	High	• Invite to multi-sectoral meeting where project benefits and benefits realization will be presented • Set up one-on-one meeting to share key project information and seek feedback • Invite to Stakeholder Progress Meeting once per quarter • Invite to general information session on project closure

Project Stakeholder Register

Project	Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex										
ID	**Stakeholder**	**Roles-Responsibilities**	**Category**	**Influence**	**Impact**	**Main Expectations**	**Major Requirements**	**Communication Requirements**	**Power**	**Interest**	**Engagement Strategy**
				Low-Medium-High					**Low-High**		
11	Ambergris Caye Sportfish Guide Association	Partner Agency – Marine Recreation Providers	External	Low	High	• Project will be for the benefit of all marine recreation providers	• Timely dissemination of project updates • Participation in training activities	• Website • NewsPrint • Information Session	Low	High	• Invite to multi-sectoral meeting where project benefits and benefits realization will be presented • Set up one-on-one meeting to share key project information and seek feedback • Invite to Stakeholder Progress Meeting once per quarter • Special invite for 8 members of the Association to be a part of each training sessions in advanced marine course, coastal birding and GPS and Navigation • Invite to general information session on project closure
12	San Pedro Tour Guide Association	Partner Agency – Marine Recreation Providers	External	Low	High	• Project will be for the benefit of all marine recreation providers	• Timely dissemination of project updates • Participation in training activities	• Website • NewsPrint • Information Session	Low	High	• Invite to multi-sectoral meeting where project benefits and benefits realization will be presented • Set up one-on-one meeting to share key project information and seek feedback • Invite to Stakeholder Progress Meeting once per quarter • Special invite for 8 members of the Association to be a part of each training sessions in advanced marine course, coastal birding and GPS and Navigation • Invite to general information session on project closure
13	Environmental Moorings International	Moorings Certification Agency	External	Low	Medium	• Installation of mooring buoys will pass the certification test and effectively serve its purpose for installation	• Timely communication with SPTOA Project Team	• Face to Face • Conference Call/Skype/Zoom • Email	Low	High	• Invite to Stakeholder Progress Meeting once per quarter • Invite to general information session on project closure
14	Department of Environment	Regulatory Body – Maintain and update national environmental standards	External	High	High	• There will be no imminent danger or threat to the environment, especially recreational water locations	• Timely and continuous reporting of project activities • Adherence to local regulations and international standards	• Face to Face • Conference Call/Skype/Zoom • Email	High	Low	• Invite to multi-sectoral meeting where project benefits and benefits realization will be presented • Set up one-on-one meeting to share key project information and seek feedback • Invite to Stakeholder Progress Meeting once per quarter • Invite to general information session on project closure

Project Stakeholder Register											
Project	**Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex**										
ID	**Stakeholder**	**Roles-Responsibilities**	**Category**	**Influence**	**Impact**	**Main Expectations**	**Major Requirements**	**Communication Requirements**	**Power**	**Interest**	**Engagement Strategy**
				Low-Medium-High					**Low-High**		
15	Belize Port Authority	Regulatory Body – Moorings and docking of marine vessels	External	High	High	• Project objectives will assist marine vessels that come in contract with the Ambergris Caye area	• Timely and continuous reporting of project activities • Adherence to local regulations and international standards	• Face to Face • Conference Call/Skype/Zoom • Email	High	High	• Invite to multi-sectoral meeting where project benefits and benefits realization will be presented • Set up one-on-one meeting to share key project information and seek feedback • Invite to Stakeholder Progress Meeting once per quarter • Invite to general information session on project closure
16	Local Government (San Pedro Town Council and Caye Caulker Village Council)	Regulatory Body – administration and governance of the municipality and village	External	Low	Medium	• Project objectives are in line with the local governments' strategic plans for tourism development on the island of San Pedro Town and Ambergris Caye	• Timely and continuous reporting of project activities • Adherence to local regulations and international standards	• Face to Face • Conference Call/Skype/Zoom • Email	Low	High	• Invite to multi-sectoral meeting where project benefits and benefits realization will be presented • Set up one-on-one meeting to share key project information and seek feedback • Invite to Stakeholder Progress Meeting once per quarter • Invite to general information session on project closure
17	Belize Tourism Industry Association	Umbrella organization for tourism service providers	External	Low	Medium	• Project will be for the benefit of all marine recreation providers	• Timely dissemination of project updates • Participation in training activities	• Face to Face • Conference Call/Skype/Zoom • Email	Low	High	• Invite to multi-sectoral meeting where project benefits and benefits realization will be presented • Invite to Stakeholder Progress Meeting once per quarter • Invite to general information session on project closure
18	Local Residents	Beneficiaries – Promote development in the area	External	Medium	Medium	• Successful completion of the project to promote more economic development on the island	• Information is disseminated to the general public in a timely manner	• Face to Face • NewsPrint • Website	Low	High	• Invite to multi-sectoral meeting where project benefits and benefits realization will be presented • Invite to general information session on project closure
19	Island Visitors	Beneficiaries – safe and sustainable marine practices	External	Low	Low	• Successful completion of the project to ensure safer marine recreation	• Information is disseminated to the general public in a timely manner	• NewsPrint • Website	Low	Low	• Invite to general information session on project closure

Stakeholder Engagement Plan

4.10.1 Purpose

The Stakeholder Engagement Plan is a component of the Project Management Plan that outlines the engagement strategies and actions required to communicate and involve key stakeholders in the execution of the project. Productive involvement of stakeholders means considering the stakeholders' interests and expectations in the project, and the degree to which they can impact or be impacted by the project. The Stakeholder Engagement Plan outlines the strategies to effectively engage stakeholders with an objective to gain support of project decisions for the successful execution of the project. This plan specifies the frequency and types of communication with key contact person. The plan was created as part of the Plan Stakeholder Engagement Process and will be updated frequently throughout the project, as stakeholder communication needs change.

The Stakeholder Management Plan includes several sections:

- **Identify Stakeholders** – identify by name and title the people, groups, and organizations that have significant influence on project direction and its success or who are significantly impacted by the project.
- **Plan Stakeholder Management** – identify the strategies and mechanisms that will be used to achieve the greatest support of stakeholders and minimize resistance.
- **Manage Stakeholder Engagement** – outlines the processes and steps that will be undertaken to carry out the planned strategies.
- **Control Stakeholder Engagement** – describes the methods that will be used to monitor stakeholder engagement and alert the project team if problems are surfacing.

4.10.2 Identify Stakeholders

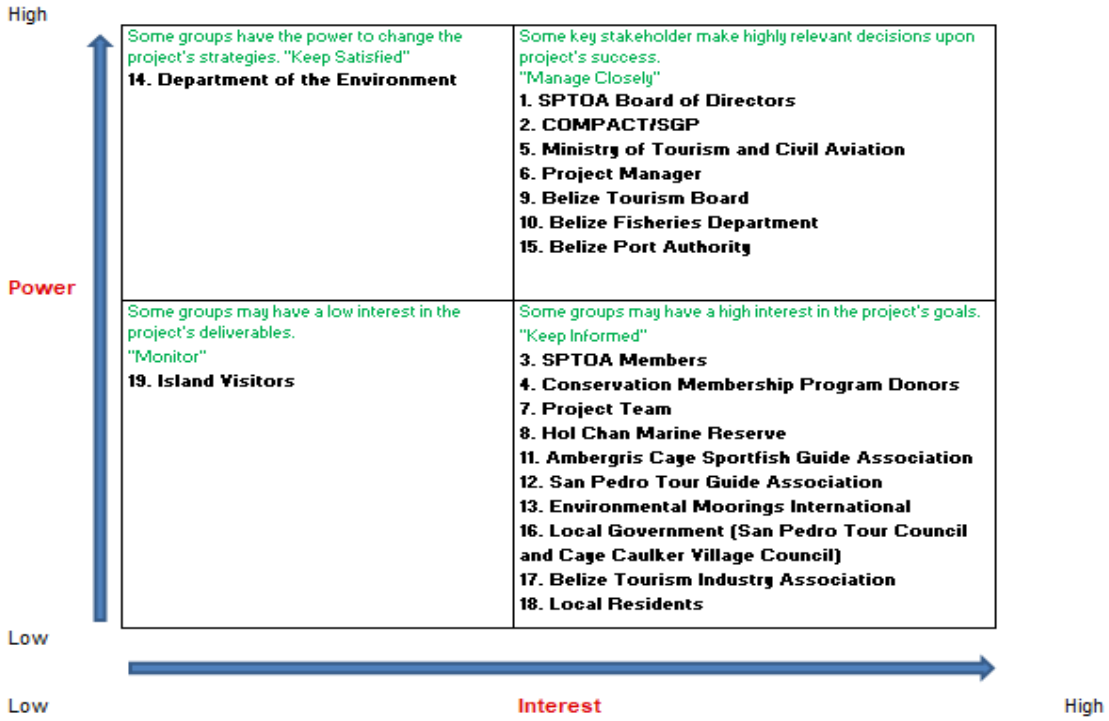
The first step of Project Stakeholder Management was completed prior to development of the Stakeholder Engagement Plan. This is the Identify Stakeholders process. This process involves performing a stakeholder analysis in which potential stakeholders and relevant information (interests, impact, roles, responsibilities, requirements, and expectations) are gathered, documented and analyzed. The result is the establishment of a Project Stakeholder Register (Chart 27). The next step in the Identify Stakeholders process is the stakeholders' classification analysis. This was performed to expand the Stakeholder Register.

4.10.2.1 Power/Interest Classification

The project is assessing each stakeholder's position, as well as their impact on the project and/or how they are impacted by the project. One purpose of this activity is to help identify and categorize stakeholders so that appropriate attention can be given to each according to the level of engagement needed. To help in this process, the project will use the PMBOK Guide ® Power/Interest Grid to categorize each stakeholder group. The Power/Interest Grid analyzes stakeholder groups in a visual manner to further establish stakeholders' level of interest or concern and their ability to influence the project outcomes.

An important outcome of the stakeholder identification and analysis work, including the Power/Interest Grid, is to identify the most influential and most impacted stakeholder groups so that a focused stakeholder management strategy and plan can be developed and executed. The Power/Interest Grid for the project, Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex is seen below. These results have been added to the Stakeholder Register.

Chart 58 Power/Interest Grid (Source: compiled by author, M. Chun, September 2019)



4.10.2.2 Stakeholder Interviews

To confirm that the Stakeholder Identification and Analysis process is accurate and complete, the project team, led by the Project Manager, will help facilitate a series of reviews. In addition, optional qualitative interviews may be performed for the Stakeholder Groups identified as most influential or most impacted by the project to validate that their issues and concerns have been captured accurately.

4.10.3 Plan Stakeholder Engagement

According to the PMBOK Guide ®, Plan Stakeholder Engagement is the process of developing appropriate management strategies to effectively engage stakeholders throughout the lifecycle of the project, based on the analysis of their needs, interests and potential impact on the project (PMI, 2017, p. 516). The key benefit of this process is that it provides a clear, actionable plan for interaction with project stakeholders in an effort to support the project's interests.

The Project Manager will be responsible for engaging stakeholders throughout the lifecycle of the project. The level of engagement required for each stakeholder may vary over the course of the project. Highly engaged key stakeholders in the early stages of the project are essential for project kickoff as it helps to achieve stakeholder buy-in and eliminating obstacles. As the project progresses, the level of engagement will shift from key stakeholders to the broader project team and end-users.

4.10.3.1 Stakeholder Engagement

A Stakeholder Engagement Assessment Matrix is a useful tool to ensure the correct level of engagement is being achieved by each stakeholder. From the Stakeholder Register, each stakeholder was assessed in terms of their current and desired level of engagement. This assessment helps to ensure project success is achieved. The gap between current and desire state for each stakeholder will direct the level of communication necessary to effectively engage the stakeholder. Closing these gaps is the objective of the Monitor Stakeholder Engagement Process.

Chart 59 Stakeholder Engagement Assessment Matrix and Engagement Strategy (Source: compiled by author, M. Chun, September 2019)

Stakeholder	Unaware	Resistant	Neutral	Supportive	Leading
SPTOA Board of Directors					C D
COMPACT/SGP					C D
SPTOA Members				C D	
Conservation Membership Program Donors				C D	
Ministry of Tourism and Civil Aviation			C	D	
Project Manager					C D
Project Team				C D	
Hol Chan Marine Reserve			C	D	
Belize Tourism Board				C D	
Ambergris Caye Sportfish Guide Association	C			D	
San Pedro Tour Guide Association			C	D	

Stakeholder	Unaware	Resistant	Neutral	Supportive	Leading
Environmental Moorings International				C D	
Department of the Environment	C			D	
Belize Port Authority	C			D	
Local Government (San Pedro Town Council & Caye Caulker Village Council)	C			D	
Belize Tourism Industry Association				C D	
Local Residents	C			D	
Island Visitors	C			D	

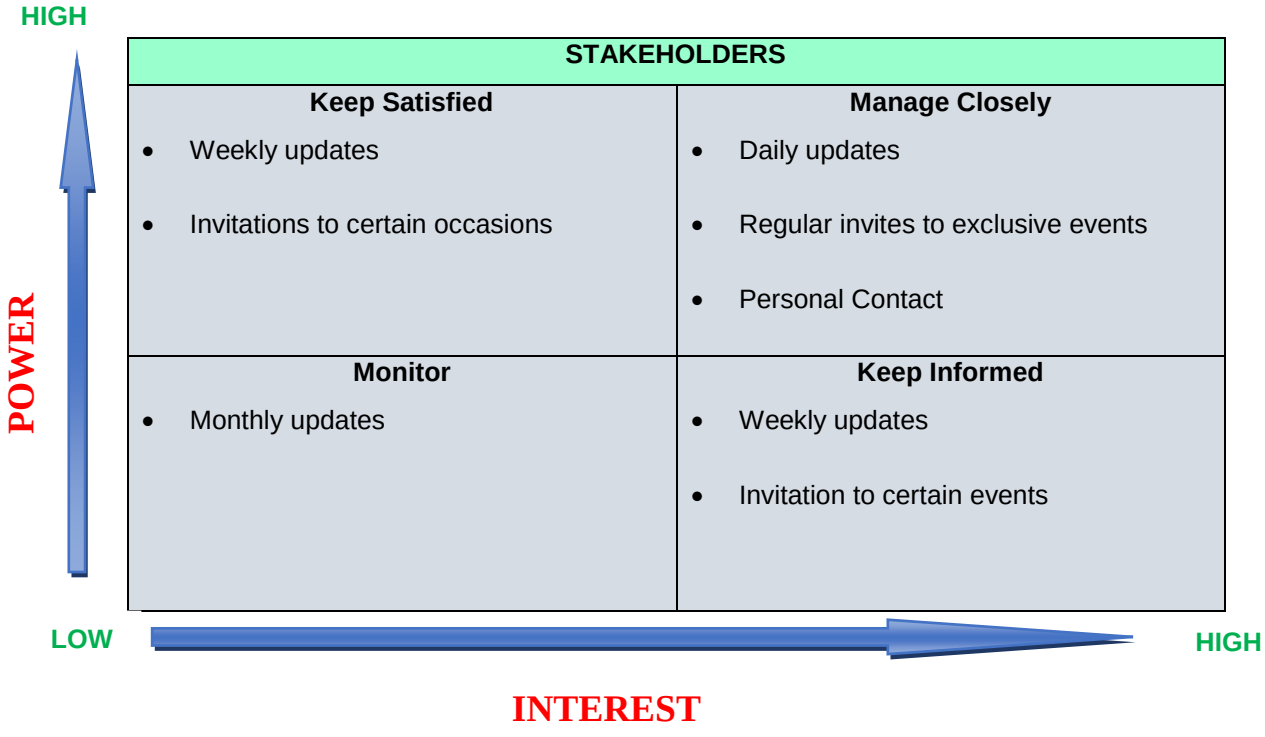
Key: "C" represents the stakeholders current level of engagement and "D" represents the desired level of engagement for project success.

4.10.4 Manage Stakeholder Engagement

Manage Stakeholder Engagement is the process of communicating and working with stakeholders to meet their needs and expectations, and to address issues as they occur. The objective is to increase support and minimize resistance from stakeholders so that the project can proceed smoothly. Stakeholder buy-in and support is critical for project success.

To effectively manage stakeholder engagement, the project will utilize the Communications Management Plan and the following strategies to relay relevant information to key stakeholders (according to power/interest grid in Chart 60) in a proactive and timely manner.

Chart 60 Stakeholder Engagement Strategies according to Power/Interest (Source: compiled by author, M. Chun, September 2019)



STAKEHOLDERS	
Keep Satisfied • Weekly updates • Invitations to certain occasions	**Manage Closely** • Daily updates • Regular invites to exclusive events • Personal Contact
Monitor • Monthly updates	**Keep Informed** • Weekly updates • Invitation to certain events

Using the information provided in the Communications Management Plan such as communication types, purpose, medium, and frequency, the project will have the ability to increase support and minimize stakeholder resistance throughout the life of the project. The Manage Stakeholder Engagement process helps to increase the probability of project success by ensuring that stakeholders clearly understand the project goals, objectives, benefits, and risks.

As part of managing stakeholder engagement, the project team will also be actively listening and soliciting input and feedback from stakeholders to ensure that communications are being received and understood, and also to capture important information to help make adjustments and to respond to problem areas.

The project will utilize an Issues Log to collect, document, and address concerns raised by stakeholders and stakeholder management risks that have materialized into issues that must be managed.

Other Stakeholder Engagement Strategies that will be utilized in this project have been outlined below:

Chart 61 Other Stakeholder Engagement Strategies (Source: compiled by author, M. Chun, September 2019)

4.10.5 Monitor Stakeholder Engagement

Monitor Stakeholder Engagement is the process of monitoring overall project stakeholder relationships and adjusting strategies and plans for engaging stakeholders. Monitor Stakeholder Engagement involves collecting data, assessing the level of engagement and using insights from the data collection to adjust strategies and tactics for engaging effectively with stakeholders. The mechanisms and strategies have been outlined in the Communications Management Plan and the Stakeholder Engagement Plan to receive ongoing direct feedback from key stakeholders. Individual stakeholders will be encouraged to participate and to voice

questions and concerns, with the most serious issues and concerns that are raised addressed in a formal, rigorous process through the Issues and Risk logs.

Stakeholders are critical to the project's success. The project team has planned for and will work to involve, engage and listen to all key stakeholders throughout the project lifecycle. If necessary, a temporary or part-time Stakeholder Engagement Officer will be hired to manage and monitor stakeholder engagement. This is to ensure that the project remains on schedule for successful completion.

4.10.5.1 Stakeholder Plan Updates

The Stakeholder Engagement Plan and associated documents will be reviewed regularly throughout the project to ensure the plan is meeting project expectations and to make modifications as required.

5 CONCLUSIONS

1. The value of a project charter and a well-defined project scope should never be underestimated. While both processes require time and effort for projects, large and small, the true measure of success on a project is defined by the project charter and its scope. The charter and project scope provide direction and a sense of purpose to the management of the project from start to end. The project charter and scope developed for the SPTOA project were specific to what will be undertaken and what were project exclusions.

2. In developing the Project Schedule Management Plan, several factors should be considered, particularly attention to detail. For example, resources might be unavailable at specific times during a project and a suitable project schedule ensures a certain level of order, and time and resource management during such a situation. The SPTOA project clearly establishes that the project must run from January to December 2020. While the calendar year is a total of 53 weeks and normal 5-day work week results in a total of 265 days, the project duration is estimated at 251 days, inclusive of project start and finish dates. Such a reduction in work time is due to 12 non-working days that are official public and bank holidays announced for 2020 in Belize. This shows that strict adherence to the schedule is then a critical component of the SPTOA project.

3. The Cost Management Plan establishes the baseline for what the project is expected to cost and outlines actions to ensure that the project is on budget. Cost management must take an organized approach in order to balance cost with project activities. The SPTOA's project's cost estimate is a total of US$194,000 based on limited funding from COMPACT/SGP. However, the overall project budget is US$213,400. The 10% contingency reserve of $19,400 must be covered by the SPTOA. The cost baseline curve and S-curve were also developed as part of the project cost deliverable so that strict cost supervision can be maintained.

4. The measure of the project's true success and acceptance of deliverables is done by evaluating quality throughout the lifecycle of the project. Quality Management allows the project to establish quality policies and procedures relevant to project deliverables and project processes. The SPTOA project has a total of 7 deliverables and each deliverable must meet the acceptance criteria developed in the Quality Management Plan in order for sign-off to be granted by the Project Sponsor. Quality assurance metrics for the project processes were also clearly outlined to allow for quality monitoring throughout the project.

5. Development of the Resource Management Plan focused on optimizing the use of human and physical resources based on budget efficiency and project duration. The Plan established how project resources will be categorized, allocated, managed and released. The SPTOA project will require the contracting of different consultants for the completion of various activities. One important requirement for the commencement of the SPTOA project is the establishment of a project team. The functional structure developed for the SPTOA project has made provisions for a small project team of three full-time persons and two functional staff members who will be assisting the project on a part-time basis. The acquisition of other resources must be done according to the detailed resource requirements.

6. The Communications Management Plan allows for open and clear lines of communication between the project team and all stakeholders. Relevant, accurate and consistent information must be communicated to the appropriate audiences in a timely manner. The SPTOA project will involve communication among team members, communication with a list of regulatory bodies within the tourism industry and also stakeholders who maintain interest in the project. The Communications Matrix details the SPTOA's project communications requirements, communication medium, and frequency of communication with stakeholders.

7. Project Risk Management Plans contribute to project success by including an analysis of internal and external risks. Risk management typically includes identifying project risks, determining the probability of occurrence and impact on the project. Low-risk events usually have little to no impact on cost, schedule or performance but high-risk events can significantly affect a project's performance. After completion of a qualitative analysis of the SPTOA project, the project is rated as a medium risk project, with an overall project risk score of 10 using a scale of 0-25. There were 2 high-risk events that can potentially impact the project. These are attributed to project management and financing conditions. The risk register has been created to offer risk response strategies for high, medium and low risks.

8. A sound Procurement Management Plan will establish the guidelines and processes for procurement coordination with other aspects of the project. The Procurement Management Plan developed for the SPTOA project has established the Project Manager as the responsible person for oversight and management of procurement activities. For ease of use, a Procurement Reference Guide was developed outlining the items and services to be procured for the SPTOA project, procurement method utilized, the required procurement process, evaluation method and procurement period. The SPTOA project will procure not only facilities and equipment but includes the selection and contracting of consultants for project activities.

9. Stakeholder Engagement is not only identifying key stakeholders but also knowing how to engage stakeholders for project buy-in and productive involvement. The Stakeholder Engagement Plan was carefully developed to ensure that all key stakeholders, near or far, were considered for engagement in the project. The project anticipates success not only for the Project Sponsor but also for all stakeholders. The SPTOA project is aligned with the SDGs that promote decent work and economic growth, life below water and partnership for the goals. Achievement of these goals is only possible through active stakeholder engagement.

6 RECOMMENDATIONS

The general objective of this project was to develop a comprehensive Project Management Plan for the project entitled, “Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex” in San Pedro Town, Belize. These recommendations are directed to the SPTOA, one of the Project Sponsors of the project.

1. This project is the first robust project to be undertaken by the SPTOA with its newly developed project team. The SPTOA should maintain the Project Charter and Scope Management Plan as two key guiding documents for management of the project in order to increase the likelihood of success.

2. The SPTOA project duration is 251 days in which seven deliverables are to be completed. The project includes scheduling for resource acquisition, execution of activities and key project milestones. Important areas to pay attention to are the dependencies between activities, leads and lags and activities on the critical path, as slippage on any of these activities would increase the overall project time. If the project is behind schedule, resource optimization or schedule compression techniques may have to be utilized. A recommendation is to conduct schedule compression by reducing the time allocated for the bidding process in procurement activities.

3. Project costs for the SPTOA project depict a typical S-curve in project management. Outside the high project cost anticipated in May of 2020 for the mooring buoys, project can maintain stable costs if the progress of the project is tracked carefully over time. The SPTOA must ensure that the project team maintains strict adherence to the cost budget using the cost baseline and S-curve.

4. Poor project quality can have profound effects on projects resulting in rework, schedule delays, higher costs, frustration and especially donor confidence.

Funding for the SPTOA project is being provided by COMPACT/SGP and supplemented by the SPTOA, therefore, quality assurance and quality control must always be maintained. Validation of the project deliverables will first be carried out by the SPTOA Executive. This responsibility must not be taken lightly as there is much risk in receiving future donor funding for other projects if the acceptance criteria for project deliverables are not adhered to. Sign off on deliverables should not be granted unless the acceptance criteria have been met.

5. There are some limitations in the project resources of the SPTOA project. These are a result of availability of finances and technical capacity of the SPTOA team. While it may not be possible for the SPTOA to utilize a Project Management Information System (PMIS) for this project, the SPTOA should consider procuring a PMIS for future projects as it offers software tools such as scheduling tools, work authorization systems, configuration management systems, information collection and distributions systems as well as interfaces to other knowledge base repositories.

6. The SPTOA should pay keen attention to the Documents Register, Database Repository, Issues Log, and Lessons Learned Register of the project to ensure that all project aspects and communications are captured and stored to be used as analog reference for future projects.

7. Since one of the high-level risks identified in the Risk Management Plan were surrounding the project team's technical capacity and project management skills, it is recommended that the SPTOA source bridge funding to maintain the project team that is built under this initial project and reduce this gap for future projects. Furthermore, the project management and administration trainings identified for the SPTOA Executive should be done as an iterative process so that the team can learn skills and apply them prior to the subsequent trainings. The idea is to incrementally build capacity where the deficiencies of the SPTOA Executive can be captured and tailored into the management trainings. These

interventions could perhaps reduce the risk profile for project management and capacity to a medium risk rather than high risk. Incrementally building capacity

8. The procurement and installation of the mooring buoys in the SPTOA project account for 44% of the overall project cost estimate. Procurement for this activity was pre-determined to be executed through direct contracting. The SPTOA should consider revisiting this procurement method and look at the option of competitive bidding. This will reduce procurement risks and increase the likelihood of better pricing.

9. For future projects, the SPTOA should create a project committee comprising of all the key high-power stakeholders to hold consultative sessions for new project development. This ensures project buy-in prior to project initiation. In addition, since this is the first comprehensive project of the SPTOA with a new project team, the Issues Log and the Lessons Learned Register should be detailed and updated frequently to provide a good analog base for future project development.

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8 APPENDICES

Appendix 1: FGP Charter

<table>
<tr><th colspan="2">PROJECT CHARTER</th></tr>
<tr><td>Date</td><td>Project Name:</td></tr>
<tr><td>May 13, 2019</td><td>Project Management Plan for the project entitled “Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex” in San Pedro Town, Belize</td></tr>
<tr><td>Knowledge Areas / Processes</td><td>Application Area (Sector / Activity)</td></tr>
<tr><td>Knowledge areas:
1. Project Integration Management
2. Project Scope Management
3. Project Schedule Management
4. Project Cost Management
5. Project Quality Management
6. Project Resource Management
7. Project Communications Management
8. Project Risk Management
9. Project Procurement Management
10. Project Stakeholder Management

Process groups:
Initiating, Planning, Monitoring and Controlling</td><td>Marine Industry, Community landscape/seascape conservation, preservation of natural and cultural heritage</td></tr>
<tr><td>Start date</td><td>Finish date</td></tr>
<tr><td>May 13th, 2019</td><td>December 13th, 2019</td></tr>
<tr><td colspan="2">Project Objectives (general and specific)</td></tr>
<tr><td colspan="2">General objective:
To develop a comprehensive Project Management Plan for the project entitled “Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex” in San Pedro Town, Belize.

Specific objectives:
1. To develop the integration management plan that will unify and coordinate the processes and project management activities.
2. To create a scope management plan to define all the project work required to successfully complete the project.
3. To create a schedule management plan that will define the approach for creating and monitoring a project schedule that will effectively manage the timely completion of the project.
4. To develop a cost management plan that focuses on the key processes necessary for establishing a project budget and ensuring the project is completed within the approved budget.
5. To develop a quality management plan that defines the project’s quality policies, procedures and requirements in order to effectively manage project and product quality from planning to final delivery.</td></tr>
</table>

6. To create a resource management plan to identify, acquire and manage all resources needed in order to successfully complete the project.
7. To create a communications management plan that details the communication needs and expectations for the project with timely and effective communication strategies to disseminate key information.
8. To develop a risk management plan that outlines the project risk management approach from identifying to categorizing and effectively responding to project risks.
9. To develop a procurement plan that identifies the processes necessary to purchase or acquire goods, services or results needed for the project.
10. To create a stakeholder engagement plan that ensures the proper identification and categorization of stakeholders with appropriate engagement strategies throughout the project.

Project purpose or justification (merit and expected results)

The San Pedro Tour Operators Association (SPTOA) is a membership organization that fosters sustainable growth of the local tourism industry in Belize as well as its members through the promotion of responsible business practices and standards. The Association currently manages a number of projects that promotes its mission and has been able to maintain partnerships with stakeholders such as Professional Association of Diving Instructors (PADI), Divers Alert Network (DAN), Hol Chan Marine Reserve, Belize Port Authority, the Fisheries Department and local dive shops. The communities of San Pedro and Caye Caulker, Ambergris Caye rely on the reef system as their source of income but uncontrolled business practices pose a threat to the marine ecosystems. The project recognizes that there is the need for greater grassroots adherence and compliance to address the most significant threats to the coral reefs. Nationally, Belize has enacted policies that safeguard the health of the country's marine resources and this project is aligned with these national policies and will assist in ensuring that the most strategic actions are taken in preserving the marine ecosystems in the areas utilized by SPTOA.

The SPTOA possesses very committed members and maintains strong support from the communities for their ongoing activities but lack the institutional capacity to properly plan and adequately manage their projects. This Project Management Plan will act as the guiding document for the SPTOA to successfully execute, monitor, control and close the project, "Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex."

Description of Product or Service to be generated by the Project – Project final deliverables

The final product to be generated is a full Project Management Plan inclusive of all subsidiary plans, complete with templates, flow charts, and diagrams that addresses the ten knowledge areas essential for the successful completion of the project. The Project Management Plan will include the following:

i. Integration Management Plan
ii. Scope Management Plan
iii. Schedule Management Plan
iv. Cost Management Plan
v. Quality Management Plan
vi. Resources Management Plan
vii. Communications Management Plan
viii. Risk Management Plant
ix. Procurement Management Plan
x. Stakeholder Engagement Plan

Assumptions

- The SPTOA will be the primary source of information for the project and will be available for timely

meetings and sharing of relevant project information.

- The SPTOA is in possession of all the relevant background information and data for the development of the Project Management Plan.
- The project duration is adequate for successful completion of all deliverables.
- The project can be undertaken by a single individual with input from expert judgement where required.
- The budget is adequate to execute all the activities under the project.
- The project manager's (student) theoretical background of Project Management is suitable for successful development of the Project Management Plan.
- The University for International Cooperation (UCI) will provide adequate support and timely feedback for completion of all deliverables on time and within budget.
- The scope of the project has been clearly defined.
- Key stakeholders will approve of the project and lend support where necessary.
- All necessary hardware, software tools and supplies will be available to successfully complete the project.

Constraints

- The project must be completed within three (3) months.
- The executing agency for the project (primary information source) is located in a different district (geographic area) which requires extensive travel and/or heavy dependence on alternate means of communication.
- Limited knowledge and capacity of the SPTOA Directors in the areas of project planning, execution, monitoring and controlling. Knowledge and experience are limited to project initiation only.
- The project is fully self-funded.

Preliminary risks

- The weak organizational structure of the SPTOA poses a risk of delays in decision making which potentially impacts the project schedule (missed deadlines) and quality of deliverables (incomplete work).
- Poor or inadequate communication or unavailability of SPTOA Directors via alternative communication methods may lead to project delays and additional project costs for additional travel to a different district (different geographic area) for retrieval of data.
- Project costs may exceed the initial budget and sourcing of additional funds can affect project time, scope and quality.
- Untimely feedback on proposed changes from UCI professor, impacting the scheduled time for corrections and resubmission.
- Resistance from key stakeholders in lending support to the project for information sharing, impacting project scope, and quality.
- Magnitude of proposed changes by the FGP Professor or Tutor can impact project scope, time and cost.

Budget

Financial resources available for completion of the Project Management Plan is the amount of **US$1,275.00**. The budget covers travel expenses for meetings and data collection, communication with stakeholders, printing and dissemination of results to UCI and SPTOA.

	US$
Administration (data collection, communications)	175.00

Travel and Accomodations	500.00
Printing and Dissemination	400.00
Miscellaneous	200.00
	1,275.00

Milestones and dates

Milestone	Start date	End date
FGP Kick-Off (signing TOR for engagement)	May 13, 2019	May 13, 2019
FGP Project Charter Complete and Submitted	May 14, 2019	May 19, 2019
FGP Work Breakdown Structure (WBS) Complete and Submitted	May 14, 2019	May 19, 2019
Chapter 1: Introduction Complete and Submitted	May 20, 2019	May 26, 2019
FGP Schedule Complete and Submitted	May 20, 2019	May 26, 2019
Revisions to FGP Project Charter and WBS Complete and Submitted	May 24, 2019	May 26, 2019
Chapter 2: Theoretical Framework Complete and Submitted	May 27, 2019	Jun 2, 2019
Revisions to Chapter 1 and FGP Schedule Complete and Submitted	May 31, 2019	Jun 2, 2019
Chapter 3: Methodological Framework Complete and Submitted	Jun 3, 2019	Jun 9, 2019
Revisions to Chapter 2 Complete and Submitted	Jun 7, 2019	Jun 9, 2019
Executive Summary Complete and Submitted	Jun 10, 2019	Jun 14, 2019
Bibliography Complete and Submitted	Jun 10, 2019	Jun 14, 2019
Revisions to Chapter 3 Complete and Submitted	Jun 14, 2019	Jun 16, 2019
FGP Project Charter, Signed and Approved	Jun 16, 2019	Jun 17, 2019
Tutor Assigned and Communication Established	Jul 29, 2019	Jul 31, 2019
Revisions to Chapters 1, 2 & 3 Complete and Submitted, if necessary	Aug 1, 2019	Aug 9, 2019
Chapter 4: Results (Development) Complete and Submitted	Aug 10, 2019	Oct 14, 2019
i. Integration Management Plan	Aug 10, 2019	Aug 18, 2019
ii. Scope Management Plan	Aug 10, 2019	Aug 18, 2019
iii. Schedule Management Plan	Aug 19, 2019	Sep 1, 2019
iv. Cost Management Plan	Aug 19, 2019	Sep 1, 2019
v. Quality Management Plan	Sep 2, 2019	Sep 8, 2019
vi. Resource Management Plan	Sep 9, 2019	Sep 15, 2019
vii. Communications Management Plan	Sep 16, 2019	Sep 22, 2019
viii. Risk Management Plan	Sep 23, 2019	Sep 29, 2019
ix. Procurement Management Plan	Sep 30, 2019	Oct 6, 2019
x. Stakeholder Engagement Plan	Oct 7, 2019	Oct 14, 2019

xi. Project Management Plan: Integration Complete	Oct 14, 2019	Oct 14, 2019
Chapter 5: Conclusions Complete and Submitted	Oct 15, 2019	Oct 21, 2019
Chapter 6: Recommendations Complete and Submitted	Oct 22, 2019	Oct 28, 2019
Approval of Chapters by Tutor	Oct 29, 2019	Nov 2, 2019
Reviewers Assignment Request Submitted	Nov 4, 2019	Nov 8, 2019
Reviewers Assigned and Communication Established	Nov 4, 2019	Nov 7, 2019
FGP Submitted to Reviewers	Nov 8, 2019	Nov 8, 2019
Reviewers' (1 & 2) Report Received	Nov 9, 2019	Nov 18, 2019
Adjustments Complete. FGP Updated and Submitted	Nov 19, 2019	Nov 28, 2019
Second Review by Reviewers Complete	Nov 29, 2019	Dec 8, 2019
FGP Complete and Submitted to Board of Examiners for Review	Dec 2, 2019	Dec 8, 2019
Final Review by Board Complete	Dec 9, 2019	Dec 10, 2019
Project Closure with FGP Grade Report	Dec 11, 2019	Dec 13, 2019

Relevant historical information

The San Pedro Tour Operators Association (SPTOA) was formed out of members from the San Pedro Tour Guide Association as a group of tour shop owners dedicated to expanding tourism on the island of Ambergris Caye. As the industry grew, tour operators became concerned about the number of private entities using the natural aquatic attractions for profit and how this would affect the future of tourism on the island. In 2016, the tour operators collectively decided that an exemplary body was needed to implement regulations on efficient and sustainable tourism for the benefit of all. The SPTOA was then formed with seven board members and two associate members. The SPTOA is registered and has been appointed to the licensing committee by the Belize Tourism Board (BTB). The Association has seen much growth and its members continue to be advocates for responsible tourism by managing programs that demonstrate conservation in action.

Ongoing SPTOA programs that demonstrate efforts in improving environmental business practices of marine recreation include:

i. *Kids In Action Program* - 30 children from the community are trained in scuba diving every summer. Throughout the year, the children volunteer in conservation and educational programs such as coral nurseries and beach clean-up. The objective is to develop this program into a mentorship program for at-risk youth where they would be given job training, scholarships and even job placements when they have completed their studies. This program is self-funded and raises the profile of the association.

ii. *Coral Reef Nursery* – The first coral nursery consisting of Acropora Corals has been established and is being coordinated by two trained young women (trained in fragmentation techniques under the partnership with Fragments of Hope) who were certified under the Kids in Action program years ago. Coral fragments are placed in coral nurseries and will be used to restore degraded reefs used as snorkel and diving sites. Monitoring and research of the nurseries will be conducted in an effort to restore degraded reefs off San Pedro Town. The SPTOA has developed a 3-tier conservation membership program to raise financial support from the private sector to fund this effort.

iii. *Conservation Membership Program* – Members are dubbed partners in the promotion of healthy coral reefs through contributions to the various community programs. Membership is three-tiered and benefits derived are based on the tiers: *Hawksbill* – voluntary or in-kind contributions, *Loggerhead* – Financial Contributions of US$1,000 to US$5,000 and *Green* – Financial Contributions over US$5,000.

iv. *Safety Training* – Four instructors are being trained as emergency trainers (First Aid, CPR, etc.) and will be coordinating at least 10 courses in the summer for tour guides that require this type of training. Currently, there are no mandatory courses for tour guides before they qualify as instructors. The aim of this program is to offer the essential training courses and emergency tools (pocket masks, first aid kits, etc.) to tour guides and other business owners on the island. The program is self-funded and is being used as a revenue generating mechanism for the SPTOA.

Stakeholders

Direct stakeholders:

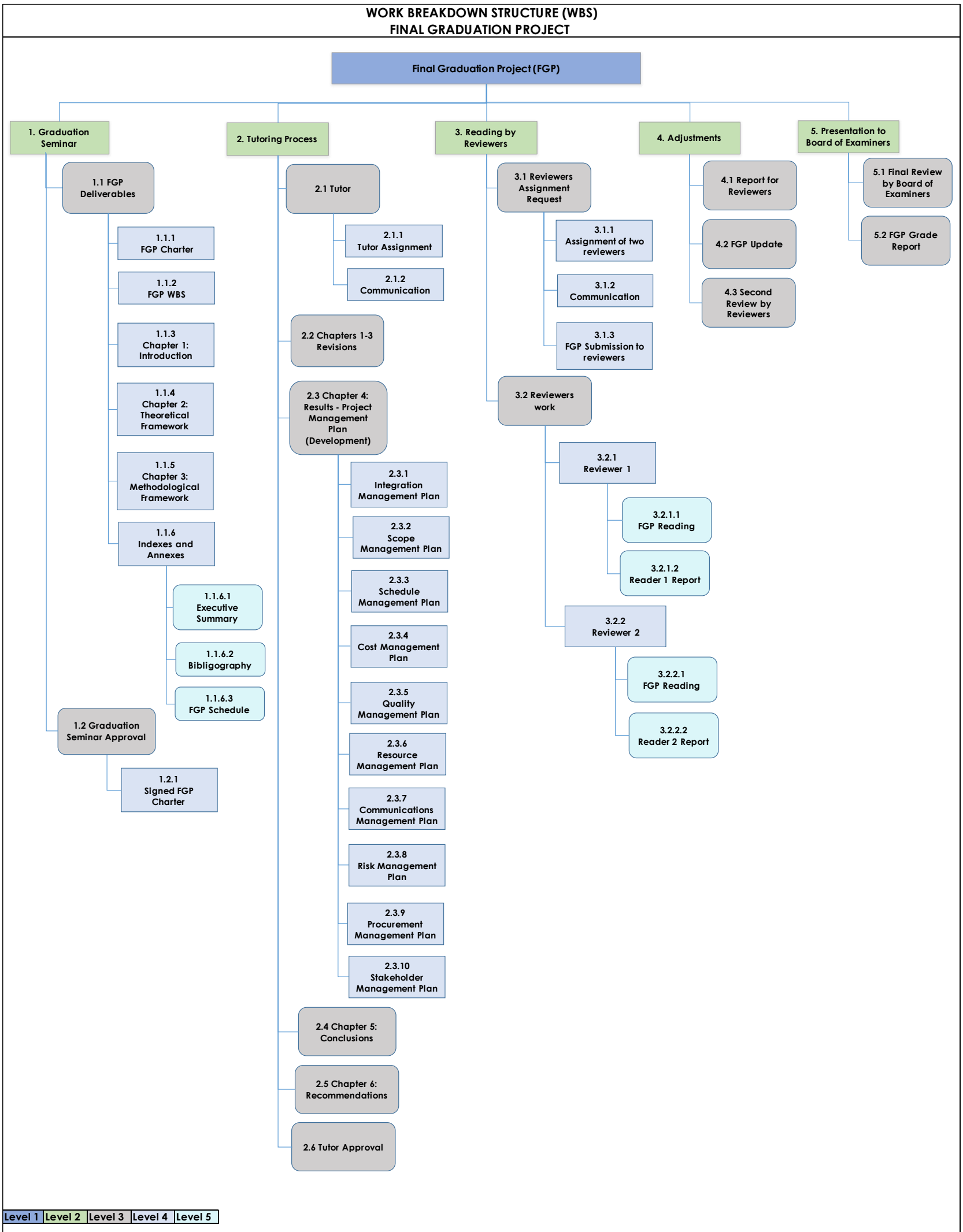
- SPTOA Directors and Members
- Project Manager – Melissa Chun
- FGP Professor – Carlos Brenes
- FGP Tutor
- FGP Reviewers
- FGP Board of Examiners

Indirect stakeholders:

- UCI Academic Assistant
- Scholarship Sponsor - Organization of American States (OAS)
- Project Co-Financer – COMPACT/Small Grants Programme (SGP)
- Ambergris Caye Sportfish Guide Association
- Hol Chan Marine Reserve
- Belize Fisheries Department
- Belize Tourism Board
- Environmental Moorings International
- Current Employer – Geology and Petroleum Department
- Residents of San Pedro and Caye Caulker, Ambergris Caye
- Government of Belize

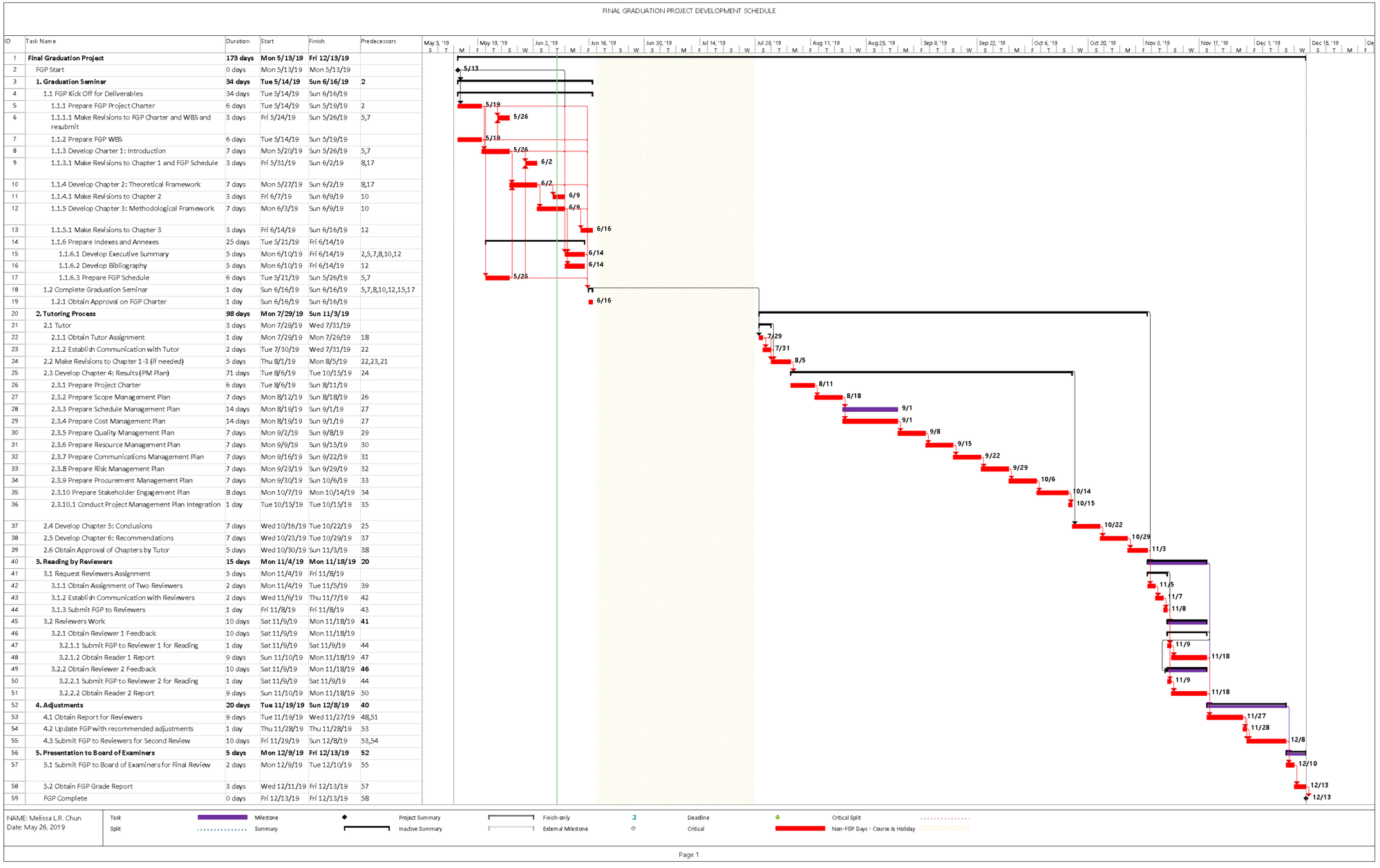
Project Manager: Melissa L.R. Chun	**Signature:** Melissa Chun
Authorized by: Carlos Brenes	**Signature:**

Appendix 2: FGP WBS



Appendix 3: FGP Schedule

The FGP Schedule was prepared using a 7-Day Work Week.



ID	Task Name	Duration	Start	Finish	Predecessors
1	**Final Graduation Project**	**173 days**	**Mon 5/13/19**	**Fri 12/13/19**	
2	FGP Start	0 days	Mon 5/13/19	Mon 5/13/19	
3	**1. Graduation Seminar**	**34 days**	**Tue 5/14/19**	**Sun 6/16/19**	**2**
4	1.1 FGP Kick Off for Deliverables	34 days	Tue 5/14/19	Sun 6/16/19	
5	1.1.1 Prepare FGP Project Charter	6 days	Tue 5/14/19	Sun 5/19/19	2
6	1.1.1.1 Make Revisions to FGP Charter and WBS and resubmit	3 days	Fri 5/24/19	Sun 5/26/19	5,7
7	1.1.2 Prepare FGP WBS	6 days	Tue 5/14/19	Sun 5/19/19	
8	1.1.3 Develop Charter 1: Introduction	7 days	Mon 5/20/19	Sun 5/26/19	5,7
9	1.1.3.1 Make Revisions to Chapter 1 and FGP Schedule	3 days	Fri 5/31/19	Sun 6/2/19	8,17
10	1.1.4 Develop Chapter 2: Theoretical Framework	7 days	Mon 5/27/19	Sun 6/2/19	8,17
11	1.1.4.1 Make Revisions to Chapter 2	3 days	Fri 6/7/19	Sun 6/9/19	10
12	1.1.5 Develop Chapter 3: Methodological Framework	7 days	Mon 6/3/19	Sun 6/9/19	10
13	1.1.5.1 Make Revisions to Chapter 3	3 days	Fri 6/14/19	Sun 6/16/19	12
14	1.1.6 Prepare Indexes and Annexes	25 days	Tue 5/21/19	Fri 6/14/19	
15	1.1.6.1 Develop Executive Summary	5 days	Mon 6/10/19	Fri 6/14/19	2,5,7,8,10,12
16	1.1.6.2 Develop Bibliography	5 days	Mon 6/10/19	Fri 6/14/19	12
17	1.1.6.3 Prepare FGP Schedule	6 days	Tue 5/21/19	Sun 5/26/19	5,7
18	1.2 Complete Graduation Seminar	1 day	Sun 6/16/19	Sun 6/16/19	5,7,8,10,12,15,17
19	1.2.1 Obtain Approval on FGP Charter	1 day	Sun 6/16/19	Sun 6/16/19	
20	**2. Tutoring Process**	**98 days**	**Mon 7/29/19**	**Sun 11/3/19**	
21	2.1 Tutor	3 days	Mon 7/29/19	Wed 7/31/19	
22	2.1.1 Obtain Tutor Assignment	1 day	Mon 7/29/19	Mon 7/29/19	18
23	2.1.2 Establish Communication with Tutor	2 days	Tue 7/30/19	Wed 7/31/19	22
24	2.2 Make Revisions to Chapter 1-3 (if needed)	5 days	Thu 8/1/19	Mon 8/5/19	22,23,21
25	2.3 Develop Chapter 4: Results (PM Plan)	71 days	Tue 8/6/19	Tue 10/15/19	24
26	2.3.1 Prepare Project Charter	6 days	Tue 8/6/19	Sun 8/11/19	
27	2.3.2 Prepare Scope Management Plan	7 days	Mon 8/12/19	Sun 8/18/19	26
28	2.3.3 Prepare Schedule Management Plan	14 days	Mon 8/19/19	Sun 9/1/19	27
29	2.3.4 Prepare Cost Management Plan	14 days	Mon 8/19/19	Sun 9/1/19	27
30	2.3.5 Prepare Quality Management Plan	7 days	Mon 9/2/19	Sun 9/8/19	29
31	2.3.6 Prepare Resource Management Plan	7 days	Mon 9/9/19	Sun 9/15/19	30
32	2.3.7 Prepare Communications Management Plan	7 days	Mon 9/16/19	Sun 9/22/19	31
33	2.3.8 Prepare Risk Management Plan	7 days	Mon 9/23/19	Sun 9/29/19	32
34	2.3.9 Prepare Procurement Management Plan	7 days	Mon 9/30/19	Sun 10/6/19	33
35	2.3.10 Prepare Stakeholder Engagement Plan	8 days	Mon 10/7/19	Mon 10/14/19	34
36	2.3.10.1 Conduct Project Management Plan Integration	1 day	Tue 10/15/19	Tue 10/15/19	35
37	2.4 Develop Chapter 5: Conclusions	7 days	Wed 10/16/19	Tue 10/22/19	25
38	2.5 Develop Chapter 6: Recommendations	7 days	Wed 10/23/19	Tue 10/29/19	37
39	2.6 Obtain Approval of Chapters by Tutor	5 days	Wed 10/30/19	Sun 11/3/19	38
40	**3. Reading by Reviewers**	**15 days**	**Mon 11/4/19**	**Mon 11/18/19**	**20**
41	3.1 Request Reviewers Assignment	5 days	Mon 11/4/19	Fri 11/8/19	
42	3.1.1 Obtain Assignment of Two Reviewers	2 days	Mon 11/4/19	Tue 11/5/19	39
43	3.1.2 Establish Communication with Reviewers	2 days	Wed 11/6/19	Thu 11/7/19	42
44	3.1.3 Submit FGP to Reviewers	1 day	Fri 11/8/19	Fri 11/8/19	43
45	3.2 Reviewers Work	10 days	Sat 11/9/19	Mon 11/18/19	**41**
46	3.2.1 Obtain Reviewer 1 Feedback	10 days	Sat 11/9/19	Mon 11/18/19	
47	3.2.1.1 Submit FGP to Reviewer 1 for Reading	1 day	Sat 11/9/19	Sat 11/9/19	44
48	3.2.1.2 Obtain Reader 1 Report	9 days	Sun 11/10/19	Mon 11/18/19	47
49	3.2.2 Obtain Reviewer 2 Feedback	10 days	Sat 11/9/19	Mon 11/18/19	**46**
50	3.2.2.1 Submit FGP to Reviewer 2 for Reading	1 day	Sat 11/9/19	Sat 11/9/19	44
51	3.2.2.2 Obtain Reader 2 Report	9 days	Sun 11/10/19	Mon 11/18/19	50
52	**4. Adjustments**	**20 days**	**Tue 11/19/19**	**Sun 12/8/19**	**40**
53	4.1 Obtain Report for Reviewers	9 days	Tue 11/19/19	Wed 11/27/19	48,51
54	4.2 Update FGP with recommended adjustments	1 day	Thu 11/28/19	Thu 11/28/19	53
55	4.3 Submit FGP to Reviewers for Second Review	10 days	Fri 11/29/19	Sun 12/8/19	53,54
56	**5. Presentation to Board of Examiners**	**5 days**	**Mon 12/9/19**	**Fri 12/13/19**	**52**
57	5.1 Submit FGP to Board of Examiners for Final Review	2 days	Mon 12/9/19	Tue 12/10/19	55
58	5.2 Obtain FGP Grade Report	3 days	Wed 12/11/19	Fri 12/13/19	57
59	FGP Complete	0 days	Fri 12/13/19	Fri 12/13/19	58

Appendix 4: Letter of Agreement between PM Consultant and SPTOA

Letter of Agreement

This Letter of Agreement, herein after called "the Agreement" is made this 17th day of May, 2019 between Melissa L.R. Chun of Santa Elena, Cayo District herein after called "the PM Consultant" and the San Pedro Tour Operators Association (SPTOA) of San Pedro Town, Ambergris Caye, Belize District herein after called "the Association".

Purpose: To agree the terms and conditions surrounding the development of the Project Management Plan for the Project Titled" Improving Environmental Business Practices of Marine Recreation Providers Within the Northern Coastal Complex" herein after called "the Project", by the PM Consultant, as partial fulfillment of a Master's in Project Management from the University of Costa Rica (UCI), for the Association.

The Association and the PM Consultant hereby agree that:

1. The PM Consultant shall develop the Project Management Plan and all subsidiary plans for the Project in accordance with UCI requirements and in keeping with the Project Management Institute (PMI) standards.
2. The PM Consultant shall perform all works for the preparation and completion of the plans at no charge for professional services to the Association.
3. The Association shall share/provide all relevant documents associated with the Project or for the purposes of the creation/elaboration of the Project Management Plan and/or subsidiary plans with the PM Consultant.
4. The PM Consultant shall redact any portions or sections of any shared documents that the Association deems to be confidential.
5. All documents shared will be used by the PM Consultant for the sole purposes of the creation/elaboration of the Project Management Plan and/or subsidiary plans.
6. All documents shared with the PM Consultant and included in the thesis or plans will be subject the terms and conditions of UCI for usage or reproduction.
7. The Association shall make best efforts to have the relevant and authorized persons available at reasonable times to provide any additional information or clarification that may be required during the creation/elaboration of the Project Management Plan and/or subsidiary plans.

Duration: This agreement shall remain in effect from the effective date of this agreement until the completion of the Final Graduation Project thesis or January 31, 2020, whichever is first.

Extension/Amendment: This Agreement may be extended or amended by mutual agreement of both parties and on such terms and conditions that may be mutually agreed upon.

The undersigned have read this agreement and agree to the terms therein.

PM Consultant		**San Pedro Tour Operators Association**	
Signature:		Signature:	
Name of Signatory:	Melissa L.R. Chun	Name of Signatory:	Everette Anderson, Chairperson
Date:		Date:	

Appendix 5: Project Outline Prepared For SPTOA

UCI
Universidad para la Cooperación Internacional

MAY 2019

GSPM
UCI Global School of Project Management
Escuela Global de Dirección de Proyectos
Escola Global de Gerenciamento de Projetos

Project Outline

Project Management Plan for the Project Entitled "Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex" in San Pedro Town, Belize

PREPARED BY: MELISSA L.R. CHUN

About the University

The University for International Cooperation was the first university in Latin America and the Caribbean to obtain the International Academic Quality Accreditation from the Global Accreditation Center (GAC) of the Project Management Institute, since 2009. It is also the first university in the region to obtain recognition as Registered Education Provider (R.E.P)from PMI, since 2001, at the Global Provider level.

About the Program

The Global School of Project Management Master in Project Management (MPM) is offered by the University for International Cooperation (UCI) in Costa Rica, C.A. The MPM is a graduate program with international accreditation, designed to develop and strengthen one's project management skills, supported by an online (virtual) learning-teaching environment.

The MPM Program is based, not only on PMI standards for Project Management, but also on standards from other global certifying institutions.

Graduation Requirements

The Final Graduation Project (FGP) is a theoretical and practical activity characterized by the formulation of the diagnosis of a problem and the approach of a proposed solution to specific issues.

The Final Graduation Project

The initial proposal of the FGP will be drafted during a 5-week seminar (May 13th - June 16th, 2019). The development of the FGP will take place after with an estimated 3 months starting July 29th, 2019 and ending November 3rd, 2019.

MAY 2019

The FGP Charter

GENERAL OBJECTIVE:

To develop a comprehensive Project Management Plan by December 2019 for the project entitled, "Improving Environmental Business Practices of Marine Recreation Providers Within the Northern Coastal Complex" in San Pedro Town, Belize.

The PM Plan will promote improved business practices and tangible community activities that empower tour operators as active leaders and foster meaningful involvement in coral reef restoration.

PROJECT DELIVERABLES:

- Project Charter
- Scope Management Plan
- Schedule Management Plan
- Cost Management Plan
- Quality Management Plan
- Resources Management Plan
- Communications Management Plan
- Risk Management Plan
- Procurement Management Plan
- Stakeholder Management Plan

The Project Management Plan will include the 10 Knowledge Areas as prescribed by the Project Management Institute (PMI)'s A Guide to the Project Management Book of Knowledge (Sixth Edition, 2017).

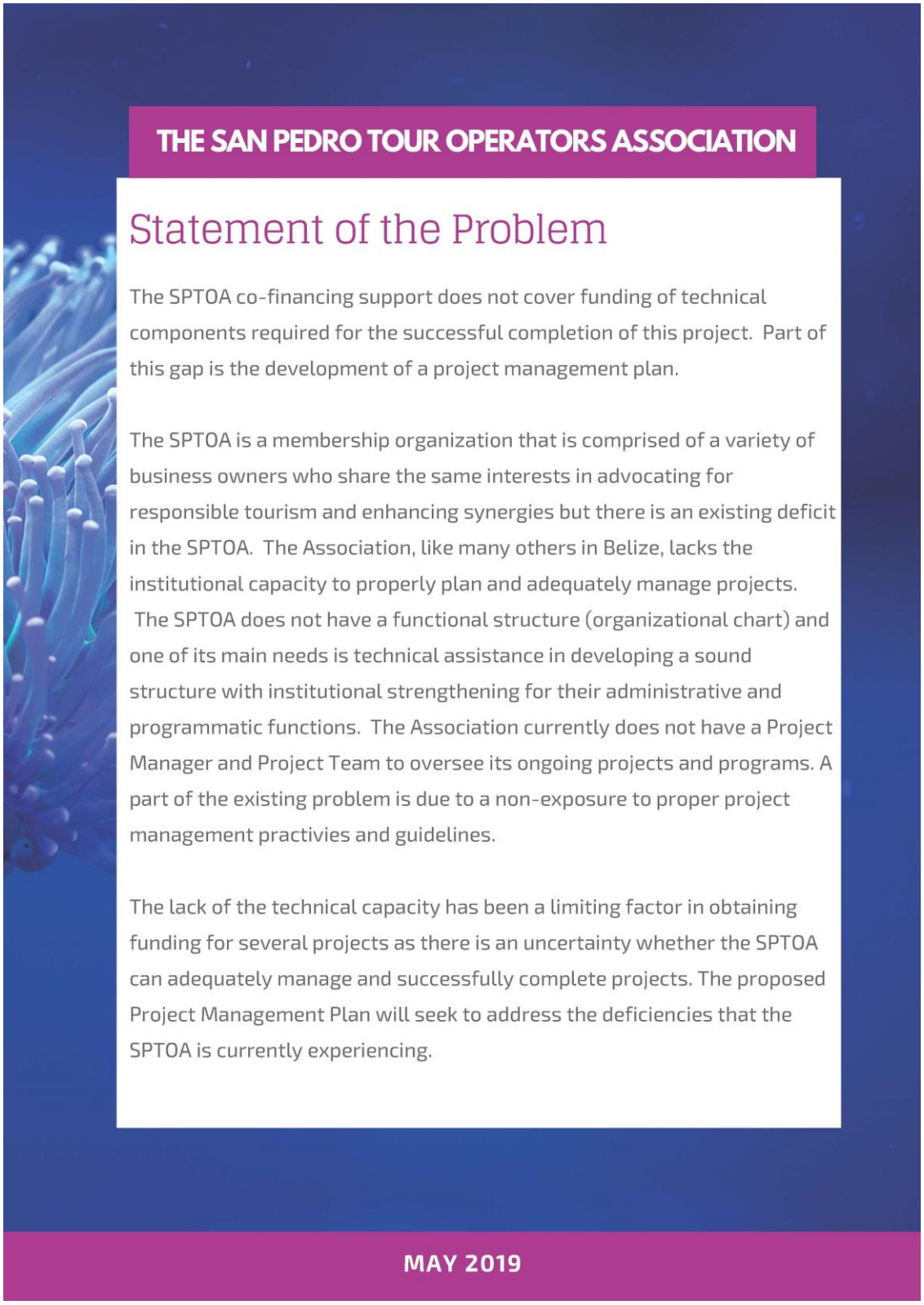
MAY 2019

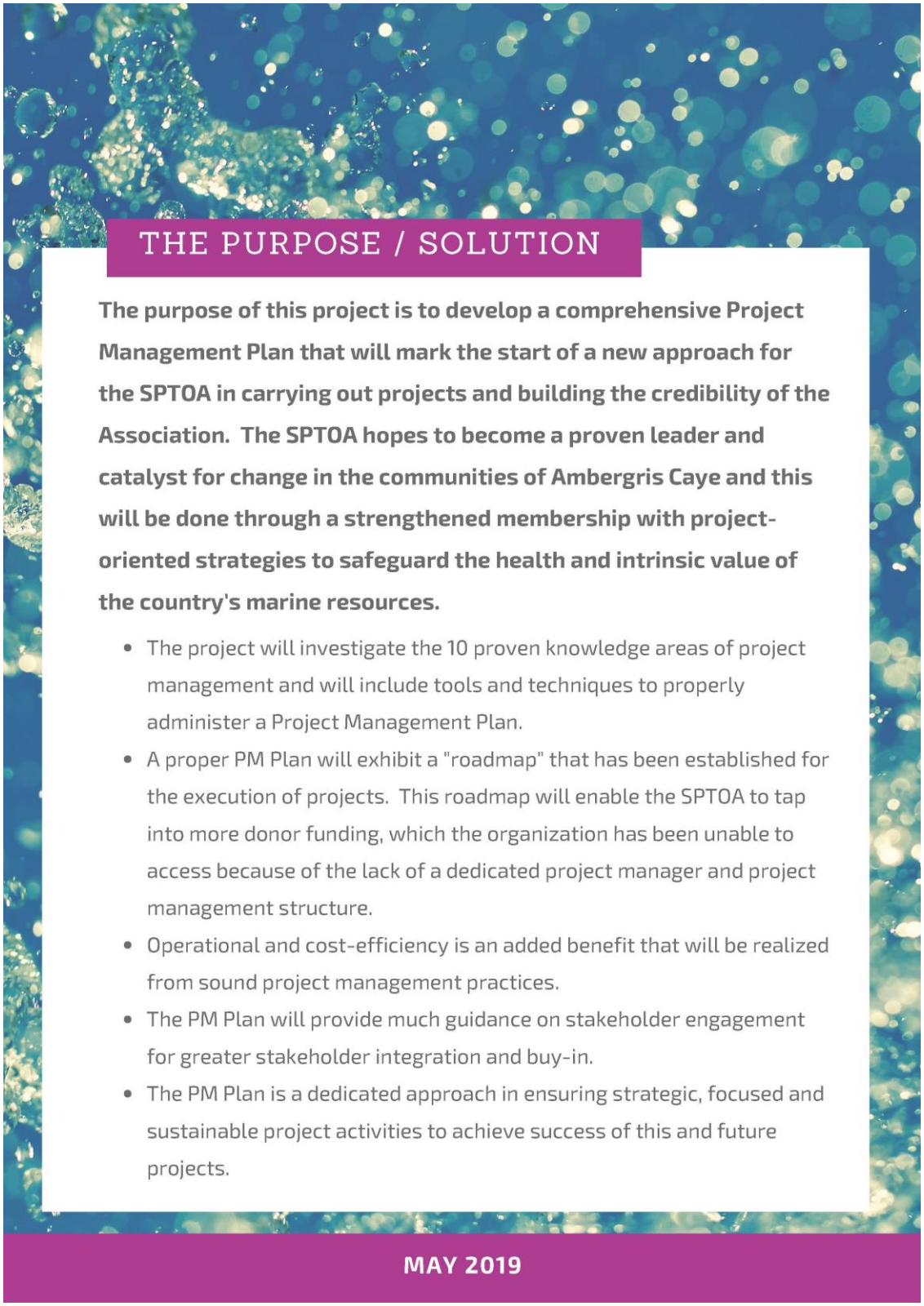
Background to the Problem

The San Pedro Tour Operators Association (SPTOA) is a membership organization formed as a result of the need to have greater management and oversight of the resources surrounding tourism activities in Ambergris Caye, Belize. The SPTOA is an exemplary body that promotes efficient and sustainable tourism and has launched a number of conservation and livelihood initiatives at the local level.

The current project being proposed will seek funding from a dedicated and experienced project development partner, COMPACT under the Global Environmental Facility (GEF) Small Grants Programme (SGP). The conservation grant program requires co-financed support by grantees for activities being proposed. This means current limitations on fund administration, capacity building, and outreach activities. The SPTOA therefore has identified some co-financing support, cash and in-kind, for the project but a technical gap still exists for activities (project manager & project management structure) that are necessary for the completion of this project.

MAY 2019


THE SAN PEDRO TOUR OPERATORS ASSOCIATION
Statement of the Problem
The SPTOA co-financing support does not cover funding of technical components required for the successful completion of this project. Part of this gap is the development of a project management plan.
The SPTOA is a membership organization that is comprised of a variety of business owners who share the same interests in advocating for responsible tourism and enhancing synergies but there is an existing deficit in the SPTOA. The Association, like many others in Belize, lacks the institutional capacity to properly plan and adequately manage projects. The SPTOA does not have a functional structure (organizational chart) and one of its main needs is technical assistance in developing a sound structure with institutional strengthening for their administrative and programmatic functions. The Association currently does not have a Project Manager and Project Team to oversee its ongoing projects and programs. A part of the existing problem is due to a non-exposure to proper project management practivies and guidelines.
The lack of the technical capacity has been a limiting factor in obtaining funding for several projects as there is an uncertainty whether the SPTOA can adequately manage and successfully complete projects. The proposed Project Management Plan will seek to address the deficiencies that the SPTOA is currently experiencing.
MAY 2019


THE PURPOSE / SOLUTION
The purpose of this project is to develop a comprehensive Project Management Plan that will mark the start of a new approach for the SPTOA in carrying out projects and building the credibility of the Association. The SPTOA hopes to become a proven leader and catalyst for change in the communities of Ambergris Caye and this will be done through a strengthened membership with project-oriented strategies to safeguard the health and intrinsic value of the country's marine resources.
• The project will investigate the 10 proven knowledge areas of project management and will include tools and techniques to properly administer a Project Management Plan.
• A proper PM Plan will exhibit a "roadmap" that has been established for the execution of projects. This roadmap will enable the SPTOA to tap into more donor funding, which the organization has been unable to access because of the lack of a dedicated project manager and project management structure.
• Operational and cost-efficiency is an added benefit that will be realized from sound project management practices.
• The PM Plan will provide much guidance on stakeholder engagement for greater stakeholder integration and buy-in.
• The PM Plan is a dedicated approach in ensuring strategic, focused and sustainable project activities to achieve success of this and future projects.
MAY 2019

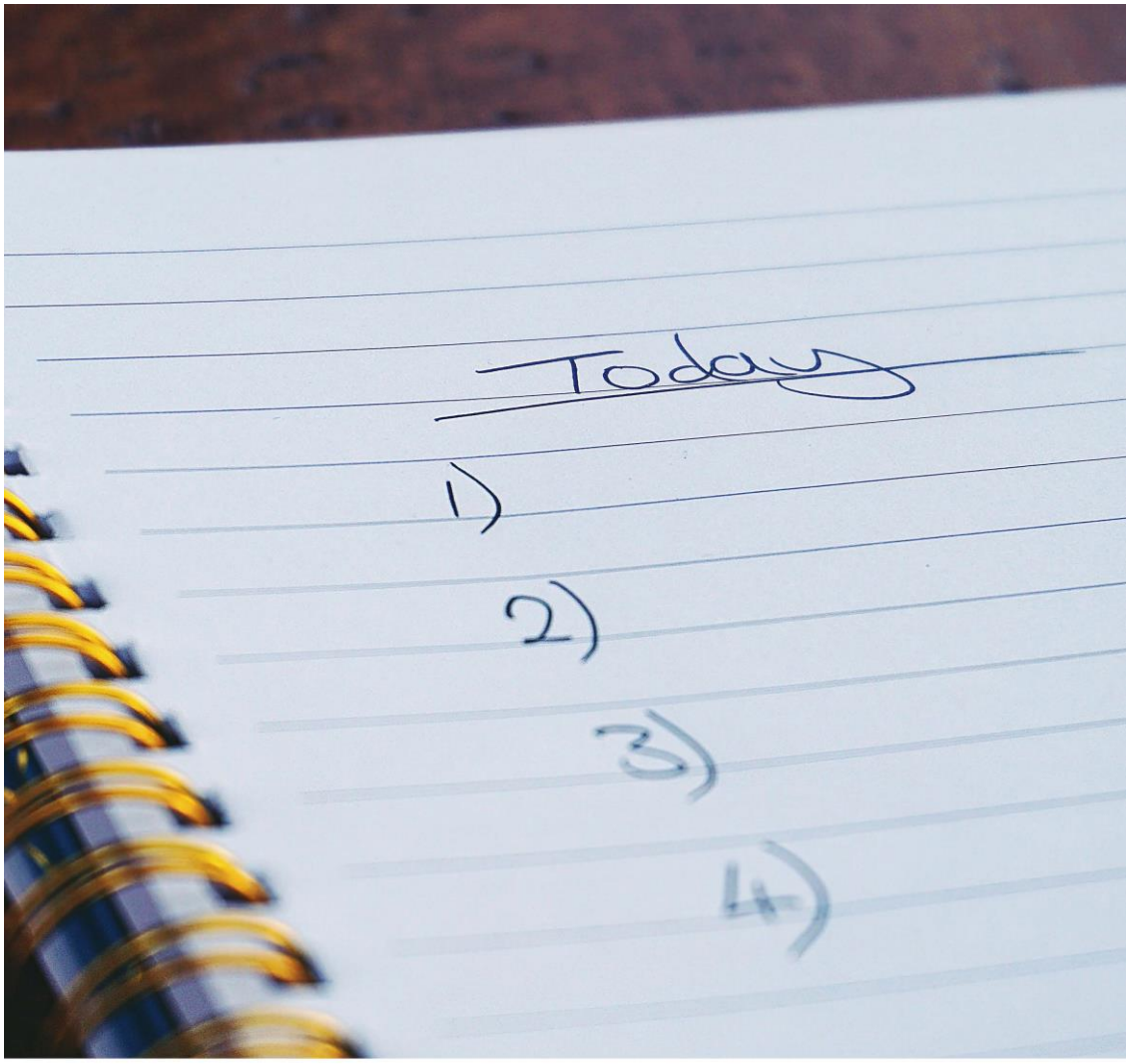
THE TIMELINE

A brief look

NOTE:

The FGP Timeline is subject to change as per University requirements.

MAY 2019



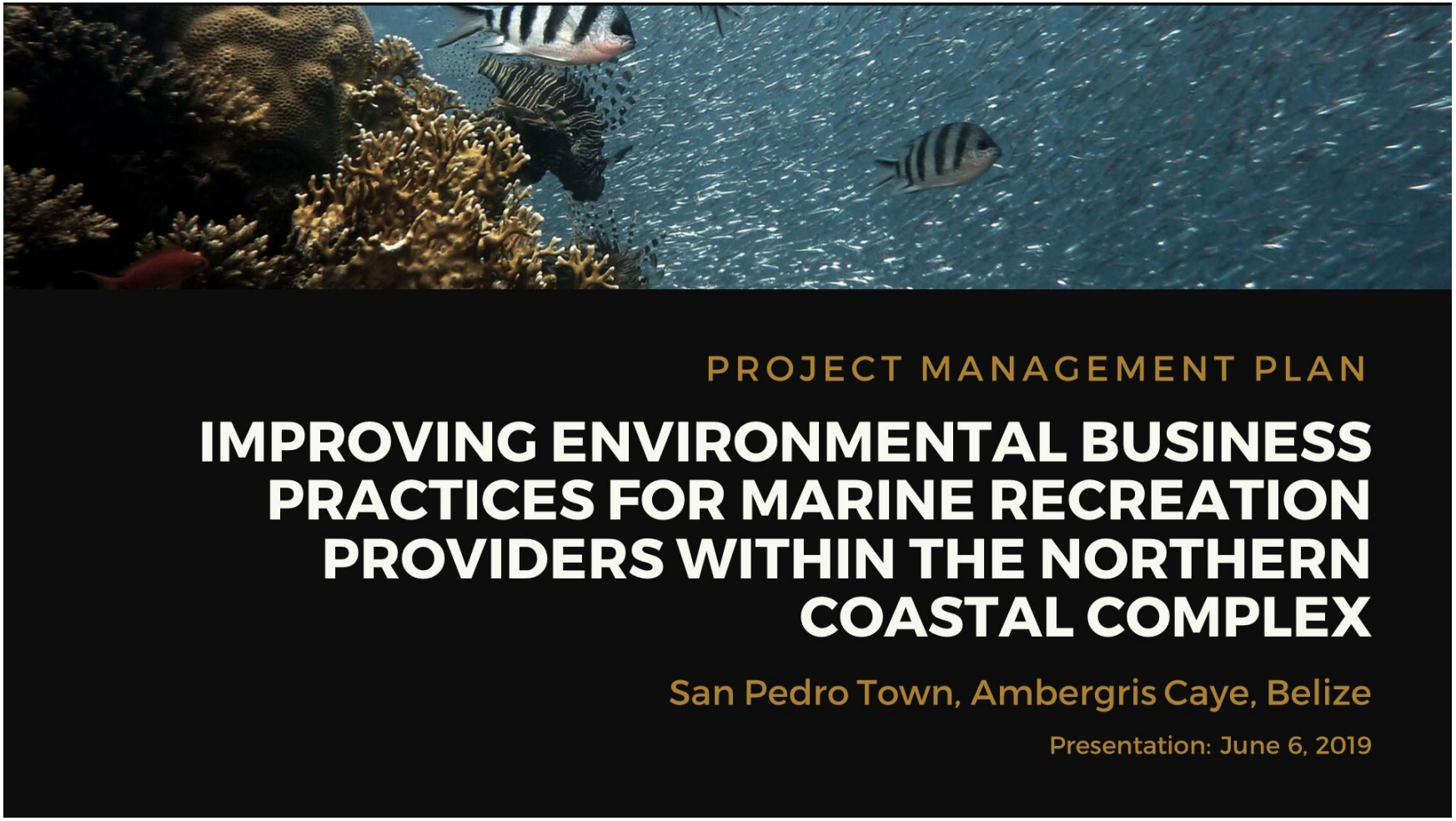
FINAL GRADUATION PROJECT:

Project Management Plan for the San Pedro Tour Operators Association (SPTOA) for the project, "Improving Environmental Business Practices of Marine Recreation Providers Within The Northern Coastal Complex" in San Pedro Town, Belize.

Contact Person: Melissa L.R. Chun
Santa Elena, Cayo
mlsschun@yahoo.com
+501-615-0718

MAY 2019

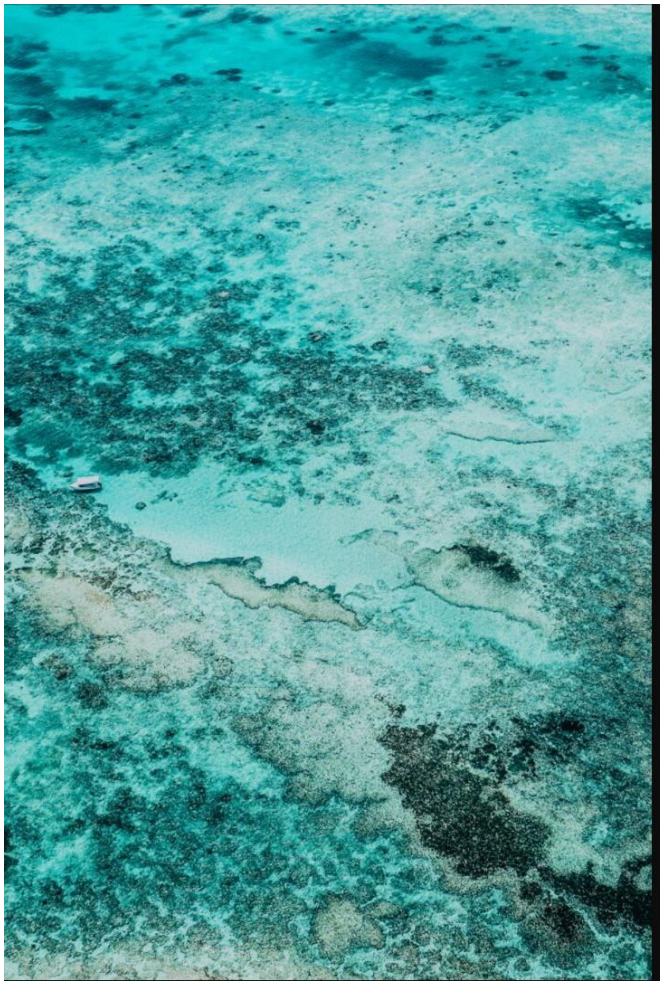
Appendix 6: Presentation Made to SPTOA June 6, 2019



Today's Discussion

Outline of Topics

- About Me
- About The Final Graduation Project
- Our Process
- The Project So Far
- What's Next?
- What to Expect



About Me

Brief Background

Education:

- Associate's Degree in Business Administration
- Diploma in Accounting and Advanced Book-keeping
- Bachelor's Degree in Accounting

Work Experience

- Diverse Background in Accounting and Auditing
- New found passion for project management

The Final Graduation Project (FGP)

MASTER'S IN PROJECT MANAGEMENT

- The 20-month program covers all 10 knowledge areas of project management.
- The program concludes with a final graduation project.

THE FINAL GRADUATION PROJECT

- It is a theoretical and practical activity
- Involves the diagnosis of a problem and the approach of a proposed solution to specific issues

AIM OF THE PROJECT

To develop a comprehensive project management plan by December 2019 to promote improved business practices and tangible community activities through tour operators as active leaders.

Our Process

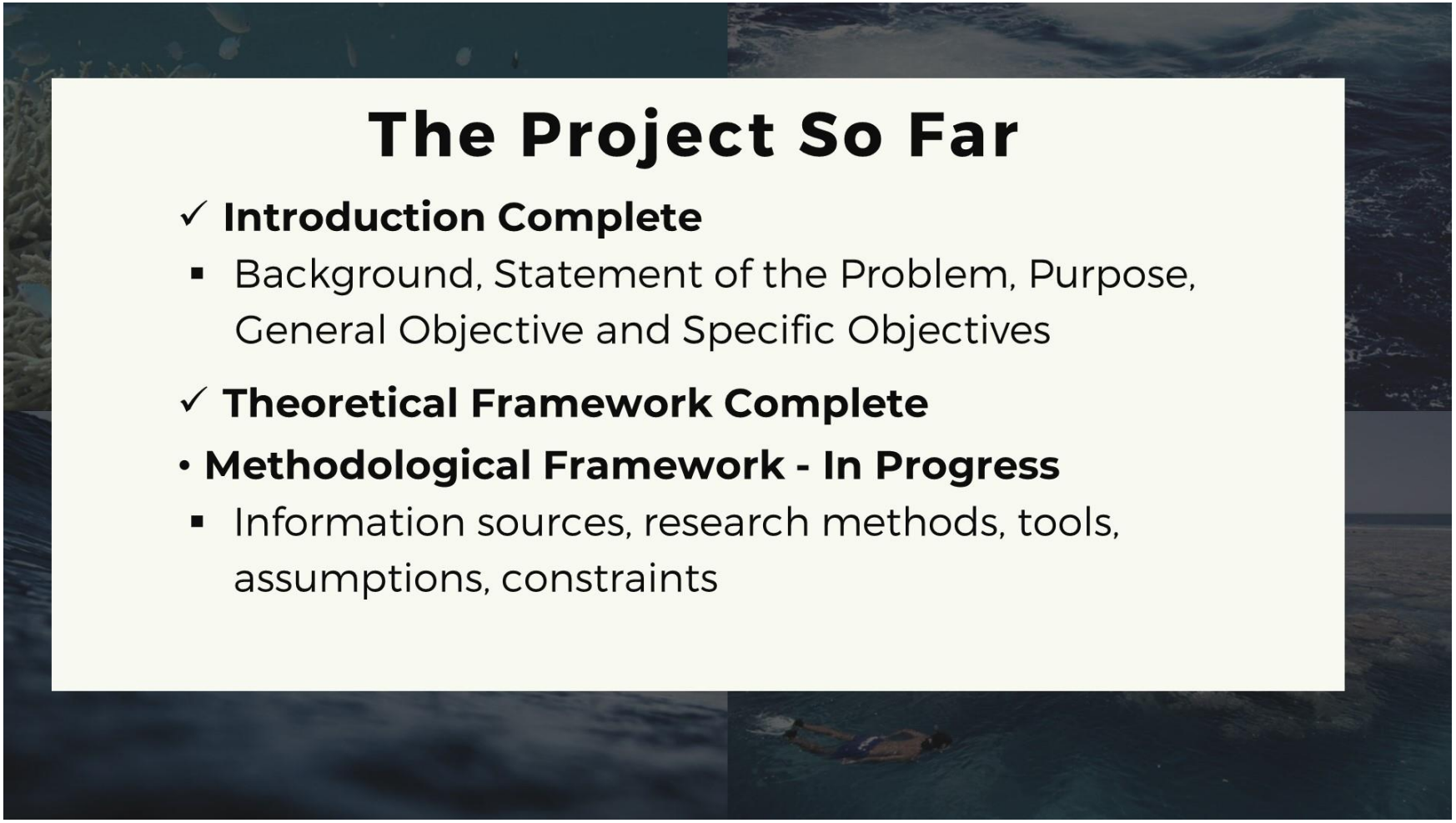
Idea

Approval

Theoretical Framework

Methodological Framework

Results and Conclusion


The Project So Far
✓ Introduction Complete
Background, Statement of the Problem, Purpose, General Objective and Specific Objectives
✓ Theoretical Framework Complete
• Methodological Framework - In Progress
Information sources, research methods, tools, assumptions, constraints

What's Next?

Where we go from here

JULY 29TH

Start of the FGP data collection process

NOVEMBER 4TH

Submission of FGP for review (deliverables, conclusion and recommendations)

DECEMBER 9TH

Presentation to Board of Examiners for final grading

JANUARY 31ST

Presentation to SPTOA on FGP Findings, Recommendations and Plans

PROJECT BENEFITS

Functional Structure

A comprehensive Project Management Plan that will mark the start of a new approach for the SPTOA in carrying out projects and building the credibility of the Association.

Roadmap

SPTOA will be able to tap into more donor funding with a dedicated project manager and project management structure

Community Support

The PM Plan will provide guidance on stakeholder engagement which will enable greater stakeholder integration and buy-in

Project Sustainability

The PM Plan will facilitate a dedicated approach in ensuring strategic, focused and sustainable project activities to achieve success of this and future projects.

THANK YOU!

Questions?

Contact Me

MELISSA L.R. CHUN

Email: mlsschun@yahoo.com
Phone Number: (501) 615-0718

Appendix 7: Revision Dictum

San Ignacio

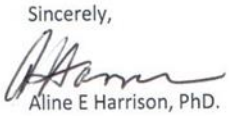
Belize

TO WHOM IT MAY CONCERN

I am an Associate Professor in the Faculty of Education at Galen University, Belize with an Bachelors degree in English Education; Masters degree in curriculum & instruction (major in Teaching English & Literature) and a Doctor in Philosophy (major in Linguistics & Teacher Training). I have many years of teaching at primary, secondary and university level. For the last five years I have been marking English placement essays adminstered by the Ministry of Education.

I have reviewed Ms. Melissa Chun's Final Graduation Project for grammar and mechanics errors. Lengthy sentences were reconstructed and effective transitional words and phrases were added.
Recommendations were made on overall improvement of the paper.
Ultimately, the paper is solid and convincing in its methodological approach. It covers in depth the project management principles and sound analysis was applied to the project.

Sincerely,



Aline E Harrison, PhD.

Appendix 8: Philologist Credentials

Aline E. Harrison, PhD.
63 Burns Avenue, San Ignacio, Belize
Phone number: 501-629-9170
Email: aline.harrison@gmail.com

Modified Curriculum Vitae

EDUCATION

August 2008	Ph.D. in Curriculum & Instruction University of South Florida, Tampa, Florida Concentration: Literacy, ESL, Teacher Training & Technology
May 1996- Dec. 1997	University of North Florida, Jacksonville, Florida M. Ed. Curriculum & Instruction, Concentration in Literature and Teaching English as a Second or Other Language (TESOL)
August 1991- May 1993	University College of Belize, Belize B. Ed. Concentration in Secondary English Education
August 1988- June 1991	Belize Teachers' Training College, Belize Diploma in Elementary/Middle School Education
July 1984	First Class Teachers Certificate in Elementary/Middle School Ministry of Education, Belize
June 1981	Sacred Heart College, San Ignacio High School Diploma

PROFESSIONAL EXPERIENCE

January 2016 – present	Associate Professor & Education Programs Coordinator in Faculty of Education, Galen University, San Ignacio, Belize
August 2013 – December 2015	Assistant Professor in Curriculum & Instruction/Bilingual Education & Reading, New Mexico Highlands University Las Vegas, NM 87701
August 2011 – July 2013	Interim Provost & Professor Galen University, San Ignacio, Belize
January 2011 – May 2011	English Composition Lecturer, Sacred Heart Junior College San Ignacio, Belize
August 2008 – December 2010	Assistant Professor, Bilingual/Elementary Education New Mexico Highlands University Santa Fe Center, Santa Fe, NM 87508
August 2002 -2008	Adjunct Linguistics Lecturer/Graduate Assistant, College of Education University of South Florida Tampa, Florida, 33620

August 1999 - 2001	ESL/EAP Instructor and Intern Supervisor, Regional Language Center University of Belize, Belize
July – Aug 1999 & 2000	Summer Adjunct Lecturer, Language Arts Belize Teachers' Training College, Belize
January 1998 - August 1999	Adjunct Lecturer, Advanced Teaching English as a Second Language (TESOL), Technical Writing and Belizean Literature University of Belize, Belize
August 1994 - September 1999	Teacher of English and Literature Saint John's College, Belize
October 1998 - May 2000	Adjunct Lecturer, Technical Writing and Composition Writing Belize Technical College, Belize
Nov. 7-13, 1998	Guest Lecturer, English as a Second Language Classroom Management, Planning and Methodology CONALEP, Merida, Mexico Auspices of Ministry of Education, Belize
August 1997 - May 1998	Adjunct Lecturer, Technical Writing and Belizean Literature University College of Belize, Belize
June 1997	ESL, Lab Assistant (summer) University College of Belize, Belize
August 1993 - June 1994	Teacher, Integrated English (temporary) Mopan Technical High School, Benque Viejo Del Carmen, Belize
September 1993 - June 1994	English as a Second Language (ESL) Consultant & Trainer Society for the Promotion of Education, Art and Science (SPEAR) Belmopan, Belize
June to August 1994 & 1995	Culture and Language Trainer Peace Corps International, Belize
June - August 1992	English as a Second Teacher, Society for the Promotion of Education, Art and Science (SPEAR) Belmopan, Belize
August 1988 - June 1991	Belizean History and Literature Teacher, St. Catherine's Academy Spanish and Literature Teacher, Excelsior High School Belize City
August 1981 - June 1988	Elementary & Middle School Teacher, Catholic Public Schools San Ignacio, Belize

University of South Florida

has conferred on

Aline Edna Harrison

the degree of

Doctor of Philosophy

together with all the rights, privileges and honors appertaining thereto in consideration of the satisfactory completion of the course prescribed by the Faculty of the

College of Education

In Witness Thereof the undersigned have affixed their names and the seal of the University at Tampa, Florida, this eighth day of August, 2008.

Chair of the Board of Trustees

President of the University of South Florida

UNIVERSITY of SOUTH FLORIDA 1956

Dean of the College