



Belize Fisheries Project
Full Report on Stakeholder Workshops and Meetings
Held in Belize June 12 – June 16, 2023

October 11, 2023

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Introduction

The Belize Fisheries Project brings together a team of local and international experts in healthy reefs and small-scale fisheries to evaluate new and existing information and facilitate discussions about the current status and management of fisheries in Belize. The team has analyzed publicly available information about Belize’s fisheries and has shared and discussed their findings with stakeholders, including the Belizean government, fishers, managers, and others involved or interested in fisheries in Belize, to understand their perceptions as well as ideas for the future. The project has and will continue to implement a transparent and participatory process to engage all interested stakeholders. Our goal is to exchange knowledge and provide a forum for stakeholders to develop a shared, evidence-based view of the state of Belizean fisheries.

This project is taking place at the same time Belize is working to implement the 2020 Fisheries Resources Act, expand its Blue Economy, conduct various activities under the Blue Bond including development of a Belize Sustainable Ocean Plan, and engage in a marine and coastal Project Finance for Permanence Initiative. These efforts provide a unique opportunity to ensure and support healthy, resilient, and sustainable fisheries. For example, under the Blue Bonds Loan Act, 2021, Belize committed to implementing a fisheries governance framework “consistent with transparent, science based, socially responsible international best practices,” which include “sustainable harvest of target species.”¹ Findings shared and discussions facilitated by the Belize Fisheries Project provide further insights to support sustainable fisheries in Belize, supporting livelihoods and contributing to the well-being of coastal communities.

The Belize Fisheries Project team comprises experts from Comunidad y Biodiversidad (COBI), the Environmental Law Institute (ELI), Healthy Reefs for Healthy People Initiative (HRI), MRAG Americas, and The Sea Around Us (SAU)/ University of British Columbia. The team also includes two individual partners with experience in fisheries governance globally and Belize’s fisheries specifically. The project partners have many decades of global experience in and a commitment to fisheries that are ecologically sustainable and provide good livelihoods for fishers, help to support coastal communities, and contribute to national economies.

More information about the project and team members is available on the project’s webpage: <https://www.eli.org/belize-fisheries-project>.

¹ Belize. Blue Bonds Loan Act, 2021. Conservation Funding Agreement, Annex A: Conservation Commitments. Available on: <https://www.nationalassembly.gov.bz/wp-content/uploads/2021/11/Act-No-28-of-2021-Blue-Bonds-Loan.pdf> (last accessed on July 10, 2023).

Purpose of the Report

This report provides a summary of the results of a series of workshops and meetings held in Belize the week of June 12, 2023, which had a primary aim of meeting with fishers in Belize to exchange information and understand fishers' experiences. In particular, it contains a compilation of comments received from fishers during the workshops held in Belize on June 13-15, 2023. This report also summarizes discussions of meetings the team had with the Belize government and other stakeholders, including Marine Protected Area (MPA) co-managers and NGOs.

The Team's June Trip to Belize

The team held three workshops with the fishers in different parts of the country. The team shared its draft analysis of new and existing information about fisheries in Belize with fishers and sought the fishers' perspectives about the status and management of the fisheries on which they depend.

The day before the first workshop with fishers, the team met with Belizean government representatives from the Ministry of Blue Economy and Civil Aviation, including from the Fisheries Department, and from the Blue Bond and Project Finance for Permanence Unit in the Office of the Prime Minister. During the week the team also met with MPA co-managers and other NGOs in Belize, and had individual conversations with representatives of Belize University's Environmental Research Institute, the Wildlife Conservation Society, and The Nature Conservancy to discuss the team's findings.

The objectives of these workshops and meetings were to:

- Present a compilation of existing information and new analyses of the state of fisheries, conservation, and management;
- Understand how the information presented compares with stakeholders' perspectives, knowledge, and experiences on the water;
- Understand stakeholders' experience with participation in the management process; and
- Discuss possible sustainable fishery management actions.

Meeting with Belizean Government Officials

On Monday, June 12, 2023, the project team met with Belizean government representatives, including representatives from the Ministry of Blue Economy and Civil Aviation, the Fisheries Department, and the Blue Bond and Project Finance for Permanence Unit in the Office of the Prime Minister. During this meeting, the team shared its analysis and draft findings and engaged in a discussion with government officials about the status of key invertebrate and fish stocks and their management. Topics discussed included the status of fisheries in Belize;

regulation of recreational and sport fishing; the need for the regular assessment and review of management measures; development of fishery management plans; potential ways to strengthen management and enforcement of fisheries in Belize; and potential next steps for continued discussion among the project team and the Government of Belize.

The possible next steps discussed during this meeting included having a follow-up meeting with the Fisheries Department's technical team to discuss the Sea Around Us assessment methodology in more detail, compare results with the Fisheries Department's own assessments, and share fisheries data for stock assessments, particularly with regard to lobster and queen conch. A possible future technical workshop and other technical collaboration, including training in stock assessment methods, was also discussed. The project team would be pleased to receive any additional data that the Fisheries Department can provide, which could be shared, for example, during the technical workshops or training sessions, to incorporate in our analysis.

The full presentation delivered by the project team to the Belizean government can be viewed [here](#).

Workshops with Fishers

The team had three workshops with fishers. The goal of these workshops was to share the team's analysis of the existing and new information about fisheries in Belize and learn from fishers about their perceptions and experiences on the water. The Belize Federation of Fishers also prepared an independent report of these meetings.

Each workshop – organized with support from the Belize Federation of Fishers – was attended by fishers with various levels of experience, from a year to over 50 years. These fishers came from many communities across Belize. The project team conducted extensive outreach through various channels in Belize to ensure that workshops were attended by diverse and representative groups of fishers. Participants included members of fishing cooperatives, the Belize Federation of Fishers, and local fishing associations.

- Workshop 1 was held Tuesday, June 13 in Dangriga – Twenty-five fishers from Dangriga, Hopkins, Placencia, Seine Bight, Georgetown, and Riversdale attended the workshop. Participants included members of Northern, National, and Placencia co-ops as well as unaffiliated fishers.
- Workshop 2 was held Wednesday, June 14 in Belize City – Twenty-one fishers from the Vernon Street, North Front Street, Barracks, and Yabra communities attended the workshop. Participants included members of National and Northern co-ops as well as unaffiliated fishers.

- Workshop 3 was held Thursday, June 15 in Corozal – Twenty-six fishers from Sarteneja, Copper Bank, Chunox, and Corozal Town attended the workshop. Participants included members of National and Northern co-ops.

The workshops began with presentations from the project team about existing information and draft results of new analyses on the status of fish stocks and fisheries management in Belize. The presentations included sections on Belize Fishery Status, Reef Health Survey Results, and Key Management Responses and Examples of Successes. The full presentation delivered by the project team to fishers can be viewed [here](#). It is also available in [Spanish](#).

Following the presentation and question and comment sessions, during which fishers asked clarifying questions and shared initial thoughts and feelings, participants engaged in small group discussions. There were four small groups in each workshop, each presenting the results of their discussions to the whole meeting.

The first small group discussion aimed to capture fishers' stories about their experience on the water. The team posed the following questions to the fishers:

- What is your experience on the water - is our draft stock analysis similar to what you, the fishers, are seeing? If not, how? Why? How has your experience changed over time?
- What is your experience in the management process?
- What are the management problems that need to be addressed to improve the fishery?

As part of the first question, most of the tables engaged in a group exercise where fishers marked where they felt key species lay on a graph resembling the KOBE plot presented by the SAU team. Each table in the Belize City and Corozal workshops, as well as two of the tables from the Dangriga Workshop, took part in this exercise. The other two tables from the Dangriga workshop still addressed the question, discussing their impressions of the stocks in more general terms. This exercise served to center discussions, and helped to connect the experiences and observations of fishers with results of the scientific analysis. It provided a shared framework that incorporated temporal considerations – encouraging fishers to consider the current status of stocks compared to when they began fishing. While this was not a scientific exercise, the project team feels that the activity helped to promote shared understanding and lead to more fruitful small group discussions.

The second small group discussion aimed to capture the fishers' thoughts on the actions that could be taken to make fisheries more sustainable. The team asked the fishers the following questions:

- What are the priority actions you think the government should take?
- How can the fishing community help motivate better management?

- How can other groups (private sector, tourism, NGOs) take action to motivate better management?

Commonalities from all three workshops

The following observations summarize the main points heard from fishers during all three workshops, including during the small group discussions and the question and comment sessions that followed the team's presentations. For the full Compilation of Fisher Comments received from fishers during the workshops, please see Appendix 1.

There was general agreement among the fishers that the key fisheries resources are currently in a poor state and new management interventions of various kinds are needed. There was some divergence of opinions regarding specific details but almost all were in agreement with the broader conclusions of the scientific analyses presented. There was general agreement among the fishers that they were seeing the warning signs of overfishing and declines in stock size, and that fishery management processes and procedures set out in the 2020 Fisheries Act needed to be effectively implemented to achieve sustainability.

Many fishers shared comments about the declines in stocks they were seeing. Fishers with many years of experience in fishing shared stories of significant declines in catch size, loss of nearshore stocks, the lack of adult animals, and the significant increase in fishing effort needed to get comparable catches.

Fishers told stories of how they used to catch fish in 1.5 or 2 feet of water, but how they must go much deeper to find fish now. One fisher said that 25 years ago, when he was a kid, he would go fish with his family, and they would bring in 500 pounds of fish from within a mile of shore. Now, they bring in less than 50 pounds and must go out more than 20 miles for that catch. Others spoke about the decrease in catch as well. Ten years ago, one fisher was able to bring in 150 pounds of fish in a day; today, he brings in 50 pounds. Another fisher shared that 40 years ago, boats going out with 4 fishers caught 6,000 pounds of conch in two days; now, when boats go out with 10 people for five or six days, they get 1,000-2,000 pounds of conch. One fisher said that 50 years ago, there were many adult animals, and they were easy to find. Now he said, there are none, not even young ones: "50 years ago, all the fish were there." Another fisher recalled that 50 years ago, the shallow water spawning aggregations were so plentiful it turned the water milky, but now he does not see that anymore.

The fishers said that their work was different than in the past, and not as reliable anymore – in the past, fishing was always good. Now, they have good seasons and bad seasons.

Generally speaking, fishers expressed their deep concern about the natural resources of Belize and the future of their livelihoods. They repeatedly expressed a heartfelt desire to be involved actively in every part of the process to improve management and sustainability of the fisheries

in which they work and often expressed deep frustration about being excluded or marginalized from the information sharing, problem-solving, and decision-making that directly affects their jobs, income, families, communities, and the environment in which they work. The expressed desire of the fishing community was not to resist change, but to be an integral part of it.

The fishers spoke about five major topics throughout the workshops:

1. Risk to Fishery Resources. The presentations on the status of the fishery resources in Belize were of great interest to the fishers. There was a good understanding that fishers and scientists have different perspectives on the resources and bring important and complementary knowledge to the discussion. The critical point is that scientists, fishers and, ultimately, decision-makers recognize that the natural resources and the communities that depend on them are at risk. That risk is from multiple pressures, including overfishing, but also climate change, coastal development, existing and potential foreign fishing, and other sources.

- The fishing community shared the view that relying on deepwater stocks of conch, lobster, and finfish to continually replenish shallow water stocks carried a high level of risk. Fishers with experience in deep water were very skeptical that these areas could continue to support shallow water fishing on immature individuals.

- There was broad agreement about the risks to lobster and nearly all participants were in agreement about the significant risks to conch (the two most valuable species). At the same time, it was clear that scientists' and fishers' perspectives on what "abundance" and "overexploited" mean may be different due to differences in scale. Scientists assess the status of whole stocks, while fishers rely on their direct observations on the water. Both can be an accurate representation of observations and complement each other. For example, many fishers said that their landings were reasonably stable over the last decade or so, particularly at the opening of the fishing season. But they also said the total number of fishers and the amount of Illegal, Unreported, and Unregulated (IUU) fishing, and therefore the total fishing effort, had increased enormously. In addition to noting declines in their average catch size, fishers said that with both conch and lobster, the animals they were catching had gotten smaller. Many fishers – with as few as five to more than fifty years of experience – noted decreases in size. These observations of the fishers align with the scientific results showing declines in biomass and increases in exploitation rates.

- Fishers generally, and often strongly, commented on the problem of IUU fishing, which the team noted it had not, to this point, been able to incorporate

fully. Fishers also noted their observations of impacts of climate change, increased recreational catch, coastal development, pollution, and other coastal issues. Fishers understood that all of these negative impacts exacerbate the risks to the stocks shown by the scientific analysis.

- Fishers strongly expressed the view that the current licensing system is not effectively limiting fishing effort. It was widely described by fishers during the meetings as unfair, unworkable, and poorly administered. Fishers voiced their opinion that the license system needs to be significantly reformed to become a useful tool for fishery management.

- Many fishers are concerned that more fishing areas will be closed off to them with the establishment of additional MPAs. While not objecting to protected areas *per se*, fishers voiced their concern that some conservation zones of existing protected areas continue to be exploited either illegally or legally from recreational / tourist fishing, while legitimate commercial fishers are excluded. That feels unfair to the licensed fishers, and just as importantly, adds significantly to overexploitation with catches that are completely unreported. They want to see proper implementation of the existing MPAs before new ones are implemented. Most agreed with the concept and need for effective “replenishment zones” that are not fished - recreationally or commercially.

- Fishers observed that the sizes of conch and lobsters are declining. For lobsters, some fishers specifically expressed that most of the animals have tail weights of less than 4.5 ounces. (From a scientific perspective, this means that those lobsters are juveniles, a clear warning sign of overexploitation.) While few fishers called for increased minimum landing sizes, they recognized the problem and also called for preventing IUU landings of undersized conch, lobsters, and fish. Nevertheless, a switch to larger minimum sizes was of concern to many fishers due to expected economic hardship during the transition period between the change in regulation and the expected future benefits in terms of higher catches.

2. Inclusion in Planning and Decision-Making. The fishers expressed an urgent need for genuine consultation and inclusion of fishers and their communities in the process of planning and implementing future management actions that affect the fisheries and the coastal areas of Belize.

- Currently, fishers do not feel included in the fisheries management process, or decision-making regarding efforts to conserve, manage, and potentially develop the Belizean coastal environment. When consultations do occur, fishers report

that they are cursory, not transparent, and limited to a small number of individuals rather than providing broader representation from the community and fisher organizations in each area. This includes processes led by government departments, as well as those led by or including non-governmental organizations and private industry discussions. Fishers want to be included in consultations focused not only on fishery management, but also on the Blue Economy, coastal development, tourism, and other sectors, because decisions in all of these fast-moving sectors affect fishing communities and livelihoods.

- Fishers also noted that inclusion goes beyond just listening sessions; they consider it means that fishing communities are true contributors to and partners in decision-making. The fishers understand that inclusion cannot mean that nothing moves forward without consensus, but they believe the opportunity to be a part of a transparent process to influence decisions is essential.

- Most of the participants were deeply frustrated by the lack of transparency in the process of planning and management, and the implementation of management actions. They expressed in open session and individually how hard it is to know what decisions are being considered, made, and implemented that affect them directly. This lack of transparency is a source of deep frustration and suspicion that results in a lack of trust in government and non-governmental actions happening in the coastal environment. Some noted that lists of licensed fishers in each zone are not publicly available.

3. Enforcement. Inadequate enforcement of existing rules repeatedly came up as a major issue during the meetings. Fishers voiced their concerns that enforcement was often spotty, misguided and misapplied, or almost completely absent. Enforcement was said to be generally unreliable and, if present at all, did not address major violators or significant sources of IUU fishing.

- Fishers shared their concerns that IUU fishing resulting from the lack of enforcement is taking away catch, income, and livelihoods directly from fishers who are trying to follow the rules and be “good” fishers/citizens. Examples given included taking very small size lobsters, conch, and fish without regard for rules or sustainability, fishing in closed seasons and areas, and destructive practices such as smashing of small conch in search of pearls. Fishers noted that huge catches landed at co-ops on opening day were a clear indication of fishing before the season opened, depressing prices for those fishing legally.

4. Education. Education was a major topic for the fishing community. Fishers expressed a desire to employ elder fishers to mentor younger ones on safe and sustainable fishing

practices, as young fishers may enter the fishery with little experience, particularly regarding issues of sustainability. Fishers also wanted to help educate enforcement agents in how the fisheries work, and the different types of IUU fishing. Some fishers suggested more public education about fishing and the marine environment by fishers for school children. Many others suggested building support for fishing as a sustainable occupation and important part of society.

- Both older and younger fishers see an opportunity for younger generations to bring sustainable practices to the fore and for elders to mentor their fellow fishers.
- Suggestions on education were voiced as part of a broader desire for fishers to have alternative employment in the closed season or as a move towards retirement. Some expressed an interest in developing a special retirement plan for fishers within the Belize Social Security framework.
- Fishers feel forgotten and misunderstood. They want to help improve their image, the situation with fisheries resources, and their opportunities.

5. Need for Support. Fishers expressed their willingness to support and contribute to management, enforcement, education, and coastal sustainability, but said they need help. With the declines in stocks, and the corresponding need to go further out to fish and to go out for longer when fishing, fishers' resources are becoming more and more strained. Many ideas were proposed at the workshops. Of particular note are the following:

- Alternative employment for off-season or other periods. Training in a range of activities related to agriculture, tourism, boat engine repair, and more were mentioned. These are support activities, training, and opportunities that can be important transition efforts.
- Fishers expressed a desire for education for fisher families so as to expand opportunities for the next generation. Some wanted their children to continue the fishing tradition but recognized they also need more and diverse livelihood options; including boat mechanics, plumbing and electrical trade schools, etc.
- Some fishers wanted better market control, so that prices were not subject to the effects of oversupply at certain times (e.g., at the start of the season, with a clear connection to IUU landings).
- Many fishers wanted help in cost reduction for fuel and other supplies.

Meeting with MPA Co-Managers

On the morning of Friday, June 16, the team met with Marine Protected Area Co-Managers. Members of the following co-management organizations attended this meeting:

- Belize Audubon Society
- Southern Environmental Association
- Toledo Institute for Development and Environment
- Turneffe Atoll Sustainability Association

The meeting began with a project team's presentation about the status of fish stocks and fisheries management in Belize. The full presentation delivered by the project team can be viewed [here](#).

After the presentation, meeting participants engaged in a discussion. Key topics discussed at the meeting included enforcement within managed access areas, IUU fishing, the role of NGO co-managers, and capacity-building for fishers. The co-managers voiced no disagreement with the team's findings regarding declining stocks. However, they wanted to learn more about the data used in the SAU methodology. The co-managers shared their concerns that current enforcement capacity is insufficient to address the problems of IUU fishing. They also suggested that law enforcement agencies in Belize should come together to develop a strategy to address IUU fishing – land-based as well as on the water – and that big IUU activity has its roots on land. With regard to the role co-managers can play, some shared their thoughts that co-managers should lead by example and take proactive action against big violators. There was also a discussion about licensing and the need for licensing reform. With regard to capacity-building for fishers, the participants discussed the need for appreciation of traditional knowledge, the need for education, and the need for transition programs for alternative livelihoods.

Meeting with NGOs

On the afternoon of Friday, June 16, the project team met with a number of marine conservation NGOs. Members of the following organizations attended this meeting:

- Belize Fund for a Sustainable Future
- Belize Network of NGOs
- Bonefish and Tarpon Trust
- Environmental Defense Fund
- Fragments of Hope
- MAR Alliance
- Oceana
- The Nature Conservancy
- Turneffe Atoll Sustainability Association
- Turneffe Atoll Trust

- Wild Tracks
- Wildlife Conservation Society
- World Wildlife Fund

The meeting began with the project team's presentation about the status of fish stocks and fisheries management in Belize. The full presentation delivered by the project team to NGOs can be viewed [here](#) (it is the same as the presentation delivered to the MPA co-managers).

After the presentation, meeting participants engaged in a discussion. There was general agreement among the NGO participants regarding the status of the fishery resources and associated risks identified in the presentation and the needs to address them. Some participants expressed a desire to be trained in the SAU assessment methodology, and the project team committed to follow up with an online training opportunity. Topics discussed during the meeting included enforcement, monitoring, use of technology, training on the methodology used by the team, exchange of data, fishery management plans, implementation of the 2020 Fisheries Resources Act, and consultations with the fishers about management decisions.

Next Steps

The project team will continue our efforts to schedule training and information exchange sessions with the Belize Fisheries Department technical staff and NGO staff about the Sea Around Us stock assessment modeling tool. We encourage all the interested stakeholders to engage with us in the training and subsequent dialogues about the state of fisheries in Belize and potential management options. We look forward to hearing from you.

Estamos traduciendo esta versión final del reporte a Español. Compartiremos el reporte traducido una vez esté disponible.

Appendix 1: Compilation of Fisher Comments

This Compilation of Comments groups by theme the comments fishers provided during small-group discussions that were part of the Workshops with Fishers held in Belize on June 13-15, 2023. We have made every effort to accurately record and present all the comments fishers provided during these workshops. Some comments touched on multiple themes and are addressed in relevant sections of this Compilation.

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1. Overarching Concerns

1.1. Safety

- Some fishers are afraid of the trap fishers because they are territorial and can be dangerous – *Corozal Table 1*
- There are no patrols, which means fishers must protect themselves – *Corozal Table 1*
- Fishers have concerns over retaliation after reporting illegal activity due to lack of confidentiality – *Corozal Table 4*
- Fishers note that to improve enforcement, officers need adequate physical protection, which speaks to the lack of safety on the water– *Dangriga Table 1*
- Fishers see the need to properly outfit enforcement patrols, as illegal fishers have guns – *Dangriga Table 2*
- Piracy is a significant issue linked to the drug trade, and there needs to be protection for fishers on the water – *Dangriga Table 4*

1.2. Respect

- Fishers at every workshop expressed that their work was important, and that they deserve respect for how they positively contribute to the Belizean economy. They often felt undervalued and disrespected in interactions with the government, co-managers,

NGOs, the tourist and development sectors. They also expressed that society more broadly did not have an accurate understanding of their work and how they contribute to the Belizean economy.

2. Institutional Reform (Government, Co-operatives, MPA Managers)

- There is a lack of financial resources for management – *Corozal Table 2*
- Fines in Belize are disproportionate to the crimes (mentioning the Hartin case, in which a fine for manslaughter was less than a fine issued in a recent case about undersized lobsters) – *Corozal Table 3*
- Management is important – *Belize City Table 4*
- More resources need to be dedicated to fisheries management – *Dangriga Table 4*

2.1. Enforcement

- Fishers think that currently enforcement is lacking or insufficient, and more enforcement is needed – *Corozal all tables; Belize City Tables 1, 2, and 4; & Dangriga Tables 1 and 3*
 - Rangers work 9-5 and not more – *Corozal Table 1*
 - The Coast Guard has a presence at Turneffe, but there is insufficient enforcement – *Corozal Table 1*
 - There is no proper enforcement – *Corozal Table 2*
 - There needs to be enforcement of existing regulations – *Corozal Table 3*
 - There is not an effective enforcement response – *Corozal Table 4*
 - More enforcement is needed – fishers are not seeing enforcement happening – *Belize City Table 1*
 - There is a lack of enforcement and patrols – *Belize City Table 2*
 - There is not enough enforcement – *Belize City Table 4*
 - There needs to be enforcement of existing laws, having no enforcement is like having no rules – *Belize City Table 4*
 - Increase enforcement, ensure a fair salary on the job and adequate physical protection – *Dangriga Table 1*
 - There is no enforcement at night – *Dangriga Table 3*
- Fishers feel that a lack of resources hinders enforcement, and that additional resources could strengthen enforcement – *Corozal Table 4; Belize City Tables 2 and 4; & Dangriga Tables 1 and 4*
 - There is a lack of resources for enforcement – *Corozal Table 4*
 - There need to be more resources for enforcement – *Belize City Table 2*
 - Blue Economy seems to be mainly about investment in NGOs, but there needs to be investment in enforcement – *Belize City Table 4*
 - Strengthen enforcement of laws by increasing manpower and resources to support boats, fuel, drones, technology, and radars (could be done using park fees, fisher

contributions in terms of revenue from catch, and a commodity driven export tax from co-op tax) – *Dangriga Table 1*

- More resources need to be dedicated to fisheries management – *Dangriga Table 4*
- Fishers have ideas about who should be participating in enforcement, including how fishers could participate in enforcement – *Corozal Table 1; Dangriga Tables 1, 2, & 3*
 - Fishers like that the Belize Audubon Society works with the Coast Guard and wish more enforcement and management did this – *Corozal Table 1*
 - Integrate older fishers into enforcement, they know the seas and where things might be happening – *Dangriga Table 1*
 - Recruit more professionals for enforcement – *Dangriga Table 1*
 - Have fishers involved in enforcement – for example, fishers could provide input on the location of patrols, when to increase timing of patrols, or even participate on patrols – *Dangriga Table 2*
 - Enforcement officers should be competent and sea savvy, right now they come from inland, and don't know about boats or fishing. They are not seamen – *Dangriga Table 3*
 - Older fishers could be incorporated into enforcement as patrols – *Dangriga Table 3*
 - It helps to have a Coast Guard Officer on board patrols rather than just the Fisheries officers – *Dangriga Table 4*
- There needs to be improvement in the data collection system for all fisheries products (e.g., the quotas for conch and lobster) – *Corozal Table 4*
- There is a need to hold buyers accountable to only buy from legal and licensed fishers – *Corozal Table 4*
- There need to be systems to ensure wrongdoing is reported and followed up on – *Corozal Table 4*
- One fisher thinks that the decrease in stocks he sees is due, in part, to lack of enforcement – *Belize City Table 1*
- Current boat checks are ineffective because officers are checking the wrong people – *Belize City Table 2*
- There should be better control of tourists – *Dangriga Table 2*
- Dive boats (fishing boats, not tourist boats) on reef after lobster and conch season are closed are suspicious – *Dangriga Table 4*
- Restaurants are very helpful - the restaurants actually do more enforcement and oversight because their freezers can be checked at any point and they cannot risk having illegal product – *Dangriga Table 4*

2.1.1. Patrols

- Many fishers feel that a lack of or insufficient patrolling, or patrols that are only focused on legal fishers who are following the rules, are key issues in the lack of enforcement. – *Corozal Tables 1, 2, and 3; Belize City Tables 1, 2, and 3; & Dangriga Tables 1 and 3*

- There needs to be more patrolling, especially at night – *Corozal Table 1*
- There are no proper patrols – *Corozal Table 2*
- Patrols should not hassle fishers, but should be visible on the water – *Corozal Table 2*
- The Fisheries Department has six vessels – only two are working – the area is too big to patrol effectively with this number – *Corozal Table 3*
- There is a need for more patrolling, and patrols that will do their work correctly – *Corozal Table 3*
- More patrols are needed to catch fishers coming in from Honduras – *Belize City Table 1*
- There need to be more boats for patrols to increase enforcement – *Belize City Table 1*
- There need to be more frequent patrols – *Belize City Table 2*
- Some say there should be more patrols during the closed season for conch and lobster, others say all year round – *Belize City Table 3*
- Increase night patrols – *Dangriga Table 1*
- Patrolling is not consistent throughout the season – more intense at the beginning – *Dangriga Table 3*
- Fishers very rarely see patrols – *Dangriga Table 3*
- Fishers also feel that patrols are overly focused on legal fishers who follow the rules, rather than illegal fishers and those who break rules or do not obey laws and regulations. – *Corozal Table 2; Belize City Table 2; & Dangriga Table 3*
 - Patrols should not hassle fishers, but should be visible on the water – *Corozal Table 2*
 - Current boat checks are ineffective because officers are checking the wrong people – *Belize City Table 2*
 - The fishers' perception is that fishery patrols are only focused on them, rather than the more significant problem of illegal poachers – *Dangriga Table 3*
- Enforcement patrols should be properly outfitted for safety reasons, as illegal fishers have guns – *Dangriga Table 2*

2.1.2. *Marine protected areas*

- The Coast Guard has a presence at Turneffe, but there is insufficient enforcement – *Corozal Table 1*
- There is illegal night fishing at Caye Caulker – *Corozal Table 1*
- Lack of enforcement at the Gladden Spit is always a problem – *Dangriga Table 4*

2.1.3. *Size limits*

- Lack of patrols means size limits are not being enforced effectively – *Belize City Table 2*

2.1.4. *IUU fishing*

- Fishers do not feel that marine park co-manager (TASA) or the Fisheries Department are fair, as there are many illegal fishers – *Corozal Table 1*
- Fines for illegal fishing should be higher – *Belize City Table 4*

- Fishers estimate 50% of catch is poached, that IUU catch is potentially as much as the legitimate catch. The poachers take whatever they find, and poaching occurs when legitimate fishing is not happening (at night and when the seasons are closed) – *Dangriga Table 3*

2.1.4.1. Tourism

- There should be restrictions on sport fishers, so they do not keep fish – *Belize City Table 2*
- With flats fishing – snook is often kept and sold at market, fishers did note that the flats fishers release bonefish, tarpon, and permit. – *Belize City Table 4*
- Tourism is supposed to be catch and release, but there is no release. Fish is eaten and sold by the tour guides, while licensed commercial fishers are not allowed to fish in these “conservation” “catch and release” zones of the MPAs– *Belize City Table 4*
- There are no fines for guides who sell fish from tourist fishing excursions – they should take away their fishing or tour guide licenses – *Belize City Table 4*
- There is a need for more controls on tourist fishing – *Dangriga Table 2*

2.1.4.2. Foreign fishers

- More patrols are needed to catch fishers coming in from Honduras – *Belize City Table 1*
- There is IUU fishing – particularly from the southern border, with regard to fishing shark and sea cucumber – *Belize City Table 4*
- Foreign catamarans (tourist visitors) spear fish without licenses or permits, they fish both day and night – *Belize City Table 4*
- Foreign or “immigrant” fishers are a significant issue. “Immigrants” is a general term used to refer to non-Belizean fishers fishing in Belize illegally, including Mexican, Honduran, and Guatemalan fishers alike. – *Dangriga Table 2*
- Poachers come from Honduras and Guatemala to fish in the south of Belize. They take everything and engage in other bad fishing practices. They take small conch and drop broken shells back into the water. This is visible on the reef and is bad as it reduces oxygen to the reef. – *Dangriga Table 3*

2.1.4.3. General unlicensed fishing

- Lots of people are fishing without licenses – *Belize City Table 1*

2.1.5. Landings

- Fishers suggest to have designated landing sites for market where all log books are checked – *Dangriga Table 4*

2.2. Professionalism

- The Fisheries Department should treat fishers and do their work in a professional manner – *Corozal Table 3*
- Professionalism of Fisheries officers could be improved through training, monitoring, and reporting – *Corozal Table 4*
- Officials need to avoid abuses of power – *Belize City Table 2*
- There is a need to recruit more professionals for enforcement. This is not just an increase in the number of overall officers, but also of the training of the people hired to do enforcement. – *Dangriga Table 1*

2.2.1. In enforcement

- Enforcement is harder on the sailboat fishers than on others – *Corozal Table 1*
- The Fisheries Department officers do not let fishers dock on islands and sometimes do not give them water – *Corozal Table 3*
- Enforcement officers should also communicate in Spanish – *Corozal Table 4*
- There should be body cameras on officers – *Corozal Table 4*
- There needs to be law enforcement trainings for officers (fishers, Coast Guard, TASA, PACT)– *Belize City Table 2*
- There should be equal treatment in enforcement – *Belize City Table 2*
- It helps to have Coast Guard on board patrols rather than just the fisheries officers – *Dangriga Table 4*

2.2.2. When receiving reports of violations

- There is no confidentiality with regard to reports of violations – *Corozal Table 4*
- Currently, fishers cannot report illegal activity without fear of retaliation – *Dangriga Table 1*
- Right now, if one fisher reports wrongdoing of another, the Fisheries enforcement personnel will often tell the wrongdoer who blew the whistle on them. There should be confidentiality for those reporting. – *Dangriga Table 2*

2.3. Corruption

- During the workshops, fishers expressed concerns about corruption, both within the government and by other entities. This Report does not provide specific details in order to protect the fishers, and because it is beyond the scope of this project to assess specific allegations.

2.4. Licensing System

- Getting a license is a highly involved process – *Corozal Table 1*

- There are cases when someone will go from one house and get a license, which everyone in that house will use, even though each fisher is supposed to have a separate license, and they are clearly different people – *Corozal Table 1*
- Proof of catch data is required to renew a license (data from logbook), and the Fisheries Department is supposed to collect this data, but does not, so the requirement is not implemented – *Corozal Table 2*
- Lack of licensing limits has caused lobster depletion – *Dangriga Table 2*
- A certain number of infractions should result in the loss of a license or inability to renew for a specific number of years – *Dangriga Table 4*
- The government should consider local control over licensing – local fishing boards should have full control over licensing in their zones—both who gets the license and how many – *Dangriga Table 4*

2.4.1. Number of fishers

- Many fishers expressed that there are more fishers now than there had been previously. Some added additional commentary about whether there were the same number of fish (as advocated by Corozal Table 1 and Belize City Table 1) or less fish or smaller animals than there used to be (as advocated by Belize City Tables 2 and 3) – *Corozal Tables 1 & 4; Belize City Tables 1, 2, and 3; & Dangriga Table 2*
 - There are more fishers than before – *Corozal Table 4*
 - There are more fishers now than before – *Dangriga Table 2*
 - There are 3,700 fishers now, 15 years ago there were 2,000, but 30 years ago there were only a few hundred. There were more fish to go around, and this was true for both conch and lobster. – *Belize City Table 3*
 - A fisher with 46 years of experience thinks that the problem is not that there are fewer animals, but that there are too many fishers – *Corozal Table 1*
 - One fisher does not think there is less fish, but that there are more fishers – *Belize City Table 1*
 - There are fewer fish, and it takes more effort to catch fish, because there are more fishermen – *Belize City Table 2*
 - The conch are smaller, and there are more fishers to share with – *Belize City Table 3*
- The number of fishers should be limited – *Dangriga Table 1*

2.4.2. Managed access zone system

- Fishers do not like the managed access system – they want to be able to fish in more than two areas – *Belize City Table 3*
- Area 3 is one of the best fishing areas in Belize, but the way it is zoned means that fishers from Northern areas fish there as well. – *Dangriga Table 2*

- There should be an option that mirrors a Community Land Trust system. This would include capped membership, with one fisher gaining access only when another has given up their ability to fish the area. Fishers would also be responsible in part for protecting the area and ensuring rules were followed – *Dangriga Table 2*
- There is dissatisfaction with the implementation of the managed access program. The perception is that you get your license and have your fishing areas. Turneffe originally had 250 licenses and now it has 1,300 licenses – *Dangriga Table 3*
- Better implementation is needed to restrict fishing effort and limit the number of fishers in a given area – *Dangriga Table 3*
- The number of fishers per zone should be limited – *Dangriga Table 4*
- Fishers do not know the number of licenses per area – *Dangriga Table 4*

2.4.3. *Licensing to non-Belizeans*

- Licenses should be restricted to only Belizean fishers for commercial licenses – not to foreign fishers or permanent residents – *Corozal Table 2*
- There should not be fishing licenses given to permanent residents – *Belize City Table 3*
- This sentiment was also echoed at other points in small group and full group discussions.

2.4.4. *Licensing to non-commercial fishers*

- Licenses should be restricted to only commercial fishers – no guides or foreign fishers – *Corozal Table 2*
- Tour guides are getting licenses, as anyone can have them – *Dangriga Table 3*
- It would be better to have a requirement that tour guides bring licensed commercial fishers with them, instead of allowing tour guides to get fishing licenses – *Dangriga Table 3*

2.4.5. *Special licenses*

- There should be special licenses for boats rather than individual fishers – *Dangriga Table 3*
- The special licensing/traditional fishing license at SPAGS process is unfair – *Dangriga Table 4*
- Special licenses go to fishers from other areas rather than the local fishers – *Dangriga Table 4*
- Fishers suggested that special licenses be granted to boats rather than individuals. – *Dangriga Table 4*

2.5. Consultation

2.5.1. Transparency and accessibility

- Communications with fishers are only in English, which is a significant problem – *Corozal Table 2*
- Co-operative data is not shared with fishers – *Corozal Table 2*
- When NGOs come to consult, they should go to fishers, rather than expect the fishers to go to them – *Corozal Table 2*
- Consultation should occur outside of the fishing season – *Corozal Table 2*
- NGOs should share information with fishers – *Corozal Table 2*
- NGOs get money to meet with fishers, but fishers do not get any of it – *Corozal Table 2*
- There needs to be information sharing by MPAs and Co-ops. The fishers are interested in data about catch and managed access, and it will facilitate collaboration between fishers, MPAs, and Co-ops – *Corozal Table 3*
- There is a lack of public awareness and education contributing to lack of consultation – *Corozal Table 4*
- There need to be multilingual systems of communication – both in enforcement and in any communication with communities (e.g., meetings, documents, etc.) – *Corozal Table 4*
- There needs to be better communication between fishers and the government – *Belize City Table 1*
- There is a need for more efficient channels of communication between the government and fishers, and there should be more government outreach to fishers – *Dangriga Table 1*
- Fishers would like more transparency from NGOs – *Dangriga Table 2*
- There has been no communication with fishers about the Blue Bond, particularly with regard to financing or intended recipients of funding – *Dangriga Table 3*
- Fishers are unsure of how many licenses there are for a given area – *Dangriga Table 4*

2.5.2. Participation in decision-making processes

- There is no consultation in management processes – *Corozal Table 2*
- Fishers should be included in management decision-making – *Corozal Table 2*
- The government makes amendments to fees and rules without consultation – *Corozal Table 3*
- Enforcement policy needs consultation – *Corozal Table 3*
- There should be real representation for fishers in government, private, and public forums – *Corozal Table 3*

- There need to be opportunities to participate and consult in the management process – *Corozal Table 3*
- Marine reserves need to be carefully considered before they are created; Ultimately, fishers agree there should be marine reserves, but they need to be well-managed, and fishers need to be part of the consultation when established – *Corozal Table 4*
- Currently, there is a lack of consistent and significant inclusion in decision-making, and inadequate fisher representation in decision-making processes – *Corozal Table 4*
- There needs to be better collaboration between fishers and the government – *Belize City Table 1*
- Fishers only see the Fisheries Department when it is time to renew licenses – there are no regular meetings, and no consultation – *Belize City Table 4*
- Funding goes to the co-operatives, which does not benefit the fishers, and fishers are not involved in decisions about how the funds should be used – *Belize City Table 4*
- Fishers want to see the government and fishers working together – *Belize City Table 4*
- Fishers should be included in proposals for coastal development – in the consultation and impact assessment process – *Belize City Table 4*
- Expansion of MPAs should include consultation – *Dangriga Table 1*
- Fishers should be included in policy making, including: adequate consultation and representation in policy making; representation on boards, with the authorities, on ministerial working groups; and upgrading the advisory council to executive board (to government) – *Dangriga Table 1*
- There should be more communication with fishers and proper consultation with the right people before decisions are made – *Dangriga Table 2*
- The government pays lip service to stakeholder representation – *Dangriga Table 3*
- Fishers want meaningful inclusion on their terms, particularly through stronger associations and elected representation – *Dangriga Table 3*
- Fishers should be involved in policy decisions – *Dangriga Table 4*
- Fishers should be included in the structure of NGOs and should sit on the board of directors – *Dangriga Table 4*

2.6. Regulations

- It has been suggested that the regulation should be that licensed boats must be off the water at 6pm – *Dangriga Table 3*
- There should be no new regulations until the current laws are enforced – *Dangriga Table 4*

2.6.1. Marine Protected Areas

- If the government and co-managers cannot be effective with the preserves they have, there is no point in adding additional reserves; focus should be on existing protected areas – *Corozal Table 3*
- Fishers have some disagreement on whether there should be more, less, or the current amount of MPAs – *Corozal Table 4*
- MPAs should be expanded in consultation with fishers – *Dangriga Table 1*

2.6.2. Price controls

- There needs to be price regulation to combat low prices at the beginning of the season (lobster catch per unit effort at the opening of the season is the same every year, but drops off quickly) – *Corozal Table 2*
- Equal pricing or set pricing over time should be implemented for lobster and conch, which would benefit the fishers. Price schemes should be designed in a way that is not supposed to benefit only the co-operatives. – *Corozal Table 3*

2.6.3. Shades/traps

- There needs to be better zoning around traps vs shades and free diver areas – *Corozal Table 1*
- There are no regulations on taking lobsters out of other fishers' traps – there is no legal protection against people getting into/messing with the traps – *Corozal Table 1*
- There should be regulation about when to move lobster shades – *Corozal Table 1*
- The number of shades per fisher should be limited – *Dangriga Table 1*
- One fisher is ok with casitas, but not with lobster traps – *Dangriga Table 2*
- There should be more limits on shades; some fishers have 50 shades, others have 500. The only rule is that they must be four feet apart – *Dangriga Table 3*

2.6.4. Size and season requirements

- Fisheries Department's action to increase the legal weight for lobster tail to 4.5 oz did not occur because: 1) co-operatives did not want to enforce the change; 2) fishers did not want it; and 3) there are issues exporting tail greater than 4 oz – *Corozal Table 2*
- One fisher thinks the decreases in stocks he sees are due in part to lack of minimum sizes for some species, which he thinks should be in place – *Belize City Table 1*
- Small/young fish are presenting management challenges – *Belize City Table 2*
- Tail weight limits should be kept at 4 oz for lobster – *Belize City Table 3*
- Some fishers suggested that there should be a longer closed season for conchs, so they can grow – 6 months ensured even if quota is not hit – *Belize City Table 3*
- Minimum size for lobster and conch should increase – *Dangriga Table 1*

- Fishers expressed their confusion over why they cannot fish queen triggerfish, and feel that tarpon fishing should be allowed – *Dangriga Table 3*
- There are issues selling older conch (meat is not ideal) – *Dangriga Table 4*
- Fishers suggested that instead of new lobster recommendations (bigger legal size), the focus should first be on enforcement of current measures – *Dangriga Table 4*

2.6.5. Berried lobster release

- Implement best practices, including releasing berried lobsters – *Dangriga Table 1*

2.6.6. Looking for pearls in conch

- Young fishers break the small conch looking for pearls, but do not take the meat – *Dangriga Table 3*
- This sentiment was also echoed at other points in small group and full group discussions.

2.6.7. Number of fishers per boat

- There is a need to regulate the maximum number of people on the boat. Fishers voiced their concern that northern sailboat fishers come in boats with 10-15 fishers per boat. They dive off boats, break off coral, break casitas, take grazers (angel fish), and sell herbivorous fish in Guatemala – *Dangriga Table 3*

3. Community Empowerment

- The fishing community could help address language issues – *Corozal Table 2*
- The fisher community could share and participate during officer trainings – *Corozal Table 4*

3.1. Collective action

- All fishers need to come together to unify themselves and fight for their rights – *Corozal Table 1*
- There is a suggestion to establish a legal union of fishers to be able to negotiate with all sectors of society, some of this is already occurring through local associations – *Corozal Table 3*
- Fishers need to be unified in what they say and want – *Belize City Table 1*
- Fishers associations need funding, but current criteria to receive funds (office, staff, etc.) represents a barrier to getting started – *Belize City Table 4*
- There should be a country-wide fisher union (there are already attempts to implement this, but fishers are unable to get funding as government is resistant, and there are

other barriers to funding a union – fishers would have to work with an NGO, and then money disappears) – *Belize City Table 4*

- There should be more activism by fishers – *Dangriga Table 1*
- Local fishing associations need funding – *Dangriga Table 2*
- Fisher associations are not that strong – *Dangriga Table 3*

3.2. Alternative livelihoods

- Fishers want opportunities during the slow season system to diversify their income – these could be in agriculture and tourism. Fishers expressed some interest in going to other places in the off-season for work, e.g., construction in Plascencia – *Corozal Table 1*
- Fishers would like opportunities to clean up sargassum and plastic before it comes to shore (compensated work, could be funded by NGOs) – *Corozal Table 1*
- Younger fishers need alternative livelihood options – *Corozal Table 2*
- Fishers need small grant programs for alternative livelihoods – *Corozal Table 2*
- Fishers need real empowerment for alternative livelihoods, with actual transitional assistance and follow-up from NGOs – *Corozal Table 3*
- Government needs to help provide for alternative livelihoods – *Corozal Table 3*
- Fishers expressed interest in the special license for fishers to do marine tours – *Belize City Table 1*
- There should be incentives to hunt lionfish – *Belize City Table 2*
- The Fisheries Department has limited human resources – they should hire fishers to do work the Fisheries Department cannot do (e.g., enforcement) – *Belize City Table 4*
- With the World Bank MCCAP, fishers submitted a proposal for a project that would be focused on alternative livelihoods that was turned down. Generally, the perception of these large-scale financing/development projects is that there is no money for fishers – *Belize City Table 4*
- Fishers suggested building opportunities for fishers in the private sector/tourism/NGO sectors, which includes bridging the tourist and commercial fisher sectors – *Dangriga Table 1*
- Fishers suggested funding fishers directly to facilitate their transition to non-fishing livelihoods – *Dangriga Table 2*
- There should be grants for alternative livelihoods, training, internships – *Dangriga Table 3*
- To reduce fishing pressure, fishers suggested taking fishers off reef to deeper water for pole and line tuna fishing – *Dangriga Table 3*
- Fishers suggested considering how fishers can be part of the Belizean tourist industry – *Dangriga Table 4*

3.3. Tone setting (within the fisher community)

- Fisher communities need to police themselves – fishers follow the rules, captains need to get their crews to follow the rules – *Corozal Table 1*
- Fishers need to comply with regulations – *Corozal Table 2*
- Fishers should report illegal activity – *Corozal Table 4*
- Fishers should report wrongdoers – *Belize City Table 2*
- Fishers should be dedicated to complying to the laws – they should practice self-regulation – *Belize City Table 2*
- Fishers suggested fostering a culture of influencers who do the right thing (regarding following laws) and pollution practices, and to give them support to be seen in the media, have a voice, etc. – *Belize City Table 2*
- The fishers should help to police internally in addition to enforcement (apply limits to size, season, etc.) – *Belize City Table 3*
- Fishers suggested fostering a culture of sustainability – living the fisher lifestyle, which means knowing what is right for your ecosystem – *Dangriga Table 1*
- Fishers should be able to report illegal activity without fear of retaliation – *Dangriga Table 1*
- Log book records should be accurate to ensure there are no issues – *Dangriga Table 4*
- Fishers should help other fishers out – possible apprenticeship program – *Dangriga Table 4*

3.4. Direct aid and grants

- There need to be more financial assistance programs for fishers – *Belize City Table 1*
- Fishers are not getting blue bond funding – *Dangriga Table 3*
- There is not enough aid for fishers, it goes to NGOs instead – *Dangriga Table 3*
- There should be grants for alternative livelihoods, training, internships – *Dangriga Table 3*
- Fishers do not receive funding from the International Development Bank (IDB) initiatives – *Dangriga Table 4*

3.4.1. Training and scholarships

- Fishers should have opportunities to receive training/scholarships to get experience in being boat mechanics – *Corozal Table 1*
- Fishers should have opportunities for grants/scholarships to get certified as dive guides/dive masters, and receive special marine tourism licenses to become a captain – *Corozal Table 1*

- There should be scholarships to fishers and their children so they can: 1) become decision-makers at NGOs; 2) be marine biologists; 3) marry traditional fisher knowledge with science – *Corozal Table 1*
- Fishers should have opportunities to get support in getting guide licenses – *Corozal Table 3*
- There is a need to emphasize the importance of education in improving the livelihoods of fishers and sustainability of resources – *Dangriga Table 1*

3.4.2. Fuel and supplies

- Fishers want access to duty free fuel (similar to the ways that the cane farmers get subsidies) – *Corozal Table 2*
- Fishers need more efficient engines and alternative energy sources – *Belize City Table 2*
- The government should enact policy for fisheries to enjoy duty free privileges for fuel, spare parts, engines, fishing gear – *Belize City Table 2*
- There need to be subsidies for fuels – *Belize City Table 3*
- High gas prices present an issue, and there should be a gas subsidy and duty exemptions – *Belize City Table 4*
- Fishers suggest to subsidize gas, engines, fiberglass, and operational inputs (akin to cane farmers in the north) – *Dangriga Table 1*

3.4.3. Low-interest loans

- Fishers want access to low interest loans – *Belize City Table 1*
- The government should enact policy for fisheries to enjoy duty free privileges for fuel, spare parts, engines, fishing gear – *Belize City Table 2*
- Fishers who speak up get punished and are unable to get loans – *Belize City Table 4*
- Fishing is not seen as a career – fisher's income is not recognized as a steady income to get a loan – *Belize City Table 4*
- Fishers need reasonable interest rates for loans – *Dangriga Table 2*

3.4.4. Social insurance

- Fishers need a retirement program – *Corozal Table 2*
- Fishers need timely support: 1) in times of disaster; 2) in hard times – e.g., sickness or loss of income; 3) social security – *Corozal Table 3*

3.5. Engagement in the scientific process

- There should be scientific education for the opportunity to marry traditional fisher knowledge with science – *Corozal Table 1*
- There is some lack of trust of scientists – *Belize City Table 3*

- Fishers should be involved in data gathering – *Dangriga Table 3*
- Fishers expressed interest in having fish migration incorporated into the analysis presented – *Dangriga Table 3*
- Scientists should work more closely with fishers, fishers know a lot, but their knowledge is not credited when shared – *Dangriga Table 1*
- There is a need to strengthen dialogue between fishers and scientists – *Dangriga Table 1*
- Fishers would like to learn about and participate (with compensation) in HRI surveys. Lack of participation is a key reason for lack of trust in the data – *Dangriga Table 3*

3.6. Marine resources and fisheries education

- There should be improved education on processes of sizing products – *Corozal Table 3*

3.6.1. For fishers

- Fishers would like to have the private sector involved in providing education to fishers by outside teams – *Corozal Table 2*
- Fishers would like education about minimum sizes and the impact of fishing younger fish – *Belize City Table 2*
- Fishers would like education about climate change – *Belize City Table 2*
- Fishers would like education on regulations about fish sizes – *Belize City Table 2*
- Fishers would like to have an apprenticeship system to address the issue of anyone being able to get a license, but not necessarily know what they are doing – *Belize City Table 4*
- Fishers would like more education, including on laws and policies – *Dangriga Table 1*
- There should be education about the consequences of not following regulations. This would encompass not just possible punishments like fines or loss of license, but what actually occurs in the ecosystem and to the fishery when these regulations are not followed to explain the importance of the regulations. – *Dangriga Table 2*
- There should be education about the importance of protecting the ecosystem, and the importance and role of various species – *Dangriga Table 2*
- There should be a training course for resident (noncitizen) or newly licensed fishers as a requirement for licensing. There should be a school for the fishers, like in Cuba or the tour guide system in Belize – *Dangriga Table 4*
- Fishers suggest considering how young fishers can build a good reputation – specific training, mentorship, community monitoring, badge system, etc. – *Dangriga Table 4*

3.6.2. For the broader public

- Fishers should be involved in educational outreach to all sectors of society – *Corozal Table 3*
- There is a need to improve marketing of fishers' products – *Corozal Table 3*
- There should be education for consumers about conservation laws – it's a measure of community accountability – *Belize City Table 2*
- Fishers suggested encouraging domestic consumption of domestic seafood (so the market is not saturated with imported seafood, so fishers can go to the grocery store and see fish they catch) – *Belize City Table 2*
- Fishers suggested encouraging the private sector to work with fishers to brand Belizean seafood that is caught in an environmentally sustainable way as part of educating the public and consumers to consume locally, which benefits the country – *Belize City Table 2*
- Fishers suggested to provide education for tourists, so they do not take fish for commercial purposes – *Belize City Table 3*
- Fishers suggested capturing knowledge of primary resource users (through documentaries, etc.) to inform policies and management in the long term – *Dangriga Table 1*
- There is a need for education on fisheries and the marine ecosystem in schools, as some of the children and youth will ultimately grow up to be in decision-making or enforcement roles affecting the fisheries – *Dangriga Table 2*
- There should be a curriculum with basic information about the fisheries to share with the public (TV, radio, schools) – *Dangriga Table 2*
- There is a need to educate the broader public about the importance of protecting the ecosystem, and the importance and role of various species – *Dangriga Table 2*
- The local market sometimes buys small or undersized fish, there is an opportunity within the community to educate about illegal and undersized fish and why there are rules – *Dangriga Table 4*
- During the snapper season, there is no local market for the fish. The private sector could plan ahead for this better – *Dangriga Table 4*

4. Other Factors Affecting Fishing

- Many conch are dying due to unknown reasons (could be worms, freshwater runoff, water temperature change, all of the above?) – *Corozal Table 2*
- When looking into fisheries, fishers suggested including all industries in the picture – e.g., agricultural or industrial impacts – *Belize City Table 2*

- The law is that 66 ft above high water is public land, but government is selling packets of such land to private developers – *Belize City Table 4*

4.1. Development

- Mangroves are very important for the lobsters, and fishers expressed concern that dredging has damaged the soil of the mangroves around the Belize City area, which has affected the lobsters in the area. Conch is also affected by the destruction of the mangroves – *Corozal Table 1*
- Fines for development without a permit are insufficient – *Belize City Table 4*
- There was a recent change on land with cutting down timber, and there should be a similar rule for development on the water – *Belize City Table 4*

4.1.1. Tourism

- There is a need to prioritize ecotourism over mass tourism/cruise ships – *Corozal Table 2*
- The private sector/tourist groups should stop buying illegal product – *Corozal Table 4*
- Fishers could be better integrated into the tourist industry – *Belize City Table 1*
- The tourism industry has become overdeveloped after 50 years, leading to habitat destruction, etc. Fishers would rather see ecodevelopment with no clearing of mangroves, dredging, etc. – *Belize City Table 4*
- The government has approved another cruise ship port, which is bad – *Belize City Table 4*
- Fishers suggested that there should be more emphasis on buying fisher products and acknowledging the added value of local products – *Dangriga Table 1*

4.1.2. Agriculture

- Agricultural runoff is creating pollution issues – *Belize City Table 2*
- Agricultural development clears land, creating pollution issues – *Belize City Table 4*

4.2. Pollution

- Agricultural runoff is creating pollution issues – *Belize City Table 2*
- There is a need to ensure enforcement of international laws related to grey water and black water – *Belize City Table 2*
- Fishers suggested adopting technology to eliminate or lessen pollution (e.g., engines, plastics, alternative generation of energy) – *Belize City Table 2*

4.3. Sargassum and ocean plastics

- There should be opportunities to clean up sargassum and plastic before it comes to shore (compensated work, could be funded by NGOs) – *Corozal Table 1*

- Sargassum is killing lobster and juvenile fish in the mangroves – *Belize City Table 1*
- More management needs to be done to address the sargassum issue – *Belize City Table 1*
- Sargassum is creating a management problem – *Belize City Table 2*

4.4. Climate, climate change, and natural disasters

- If a big hurricane comes through, there are a lot more lobster the year after in the fishing area – *Corozal Table 2*
- Lobster fishing is weather dependent – *Belize City Table 1*
- Climate Change is creating management challenges, including sargassum and coral bleaching – *Belize City Table 2*
- There needs to be recovery schemes and disaster recovery planning – e.g., if X gets to Y point, what will happen? Possible performance plan for the industry – *Belize City Table 2*
- Fishers suggested to consider chains of climate change, linking various pieces/effects together – *Belize City Table 2*
- Natural disasters (hurricanes and floods) present management issues – *Belize City Table 4*
- Scientific analysis should account for change of temperature of water over time, currents – *Dangriga Table 4*

4.5. Invasive species

- Lionfish are creating management challenges – *Belize City Table 2*
- There should be incentives for fishers to catch lionfish – *Belize City Table 2*