Summary of workshops with users of the Cayman Crown

2021

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Contents

Summary of Cayman Crown

The Cayman Crown is a site of significant importance to the Mesoamerican Reef. Located in the Gulf of Honduras, it straddles the border between Belize and Guatemala. Previously poorly documented, in 2013 the reef was discovered to have higher than expected coral cover and characteristics consistent with a fish spawning aggregation (FSA) site. Further investigation led to a characterization of site users and a better understanding of the socioeconomic activities (particularly fisheries) that take place at the site.

Both Belize and Guatemala have passed legislation to protect the site. Belize expanded the Sapodilla Cayes Marine Reserve in May 2020, and Guatemala created a 10 year temporary closure by Ministerial Agreement in July 2020.

In 2020, a workshop was planned to bring together fishers from the three countries that share the site, with goals of increasing fisher participation in management, measuring their perceptions on site use, listening to their recommendations for management, and working towards the creation of a trinational, multisectoral committee for future participatory management and decision-making.

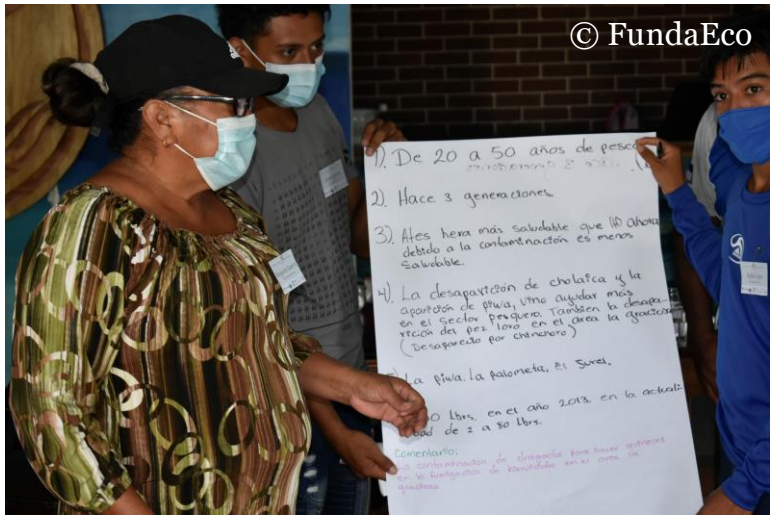
Summary of workshops

TIDE, CORAL and FUNDAECO, as members of the MAR Fish project, planned to work with fisher groups to ensure their participation in the workshop. To facilitate the workshop, COBI was hired as an external, neutral, moderator, to develop the agenda and create recommendations based on contributions during the workshop.

Originally planned as a single workshop in one of the MAR countries, the COVID-19 pandemic resulted in significant changes to the agenda, logistics and timeframe. Due to international and internal travel restrictions, plus differences in legislation and impacts of the virus in each country, the decision was made to hold separate workshops in each site, each following local regulations, and with remote involvement of some, or all, participants.

Workshops were conducted in:

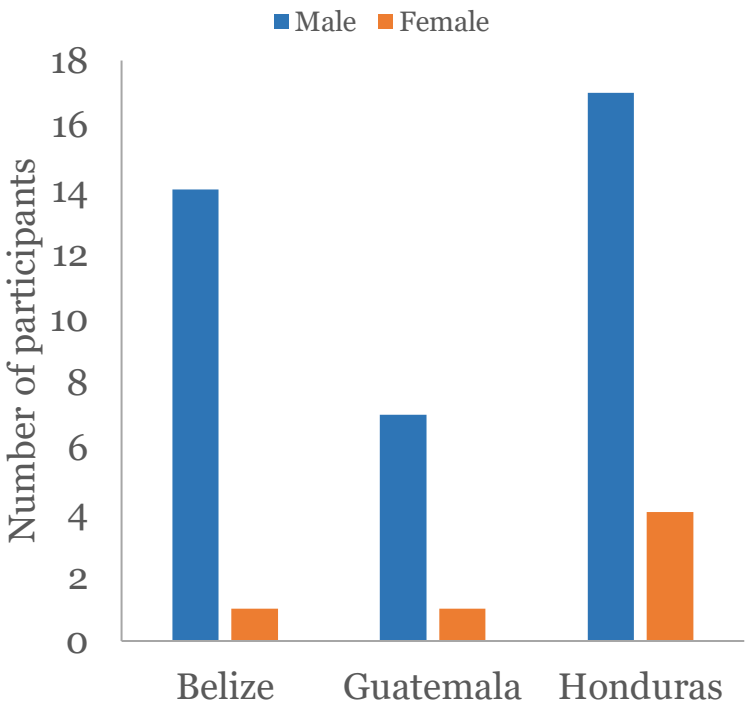
- **Belize – 26-27 May 2021**
  - Monkey River – eleven participants
  - Punta Gorda – seven participants
- **Guatemala – 22-23 July 2021**
  - Livingston – eight participants
- **Honduras – 29 September 2021**
  - Virtual – 21 participants



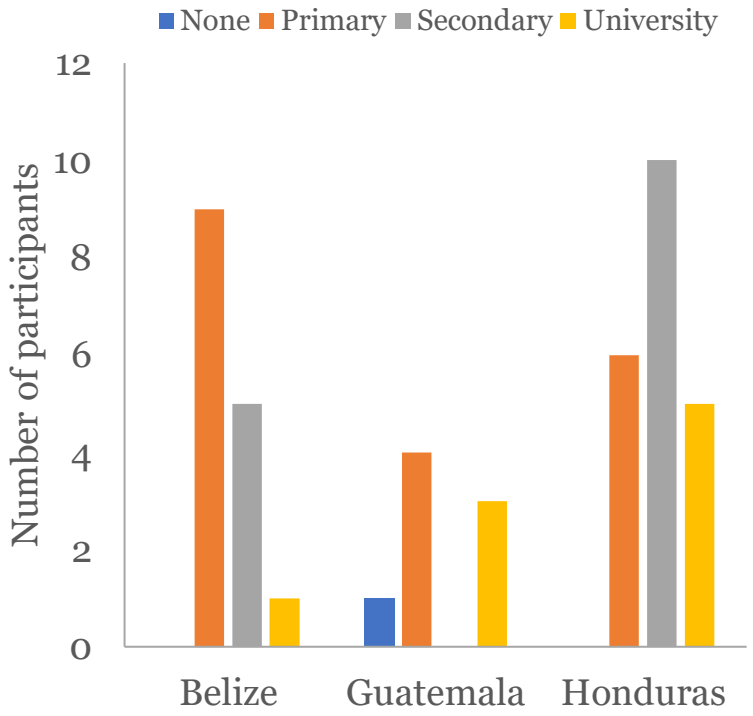
In Belize and Guatemala, surveys were applied by TIDE and FUNDAECO staff in person to participants before each workshop. Exit surveys where then conducted following the workshop. In Honduras, surveys were conducted by telephone by CORAL staff several days before the workshop. In Honduras, participants were also provided with YouTube links to presentations to view at their leisure before the event, reducing the time spent online during the workshop.

Demographics

Gender



Education

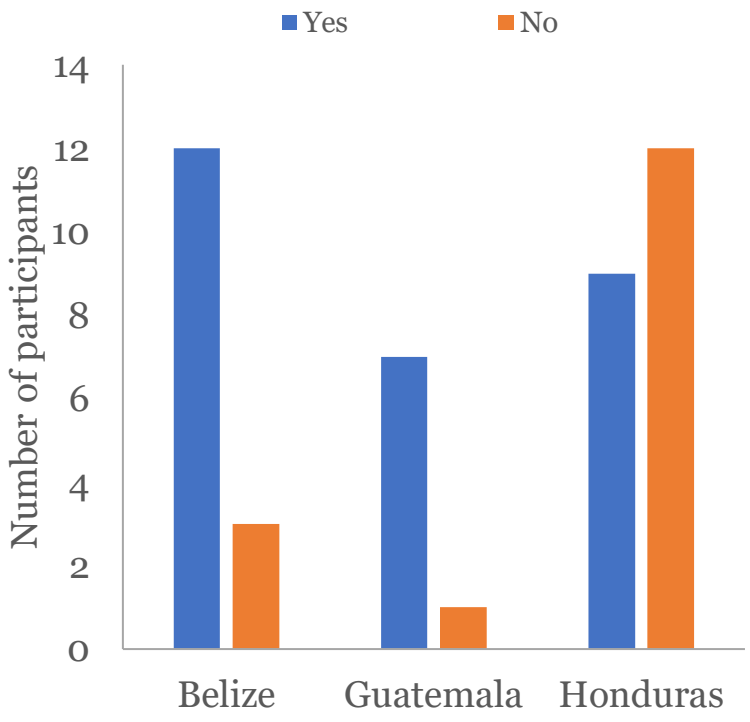


The average age of fishers in Belize was 45 years old (range 26-67), Guatemala was 39 years old (range 19-61) and Honduras was 50 years old (range 28-70). Most participants (86%) were male, but women were present in each workshop.

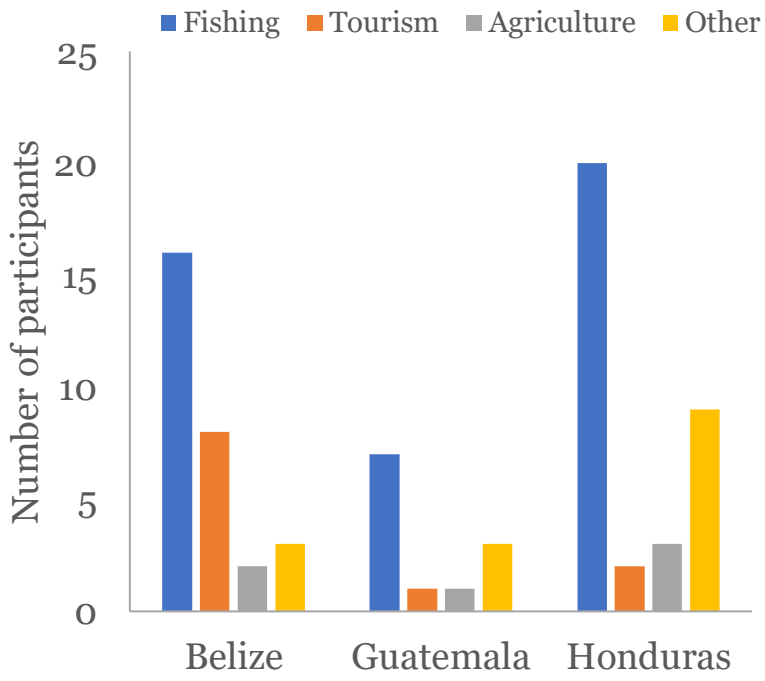
Education levels varied widely, with most fishers in Belize and Guatemala only completing primary level education. The majority of Honduran fishers had completed secondary education, with several completing university.

Demographics

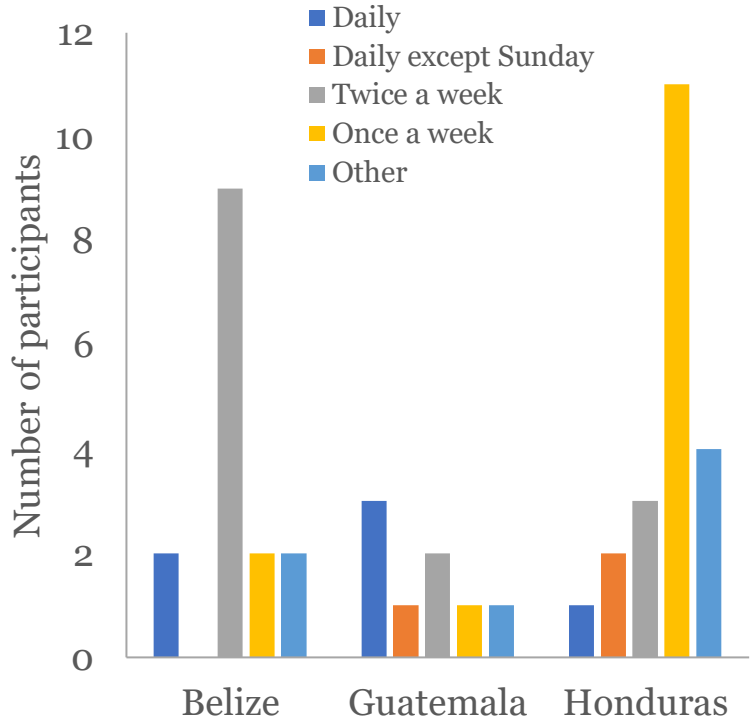
Was your father a fisher?



Economic activities



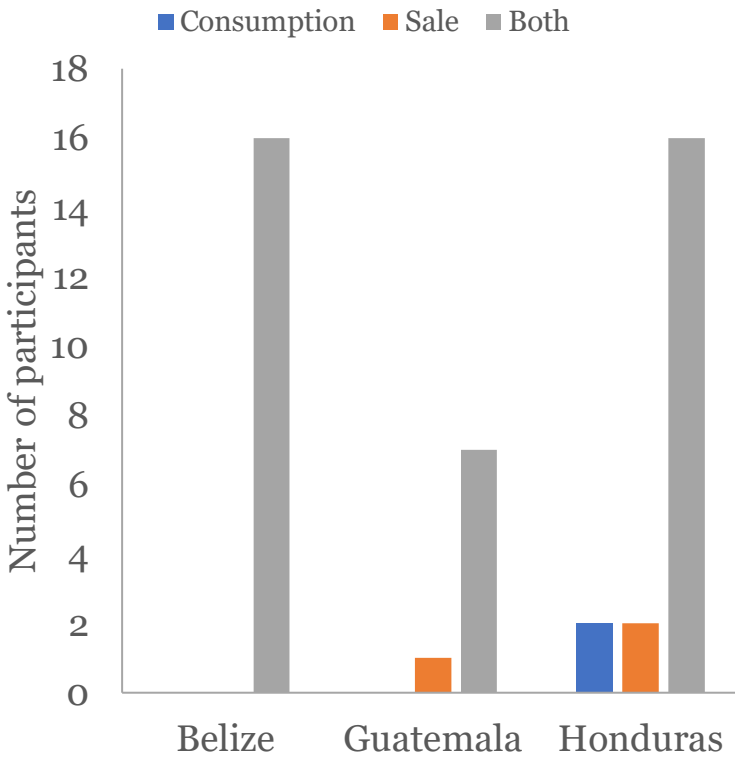
Fishing frequency



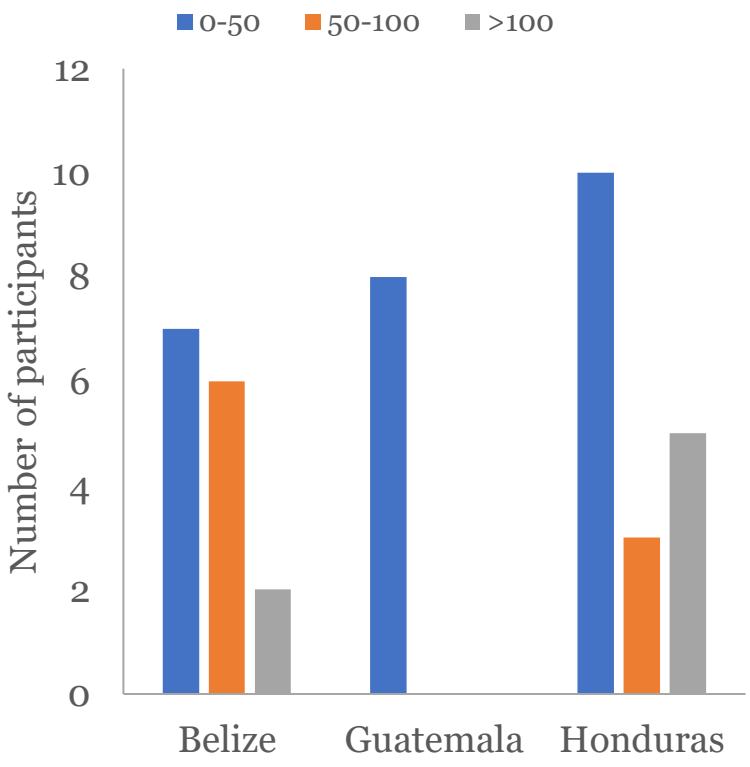
Fishers from Belize and Guatemala were much more likely to belong to fisher families, with 82% of their fathers being fishers. In Honduras, only 42% had fathers who were fishers, suggesting more recent entry to the fishing sector. Few participants were exclusively fishers, with many having alternative incomes from tourism (particularly Belize), agriculture and other permanent employment (with fishing being the secondary activity). For this reason, fishing frequency varies considerable, with only 20% of participants fishing everyday, or every day except Sunday.

Fisheries

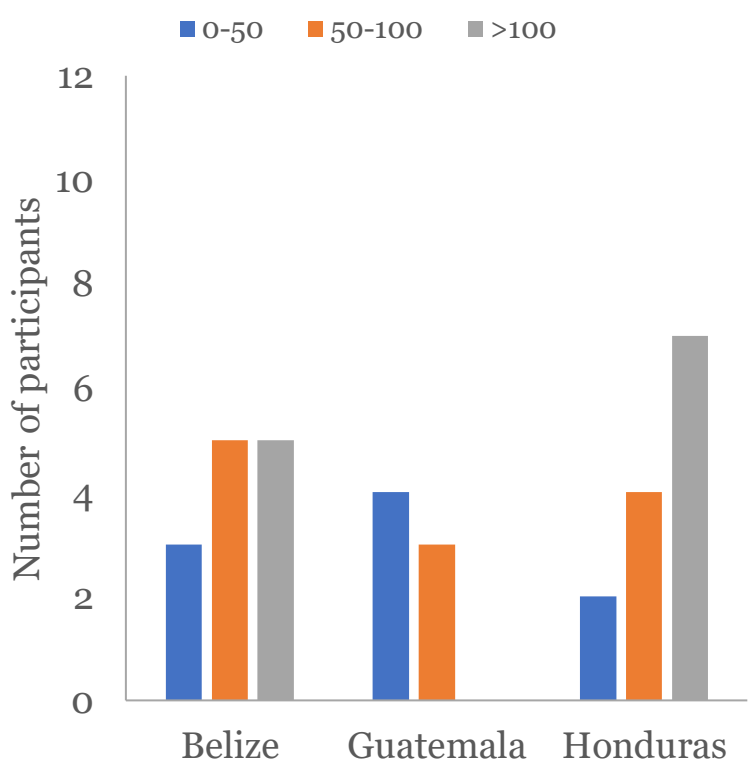
Reasons to fish



How much do you catch?



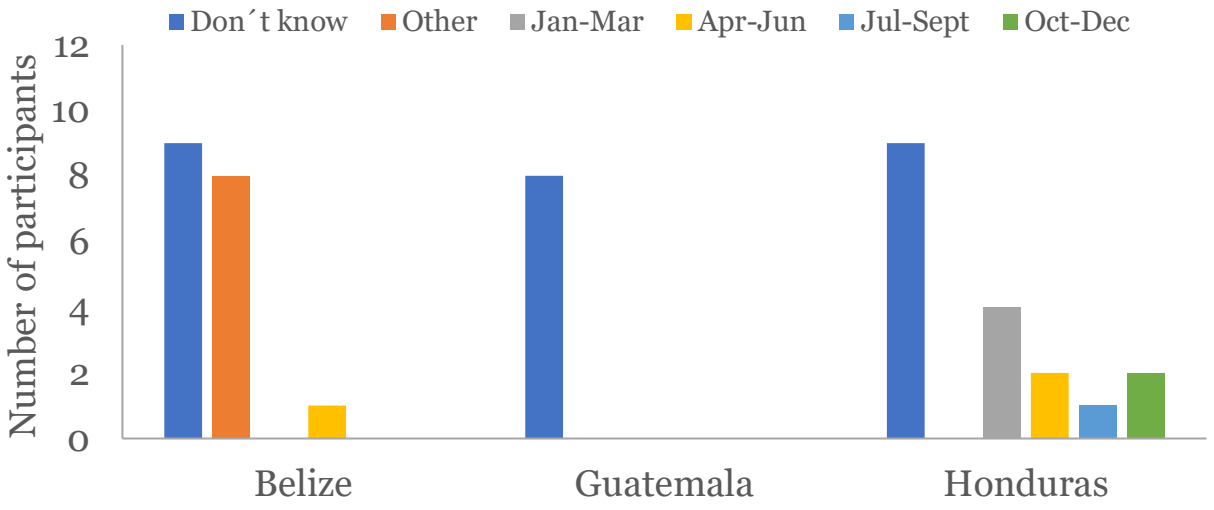
How much did you catch?



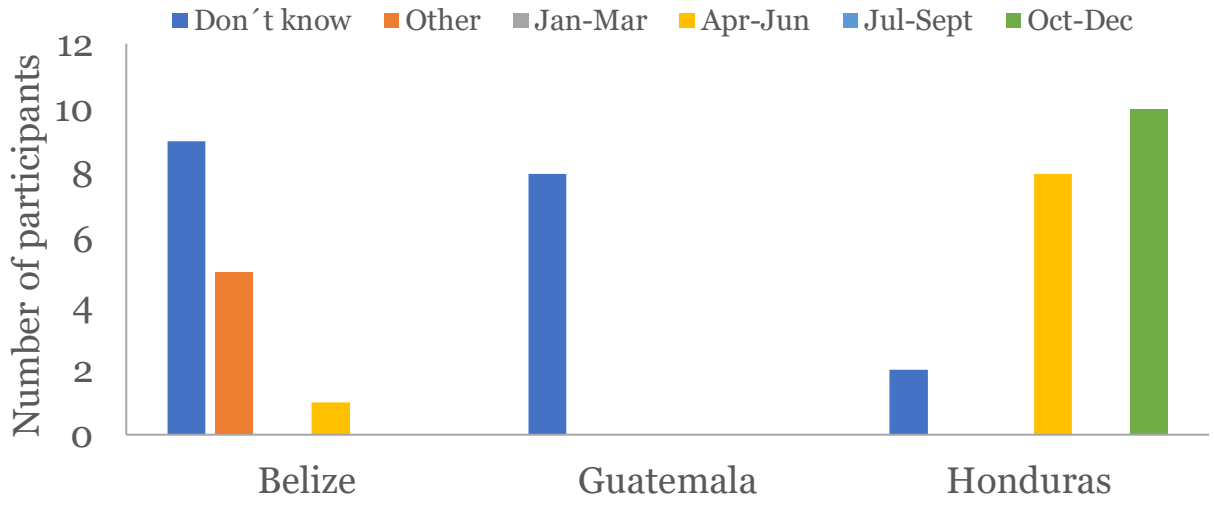
Fishers across the three countries fish for both commercial and subsistence, with only two Honduras fishers exclusively fishing for subsistence. Trip landing volumes vary widely in Belize (10-136 kg) and Honduras (4-450 kg), reflecting the diversity of fishers who participated. Guatemalan fishers reported the lowest catches, with all reporting an average of less then 50 kg per fishing trip. In the past (10 years ago), fishers across the three countries reported higher average catches, with more fishers reporting average catches of 50-100 kg and over 100 kg per fishing trip.

Spawning Aggregations

Grouper



Snapper



Many fishers are unsure when groupers and snappers spawn. This is an important knowledge gap for FSA conservation.

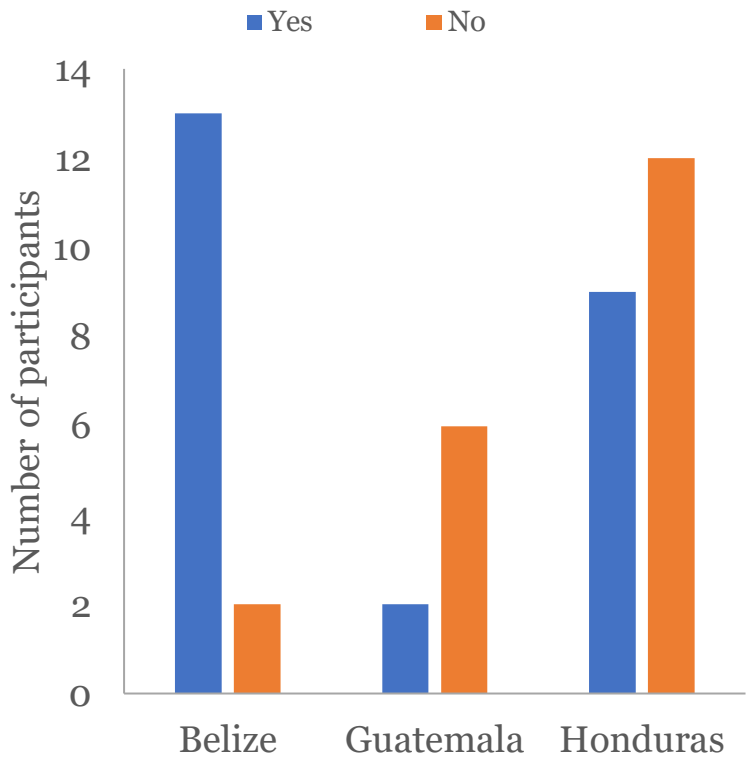
Groupers spawn between December and March – this was identified by 13% of participants, all from Honduras.

Snappers generally spawn between April and July (although there is more variance within this family) – identified by 20% of fishers. A large group of Honduran fishers (10) also identified the period October-December as a snapper spawning period, possibly reflecting local species variations. This period was not, however identified by fishers in Guatemala and Belize.

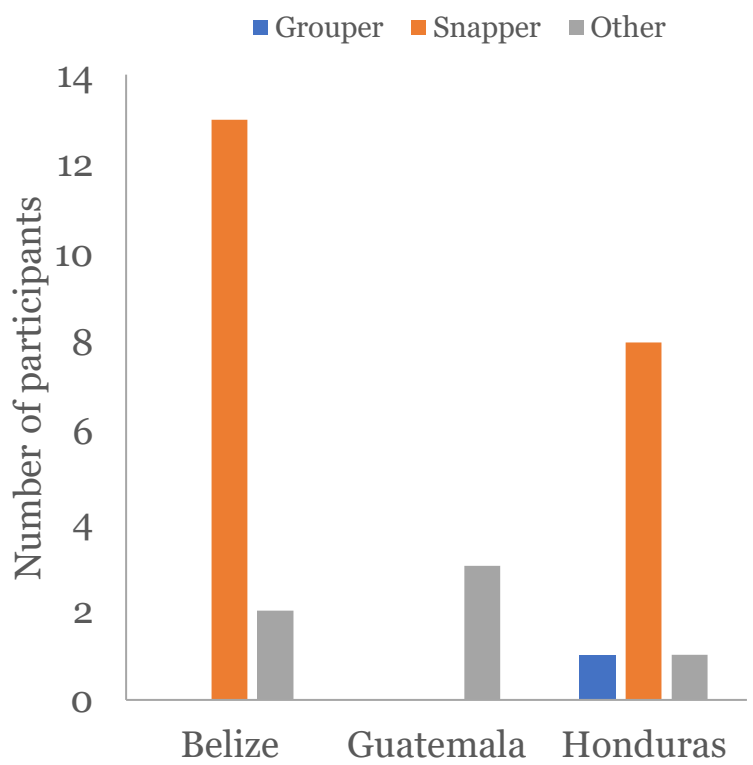
The orange bar on the charts ("other") considers Belizean fishers who reported that they did know the spawning periods of groupers and snappers, but did not specify the dates.

Spawning Aggregations

Have you fished a FSA?



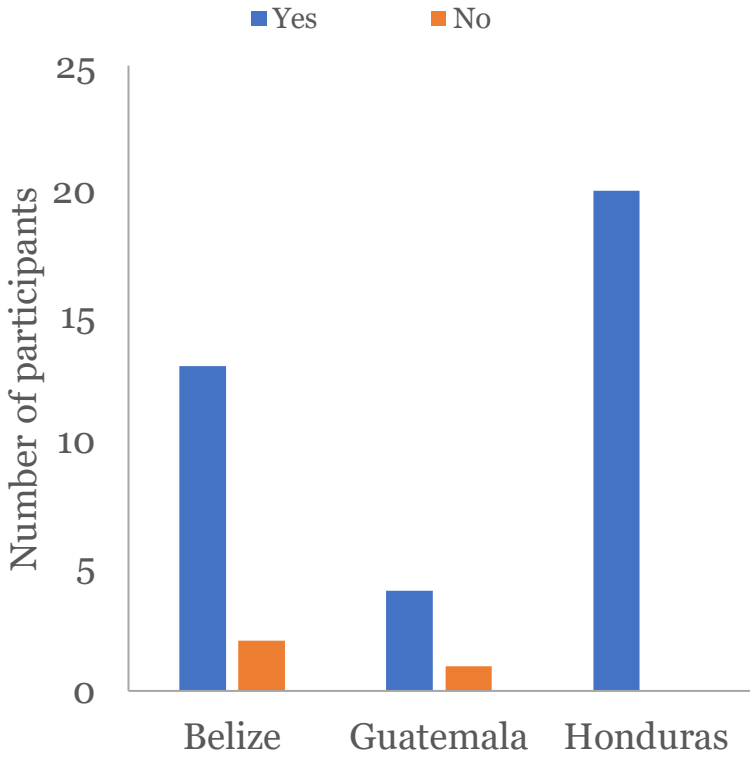
What did you catch?



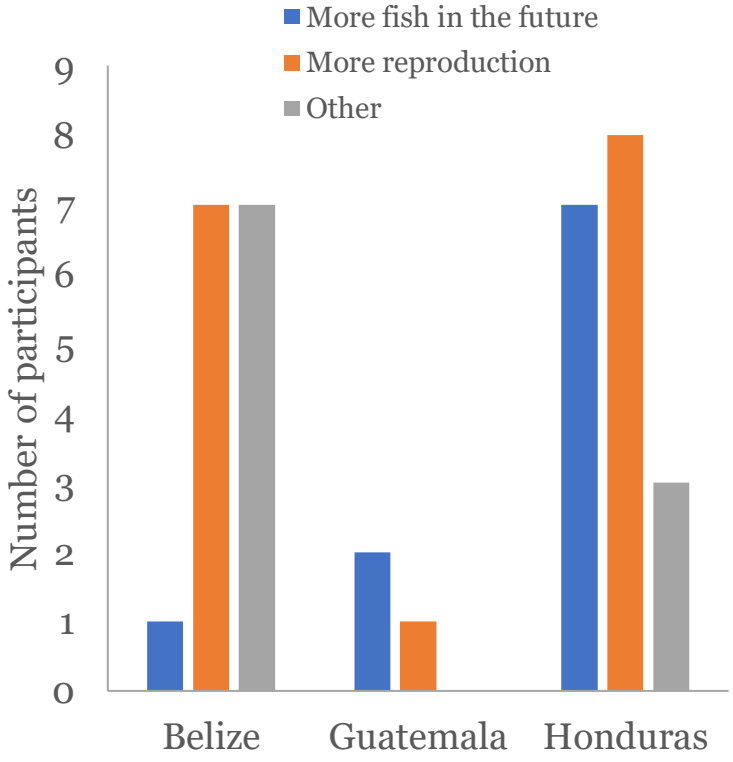
The majority of Belizean fishers reported having fished a FSA site, where as most Guatemalan and Honduran fishers had not. Considering the responses to the previous questions about spawning periods, we recommend increasing the sample size of this survey as most fishers report not knowing when fish spawn, but many have fished FSAs. Of the fishers who have fished FSAs, they fished almost exclusively snapper. In Belize, a country with many grouper FSAs, this likely reflects a high level of compliance with the Nassau grouper closed season (1 December-31 March). Snappers are generally not regulated in the MAR (except for certain zones in Honduras) and no restrictions exist to limit fishing during spawning seasons, beyond marine reserves and no-take zones.

Conservation

Would FSA protection benefit you?

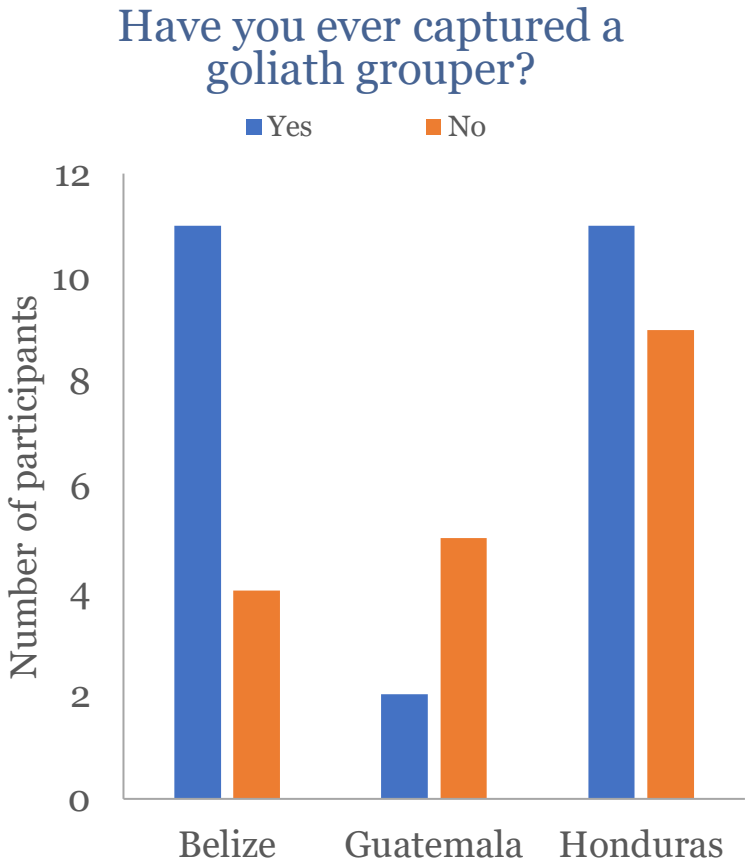


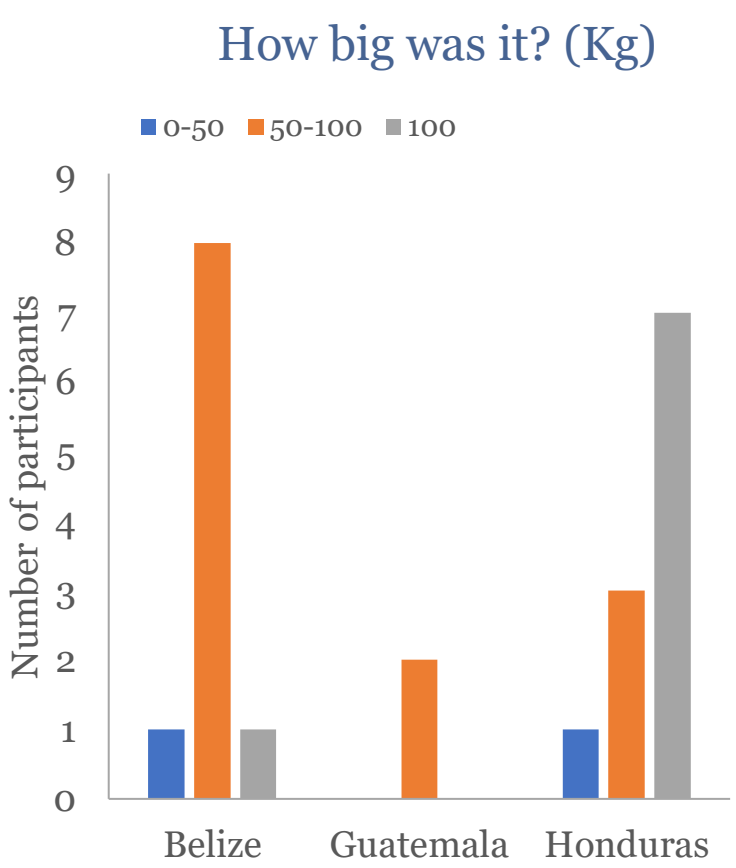
Why?



Almost all fishers (92%) believe that protecting FSAs would benefit them personally, with protecting the reproductive phase of commercial fish being the principle reason. Fishers also reported reasons such as having more fish in the future, for their children, higher incomes and to increase productivity. Almost all responses were related to improving fisheries and livelihoods of the fishers. No fishers mentioned environmental benefits of increased top predators or healthier ocean ecosystems, likely reflecting their priorities as fishers.

Shifting baselines

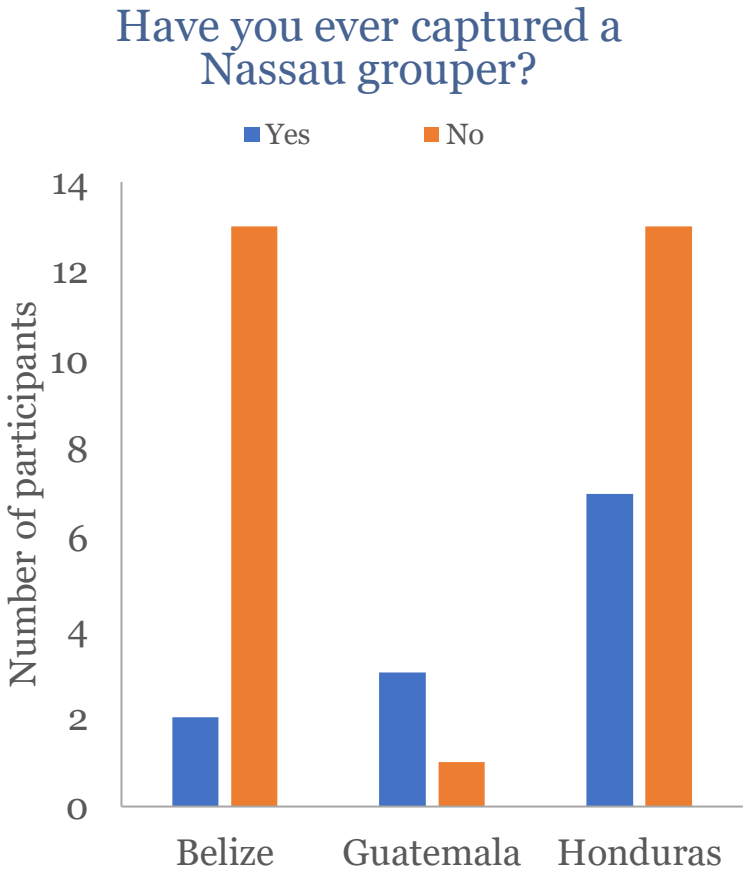


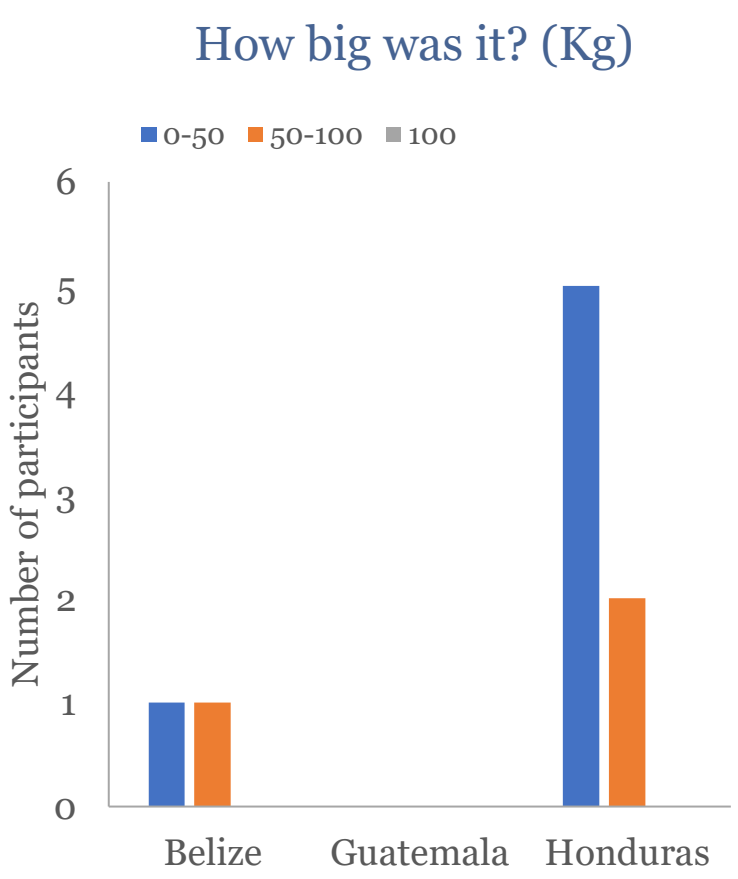


The goliath grouper (*Epinephelus itajara*) is the largest reef fish in the Caribbean. Previously listed as Critically Endangered by the IUCN Red List, it was recently moved to Vulnerable due a healthy population in Florida, USA, after more than 20 years of protection. However this historically important top predator, is now almost regionally extinct in the Mexican Caribbean (Bravo-Calderon et al. 2021), and populations very low across the MAR.

The goliath grouper can grow to 250 cm and 350 kg. A surprisingly high number of workshop participants reported catching goliath grouper, possibly suggesting a higher than believed population level in the three countries. Most fishers reported catching their biggest goliath grouper recently, since 2015. The biggest goliath grouper caught by the fishers was relatively small, with most being under 100 kg. Honduran fishers reported catching the largest goliath groupers.

Shifting baselines



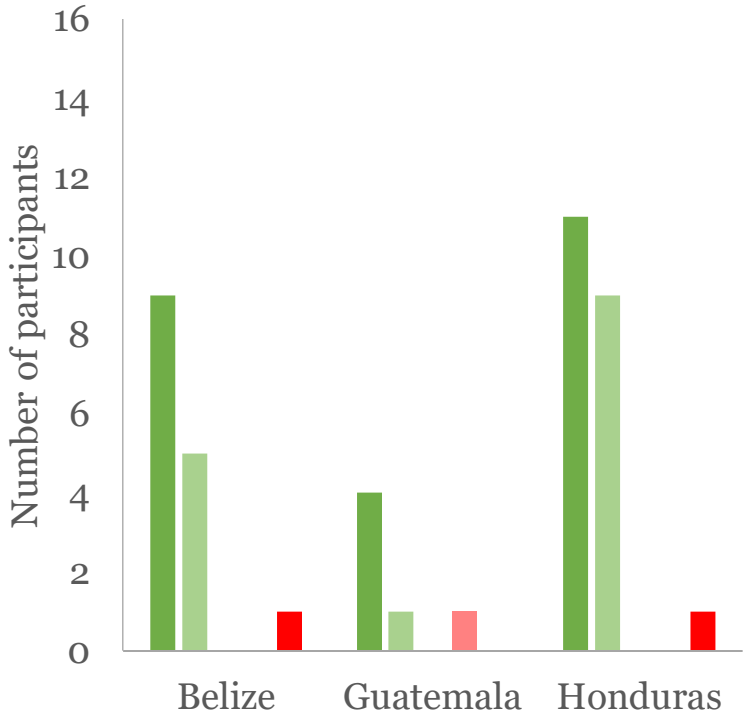


The Nassau grouper (*Epinephelus striatus*) is an emblematic Caribbean reef fish and one that forms the most spectacular FSAs. Currently listed as Critically Endangered by the IUCN Red List, its population is at risk from over fishing, particularly at spawning sites.

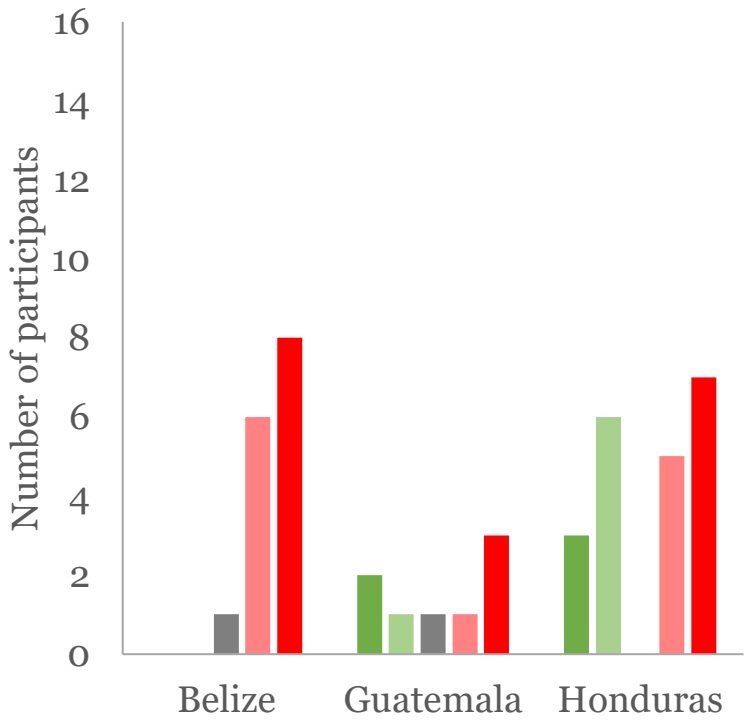
The majority of fishers reported not having caught Nassau grouper. Nassau grouper still form FSAs in Mexico, Belize and, likely, Honduras (Fulton et al. 2020), It is possible that there was some confusion over the identify of Nassau grouper in some sites, particular with those fishers who reported large Nassau grouper being caught. Nassau grouper can grow to up to 25 kg but several fishers reported catching Nassau grouper larger than 50 kg. The survey form (which had to be adapted to be both presential and digital) did not include a photo of the fish and it is possible different local names are used, leading to misidentification.

Perceptions

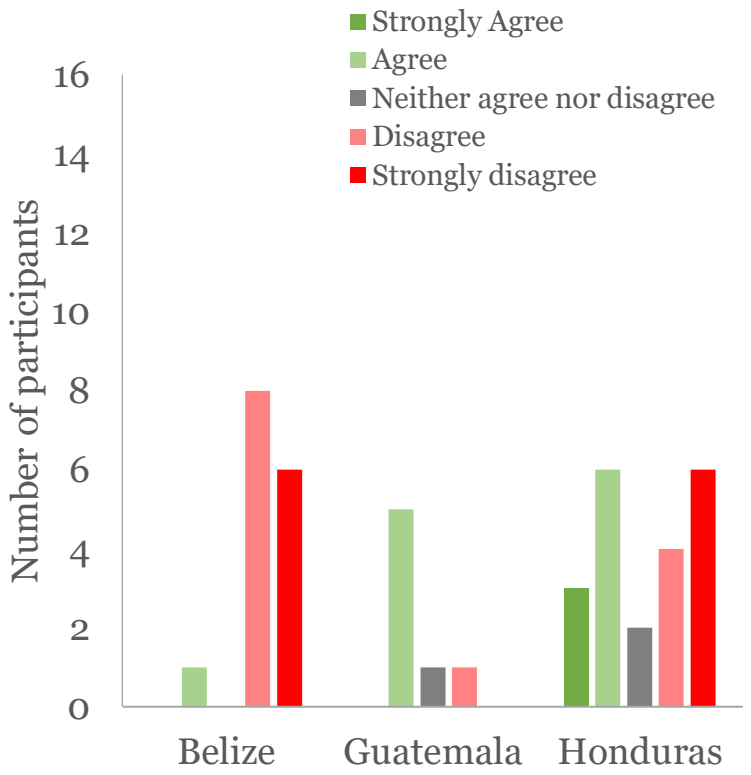
Fish spawning aggregation sites are essential to the economy of the community



There are more and more fish in the areas where I fish



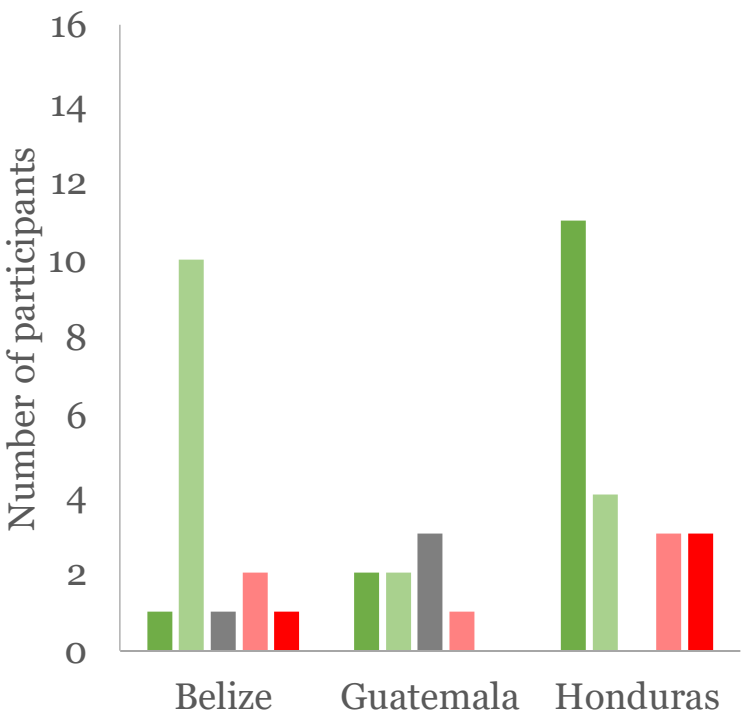
Every time I go fishing, I make a profit



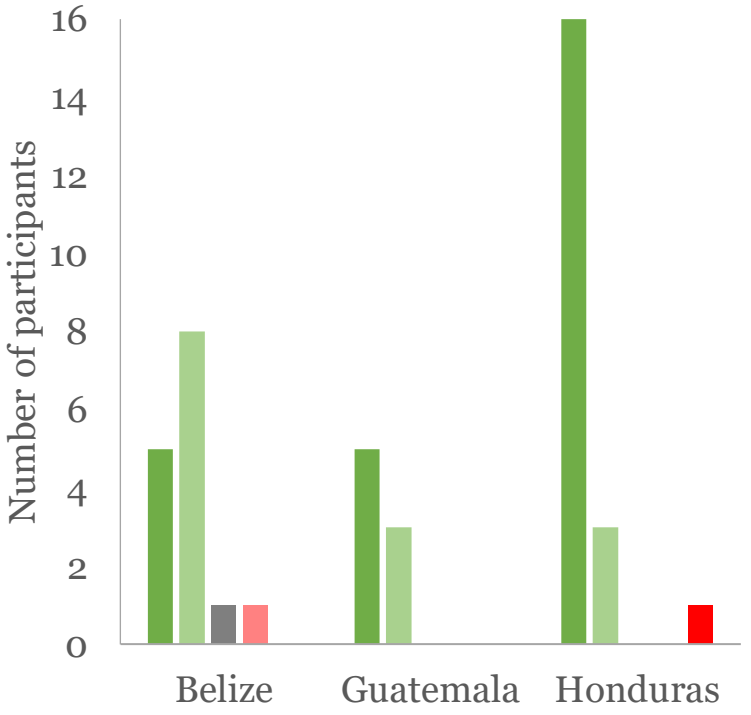
To measure perceptions, fishers were asked to rate seven statements as i) strongly agree, ii) agree, iii) neither agree nor disagree, iv) disagree or v) strongly disagree. As a rule, points of agreement were similar across the three countries. Most fishers agree that FSAs are important to the economy, and disagree that fish abundances in their fishing grounds are increasing. Roughly half of Honduran fishers believed that fish abundances were increasing in their fishing grounds, a finding that should be explored further (do they share the same fishing grounds? What management tools are being used?). Belizean fishers appear to fair the worst in terms of profitable fishing trips, with most disagreeing with the statement that each fishing trip is profitable.

Perceptions

Natural resource regulations and laws (particularly fisheries) ensure that there is fish for today and the future



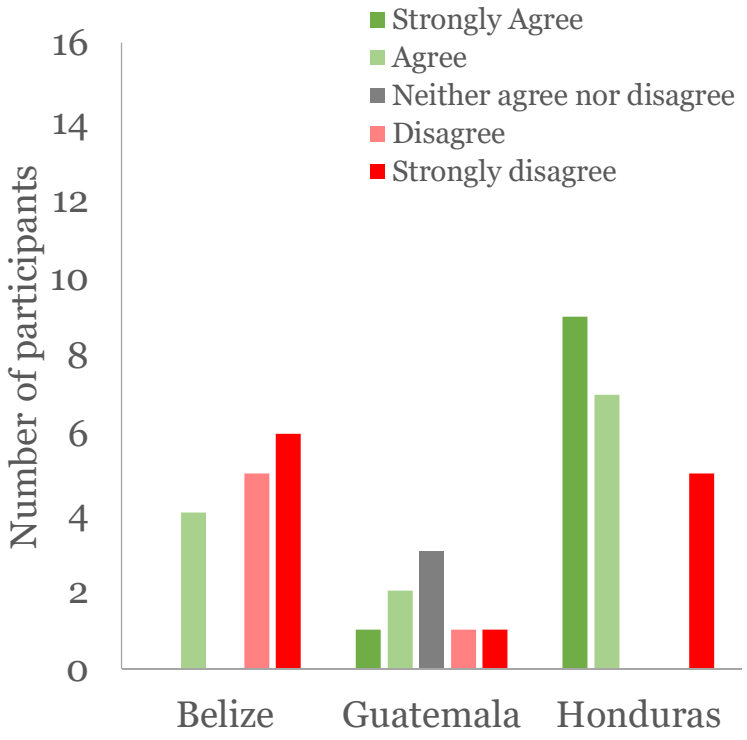
Laws should apply for the protection of aggregation sites.



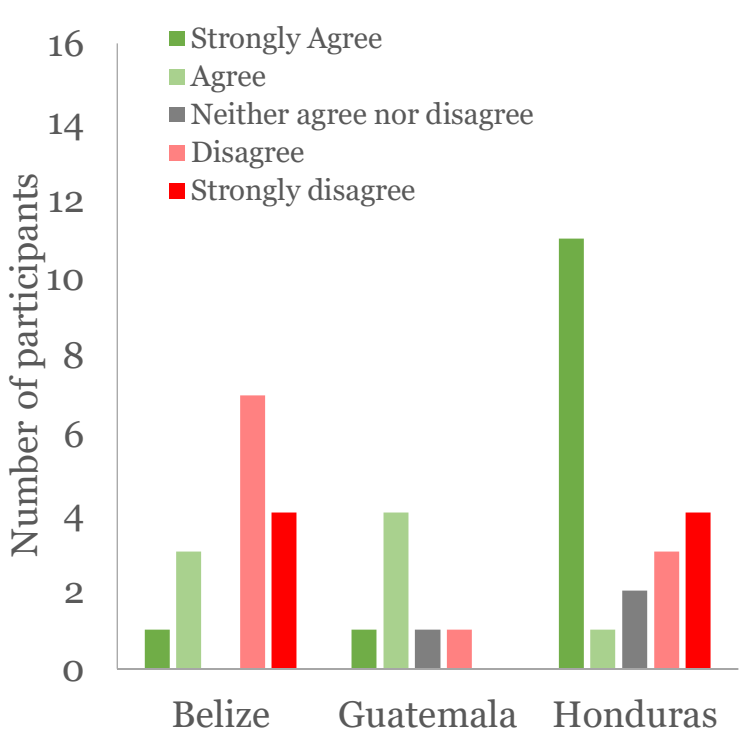
A majority of fishers across the three countries agreed that laws should apply to protecting FSAs, and that the laws generally protect fish stocks for today and the future. Considering that Belize has well-established regulations around fishing Nassau grouper, and long-term marine reserves for protecting spawning sites this is no surprise. The positive response from Guatemalan and Honduran fishers regarding the protection of FSAs is a positive result for fisheries management and future work.

Perceptions

The community is always informed when decisions are made about regulation, standards, and management of natural resources



I have the opportunity to participate in decisions on the management of natural resources

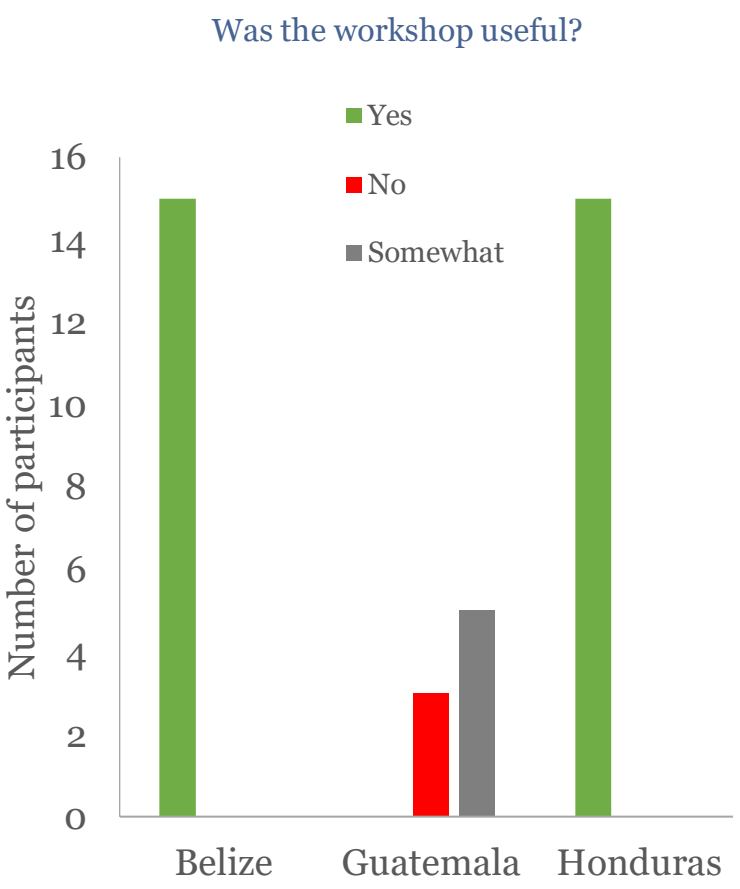


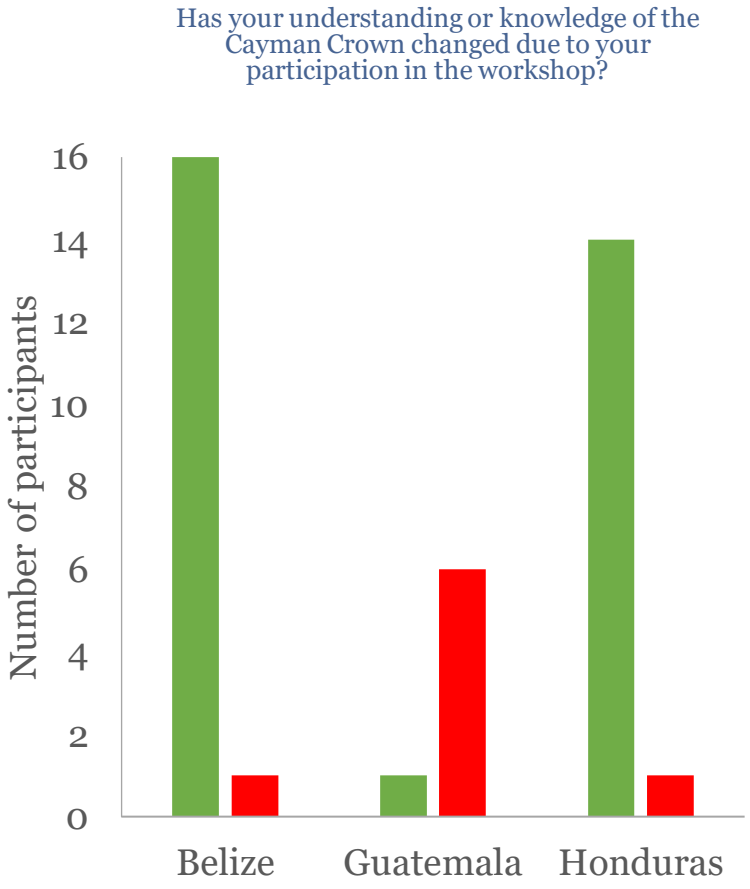
There appears to be some concern in the fishing sector that communities are not well informed about regulations and decision-making process that affect their activities. This is a common complaint in the sector, and steps should be taken to see how coastal communities receive and digest information about legislation that affects them.

There were diverse opinions, ranging across the spectrum of possible answers, relating to how involved the participants feel in decision-making processes. Both Belize and Honduras have fishers at both extremes, with Guatemalan fishers generally agreeing that they do have opportunities to participate in decision-making, a result that conflicts somewhat with a situation that occurred following the interviews in the Guatemalan workshop.

On the first day of the Guatemala workshop a fisher spoke-up after one of the presentations, stating that he was speaking on behalf of his community, and wanted to express his inconformity with the process for closing fishing at the Cayman Crown site (it was closed 2020). Considering that the fisher´s principal complaint was that the sector had not been taken into account via the closure, and that his community had found out when the authorities had confiscated fishing gear at the site, it would appear that some fishers did not have the opportunity to participate in management decisions at the site, and that communication and outreach was ineffective. However, considering the replies from the fishers in the survey results above (applied before the workshop), the fisher who spoke out does not appear to represent the entire fishing community.

Perceptions



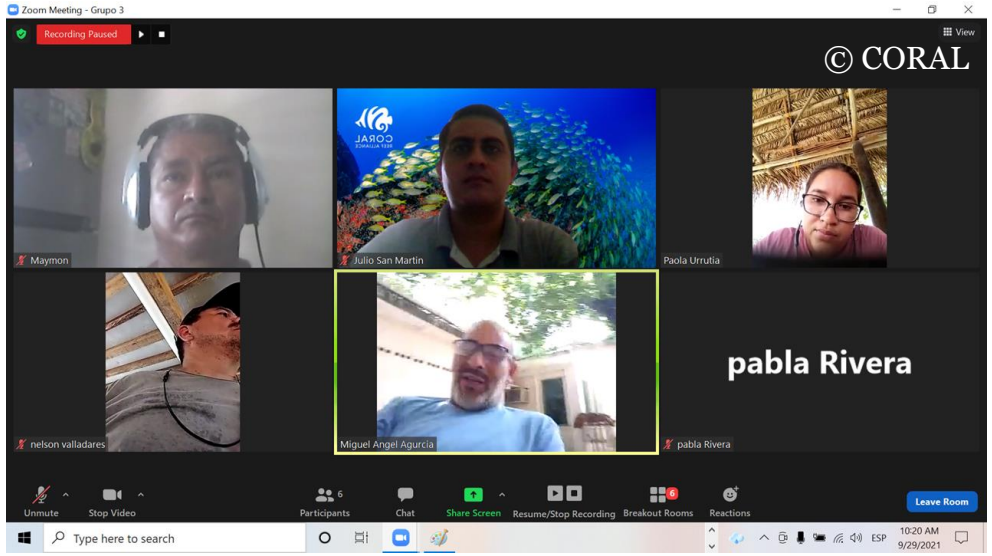


Applied after the workshop, exit surveys show that Belizean and Honduran participants are in full agreement to the workshop being useful, with the majority believing that the workshop helped them become more knowledgeable about the site. The Guatemalan results reflect the downturn in the tone of the meeting following the fisher´s intervention about not being informed about the protection of the site, and despite their positive attitudes in the pre-workshop survey, most perceived that the workshop was not, or only somewhat useful, and that their knowledge of the site had not changed. Two fishers mentioned that they knew the site by another name (El Bajón), with one expressing inconformity with the name being changed in published documents.

When asked for further details, many Honduran fishers (67%) did not know about the Cayman Crown site, and appreciated the information. The majority of Belizean fishers (80%) stated that increasing patrols at the site will be necessary to protect the site, and a couple of fishers in both Belize and Honduras stated the importance of transboundary collaboration for the protection of the site. Across the three workshops, participants highlighted the importance of including the fishing community in monitoring and surveillance of the site, as well as including the communities in decision-making processes.

Conclusions and Recommendations

- The pandemic resulted in significant changed to the agenda. Originally planned as a single workshop, bringing together fishers from three countries, travel restrictions and the different speeds that the pandemic passed for each country. Unfortunately this prevented one of the key goals of the workshop being achieved – the transboundary discussion and synergy between users that can only be achieved in-person. Despite this, most participants appreciated being informed about efforts to manage the reef in the other countries, with several recognising the importance of maintaining a transnational vision.
- The need for an informed fisheries sector was highlighted by the participants. It would appear that current efforts to communicate the information to the fisheries sector has been limited in impact. Efforts to communicate the legal frameworks that are in place, plus continued conservation efforts, should be scaled up.
- Across the three countries, participant´s knowledge about FSA spawning dates and species appears somewhat limited. Few fishers know the spawning periods for grouper and snapper. While snapper species are thought to spawn at different periods (with most concentrated in April-July), the scientific consensus is that groupers spawn during the winter months, something not recognised by the participants. Communication strategies focussing on this topic are recommended.



Conclusions and Recommendations

- The centuries-old boundary dispute between Belize and Guatemala, currently in the International Court of Justice, plus uncertainty over the location of maritime boundaries, continue to affect user´s perceptions of the area, particularly in Guatemala. This situation will need to be managed delicately in the future, particularly if both Belizean and Guatemala authorities patrol the area and resource users are unsure about which maritime zone they are in.
- The Guatemalan fisher who spoke up in the workshop and expressed inconformity with the way that the site was protected raised important points about the fishing sector not being taken into consideration, the fact the fishers have fished the area for generations (which was not fully recognised by the actors who worked to protect the site), and that the way in which some fishers found out about the closure (from fishing gear confiscation) was not correct. This intervention changed the tone of the Guatemala workshop and is reflected in the difference in responses between the entry and exit surveys. While this fisher raised valid points, the entry surveys suggest that he does not represent all fishers in Guatemala.
- The creation of a trinational committee will be a key advance. Originally planned as an independent committee, workshop organizers suggested incorporating this committee into the Tri-national Alliance for the Gulf of Honduras (TRIGOH) to ensure alinement and coordination with other regional initiatives.

Annex 1 – workshop agendas

Due to the pandemic, and different regulations and situations in each country, the agenda varied in each workshop. However, each workshop included the following:

Topic	Description	Speaker
Welcome	General presentation and objectives of the workshop	Organization responsible for organization workshop in-country
Group discussion	Discussion on the impacts of COVID-19, actions taken to solve economic problems while protecting the reef, and experiences gained	Organization responsible for organization workshop in-country
Impacts of COVID-19 as it relates to fisheries	Present results from the group discussion	Organization responsible for organization workshop in-country
Protection in Belize	Fish replenishment zones and protection strategies for the Cayman Crown reef in Belize	TIDE
Protection in Guatemala	Fish replenishment zones and protection strategies for the Cayman Crown reef in Guatemala	FUNDAECO
Group discussion	At least one elder fisher forms separately formulated groups to share stories and experiences about how the state of the fisheries has changed over time. Each group should be comprised of different generation of fishers.	Organization responsible for organization workshop in-country
Status report of FSAs in the MAR	Overview of FSAs in the past compared to the status of FSAs today. FSAs that are validated, protected, not protected or temporarily protected.	COBI
Small Grants Programme as source of funding	Introduce the MAR Fund Small Grants Programme as an avenue for potential future funding.	MAR Fund
Fishers´ Tri-National Committee	Establish the fishers´ committee as a part of the TRIGOH under its statutes.	Organization responsible for organization workshop in-country
Results from research	Wonders of the Cayman Crown reef	Healthy Reefs Institute
Conclusions and recommendations	Presentation of conclusions and recommendations discussed	Organization responsible for organization workshop in-country

Annex 2 – workshop presentations

Presenter	Title	URL
COBI	Gigantes del Pasado	https://youtu.be/o6duyxit8nE
Guillermo Galvez	Cayman Crown: Jewel of the Mesomerican Reef System (ESP)	https://youtu.be/DL741S1hevo
Elisa Blanda	MAR Fund Small grants program (ESP)	https://youtu.be/WBlu8u3xIiM
Leonardo Chavarria	Expansion de la Reservas Marina Sapodilla para proteger un importante ecosistema (ESP)	https://youtu.be/lzaURiVwQFs
Stuart Fulton	Agregaciones reproductivas de peces en el Sistema Arrecifal Mesoamericano (ESP)	https://youtu.be/yhkUySD1C44
Ana Giro	Marvillas del Arrecife Corona Caiman (ESP)	https://youtu.be/Pwftl59IR14