



COMMUNITY CONSULTATION FINDINGS

July 2016

Prepared for Blue Halo Curacao

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1. INTRODUCTION

Blue Halo Curaçao is a partnership between the Government of Curaçao, the people of Curaçao, and the Waitt Institute. The goal of Blue Halo Curaçao is the sustainable, profitable, and enjoyable use of ocean resources for the current and future generations. The Initiative builds upon the concept of empowering the people of Curaçao to develop a “Sustainable Ocean Policy,” a plan to manage their coastal waters in a way that:

- Is based on scientific, social, and economic data,
- Minimizes impact on fishing and coastal livelihoods,
- Deeply engages the community and all stakeholders in the planning process, and
- Potentially includes sanctuary zones (permanently closed to all fishing) to restore fish populations and habitats.

The Waitt Institute’s primary roles in Blue Halo Curaçao are to provide technical expertise in the process of policy development, and to facilitate the policymaking process. The Institute assists in the planning phase (2015- 2016); contributes to implementation if and where necessary (2017- 2018); and supports outreach and education (2015- 2018). The vision expressed in the Memorandum of Understanding between the Government of Curaçao and the Waitt Institute calls for full implementation led by the people of Curaçao with a system in place for sustainable financing by 2018.

The Waitt Institute prepared this Report in support of Recommendations for a Curaçao Sustainable Ocean Policy. It presents findings from community consultations conducted by the Waitt Institute and the Government of Curaçao. Community consultations are a core aspect of the initiative to engage communities and ocean users, and include meetings with different stakeholder groups, a survey of ocean stakeholders and a survey of fishers on Curaçao. Following this introduction, the Waitt Institute provides a detailed overview of the methods used for community consultations in Chapter 2. Chapter 3 presents the findings from the surveys with ocean stakeholders and fishers before discussing these findings in Chapter 4.

2. METHODOLOGY

The Waitt Institute conducted community consultations with the Government of Curaçao to raise awareness of the Blue Halo Initiative, start a dialogue with stakeholders about ocean conservation, and solicit feedback on ocean use and management. The consultation process consisted of a series of informal and formal meetings with stakeholder groups, a short survey of ocean stakeholders, and a longer survey of fishers in Curaçao. This section outlines the objectives and methods for each of these efforts.

STAKEHOLDER MEETINGS

The Waitt Institute and the Government of Curaçao engaged with stakeholders through formal and informal meetings between January and May 2016. The purpose of these meetings was to raise awareness of Blue Halo Curaçao, provide information about the Initiative's goals and roadmap, solicit immediate feedback, ask people to complete the ocean stakeholder survey, and identify respondents for the fisher survey.

The events were advertised through local media and outreach by the Waitt Institute and complemented with written invitations from the Government of Curaçao for each stakeholder meeting. The Government of Curaçao hosted six formal meetings with distinct stakeholder groups, including coastal property owners, fishers, dive operators, civil servants, nature conservation non-governmental organizations (NGOs), and youth organizations. We chose these distinct stakeholder groups to ensure that the people most connected with the ocean were surveyed. In addition to the formal stakeholder meetings held by the Government of Curaçao, Waitt Institute staff held 30 informal meetings with the broader public, and attended five public events including the main carnival parade, the Fiesta di Marisko seafood festival, Holy Saturday, the Seú harvest parade and King's Day. Event attendance varied between events. This was because the consultations occurred during a period with many cultural events¹, so that not all invited stakeholders were available for meetings.

OCEAN STAKEHOLDER SURVEY

The Waitt Institute surveyed 1,652 Curaçao ocean stakeholders between January and June 2016. The survey instrument included 21 questions that explored people's values and concerns related to the ocean as well as their support for marine conservation.

The Waitt Institute made the survey available to members of the general public who interacted with Blue Halo Curaçao during events described above and through the Blue Halo Curaçao Facebook page. To ensure that the survey captured opinions from those with the highest stake in the ocean, the Waitt Institute specifically targeted select groups when promoting the survey online or through the above described consultation process. These stakeholder groups included fishers, dive operators, coastal

¹ Cultural events during the consultation period included Carnival parades, Fat Tuesday, Lent, the seafood festival, Good Friday, Easter, the Seú harvest parade, King's Day and Labor Day

property owners and members of conservation or youth organizations located in Curaçao. We therefore refer to survey respondents as ocean stakeholders in this report.

The survey was made available online and in hard-copy. During events, Blue Halo Curaçao staff and trained volunteers introduced the Initiative and asked event attendees to complete the written survey. The survey instrument was made available in English and Papiamentu to ensure that biases resulting from language barriers would be minimized. Six trained volunteers completed all data entry for hard-copy surveys.

FISHER SURVEY

In addition to the ocean stakeholder survey, the Waitt Institute designed and administered an in-depth fisher survey instrument. Between January and June 2016, the Waitt Institute surveyed 119 part-time and full-time fishers on Curaçao. The surveys included 72 questions that asked about fishing location, gear types and catch, and explored fishers' perception related to marine issues and fisheries management.

The target population included anyone who fishes in Curaçao's waters. Given the relatively small population of fishers, the Waitt Institute attempted a census approach with a target of 150 completed surveys. The Waitt Institute identified respondents during the community consultation process and asked event attendees to name other fishers who did not attend the community meetings. Using this snowball method, the Waitt Institute reached 119 fishers. However, eight surveys did not include data beyond the respondents' age and were subsequently removed for the analysis.

The Waitt Institute administered the survey through a hard-copy questionnaire that fishers filled out during events or individual consultations. As with the ocean stakeholder survey, the questionnaire was available in both English and Papiamentu to minimize biases related to language barriers. Six trained volunteers completed all data entry.

RESEARCH LIMITATIONS

The Waitt Institute designed the surveys to provide results that would represent opinions of Curaçao's ocean stakeholders (Ocean Stakeholder Survey) and Curaçao's fishers (Fisher Survey). However, there are a number of methodological challenges that limit the external and internal validity of our findings. This section briefly describes these challenges and limitations.

- **Selection bias & self-selection bias:** Selection bias occurs when proper randomization through probability sampling is not achieved. Self-selection bias occurs when individuals subscribe themselves to the group of respondents. Both of these biases undermine the external validity of findings because respondents may differ in observable or unobservable ways from non-respondents. Given that we made the survey available to anyone without a randomly selected sample, selection bias and self-selection bias may be present in these findings.

- **Sample frame error:** Sample frame error occurs when the sample frame is not a perfect representation of the population. It reduces the ability to generalize any findings to the target population of interest. Given we were most interested in collecting feedback from those who have a stake in the ocean but lack information on population characteristics, we cannot determine if respondents of the Ocean Stakeholder survey closely mirror the population of ocean stakeholders. Similarly, in the absence of a central fisher registration in Curaçao, there is no reference frame to assess the accuracy of data related to sub-groups of fishers. For example, 29% of respondents in the Fisher survey identified as full-time fisher. However, without knowing the true share of full-time fishers in Curacao, we cannot determine if we mirror the population frame or if over-represent this group.
- **Unit non-response bias:** There is potential for unit non-response bias in this survey as those who responded may be systematically different in terms of socio-demographics or opinions regarding the ocean from those who did not respond to this survey. Non-response bias can result in under- or overrepresentation and impacts our ability to extrapolate our survey results. In the absence of knowing population-level characteristics, we cannot determine the extent of non-response bias in this survey.
- **Item-non response bias:** There is potential for item non-response bias, which occurs if survey respondents skip a question that they perceive as sensitive or difficult. As a result, findings related to questions that were perceived as a sensitive topic such as illegal fishing gear may be under-represented.
- **Measurement error:** Measurement error concerns the validity and reliability of quantitative data. We mitigated potential measurement error through multiple strategies. We reviewed the survey instrument to ensure that we did not ask double-barreled questions or leading questions, and reviewed the overall logical flow of the questions so as not to confuse respondents.

3. RESULTS

This section presents the results from surveys with ocean stakeholders, fishers and stakeholder meetings.

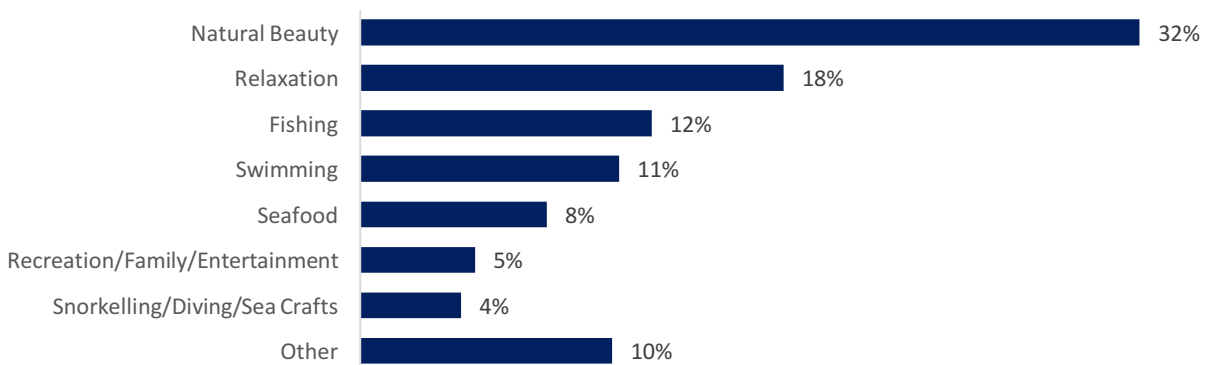
OCEAN STAKEHOLDER SURVEY

Value of the Ocean

Survey results indicate that stakeholders highly value the ocean. Almost all respondents (98%) described the sea as important, in particular with respect to their culture (60%) and nutrition (59%). Additionally, more than half (55%) stated that they would like to learn more about marine life around Curaçao.

When asked about their favorite thing about the sea, most mentioned the ocean's natural beauty (32%) or its value as a place to relax (18%). Figure 1 summarizes all responses and shows that people have diverse interests in the ocean beyond fishing. Consistent with the importance of beaches, almost all (94%) noted that trash on beaches offends them.

Figure 1. What people like most about the sea



Below is a selection of quotes that illustrate what people like most about the sea.

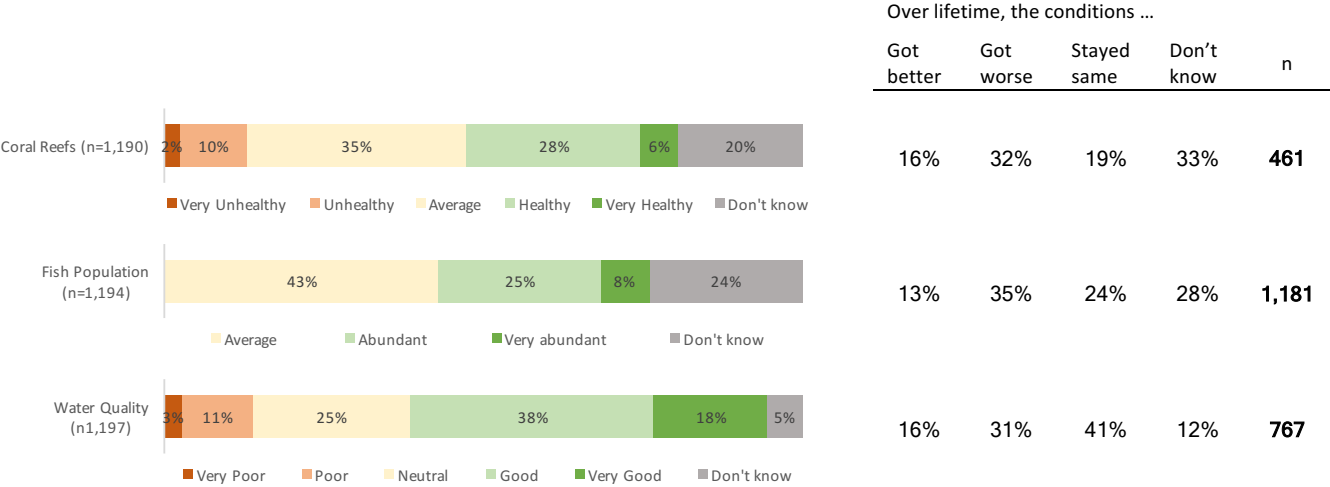
- *The beach means rest and relaxation to me. (Male, 51 years)*
- *Going to the sea takes me out of the everyday bustle. (Female, 61 years)*
- *[My favorite thing is] the beautiful ocean life. (Male, 20)*
- *I go there to recharge my spirit. (Female, 55 years)*
- *The sea is where I like to spend time with my friends. (Male, 16 years)*
- *The sea is nature. (Male, 66 years)*

Perception of Ocean Health and Threats to Marine Ecosystems

The Ocean Stakeholder survey explored people's perceptions towards the health of marine ecosystems. These findings indicate the general knowledge of and perceived need for more environmental protection. It should be noted that these perceptions may not align with the findings of the scientific

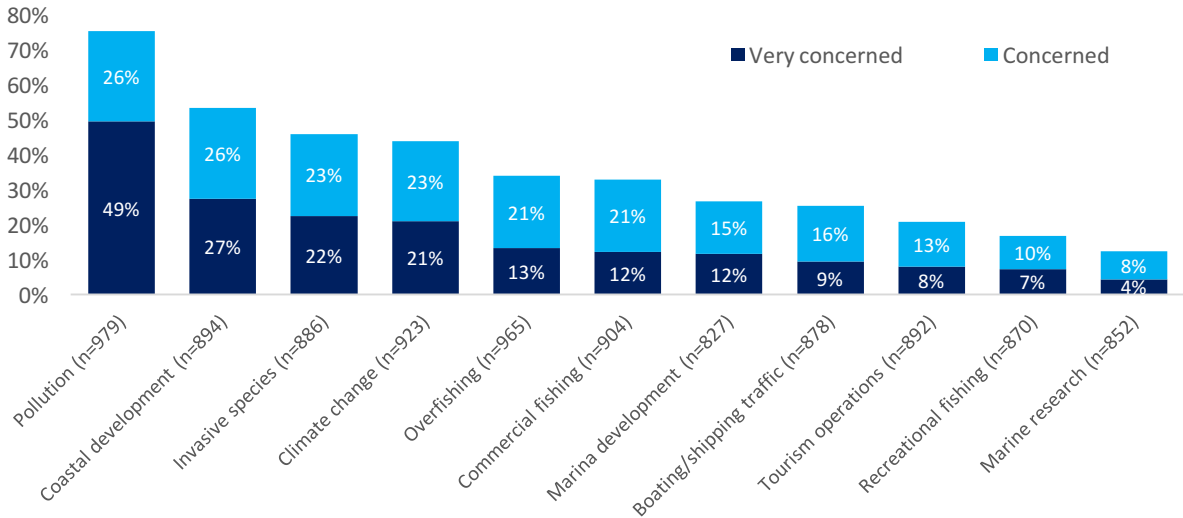
assessment. For example, the Marine Scientific Assessment findings indicate that Curaçao has lost more than 50% of its coral reef coral cover over the last 30 years. Figure 2 shows that people described the conditions of coral reefs as healthy or average, however, one-third reported that that the conditions have deteriorated in their lifetime.

Figure 2. People's Perception of Ocean Health



Although most rated the Curaçao's water quality as good or very good, many (75%) raised concerns about pollution threatening Curaçao's sea. Approximately half of the ocean stakeholders are concerned about coastal development, invasive species and climate change, and one-third reported that they are concerned about overfishing or commercial fishing as shown in Figure 3.

Figure 3. Threats to the Ocean



Feedback on Management & Regulations

Consistent with many respondents who raised concerns about deteriorating ecosystems and other threats to the sea, two-thirds (66%) felt there is not enough ocean management on Curaçao. Table 1 shows that the vast majority of ocean users, as well as fishers in particular, would support conservation measures. In addition to strengthening ocean management, many (83%) would like to see more public access to beaches.

Table 1. People’s Support for Conservation Measures

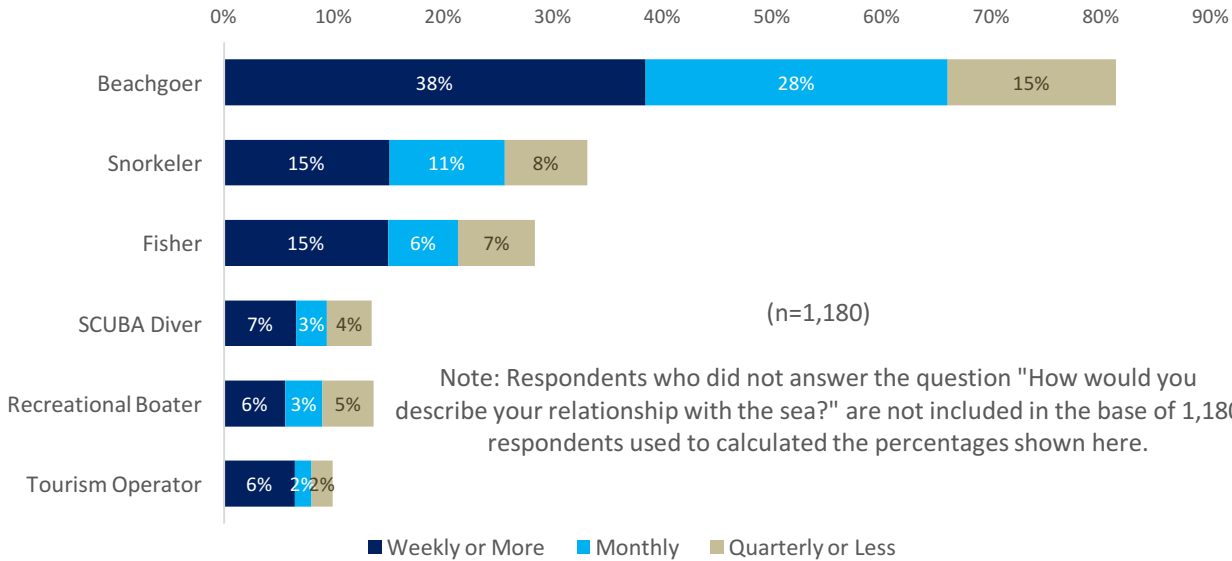
Measure	All In Support (n=1,078)	Fishers in Support (n=265)
Protect sea turtle nesting beaches	95%	96%
Protect mangroves and lagoons	94%	92%
Coral in danger of being destroyed	92%	91%
Create marine reserves	87%	87% ^A
Protect critically endangered fish	87%	85%

Note A: The number of respondents who answered this questions was n=253.

Ocean Stakeholder Characteristics

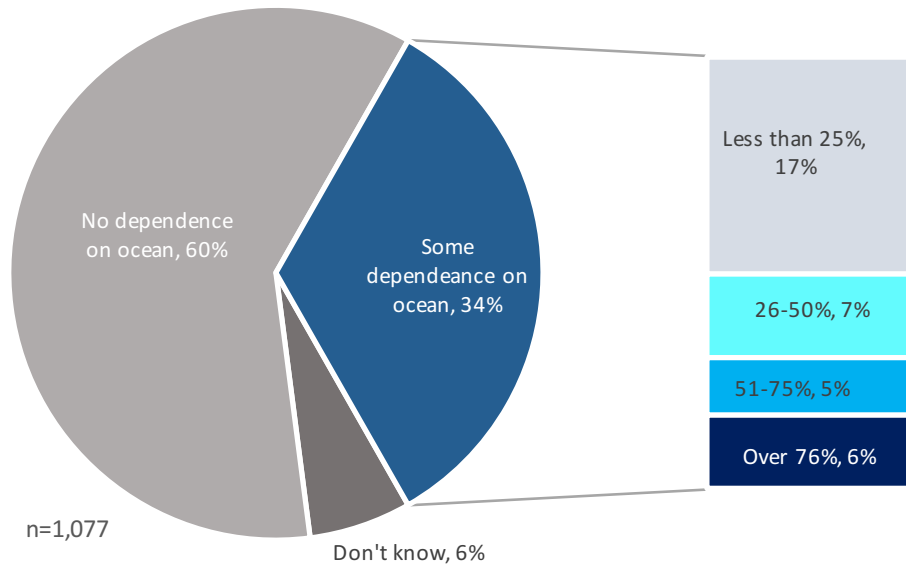
When asked to describe their relationship with the sea, two-thirds reported that they go to the beach once a month or more. Figure 4 shows that the next most common activities related to the ocean involve snorkeling and fishing. Additionally, almost all (88%) reported that they can swim.

Figure 4. How and How Often People Use the Ocean



The majority reported that their household income does not depend on ocean use as shown in Figure 5.

Figure 5. Income from Ocean Use



The survey also captured information about respondents' age and gender. Figure 6 shows that the age of ocean users varies widely with over one-third of ocean users under the age of 30. Of the respondents, 53% were female and 47% were male (Figure 7).

Figure 5. Respondents' Age

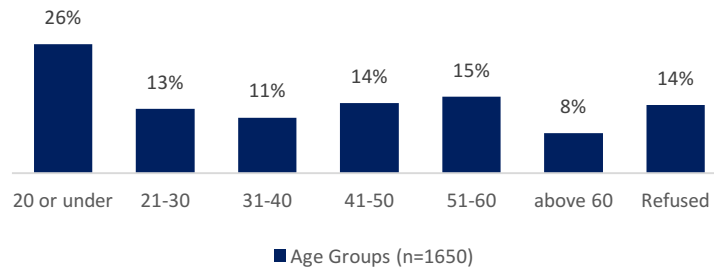
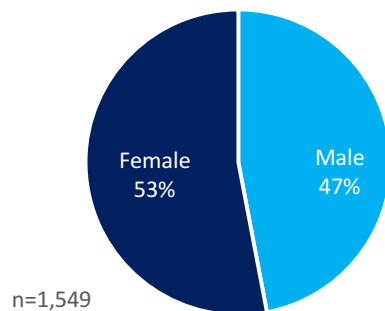


Figure 6. Respondents' Gender



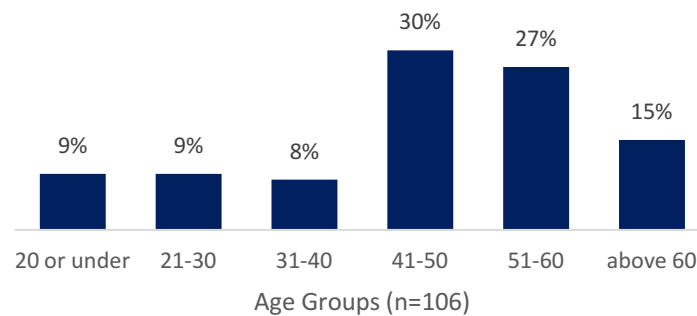
FISHER SURVEY

This section presents the findings from survey results from 111 fishers.

FISHER CHARACTERISTICS

Curaçao's fisheries are dominantly comprised of male part-time fishers. Over two-thirds (71%) of respondents indicated that they fish part-time and that fishing is not their primary source of income (69%). Full-time fishers generally fish five days a week, whereas part-time fishermen fish on average two days a week, often on weekends. Both full-time and part-time fishers span a wide age group, but are commonly 40 years or older as shown in Figure 7.

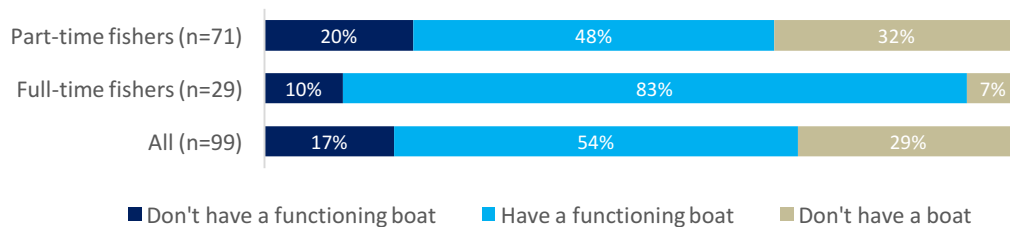
Figure 7. Age of Fishers in Curaçao



Although two-thirds (71%) of Curaçao's fishers own a boat, just over half (54%) have a functioning boat that can currently be used for fishing. Figure 8 shows that the share of full-time fishers with a functioning boat is significantly higher compared to part-time fishers (83% versus 48%).

Fishing vessels vary in size and horse power. The boats range from 1.8 to 15.2 meters with an average length of 6 meters. Engine power on these fishing vessels ranges from 2.5 to 230 horsepower, with an average of 66 horsepower. Only a minority (6%) own boats without a motor. Although trends suggest that boats of full-time fishers are slightly smaller and have less engine power than boats of part-time fishers, differences in means are not statistically significant between the two groups.

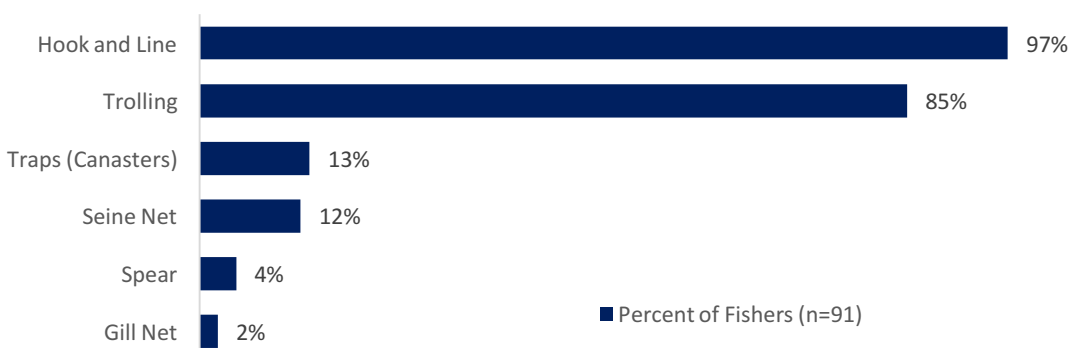
Figure 8. Ownership of Boats



Note: Respondent numbers (n) differ because not all respondents indicated whether they fish full-time or part-time.

Figure 9 presents the different gear types used for fishing. Almost all fishers use hook and line (97%) and the majority trolls (85%). Few fishers utilize other gear types, although the use of spear guns and gill nets may be under-reported given that their use is illegal (gill net use is illegal in areas where water is less than 60 meters). The ports that have the most fishers using gill nets and fish traps (canasters) include Boka Sami and Lagun.

Figure 9. Gear Types Used



LANDINGS

Fishers depart from various ports along Curaçao’s coast, most commonly from Caracasbaai, Piskadera, Westpunt and Lagun. Given the relatively small size and horse power of vessels, we utilize the ports as an indication of the general area where fishers are fishing. In absolute terms, surveyed fishers (n=89) have a combined harvest of 7,033 kg per week or 365.7 (metric) tons per year. These landings are based on account each fishers’ average daily catch (in kg) and the average number of fishing days per week. Because this survey was only administered to a subset of Curaçao’s fishers, we present the share of fishers and landing per port in relative terms below. Table 2 shows that the ports of Boka Sami, Piskadera and Caracasbaai have the most landings with one-third (38%) of fishers catching nearly two-thirds (64%) of the total weekly catch leaving from these port locations.

Table 2. Fishers and Catch Per Port

Port ^A	Zone ^B	% Weekly Catch ^C (n=7,033 kg)	% Fishers (n=89)	Species Caught
Boka Sami	5	31%	8%	Snapper, Wahoo, Tuna, Parrot Fish, Snook
Piskadera	4	19%	15%	Snapper, Wahoo, Tuna, Grouper, Dorado
Caracasbaai	3	14%	16%	Snapper, Wahoo, Tuna, Masbangu, Dorado
Playa Kanoa	8	9%	4%	Wahoo, Tuna, Dorado
Lagun	7	7%	10%	Tuna, Parrot Fish
Annabaai	4	6%	7%	Wahoo, Tuna, Grouper
Santa Cruz	7	5%	8%	Snapper, Tuna, Parrot fish, Masbangu, Dorado, Salmon

Port ^A	Zone ^B	% Weekly Catch ^C (n=7,033 kg)	% Fishers (n=89)	Species Caught
Westpunt	7	4%	15%	Snapper, Wahoo, Tuna, Grasby, Lion Fish,
Santa Martha	6	2%	4%	Wahoo, Tuna
Daaibooi	6	1%	3%	Tuna
Spannse Water	3	1%	2%	Snapper, Tuna
Chimi Wakawa		0%	3%	(no catch information)
Boka Acension		0%	2%	Parrot fish, Grouper
Unknown / Various		0%	2%	Snook, Bass, French Grunt

A. Westpunt includes Playa Forti, Playa Kalki, and Playa Piskado. Annabaai includes Rif and Playa Macola. All other ports are based on unique survey responses to the question “What port do you leave from”?

B. This column shows the regions on Curaçao as they correspond to the scientific assessment

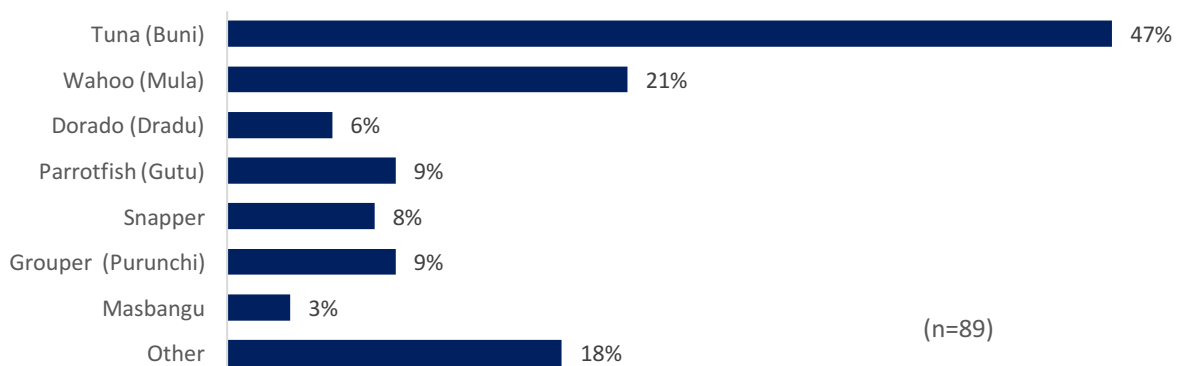
C. The Waitt Institute first calculated the weekly catch per respondent based on their average daily catch and the number of days fished in a normal week. We then determined the total catch per port based on the respondents’ catch and fishing location. The share per port is calculated as kg caught at port divided by total kg caught.

Catch Composition

Curaçao’s fishers most commonly target pelagic fish (55%) and demersal species (53%), however, one-third target reef fish (38%) and coastal pelagic species (29%). Notably, almost half (45%) of all part-time fishers said they catch reef fish, but only one-quarter of full-time fishers (24%) said they target these.

Figure 10 provides more details on the catch composition based on responses to the question “Which species do you catch most often?”. The figure shows that most fishers catch pelagic species including tuna and wahoo. Most of the 42 fishers who catch tuna depart from Caracasbaai (24%), Lagun (17%) and Piskadera (12%). The main ports for the 19 fishers who catch wahoo are Caracasbaai (42%) and Annabaai (21%).

Figure 10. Caught Species



Note: Other includes snook, grouper, salmon, bass, and French grunt

Economic Characteristics

Three-quarters of fishers (75%) sell at least some of their fish. These fishers generally sell most of their catch to individual clients (75%), middle men (54%) or restaurants (45%), only keeping one-fifth (21%) on average for their own consumption with many selling to more than one type of customer. The average fisher earns 338 FI per day and 1,122 FI from fish sales per week, however, the revenue per fishers varies widely due to a large range in the amount of fish landed. The combined revenue from surveyed fishers is 16,209 FI per day, 52, 748 FI per week and 2.7 million FI per year. These estimates must be interpreted with caution, also because it is based on self-reported fish sales and fishing days.

Table 3 shows that Caracasbaai, Boka Sami and Piskadera are the ports with the highest economic value, each generating one-fifth of the total weekly revenue from fish sales.

Table 3. Revenue per Port

Port	% of Weekly Revenue (n=52,748 FI)
Caracasbaai	21%
Boka Sami	21%
Piskadera	21%
Playa Kanoa	11%
Lagun	9%
Annabaai	8%
Westpunt	5%
Santa Martha	2%
Santa Cruz	1%
Daaibooi	1%
Spannse Water	0%
Chimi Wakawa	0%
Boka Acension	0%
Unknown / Various	0%

FEEDBACK ON MANAGEMENT & REGULATIONS

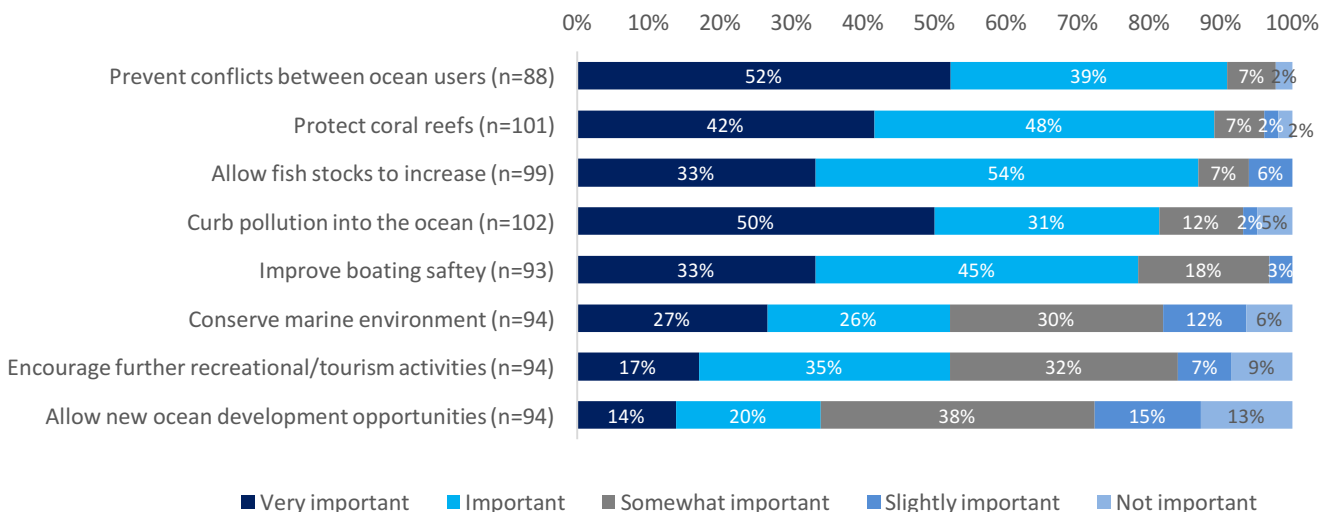
Ocean Zoning

The Waitt Institute gathered fishers' feedback regarding the usefulness of ocean zoning, different zoning goals, and the types of zones that should be created. Survey results show that over two-thirds of fishers (76%) are either neutral to ocean zoning or find the approach "somewhat" or "very" useful to balance all uses and ensure sustainability. Only a small group (13%) described ocean zoning as "not at all" useful. These respondents included both part-time and full-time fishers and spanned different age groups.

Additionally, respondents were asked to rate the importance of different ocean zoning goals. Figure 12 shows that three-quarters of fishers rated several goals as "important" or "very important." These

include preventing user conflicts, protecting coral reefs, increasing fish stocks, curbing ocean pollution, and improving boat safety.

Figure 11. Fishers' Ocean Zoning Priorities



The survey provided fishers with a list of potential use zones, and asked them to check all zones that they think should be created. Consistent with their most important goal to prevent conflicts between ocean users, most fishers are in support of dedicated fishing zones. Interest in other zones is lower; nevertheless, about half recommended the creation of conservation/protection zones.

Table 4. Fishers' Support for Ocean Zones

What zones should be created?	Percent (n=102)
Fishing	79%
Diving	52%
Recreation	46%
Conservation/protection	43%
General boating	36%
Aquaculture	35%
Tour operations	32%
Marine research	23%
Waste disposal/ dump sushi	21%
Transport (shipping/ferries/cruise ships)	18%
Energy generation (wind/wave)	15%
Other	15%

Gear Restrictions and Catch Limitations

The Waitt Institute asked fishers about their support of potential gear restrictions or catch limits. The majority (86%) of fishers noted that the use of chemicals to fish should be prohibited. Similarly, many

(76%) describe the use of gill nets as damaging to fish populations, and almost half (43%) feel that gill nets should be prohibited around Curaçao. Although few fishers see fish traps as damaging to fish populations or coral reef, one-third (30%) suggested that fish traps should be controlled more. Almost all (96%) agreed that pots should have an escape gap to protect juvenile fish and ornamental fish.

Table 5 presents fishers’ feedback regarding catch restrictions, bans, and quotas. The data indicate support for seasonal closures of lobster fisheries and better protection of juvenile fish. However, fishers’ support is mixed for more general catch limitations or for limitations on parrotfish or shark fishing. Examining the data in more detail further revealed differences between full-time and part-time fishers. Significantly fewer full-time fishers are in support of seasonal closures or general catch quotas. This suggests that education campaigns targeted to full-time fishers might be beneficial when implementing conservation measures.

Table 5. Fishers Feedback on Catch Limitations

Limits or Bans	Current Regulations	Yes	No	Don't know
Closed season for lobster (n=105)	None	59%	29%	12%
Prohibit fishing during spawning (n=108)	None	44%	51%	6%
Seasonal closures for fishing (n=110)	None	26%	74%	1%
Limit/quota on number of fish caught (n=107)	None	22%	75%	3%
Limit on the number of divers (n=107)	None	20%	75%	6%
Limit on the number of fishermen (n=108)	None	7%	88%	5%

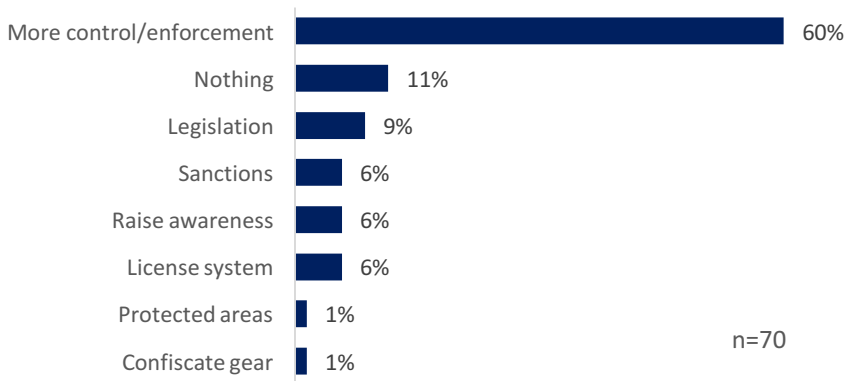
Should there be a <limit/quota on >? Should <....> be prohibited?

Additionally, over one-quarters (28%) of fishers highlighted anchoring as a threat to coral reef related to fishing activities. Eleven fishers provided feedback regarding moorings to limit anchoring and collect user fees, however, they indicated split support for such measures.

Illegal Fishing

Approximately half of the fishers (42%) see illegal foreign fishing as a problem in Curaçao. The few fishers (6) who offered further comments indicated that illegal foreign fishing is occurring by large vessels from Venezuela. The majority of fishers reported that more control and enforcement by the Government is needed to better manage illegal fishing. Only a few suggested improved legislations, sanctions or fishing licenses as a solution, as shown in Figure 12 below.

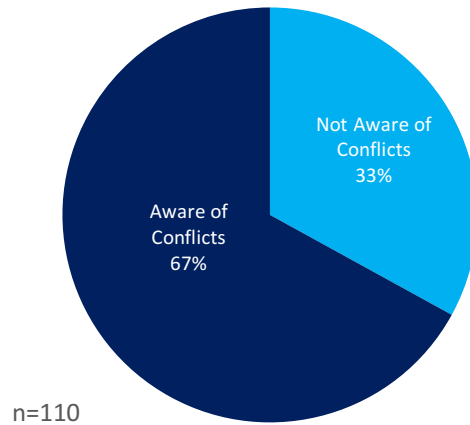
Figure 12. What should be done to manage of illegal fishing?



Conflicts and Collaboration among Ocean Users

Two-thirds (67%) of fishers identified conflicts between different users of the ocean. Those who provided additional feedback most commonly mentioned conflicts between fishers and divers. Over one-third of fishers commented on the source of conflicts, pointing to destroyed fishing gear as other ocean users cut nets and fish traps to free fish.

Figure 13. Conflicts Between Ocean Users



STAKEHOLDER MEETINGS

The Government of Curaçao facilitated six formal stakeholder meetings for fishers, nature conservation NGOs, the dive operators, the hotel industry, youth organizations and civil servants. This section details the key issues and recommendations from each stakeholder meeting.

Fishers

Although many fishers participated in the Ocean User survey (n=253) and Fisher Survey (n=119), only one fisher attended the stakeholder meeting. The attendee raised a number of issues that other fishers identified in the surveys including pollution, damaging gear, user conflicts. Additionally, the attendee highlighted a lack of communication with fishers, and recommended that the Government should make an effort to improve the economic conditions for fishers.

Table 6. Feedback from Stakeholder Meeting with Fisher

Key Issues	Stakeholder Recommendations
<ul style="list-style-type: none">▪ Damaging gear still in use, i.e. harpooning with scuba, gill nets damaging to fish population▪ Ocean pollution▪ Tensions between fishers and tourists▪ Few fishers in Curaçao; young people have no incentives to learn to fish▪ Weak governance of Department of Agriculture, Animal Husbandry and Fisheries▪ Cooperative initiative came too late▪ Lack of communication with fishers▪ Other challenges fishers face that are unrelated to marine management: high interest rates, expensive oil, no micro-credits, little support from government in general, short-term vision	<ul style="list-style-type: none">▪ Improve socioeconomic conditions for fishers by stopping fish imports▪ Change mentality of youth and their perception towards fishing to get more young people to fish▪ Re-institutionalize the Department of Agriculture and Fisheries▪ Improve government control (in general)▪ Introduce red diesel

Nature Organizations

The approximately 20 representatives from nature organizations provided the most extensive feedback from all stakeholder meetings. Among many issues, they highlighted a lack environmental protection and management, and recommended an integrated coastal zone management plan for Curaçao. Nature organizations also discussed ocean pollution at length and highlighted the need for specific legislation and environmental assessments. Below is a detailed list of all points that stakeholders brought up during the meeting.

Table 7. Feedback from Stakeholder Meeting with Nature Organizations

Key Issues	Stakeholder Recommendations
<ul style="list-style-type: none"> ▪ Lack of protection / management plans (Ramsar, World Heritage Park, underwater park) ▪ Ocean pollution from waste water <ul style="list-style-type: none"> ○ Insufficient knowledge of the extent of waste water dumping and sewage infrastructure ○ Lack of a national sewage water ordinance, including a financial system and permit system ○ No costs to companies that dump waste water ○ New projects are carried out without a sewage system ○ Lack of an integrated water plan ○ Use of cesspools causes problems ▪ No impact assessments done for construction in coastal zones ▪ Overfishing ▪ Silt discharge in Santa Cruz ▪ Spear fishing ▪ Limited monitoring (of marine ecosystem) ▪ Too many pencil pushers ▪ Government lacks qualified personnel, knowledge, legislation, and inter-departmental coordination to address marine issues ▪ Civil society has to make the effort to overcome the lacking engagement by most local people. People need local role models. ▪ Youth and local people not engaged in environmental protection. Youth unlikely to choose career in environmental field because some politicians and civil servants ridicule marine issues ▪ Conclusions of the major oil spill training ‘Masbangu’ in 2008 did not lead to any legislation. ▪ Lack of access to coast 	<ul style="list-style-type: none"> ▪ Develop Integrated Coastal Zone Management Plan <ul style="list-style-type: none"> ○ Existing zoning plan should address need for healthy coastal waters ▪ Establish and implement management plans for underwaterpark and Ramsar ▪ Designate 30% of Curaçao’s water as no fishing zone ▪ Develop a more active fishery policy ▪ More legal protection for marine sites, mangroves, seagrass ▪ Improve sewage treatment and wastewater collection ▪ Reduce silt runoff ▪ Improve infiltration and limit erosion from waterdraining ▪ Prohibit cesspools near ocean and investigate alternatives ▪ Conduct environmental impact assessments ▪ Produce fertilizer and biofuel from wastewater ▪ Build artificial reefs ▪ Ban the import of gill nets ▪ Government should listen to concerns ▪ Engage more local people in marine issues and conservation ▪ Stronger scientific institute with regional ties may help to broaden environmental consciousness ▪ More Research of the coastal waters, the impacts of climate change on marine life coastal areas, coral reefs ▪ Enhance objection procedures of citizens to projects submitted to the Maritime Authority ▪ Have a governmental body with a mandate to control and sanction activities in coastal areas and waters ▪ Develop legislation to address oil spills ▪ Bring leakages of the asphalt lake next to the oil refinery ▪ Assess compliance with international treaties (partly or completely) on marine environment ▪ Free access of the coast for all citizens

Dive Operators

The approximately 10 dive operators who attended the stakeholder meeting highlighted a diverse set of issues and recommendations. As for other stakeholder groups, a key concern was the issue of ocean pollution and divers requested government action to improve water quality in Curaçao (i.e. through purification plants). Additionally, dive operators noted that restricted beach access impeded on their ability to conduct shore dives. They recommended more public beach access and the creation of a marine park. Below is a full list of comments.

Table 8. Feedback from Stakeholder Meeting with Dive Operators

Key Issues	Stakeholder Recommendations
<ul style="list-style-type: none"> ▪ Ocean pollution due to sewage dumping ▪ Ocean pollution from plastic bags near mega peer and floating market, and from cruise ships' solid waste more broadly ▪ Lack of enforcement for gear restrictions (spear, gill nets) ▪ Unregulated diving, only 14 of 62 dive operators are approved by the Curaçao Tourist Board ▪ Helmet diving damages reef ▪ Lack of lion fish control policy ▪ Reef damage from anchors due to lack of buoys ▪ Construction of breakwaters results in accumulation of sediment ▪ Fewer access points for shore dives due to constructions and restricted access 	<ul style="list-style-type: none"> ▪ Government should create a marine park and ensure enforcement within boundaries. Blue Halo Curaçao could present options to generate revenue for marine park management ▪ Consider minimum standards for new dive shops ▪ There should be more rigorous regulations or require license for helmet diving ▪ Government should develop a solution to avoid dumping of sewage, i.e. upgrade purification plants ▪ Do not accept solid waste from cruise ships ▪ Dive industry could certify lionfish "hunters" ▪ Government should install and pay for moorings; the government could hire dive industry for the installation ▪ Conduct and publish environmental assessments for breakwaters construction projects ▪ Ensure public beach access

Hotel Owners / Tourism Industry

Interest from representatives in the tourism industry was low, only four attended the stakeholder meeting. Consistent with other stakeholders, they are concerned about pollution; one specific recommendation for improvement included the provision of more garbage bins at beaches.

Table 9. Feedback from Stakeholder Meeting with the Hotel Owners

Key Issues	Stakeholder Recommendations
<ul style="list-style-type: none"> ▪ Ocean pollution due to poor water quality/sewage ▪ Pollution of beaches 	<ul style="list-style-type: none"> ▪ Government should pay more attention to water quality and prohibit pollution ▪ Ensure sufficient garbage bins are available at beaches

Youth Organizations

Approximately 50 representatives from Curaçao’s Youth attended the stakeholder meeting. They raised more questions than other stakeholder groups, which are captured here as well. In addition to concerns about pollution and public beach access, the Youth highlighted a lack of formal and informal education related to marine ecosystems. Attendees recommended that ocean-related topics should be incorporated in schools, lectures, but also through public water-based activities (dive courses, fishing tournament).

Table 10. Feedback from Stakeholder Meeting with the Youth

Key Issues	Stakeholder Recommendations
<ul style="list-style-type: none"> ▪ Pollution, lack of water quality ▪ People lack awareness and appreciation for a clean environment ▪ Scarcity of species such as the bigeye scad ▪ Lack of knowledge/education about marine ecosystems, the government lacks respective policies/initiatives ▪ Curaçao does not offer education for marine-related careers, i.e. through a fisherman college or maritime school ▪ Fishing is perceived a profession of poor people ▪ Fishing is animal cruelty ▪ Questioned the harm of seafood consumption and bycatch ▪ Questioned if sedimentation to create artificial beaches or maintain existing beaches can be prohibited ▪ Questioned if aquaculture / select breeding could replenish depleted fish stocks (i.e. parrot fish) ▪ Questioned if the import of lion fish predators would be feasible ▪ Public access is important, the sea should not become the property of foreigners ▪ Passion for the sea is not in our system, but all in the hands of foreigners. Questioned what has to be done to reverse this tendency 	<ul style="list-style-type: none"> ▪ Sewage treatment to improve water quality/oil pollution in the ocean ▪ Provide more education about the ocean targeted at the Youth, for example through schools, lectures, or through fishing competitions ▪ Ocean education should be incorporated in early childhood education ▪ Program to teach Youth diving ▪ More people should join the coral restoration project

Civil Servants

Several civil servants from the Coast Guard, the Ministry of Health, Environment and Nature, the Ministry of Economic Development, and the Ministry of Finance attended a meeting to discuss

environmental issues that are relevant for the work of Blue Halo Curaçao. They highlighted diverse issues that are detailed below.

Table 11. Feedback from Stakeholder Meeting with Civil Servants

Key Issues	Stakeholder Recommendations
Coast Guard	
<ul style="list-style-type: none"> ▪ GMN fishing permit areas are not well defined, do not provide accurate GPS ▪ Day catches are not reported by fishermen ▪ Prohibited gear still available ▪ Dive shops operate in certain zones with license, overlap with fishermen ▪ Fishers cannot see divers at night ▪ Sea Doos / jet skis are allowed in buoy line 	<ul style="list-style-type: none"> ▪ Land mark, beacon vessel monitoring system, draft ordinance ▪ Use Offshore Patrol Vessels for enforcement, set a fine for not reporting ▪ Consider import restrictions on illegal fishing gear ▪ Draft legislation to regulate diving and fishing activities ▪ Make fluorescent flag mandatory, require owners of dive shops to instruct all divers of potential issues ▪ Create specific traffic zones and prohibit sea doos within the buoy line by law. Provide education and outreach to strengthen enforcement ▪ Raise awareness of land-based and ocean pollution among public ▪ Involve Coast Guard in land based sources of pollution as extraordinary police officers, also on land.
Ministry of Health, Environment and Nature	
<ul style="list-style-type: none"> ▪ Pollution from government-led activities ▪ Water management as a whole requires improvements; sedimentation as not enough dam maintenance has been done 	<ul style="list-style-type: none"> ▪ Improve purification and infrastructure, develop Integrated Water Management Plan, new initiative VVRP/GMN/Finance ▪ Manage dams properly instead of focusing on drainage infrastructure to control rainwater runoff sea
Ministry of Economic Development	
<ul style="list-style-type: none"> ▪ Reckless diving behavior ▪ Institutional problems between MEO and GMN on fishery-related topics such as National Fishery Ordinance and establishment of Fisheries Authority Curaçao ▪ Yellow card from EU ▪ No membership of Port State Measures Agreement 	<ul style="list-style-type: none"> ▪ Issue dive passes, use revenue for implementation of laws ▪ Resolve institutional problems, establish a Fisheries Authority of Curaçao
Ministry of Finance	
<ul style="list-style-type: none"> ▪ Pollution 	<ul style="list-style-type: none"> ▪ Improve law enforcement on pollution

4. DISCUSSION

Blue Halo Curaçao builds upon the concept of empowering the people of Curaçao to support the development of a sustainable ocean policy. Community consultations are a core aspect of the initiative to engage communities and ocean users in the planning process. This section discusses the findings from the community consultations and its relevance for the development of a sustainable coastal policy in Curaçao.

General support of conservation

Survey findings indicate that many ocean stakeholders would support marine conservation measures. For example, Curaçao's ocean stakeholders highly value the ocean for a variety of reasons that most commonly include its natural beauty (32%), relaxation (18%) and fishing (12%). Although they generally perceive marine ecosystems as healthy, about one-third state that they have seen a decline in ecosystem health and many are concerned about ocean pollution (75%) and coastal development (53%). Consistent with these concerns, there is widespread support among Ocean Stakeholders for improved protection of turtle nesting beaches (95%), mangroves and lagoons (94%), endangered corals (92%) or fish (87%) and the creation of marine reserves (87%).

The Fisher Survey collected more specific feedback on conservation tactics including the creation of a marine spatial plan and gear or catch restrictions.

Ocean Zoning

The Waitt Institute's policy recommendations include the development of a marine spatial plan (Rec 7) and the designation of no-take reserves (Rec 1), as well as other spatial designations. Marine spatial planning is a widely-used tool to prioritize and manage marine resources. It is designed to reduce conflicts among ocean uses, make trade off among competing uses, and address cumulative impacts. Ocean zoning allocates marine space to one or multiple uses that may include areas designated for marine protected areas (including marine reserves), aquaculture, various types of fishing, shipping, recreation, mooring/anchoring, and energy production. A key challenge of ocean zoning is balancing environmental, economic, social, and cultural interests in delineation of zone boundaries.

To help inform decision-making related to ocean zoning, the Waitt Institute gathered fishers' feedback regarding the usefulness of zoning, different zoning goals, and the types of zones that should be created. Findings from the Fisher Survey show that Curaçao's fishers are either neutral or in support of ocean zoning to manage marine resources. Fisher priorities related to ocean zoning are preventing conflicts between users, protecting coral reefs, allowing fish stock to increase and curbing ocean pollution. Most fishers (78%) would like to see a designated fishing zone and still about half (43%) suggested a designated protected area. In stakeholder meetings, representatives from nature conservation organizations suggested the protection of Ramsar, the World Heritage Park and the underwater park. Representatives from the Coast Guard further suggested specific traffic zones and called for the

prohibition of jet skis within the nearshore buoy lines. Decision-making related to ocean zoning should consider these priorities.

Gear Restrictions

Regulating the use of fishing gear is another measure to manage fishing output and enhance marine resource management. Gear restrictions can be designed to protect young fish, conserve stocks, reduce by-catch or decrease fishing efficiency. Curaçao has already banned the use of spear guns, however, the use of other fishing gear is not regulated. The Waitt Institute provided the policy recommendation to include an update that prohibits the possession of spears and gill nets. Although fishers' reactions towards gear restrictions were mixed, almost half said that the ban on spear fishing should be better controlled (44%) and that gill nets should be prohibited around Curaçao (43%) or at least controlled more (32%). These data suggest that the Government may encounter some but not extensive opposition to these bans.

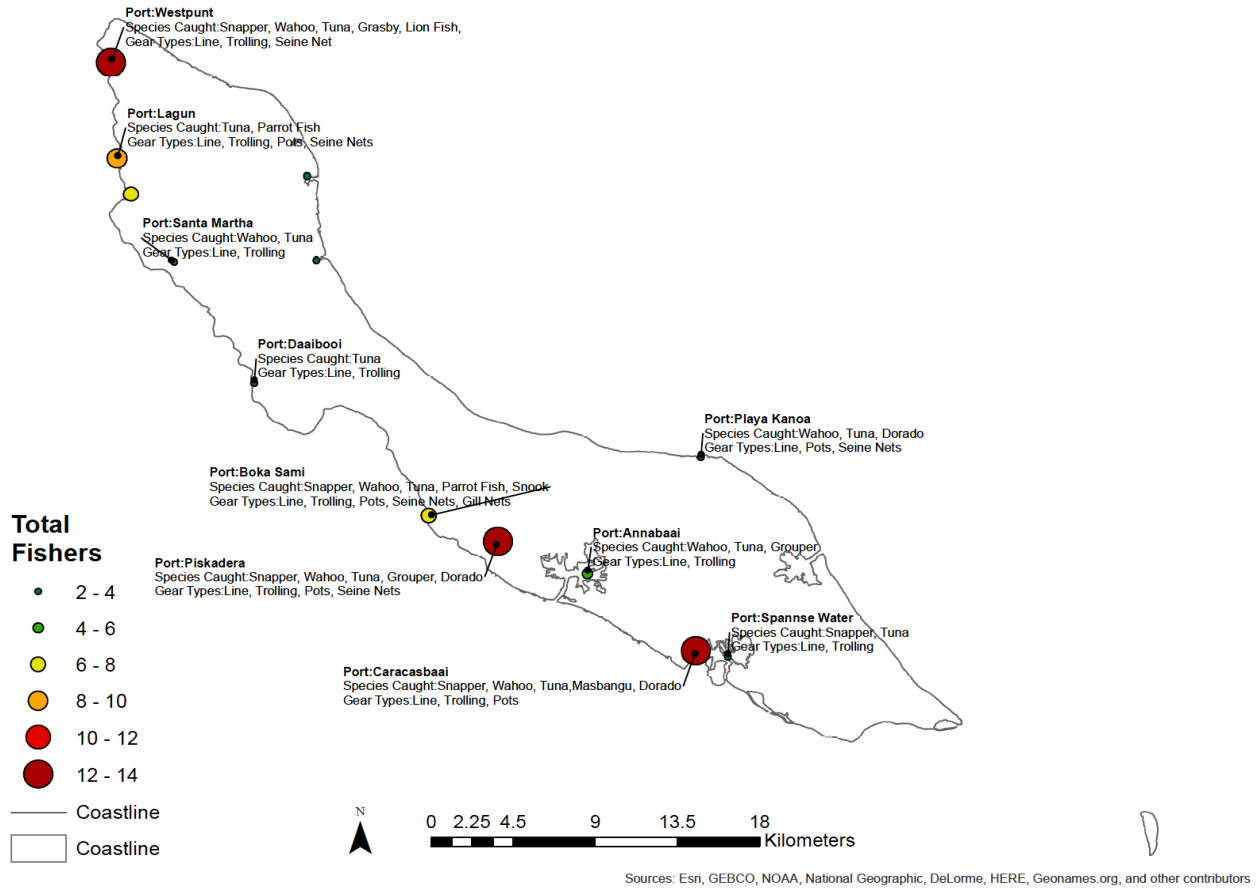
Fishery Characteristics

The Fisher Survey explored fishing characteristics to get a better understanding of who fishers in Curaçao are, where they fish, what species they catch and what revenue they generate from fish sales. This information is important to assess the implications and assess opportunity costs of conservation policies for fishers.

Data from the Fisher Survey suggests that Curaçao's domestic fisheries are dominantly comprised of part-time fishers who are 40 years or older. Over two-thirds (71%) of the respondents reported that they fish part-time and that fishing is not their primary source of income (69%). These figures support government estimates that there are relatively few full-time fishers in Curaçao. These results should be interpreted with caution because in the absence of a central fisher registration in Curaçao there is no reference frame to assess the accuracy of such data.

Figure 14 provides a snapshot of fishing activities across Curacao. Fishers depart from various ports along Curaçao's coast, most commonly from Caracasbaai, Piskadera, Westpunt and Lagun. However, the port with the most landings based on fishers' self-reported weekly catch (kg) is Boka Sami, followed by Piskadera and Caracasbaai. These three ports account for nearly two-thirds (64%) of the total weekly catch even though only one-third (38%) of fishers go to these locations. As noted above, these data provide trends, however, insights are limited while we cannot determine if we over- or underrepresent activity in certain fishing locations. Nevertheless, this data can provide trends about the extent to which fishing activity may be displaced through ocean zoning or the creation of protected areas.

Figure 14. Fishers, Species and Gear per Port



In terms of the catch composition, most fishers reported that they generally catch pelagic species including tuna (47%) and wahoo (21%). Three-quarters of fishers (75%) sell at least some of their fish and only keep one-fifth (21%) on average for their own consumption. Survey data show that the average fisher earns 338 Fl per day and 1,122 Fl per week. The revenue per fishers varies widely due to a large range in the amount of fish landed. As expected, the ports with the highest landings also generate the most revenue; Caracasbaai, Boka Sami and Piskadera each account for one-fifth of the total weekly revenue from fish sales. Although figures on revenue by port are subject to potential over- or under representations of ports as outlined, there are important implications to consider. Opposition to conservation plans may be higher in areas with ports of high economic value if fishers perceive a no-take reserve as impeding on economic opportunity. However, scientific studies indicate that marine protected areas (MPA) can lead to higher fish biomass, better catches outside of the reserve, increased coral cover and higher biodiversity compared to areas that are not protected. This will be important to communicate when designing marine protected areas.

APPENDIX 1. OCEAN STAKEHOLDER SURVEY INSTRUMENT



Date:

Gender:

Neighborhood:

Birth year:

Interviewer:

1. What's your favorite thing about the sea?

Kiko ta bo kos faborito di laman?

2. Is the sea important to you?/ Laman ta importante p'abo?

If yes, why?/ Si t' asina, dikon? Because of the/ pa motibu di:

Seafood Culture Employment Other _____

3. How would you describe your relationship with the sea?

Kon abo lo a deskribí bo relashon ku laman?

(Check 1 or more and indicate how often for each/ hasi un òf mas eskoho i indiká frekuensia)

	Daily	Weekly	Monthly	Quarterly	Yearly	Starting Year
<input type="checkbox"/> Beachgoer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
<input type="checkbox"/> Snorkeler	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
<input type="checkbox"/> SCUBA diver	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
<input type="checkbox"/> Fisher	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
<input type="checkbox"/> Gleaner/ piki koncha	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____

<input type="checkbox"/> Tourism Operator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
<input type="checkbox"/> Rec. boater	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
<input type="checkbox"/> Govt./Mgmt.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
<input type="checkbox"/> Transportation/Shipping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
<input type="checkbox"/> Coastal property owner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
<input type="checkbox"/> _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____

4. Can you swim? / Bo por landa?

Yes No

5. How would you rate the condition of Curaçao's coral reefs?

Kon abo ta haña e kondishon di e refnan di koral na Kòrsou?

Very unhealthy Unhealthy Average Healthy Very healthy Don't know

In your lifetime, the condition has:

Durante di bo bida, e kondishon a:

getting better getting worse stayed the same don't know

6. How would you rate Curaçao's fish population?/ *Kon abo lo a kategorisá e poblashon di piská?*

Average Abundant Very abundant Don't know

In your lifetime, the condition has/ *Durante di bo bida, e kondishon a:*

getting better getting worse the same don't know

7. How would you rate Curaçao's near-shore water quality?

Kon bo ta haña e kalidat di e aw'i laman kant'i kosta?

Very poor Poor Neutral Good Very good Don't know

In your lifetime, do you think the condition is/ Durante di bo bida, bo ta kere ku e kondishon a:

getting better getting worse the same don't know

8. Are you concerned about the following activities/potential activities threatening Curaçao's sea?

Abo ta preokupá ku e (potensial) aktividatnan aki por ta un menasa pa Kòrsou su laman?

Not concerned/ no ta preokupá = 1

Concerned/ preokupá = 4

Slight concern/ no masha preokupá = 2

Very concerned/ hopi preokupá = 5

Somewhat concerned/ un tiki preokupá = 3

_____ Overfishing

_____ Tourism operations

_____ Commercial Fishing

_____ Boating/Shipping traffic

_____ Recreational Fishing

_____ Coastal development/Construction

_____ Pollution

_____ Invasive Species

_____ Climate change

_____ Marina development

_____ Marine research

_____ Other activity _____

9. Overall, how do you feel about ocean management on Curaçao? Is there...

Por lo general, kiko bo ta pensa di maneho di laman na Kòrsou? Tin....

Too much Too little Right amount Don't know

10. What % of your household's income comes from ocean use?

Kuantu porshentu di entrada di bo famia ta relatá na laman?

0% 1-25% 26-50% 51-75% 76-100% Don't know

11. Does trash on the beach offend you?/ Bo ta haña un playa sushi ofensivo?

Yes No

12. Do you know people who dump their trash in the sea?

Abo konosé hende ku ta benta nan sushi den laman?

Yes No

13. If a type of fish you eat were critically endangered, would it be worth protecting?

Si un piská ku abo sa kome ta seriamente menasá, ta bale la pena proteh'é?

Yes No don't know

14. If a coral reef were in danger of being destroyed, would you want to protect it?

Si un ref di koral ta na peliger di destrukshon, lo bo ke proteh'é?

Yes No don't know

15. Is it important to protect beaches where sea turtles nest?

Ta importante pa protehé playanan kaminda turtuganan ta traha nèshi?

Yes No don't know

16. Baby fish live in mangroves and lagoons and need them to grow up. Knowing this, do you think it is worth protecting mangroves and lagoons? Yu di

piská ta biba entre e raisnan di pal'i mangel i den salinanan. Sabiendo esaki, bo ta kere ta bale la pena pa protehé pal'i mangel i salina? Yes No

don't know

17. Do you support nude beaches?/ Bo ta apoyá playanan nudista?

Yes No don't know

18. Would you like to see more access to the beaches by the public?

Lo bo ke mira mas aksesio di públiko na playanan?

Yes No don't know

19. Do you support the creation of marine reserves, areas closed to fishing and other activities, so the ecosystem can recover?

Abo ta apoyá e idea pa krea reservanan marino i areanan kaminda peska i otro aktividat NO ta permití, pa asina duna e eko-sistema espasio pa rekuperá?

Yes No

20. Would you like more information about the marine life around Curaçao?

Abo ta interesá den mas informashon tokante e bida marino rondó di Kòrsou?

Yes No

Email address: _____



Date:

Gender:

Neighborhood:

Birth year:

Interviewer:

ADDITIONAL QUESTIONS FOR FISHERS (Questions 21- 93)

21. Are you aware of any conflicts between different users of the sea? (e.g. divers and fishermen)

Abo ta na altura di kualke konflikto entre e diferente usuarionan di laman? (p.e. entre piskadó i sambuyadó).

22. Are you aware of any collaborations or partnerships between users of the sea? (e.g. divers and conservation)

Abo ta na altura di kualke kolaborashon entre e diferente usuarionan di laman? (p.e. entre sambuyadó i grupo di konservashon).

Ocean zoning is a big picture approach to how we manage the sea that balances all uses and ensures sustainability. Since it's not possible to do every ocean activity in the same place at the same time, instead ocean zoning creates a plan for what happens where. [*Show ocean zoning diagram and factsheet.*]

Zonifikashon di laman ta un aserkamentu den sentido amplio pa manehá tur uso di laman na un manera balansá, pa garantisá uso duradero i sostenibel. No ta posibel pa tur aktividat den laman tuma lugá pareu i na e mesun sitio. P'esei, zonifikashon di laman ta krea un plan ku ta indiká kiko por tuma lugá i na unda.

23. To what extent do you think this concept of ocean zoning would be useful to Curaçao?

Te den ki grado bo ta kere ku e konsepto di zonifikashon di laman lo benefisiá Kòrsou?

Not at all A little Neutral Somewhat Very Don't know

Comments:

24. Ocean zoning typically includes some of the following goals. Rate the importance of each goal.

Zonifikashon di laman normalmente ta inklui e siguiente metanan. Balorá kada meta segun e skala akibou.

1 = not important 2= slightly important 3= somewhat important 4= important

5 = very important.

- Protect coral reefs Encourage further recreational/ tourism activities
- Allow fish stocks to increase Allow new ocean development opportunities
- Curb pollution into the ocean Improve boating safety
- Conserve marine environment Prevent conflicts between ocean users
- Other _____

Comments:

25. What types of zones should be created? (Check all that apply.)

Ki tipo di zona bo ta pensa ku mester krea? (Indiká tur ku ta relevante.)

- General boating Diving Tour operations
- Recreation Fishing Conservation/Protection
- Waste Disposal/ dump sushi Aquaculture

- Marine research Energy generation (wind/wave)
- Transport (shipping/ferries/cruise ships)
- Other _____

Comments:

26. Any Curaçaoan fishing traditions that you think should be part of Fisheries laws?

Tin algun tradishon di peska lokal ku bo ta kere ku mester hinka den e leinan di peska?

- Yes No

27. IF YES: What are they? _____

Si ta asina, kua di e tradishonnan?

28. Do you think illegal foreign fishing is a problem in Curaçao?

Abo ta pensa ku peska ilegal ta un problema na Kòrsou?

- Yes No don't know

29. What do you think should be done to manage illegal fishing?

Kiko abo mes ta pensa ku mester hasi pa atendé ku peska ilegal?

Which type of fishing gear do you think is:

Kua tipo di ekipo di peska bo ta pensa ku ta:

30. most damaging to fish populations?

mas dañino pa poblashon di piská?

31. most damaging to coral reefs?

mas dañino pa ref di koral?

- Hook and line/ liña ku anzué
- Pots or traps/ kanaster
- Beach seine net/ trai
- Gill net/ reda di horka
- Trolling/ slepmentu di piská
- Spearfishing/ tira piská
- Other _____

- Hook and line/ liña ku anzué
- Pots or traps/ kanaster
- Beach seine net/ trai
- Gill net/ reda di horka
- Trolling/ slepmentu di piská
- Spearfishing/ tira piská
- Other

32. Should hook and line fishing be:

Piskamentu ku liña i anzué mester wòrdu:

- kept as it is controlled more prohibited don't know.

33. Should pot fishing be:

Uso di kanaster mester wòrdu:

- kept as it is controlled more prohibited don't know.

34. Do you think fish pots should have an escape gap that would allow juvenile fish and ornamental fish to escape? Bo ta pensa ku kanaster mester tin un skref pa laga yu'i piská (piskechi) i piská ornamental sali bèk?

- Yes No

35. Should spearfishing be:

Tiramentu di piská mester wòrdu:

kept as it is controlled more prohibited don't know.

36. Should gill net fishing on reefs be:

Usò di reda di horka riba ref di koral mester wòrdu:

kept as it is controlled more prohibited don't know.

37. Should gill net fishing everywhere around Curaçao be:

Usò di reda di horka, unda ku ta rònt Kòrsou, mester wòrdu:

kept as it is controlled more prohibited don't know.

38. Should fishing for parrotfish be:

Piskamentu di gutu mester wòrdu:

kept as it is controlled more prohibited don't know.

39. Should fishing for shark be:

Piskamentu di tribón mester wòrdu:

kept as it is controlled more prohibited don't know.

40. Should catching juvenile fish, conch, or lobster be:

Kuementu di piskechi, karkó òf kreft mester wòrdu:

kept as it is controlled more prohibited don't know.

41. Should the cutting of mangroves be:

Kapmentu di pal'i mangel mester wòrdu:

kept as it is controlled more prohibited don't know.

42. Should using chemicals to fish be:

Piskamentu ku material kímiko mester wòrdu:

kept as it is controlled more prohibited don't know.

43. Should there be a limit/quota on number of fish caught?

Mester stipulá un límite/ kuota di kantidat di piská ku por kue?

Yes No don't know

44. Should there be a closed season for fish?

Mester stipulá un temporada durante kua no ta piska?

Yes No don't know

45. Closed season for lobster?

Mester stipulá un temporada durante kua no ta kue krefit?

Yes No don't know

46. Do you think there should be a limit/quota on number of conch caught?

Bo ta pensa ku mester stipulá un límite/ kuota di kantidat di karkó ku por kue?

Yes No don't know

49. Should fishing be prohibited during spawning?

Mester prohibí pa piska den temporada ku e piskánan ta brui?

Yes No don't know

50. Should catch of sea turtle or collection of their eggs be prohibited?

Mester prohibí pa kue turtuga òf su webunan?

Yes No don't know

51. Should there be a limit to the number of fishermen on Curaçao?

Mester limitá e kantidat di piskadó na Kòrsou?

Yes No don't know

52. Should there be a limit to the number of divers on Curaçao?

Mester limitá e kantidat di sambuyadó na Kòrsou?

Yes No don't know

53. Should there be moorings to limit anchoring and collect fees?

Mester bini lugánan spesial kaminda ta mara boto pa por kobra p'esei i pa limitá tiramentu di anker unda ku ta?

Yes No don't know

54. What do YOU think needs to be done in order to make fishing good for future generations?

Kiko ABO ta pensa ku mester sosedé pa hasi piskamentu atraktivo pa futuro generashonnan?

Fisher Characterization Questions

55. Do you currently fish full time or part-time? full- time part- time

Aktualmente, bo to piska full-time (pa trabou) of part-time (debes en kuando)?

56. For how many years have you been fishing?/ Kuantu aña bo tin ta piska?

Years: _____ Or Since: _____

57. Is fishing your primary source of income? Yes No

Piskamentu ta bo entrada prinsipal?

Vessel Characterization Questions

58. Do you own a boat? / Bo ta doño di un boto? Yes No
59. Are you currently using your boat for fishing? Yes No
Bo to usando bo boto pa piska?
60. IF NO: Is your boat currently functioning? Yes No
Si NO t'asina, bo boto ta funshoná sí?
61. How many feet long is it? / Kuantu pia largu e ta? _____ ft.
62. What horsepower is the engine? _____ horses
Kuantu forsa di kabai bo motor tin? _____ kabai
63. Where is your boat kept when not in use?/ Na unda bo boto ta ora e no ta den uso?
 At the beach or in the water. Other (please specify): _____
Name of port or beach where boat is kept: _____
64. In a normal week, how many days do you fish? #: _____
Den un siman normal, kuantu dia bo ta piska?
65. On a typical fishing day, what time do you leave? Depart: _____
Den un dia normal di piskamentu Kuant'or bo ta sali bai piska?
66. What port do you leave from?/ Di kua haf di piskadó bo ta sali bai piska? _____
67. How long does it take to travel to the fishing location? Time (hours): _____
Kuantu ta dura pa yega na bo destinashon pa piska?
68. How many other people do you fish with? / Ku kuantu hende mas bo ta piska? #: _____
69. How many kilograms of fish do you catch, collectively (include everyone on the boat)? Kuantu kilo di
piská bo ta kue (inkluyendo tur hende ku ta den boto)? _____ kg.
70. What time do you return? / Kuant'or bo ta regresá? Return: _____
Total Hours of fishing trip/ Total kantidat di ora (interviewer calculates): _____
71. On a normal *day*, how many kilograms of fish do you sell? Kg: _____
Den un *dia* normal, kuantu kilo di piská bo ta bende?
72. How much money do you make from selling those _____ kg? Total Fls.: _____ Average Fls./kg:
_____ Kuantu sèn bo ta gana dor di bende nan? _____ kg? Total Fls.: _____

Averahe Fls./ kg: _____

Landings Characterization Questions

73. What types of species do you target? Check all that apply.

Kua ta e tiponan di piská bo ta mek riba dje? Marka tur ku ta aplikabel.

- Pelagic species (for example tuna, billfish, rainbow runner)
- Coastal pelagic species (for example masbangu, moulo)
- Reef species (for example parrotfish [= gutu])
- Demersal species (for example snappers, groupers)

74. Which species do you catch most often? _____

Kua tipo di piská bo ta kue ku mas frekuensia? _____

75. Typically, how many different types of species do you land in a single fishing trip?

Típicamente, kuantu diferente tipo di piská bo ta kue den un solo biahe?

- 1-2
- 3-5
- 5- 10
- >10

76. Which species are harder to catch? _____ Why?

Ki tipo di piská ta mas difisil pa kue? _____ Dikon?

- Fishing grounds difficult to access
- Caught in deep waters
- Low abundance
- Overfished
- Other _____

77. Which species are easier to catch? _____ Why?

Ki tipo di piská ta mas fasil pa kue? _____ Dikon?

- Fishing grounds easy to access
- Caught in shallow waters
- High abundance
- Other _____

78. Do you catch different species at different times of the year (or in different seasons)?

Bo ta kue diferente tipo di piská den diferente temporada di año?

- Yes
- No

If yes, can you describe what species are commonly landed in each season?

Si t'asina, deskribí kua tipo den kua temporada?

December-February (Winter)	March-May (Spring)	June- August (Summer)	September-November (Fall)

Gear Characterization Questions

79. What type of fishing gear to do you most often fish with? Gear: _____

Ki tipo di ekipo bo ta piska kuné mas?

80. Do you fish with **kanasters**? / Bo ta piska ku kanaster? Yes No used to

- How many kanasters do you normally have in the water? # traps _____

Normalmente, kuantu kanaster bo ta baha na laman?

- How many days do you usually soak them before you check them? # days: _____

Kuantu dia bo ta laga nan den awa promé bo chèknan?

- What types of fish do you catch with kanasters? _____

Ki tipo di piská bo ta kue ku kanaster?

81. Do you fish with **hook and line**? / Bo ta piska fòndu ku liña? Yes No used to

- Do you hook and line fish on reefs? Yes No

Bo ta piska ku anzué i liña riba ref?

- What types of fish do you most often catch with line? _____

Ki tipo di piská bo ta kue mas tantu ku liña?

82. Do you fish by **trolling**? / Bo ta slep piská? Yes No used to

- What types of fish do you most often catch by trolling? _____

Ki tipo di piská bo ta kue mas tantu ku slepmentu?

- Do you troll on reefs? / Bo ta slep riba ref? Yes No

83. Do you fish with a **seine net**? / Bo ta piska ku un reda di masbangu? Yes No used to

- How many times per month do you set your seine net? # Times: _____

- Kuantu bia pa luna bo ta arma bo redanan?
- What types of fish do you most often catch by seine net? _____

Kua tipo di piská bo sa kue mas tantu ku bo reda di masbangu?

84. Do you fish with a **gill net**? / Bo sa piska ku reda di horka? Yes No used to
- How often do you set gill nets? (weekly, monthly, etc.) _____
Kuantu bia pa siman, luna, etc. bo ta arma bo reda di horka?
- How long do you leave your gill net in the water before you haul it? # hours/days: _____
Kuantu tempu bo ta laga bo reda di horka den awa promé bo sak'é?
- What types of fish do you most often catch by gill net _____

Ki tipo di piská bo sa kue mas tantu ku reda di horka?

85. Do you fish with other types of gear? Yes No used to
- Bo tin otro manera pa piska /otro tipo di material (sistema)
- What types of gear?/ Ki tipo di material? Type: _____
- How often do you use that gear? Frequency: _____
Ku ki frekuensia bo ta usa e sistema ei?
- What types of fish do you most often catch with this gear? _____
Ki tipo di piská bo sa kue regularmente ku e sistema aki?

Market Characterization Questions

86. Do you sell your catch to... / Na ken bo ta bende bo piska ...
- middlemen? / rebendedó? individual people? / kliente? hotels?
- restaurants? / restorant? the aquarium? / aquarium? supermarket?
- anyone else? Who? / otro hende? Ken? Other: _____
87. Do you trade some of the fish you catch? Yes No For: _____
- Bo ta troka ku algun di e piskánan ku b'a kue?
88. Which species do you throw back if you catch them? Why? _____
Ki tipo di piská bo sa tira bèk si bo ta kue?
89. What percentage of your catch that you bring back to shore do you sell? _____%
Kuantu porshento di e piska ku bo trese kantu bo ta bende?
90. Which species that you catch have the highest value? _____
Kua tipo di piská ku bo ta kue tin e balor mas haltu?

- What is the value?/ Kuantu e ta bal? _____

91. Which species that you catch have the lowest value? _____

Kua tipo di piská ku bo ta kue tin e balor mas abou?

- What is the value?/ kuantu e ta bal? _____

92. Who else should I interview?/ Ken mas mi mester entrvistá?

93. Anything else you'd like to tell me about fishing or the ocean in general on Curaçao?

Tin algu mas ku bo ke kontami tokante piskamentu òf laman di Kòrsou en general?