

BLUE HALO CURAÇAO RECOMMENDATIONS FOR A SUSTAINABLE OCEAN POLICY

Recognizing that existing and emerging ocean challenges in Curaçao drive the need for improved mechanisms for a Sustainable Ocean Policy;

Acknowledging that some laws require enhanced implementation, while other laws are lacking and are needed to clarify, harmonize, and integrate ocean management;

Applauding Curaçao's many features that point toward a bright future for the ocean environment and economy, which Blue Halo Curaçao seeks to ensure;

Noting in particular that Curaçao maintains some of the best reefs in the Caribbean and given the chance, the remaining healthy reefs can seed recovery of those that are heavily impacted;

Further noting that while reef fish stocks are depleted in many areas, most reef fish are still present; and remaining fish, if appropriately managed, could help fisheries rebound;

Recognizing, perhaps most importantly, the people of Curaçao, and the Government that supports them, value their ocean and have taken steps to ensure its long-term sustainability:

Blue Halo Curaçao—a partnership between the Government of Curaçao and the Waitt Institute—recommends solutions and policy pathways to overcome existing challenges and improve overall quality of life for the people of Curaçao. These recommendations build from the work of the Government as represented by the Blue Ribbon Committee, the Waitt Institute and their collaborators, and the input from the people of Curaçao, including especially the fishers and diver operators. Blue Halo Curaçao Recommendations represent a major milestone in the Initiative and take a key step toward the ultimate adoption and implementation of the Curaçao Sustainable Ocean Policy.

RECOMMENDATION 1: DESIGNATE AT LEAST 30% OF THE MARINE ENVIRONMENT AS NO-TAKE MARINE RESERVES

RECOMMENDED POLICY PATHWAY

The Blue Halo Initiative recommends a 4-step process to achieve the objective of a no-take reserve system, which builds from existing designations and government efforts. Table 1 identifies the steps, provides a brief rationale and explains government actions to date.

1.1	<p>Legally designate the existing Curaçao Marine Park as a marine sanctuary</p> <ul style="list-style-type: none"> • <u>Background</u>: The Curaçao Marine Park has been designated as a national park for 35 years. It has never been designated by law and therefore lacks the heightened and permanent protection it deserves. • <u>Government action to date</u>: GMN has submitted a proposed national ordinance to the Council of Ministers to legally designate the Marine Park as part of the mitigation measures to account for the impact to coral reefs caused by the installation of a new mega-pier. • <u>Action needed</u>: Passage of the existing draft national ordinance to designate the Curaçao Marine Park, review by the Finance Ministry and Advisory Council, and formalization. • <u>Advantages</u>: The Marine Park already exists and represents one of the healthiest remaining reef systems in all of Curaçao (and in fact in all of the Caribbean). The ordinance has been proposed as part of a package deal to mitigate impacts from the new mega-pier and garners cross-ministry support. The Park has substantial juvenile corals that can seed the rest of the island and has minimal fishing activities that would be in conflict with further protection. • <u>Limitations</u>: As proposed, the designation will not be a no-take marine reserve. However, it will include a management budget.
1.2	<p>Update and pass the 2011 draft no-fishing zone decree in accordance with the [national fishing ordinance]</p> <ul style="list-style-type: none"> • <u>Background</u>: In 2011, GMN drafted and submitted a draft no-fishing zone decree that would close several coral reef areas from fishing in order to enable fish stocks to recover. Given the dual fisheries management authority of MEO and GMN, both Ministries must approve the decree for it take effect. • <u>Government action to date</u>: Prior to 2011, the GMN undertook a substantial community engagement process to get feedback from fishers on where to designate no-fishing areas. In 2011, GMN submitted a draft no-fishing zone decree. • <u>Action needed</u>: The Ministry of Economic Development must approve the decree. • <u>Advantages</u>: The no-fishing zones are no-take reserves and will help preserve existing healthy fish stocks and replenish fishing areas through spill-over effects. In addition, such zones will protect corals and help improve coral habitat, which fish depend upon for growth. • <u>Limitations</u>: The designations were developed with substantial fisher input; however, the data may be outdated. It would be useful to update these proposed no-fishing zones with refined areas given the additional knowledge gained since their inception more than 5 years ago.
1.3	<p>Incorporate these legal designations and other no-take reserves as part of a comprehensive marine spatial plan law with accompanying zoning</p> <ul style="list-style-type: none"> • <u>Background</u>: Designation of the Marine Park and the no-fishing zones would be an important first step in establishing protection of Curaçao's waters. However, missing from these designations are a comprehensive, adaptive no-take marine reserve management system and protection of waters beyond the nearshore environment. To ensure that Curaçao protects at least 30% of all of its waters as no-take marine reserves and creates an adaptive management system, Blue Halo Curaçao proposes the enactment of a new Marine Protected Area Ordinance. Such an ordinance should include the existing designations as well as protect additional areas,

	<p>including mangrove and seagrass habitat in bays and estuaries and the establishment of a marine mammal sanctuary and shark sanctuary in all of Curaçao's waters.</p> <ul style="list-style-type: none"> • <u>Government action to date:</u> Curaçao has taken steps in partnership with the other islands of the Dutch Caribbean to develop a marine mammal sanctuary and has, in partnership with Pew Charitable Trusts, expressed its commitment to establishing a shark sanctuary in its waters. • <u>Actions needed:</u> This approach will require passage of a new Ordinance, which will require agreement by Council of Ministers, review and advice from the Advisory Council, review by the Ministry of Justice, approval by Parliament and approval by the Governor. • <u>Advantages:</u> A comprehensive marine protected area ordinance would enable Curaçao to elaborate on the existing proposed protections and create a comprehensive network of marine reserves. Such an approach would allow for the creation of a system of monitoring and adaptive management as ecological, economic, and community needs change with time. • <u>Limitations:</u> To achieve a comprehensive Marine Protected Area Ordinance, a significantly larger investment of time and effort will be required compared to other pathways. Therefore, this approach while an important one will require a substantial investment of time and effort to achieve passage of the Ordinance.
1.4	<p>For any designation that satisfies Ramsar, SPAW Protocol, or Marine World Heritage Site criteria, in addition to legal designation, these sites should be submitted for international designation and recognition.</p> <ul style="list-style-type: none"> • <u>Background:</u> Curaçao is party to a number of environmental treaties and has committed to implementing them. Among these is the SPAW Protocol, which calls for establishment of marine protected areas. Curaçao could fulfill its international obligations by designing MPAs that satisfy the requirements of the SPAW Protocol and submit them for listing under the Protocol. Such an approach not only satisfies an international obligation but, in following the SPAW Protocol elements, builds from a framework that is supported Caribbean-wide. • <u>Government action to date:</u> Curaçao has already designated four areas under Ramsar as wetlands of international importance. It has further identified five additional potential Ramsar sites. Also, Curaçao has submitted a proposal to the SPAW Protocol to list the Curaçao Marine Park. • <u>Actions needed:</u> First, areas must satisfy international designation criteria. Second, they must be approved by the Council of Ministers and submitted by the Kingdom of the Netherlands to the Secretariat of the appropriate international body. Once submitted to the appropriate international body, evaluation and potentially approval takes place through an international process. • <u>Advantages:</u> Curaçao could fulfill its international commitments through the designation and implementation of protected areas and by having such areas listed under appropriate international agreements. • <u>Limitations:</u> Curaçao has had difficulties providing sufficient financial and human resources to fulfill its international environmental obligations. The Ministries involved in the compliance with these conventions could, either separately or jointly, revise budgets to provide funding for implementation.

ADDITIONAL BACKGROUND



Proposed protected areas, including Curaçao Marine Park (blue), no-fishing zones (red) and Ramsar sites (purple).

Marine scientists and other experts call for protection of at least 30% of marine environments to safeguard ocean resources and the services people depend upon.¹ Scientific evidence indicates 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. MPAs should represent all types of marine ecosystems, including shallow water reef habitats as well as deep sea benthic and pelagic habitats.

The Marine Scientific Assessment, which evaluated Curaçao's reefs identified massive coral reef decline in Curaçao—

more than 50% in the past 30 years.² A variety of factors contribute to this decline including overfishing, physical impacts from vessels and divers, and pollution. To reverse this decline, substantial efforts should be made to protect, maintain and restore these resources to support community and economic well-being.

The Ocean Stakeholder survey, which included 1652 respondents, indicates that the overwhelming majority of people (87%) would support the creation of marine reserves.³ These findings are consistent with other data from this survey that highlight people's appreciation of the ocean. Almost all Ocean Stakeholders described the ocean as important (98%) and said they support the protection of endangered coral (92%) or fish (87%). Notably, the share of fishers in support of marine reserves is equally high (87% of 253 fishers who responded to the Ocean Stakeholder survey). Additionally, stakeholder groups from the dive industry and nature organizations called for the creation of marine reserves during stakeholder consultations.

Given that tourism accounts for almost one-fifth (18%) of Curaçao's GDP, there is also economic value in protecting resources that attract tourists. For example, the Economic Valuation⁴ showed that marine-associated tourism (snorkeling, diving, accommodation) accounted for over one-third (38%) of the total expenditures of Curaçao's tourism sector in 2014.

First, designated marine reserves should be integrated with the design of a marine spatial plan (see recommendation 7) that appropriately considers the utilization of the marine environment for all ecosystem services, including marine protection. MPAs should be representative of all of Curaçao's marine ecosystems (coral

¹ Bohnsack JA, Causey B, Crosby MT, et al. (2000) A rationale for minimum 20–30% no-take protection. Proceedings of the 9th International Coral Reef Symposium; 23–27 Oct 2000; Bali, Indonesia. Penang, Malaysia: The World Fish Center. Airame S, Dugan JE, Lafferty KD, et al. 2003. Applying ecological criteria to marine reserve design: a case study from the California Channel Islands. *Ecol Appl* 13: S170–84.

² Waitt Institute, Marine Scientific Assessment (2016), developed in support of Blue Halo Curaçao.

³ Waitt Institute, Community Consultation (2016), developed in support of Blue Halo Curaçao.

⁴ Sustainable Fisheries Group, Economic Valuation of Curaçao's Marine Resources (2016), developed in support of Blue Halo Curaçao.

reefs, seagrasses, mangroves, sargassum flats and the deep sea). As represented in the zoning option map, we propose that Curaçao protect 30% of each north and south region and 30% of Klein Curaçao with a minimum of 15% protection of each of the eight zones described in the Marine Scientific Assessment. In addition to nearshore protection, Curaçao should protect its offshore habitats with 30% of the territorial sea and 30% of the exclusive economic zone protected.

When considering where to propose marine protection, a combination of ecological factors should be considered. In addition, human use of the ocean should be evaluated, including fishing use, diving use, and other ecosystem services provided by each site. For example, members of the CHATA Dive Task Force identified Tugboat, Marie Pampoen, Porto Marie, Mushroom Forest, and the Superior Producer as the most popular dive sites in our online survey, which may indicate diver support for protection of these sites. Reports from fisher surveys indicate ports with the highest weekly landings include Boka Samí, Piscadera and Caracasbaai. As these sites generate the highest revenue from fish sales, it may be economically and socially beneficial to place reserves at reasonable distance from these ports.

RECOMMENDATION 2: IMPROVE DOMESTIC FISHERIES MANAGEMENT

RECOMMENDED POLICY PATHWAY

The Blue Halo Initiative recommends 4 interrelated approaches to fisheries management, all of which could be combined in the first recommendation focused on developing a new comprehensive fisheries ordinance.

2.1	<p>Establish a new fisheries management law to require a fisheries management plan, monitoring, and adaptive management.</p> <ul style="list-style-type: none"> • <u>Background</u>: Given needs regarding fisheries management, Curaçao should develop a new comprehensive fisheries management law. A comprehensive law should include a number of key components, including requiring a fisheries management plan, an updated licensing system, monitoring, and adaptive management, as well as updated gear and area-based restrictions. A fishery management plan should evaluate that status of the resource and include management approaches such as time/area, gear usage, size limits, licensing and other measures to achieve sustainable fisheries outcomes. Such a law would need to be carefully crafted to maintain the existing elements of fisheries management that work well. In addition, it should ensure appropriate coordination between GMN and MEO. • <u>Government action to date</u>: In response to a “yellow card” from the European Union, which called upon Curaçao to update its oversight of its international fleet, the Curaçao Ministry of Economic Development drafted a new fisheries ordinance in 2015. This proposed ordinance includes several measures needed for effective fisheries management. Features include a required fisheries management plan (Article 4), authority for imposing conservation measures by Ministerial decree (Article 17), and required ship register (Articles 18-19). However, it is missing some features, including a fisheries-independent monitoring system and licensing requirements for all fishers. In addition, it is unclear how this law fits with the existing fisheries management system. • <u>Actions needed</u>: This approach will require passage of the draft Fisheries Ordinance, which should first be updated to address existing deficiencies. Once updated, it will require agreement by Council of Ministers, review and advice from the Advisory Council and the social and Economical Council, approval by Parliament and formalization by the Governor. • <u>Advantages</u>: Curaçao has a strong need to create an updated fisheries management law that satisfies European Union requirements, so that its international fleet is able to sell its catch on the European market. The draft law has already been submitted twice by the Ministry of Economic Development. • <u>Limitations</u>: The law should be revised to better integrate with the current management structure, address key concerns by stakeholders and government officials, and incorporate an appropriate system of licensing and monitoring.
2.2	<p>Update spearfishing ban to prohibit possession, sale or import of spear guns and define spearfishing broadly</p> <ul style="list-style-type: none"> • <u>Background</u>: The spearfishing ban should be updated to (1) prohibit possession, sale, or import of a spear gun; and (2) define the term “spearfishing” broadly to ensure that all types of underwater hunting with a weapon is prohibited. Updating the law will improve the ability for enforcement officers to enforce the spear fishing ban, which should lead to greater compliance with the existing prohibition. The law could create an exemption for the use of certain pole spears for the harvest of lionfish. Some expressed concern that spearfishing on snorkel provided a source of food and income for some individuals that had extremely limited options. It will be important to determine how such a ban will affect subsistence and low-income harvesters and

	<p>if/how such impacts can be alleviated.</p> <ul style="list-style-type: none"> • <u>Government action to date</u>: Curaçao has had a long-standing ban on the use of “underwater hunting gear.”⁵ As defined by Reef Ordinance 1976, the underwater hunting gear ban is explained to mean “a prohibition on spear fishing or on those actions that can be put on a similar level.” In addition, the current ban does not ban possession, sale or import of underwater fishing gear nor the ability to prosecute buyers or processors who gain from such illegal harvest techniques. • <u>Action needed</u>: A revised explanatory memorandum could further explain the definition of underwater fishing gear to include more than spearfishing gear. In addition, GMN should, by decree, prohibit possession, sale and import of spear guns in accordance with its authority to issue fishing regulations under Article 14 of the Island Fisheries Ordinance (2004).⁶ • <u>Advantages</u>: Further clarity to maintain a broad definition on “underwater hunting gear” would support the ability of enforcement agents to prosecute those using any type of hunting gear that effectively serves the same function as a spear gun (e.g. knife). Banning the possession, sale and import of gear enables enforcement agents to more effectively prosecute the ban. Instead of needing to catch someone in the act of spearfishing, other actions that indicate illegal spearfishing activity, would enable agents to take enforcement action. • <u>Limitations</u>: none identified.
2.3	<p>Update gillnet ban to prohibit all use and possession, sale and import of all gillnets</p> <ul style="list-style-type: none"> • <u>Background</u>: The use of gillnets is currently banned in areas where water depth is less than 60 meters. However there is evidence of ongoing gillnet use. It is difficult to enforce the existing ban, since the 60 meter depth contour is not mapped and possession is allowed. • <u>Government action to date</u>: Existing law bans use of gillnets in water depths less than 60 meters. • <u>Action needed</u>: The gillnet ban should be updated to prohibit all use in Curaçao’s territorial seas and EEZ, as well as prohibit possession, sale, and import of gillnets. As with the spearfishing ban recommendation, such actions could be established by GMN decree. • <u>Advantages</u>: Establishing a more robust gillnet ban will facilitate effective enforcement. • <u>Limitations</u>: The Government of Curaçao is considering whether and how to promote an offshore flying fish fishery, which would require the use of gillnets. If Government decides to support such a fishery, an exception to the expanded gillnet ban could be established to enable limited use of gillnets for those licensed for such a fishery.
2.4	<p>Designate fishing zones to exclude conflicting recreational use</p> <ul style="list-style-type: none"> • <u>Background</u>: Some fishers have expressed concern about recreational activities negatively impacting fishing (e.g., fishing nets cut by non-fishers), and many fishers surveyed support the creation of zones that would allow fishing and exclude non-fishing activities. Such designations could be designed in such a way to expand the system of area-based fish licensing to include vessels that are less than 12 meters in length. Such approaches can improve fisher support for conservation measures and reduce fishing capacity (and is an approach already used with Curaçao’s larger fleet). Such an approach should be designed within the context of marine spatial planning with all ocean uses evaluated to ensure that stakeholder needs are balanced and appropriate tradeoffs made. • <u>Government action to date</u>: Under the Fisheries Ordinance Curaçao (2004), GMN issues area-based permits to people the use beach seines fishing for big eye scad (Approximately 30). In addition, the Fisheries Ordinance Curaçao allows GMN to create fisheries zones that restrict use and access to such zones. The provision, however, does not indicate that it can exclude non-

⁵ Specifically article 6 of the Reef Island Ordinance (1976) states “(1) It is prohibited in our waters to hunt marine animals or to catch or kill these by means of underwater hunting gear. (2) It is prohibited to have in one's possession marine animals that have been caught or killed in our waters by means of underwater hunting gear, to keep them, to offer them for sale, to alienate, to deliver or to transport them.

⁶ Article 14 By Island Resolution containing general measures rules are set regarding: a. fishing gears with which it is permitted to fish; b. the fish species that may be caught; c. the data that should be administrated by licensees and the manner how this should be done; d. the procedures to be followed in case of unwanted by-catches.

	<p>fishing activities (e.g., diving, snorkeling), so it may require a national ordinance to designate. This could be achieved with a marine spatial planning law.</p> <ul style="list-style-type: none"> • <u>Advantages:</u> Issue a decree establishing rules and restrictions for the establishment of fishing zones, and utilize a comprehensive marine spatial planning law to exclude other human activities for specific fishing zones (see marine spatial planning section for additional detail). • <u>Limitations:</u> Such an approach will require additional administrative oversight to license all fishers, designate fishing zone restrictions, and oversee implementation and enforcement.
--	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

In addition to these measures, other measures such as the establishment of no-take marine reserves (Recommendation 1) should contribute to fisheries improvements.

ADDITIONAL BACKGROUND

Curaçao has experienced significant changes in its fish populations as evidenced by the images shown to the left from 1960 (left images) and 2009 (right images).⁷ Fish play a fundamental role in a healthy coral reef ecosystem as well as provide livelihoods and food security to coastal communities. Fish are directly and indirectly responsible for



Catch of spearfisher Jose Streder in Curaçao in 1960 on snorkel (a & b); and a day's catch in 2009 (c) for one fisher using snorkel and (d) for two fishers using SCUBA.

the maintenance of algal communities on coral reefs that are the dominant competitors of corals. Herbivorous fish support coral reef health by grazing fast-growing algae that can overgrow and kill corals.⁸ Fish also are major players in regulating the flow of energy through reefs, thereby preventing what is known as the microbialization of coral reefs.⁹ Fish do this by transferring energy up the food chain (i.e., smaller fish being eaten by larger ones).

Microbialization, which is caused in large part by overfishing and pollution, can lead to algae-dominated reefs, prone to disease outbreaks, and diminished fish populations.

Curaçao's existing legal framework for fisheries management is comprised of an amalgam of laws created prior to the 2010 establishment of Curaçao as a country that addresses Curaçao's international and domestic fleet. While the laws prohibit some destructive practices including spearfishing

and gillnet use, the laws could be updated to create a more robust fisheries management system and create the necessary enabling conditions for enforcement. The EU "yellow card" regarding Curaçao's management of its international fleet provides an opportunity to design an improved system of fisheries management at both the international and domestic level. In addition, some civil servants expressed the need to resolve management overlap between the Ministry of Economic Development (MEO) and the Ministry of Health, Environment and Nature (GMN).

From the perspective of Ocean Stakeholders, there is not enough ocean management on Curaçao. Many are concerned about ocean pollution (75%), coastal development (53%), and overfishing (34%) and would be in

⁷ Images used with permission from AE Johnson. Source: Johnson, Ayana Elizabeth, and Jeremy BC Jackson. "Fisher and diver perceptions of coral reef degradation and implications for sustainable management." *Global Ecology and Conservation* 3 (2015): 890-899.

⁸ Jackson JBC, Donovan MK, Cramer KL, Lam VV (editors). (2014) Status and Trends of Caribbean Coral Reefs: 1970-2012. Global Coral Reef Monitoring Network, IUCN, Gland, Switzerland..

⁹ Haas, Andreas F., et al. "Global microbialization of coral reefs." *Nature Microbiology* 1 (2016): 16042.

support of various conservation measures to better protect marine ecosystems. Only the Fisher Survey explored fishery management in more detail. Survey findings suggest widespread support for a designated fishing zone (79% suggest the creation) as many highlight conflicts with other ocean users. Findings from the Fisher Survey show that about half (44%) support better control of spearfishing on Curaçao. Many fishers (76%) also described the use of gillnets as damaging to fish populations, and almost half (43%) feel that gillnets should be prohibited around Curaçao.

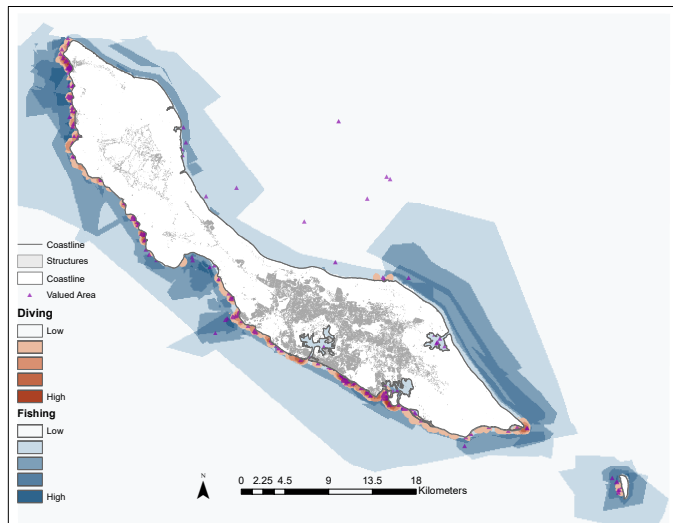
RECOMMENDATION 3: IMPLEMENT MARINE SPATIAL PLANNING AND INTEGRATED OCEAN GOVERNANCE

RECOMMENDED POLICY PATHWAY

The Blue Halo Initiative recommends 2 major approaches to improve coordinated ocean management: marine spatial planning and a permanent inter-ministerial committee.

3.1	<p>Pass a comprehensive ocean management act that adopts and implements a marine spatial plan, building from the Blue Halo Curaçao planning process.</p> <ul style="list-style-type: none"> • <u>Background</u>: Curaçao should pass a comprehensive marine spatial planning law that adopts the Blue Halo Curaçao plan in order to effectively coordinate ocean management, minimize user conflict and make tradeoffs among competing ocean uses, including conservation. Many of the recommendations in this document could be achieved as part of a broader marine spatial planning system, including those related to spatial management of fisheries and creation of marine protected areas. • <u>Government action to date</u>: The Government of Curaçao has already committed to developing a comprehensive sustainable ocean policy, including coastal zoning, as part of Blue Halo Curaçao. Establishing a marine spatial planning law that adopts the plan that is formulated as part of this partnership directly aligns with the Government's existing commitments. • <u>Action needed</u>: The Government of Curaçao, in partnership with the Waitt Institute, will undertake a substantial stakeholder consultation process to evaluate how best to utilize the marine environment and establish a spatially explicit plan as an outcome of this process. It is anticipated that the marine spatial plan will be completed by early 2017 with the recommendation that it be adopted as part of a marine spatial planning law by early 2018. • <u>Advantages</u>: The benefit of a comprehensive law would be to create a unifying approach that addresses often overlooked challenges of cumulative impacts and user conflict. • <u>Limitations</u>: Ocean expertise is currently spread among Ministries, so care should be taken to establish a coordinated and enforceable management system that builds from the expertise of existing government institutions.
3.2	<p>Establish a permanent inter-ministerial committee on ocean governance to ensure ongoing, long-term coordination.</p> <ul style="list-style-type: none"> • <u>Background</u>: To help Curaçao move toward an integrated system, it should take the initial steps to formalize an overarching body to coordinate government actions. A new marine spatial planning law could utilize this coordinating body for collaborative implementation. • <u>Government action to date</u>: As part of Blue Halo Curaçao, most Ministries have appointed a liaison to the Initiative. This Committee is actively engaging in discussions on how best to coordinate ocean management across Ministries. In addition, Curaçao should designate a single Ministry or Department to serve as the lead institution to enable implementation, oversight coordination, dispute resolution, and accountability. • <u>Action needed</u>: To formalize this Committee the Council of Ministers should issue a decree designating the Committee and describing its function. • <u>Advantages</u>: Formalizing the existing Blue Ribbon Committee would enable ongoing, expert engagement among Ministries to collectively share information and make informed decisions. • <u>Limitations</u>: None identified.

ADDITIONAL BACKGROUND



The map above shows some of the existing uses in Curaçao's waters.

As the use map (left) indicates, Curaçao has a busy ocean with fishing, diving, boating, other recreation, as well as shipping all adding to the utilization of and impacts to ocean resources. As with most nations, Curaçao's ocean-related laws are a patchwork with institutional implementation happening within a number of different government bodies. Government coordination is essential to plan effectively for the ocean, reduce cumulative impacts, minimize conflict, and make tradeoffs among competing uses. Curaçao also faces the added challenge of needing to harmonize its laws and institutions after its transition to country status in 2010.

Sustainable ocean management can be achieved with the process and implementation of marine spatial planning (MSP) or ocean zoning. As

defined by UNESCO, MSP is "is a public process of analyzing and allocating the spatial and temporal distribution of human activities in marine areas to achieve ecological, economic, and social objectives that are usually specified through a political process."¹⁰ Many nations around the world have adopted this approach through legislation or policy, including the Netherlands' Dutch Spatial Planning Act,¹¹ Britain's Marine and Coastal Access Act,¹² Belgium's Marine Environment Act,¹³ and the United States National Ocean Policy,¹⁴ among many others. In the Caribbean, the Barbuda Council, as part of Barbuda Blue Halo, recently passed coastal zoning and fisheries regulations in order to establish a legally binding marine spatial plan.¹⁵

Findings from community consultations generally indicate support for a marine spatial plan among ocean users, fishers, and nature organizations. For example, the Ocean Stakeholder survey found that many (66%) feel there is not enough ocean management in Curaçao. In addition, three-quarters (76%) of surveyed fishers rated ocean zoning as important, while only a small minority (13%) described the concept as not useful. Fishers described zoning as important to prevent user conflicts, protect coral reefs, increase fish stocks, curb ocean pollution and improve boat safety. Community consultations generally discussed more specific conservation measures, however, nature organizations called for an integrated coastal zone management plan with designated protected areas. Representatives from the Coast Guard further suggested specific traffic zones and called for the prohibition of jet skis within the buoy line.

¹⁰ Ehler, Charles, and Fanny Douvère. Marine Spatial Planning: a step-by-step approach toward ecosystem-based management. Intergovernmental Oceanographic Commission and Man and the Biosphere Programme. IOC Manual and Guides No. 53, ICAM Dossier No. 6. Paris: UNESCO. 2009 (English).

¹¹ See, e.g., UNESCO Marine Spatial Planning Initiative, The Netherlands, at http://www.unesco-ioc-marinesp.be/spatial_management_practice/the_netherlands.

¹² United Kingdom Marine and Coastal Access Act, available at <http://www.legislation.gov.uk/ukpga/2009/23/contents>.

¹³ UNESCO Marine Spatial Planning Initiative, The Netherlands, at http://www.unesco-ioc-marinesp.be/spatial_management_practice/belgium.

¹⁴ United States National Ocean Policy, available at <https://www.whitehouse.gov/administration/eop/oceans/policy>.

¹⁵ Barbuda (Coastal Zoning and Management) Regulations, 2015, available at <http://barbuda.waittinstitute.org/wp-content/uploads/2015/03/Barbuda-Zoning-Regulations-2014-FINAL-12Aug2014.pdf>.

RECOMMENDATION 4: MINIMIZE COASTAL WATER POLLUTION AND MARINE DEBRIS

Addressing coastal water quality should include a 3-tier approach of (1) developing the missing elements of the legal system for pollution management, (2) improving implementation of the existing legal system, and (3) designing appropriate land-based safeguards to prevent destructive land-based impacts.

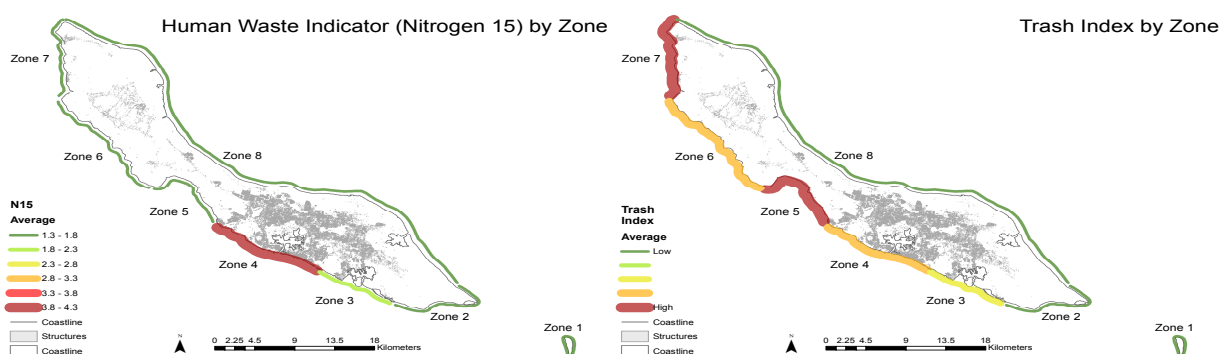
4.1	<p>Expand water quality laws to adequately address marine and inland pollution.</p> <ul style="list-style-type: none"> • <u>Background</u>: Curaçao should develop and implement new legislation to adequately address marine and inland pollution. Such a law should build from the existing Nuisance Ordinance and Public Order Ordinance to ensure robust source-based and pollutant-based controls, a system to regularly test coastal water quality, a system of public notice for polluted water bodies, and water body-based control measures. While Curaçao is not a party to the Land Based Sources Protocol of the Cartagena Convention, Curaçao could use the Protocol as guidance in the development of a new law. • <u>Government action to date</u>: The Government has launched a process to develop an integrated water resources plan (IWRP) that will comprehensively consider management of all water—from ground water to surface water to coastal waters. Relevant existing legal authorities include the Nuisance Ordinance Curaçao 1994, and the Public Order Ordinance 2015. The "Attachment F" regulations from the Isla nuisance license (1994) are also relevant. • <u>Action needed</u>: Blue Halo Curaçao should coordinate its efforts with the IWRP process, to achieve a unified outcome for coastal water quality, including an expanded legal framework for water management including requiring the monitoring of coastal water quality. Although Curaçao is not a party to the Land Based Sources Protocol of the Cartagena Convention, Curaçao could use the Protocol as guidance in the development of a new law. Furthermore, post-2010, no new Waste and Chemicals Waste Ordinance has replaced prior repealed versions.
4.2	<p>Improve implementation of the Public Order Ordinance.</p> <ul style="list-style-type: none"> • <u>Background</u>: Despite existing requirements, several sources indicate that littering and improper disposal of waste continues. Some claims include the disposal of trash, sewage and other waste directly into the marine environment. These challenges indicate the need for a concerted effort to achieve compliance, likely through a combination of enforcement actions, education, and other means. • <u>Government action to date</u>: The Public Order Ordinance prohibits improper disposal of waste. VVRP and GMN have implementing authority to address land-based pollution under the Public Order Ordinance 2015, including sewage management and trash. • <u>Action needed</u>: As part of the IWRP effort, Curaçao should improve implementation of the Public Order Ordinance, including enhanced roles for Ministry of Justice and enforcement officials.
4.3	<p>Create coastal buffer zones and coastal development best management practices to minimize runoff.</p> <ul style="list-style-type: none"> • <u>Background</u>: Curaçao should require the establishment of buffer zones between coastal developments and the marine environment to minimize the impact of coastal development on the marine environment. Such an approach is also advantageous for low lying areas that may be threatened by sea level rise. Larger buffer zones should be considered when adjacent to marine protected areas to minimize land-based impacts. Furthermore, Curaçao should develop and require the utilization of best management practices when developing in the coastal environment. • <u>Government action to date</u>: Relevant legal authorities for development include the National Ordinance on Planning and Zoning 1976 (LGRO), the Island Ordinance on Planning and Zoning (EROC), and the Island Development Plan 1995 (EOP). VVRP is the key implementing entity. • <u>Action needed</u>: To achieve buffer zones and best management practices, Curaçao could revise the Existing Island Development Plan (EOP) by Parliament or take targeted actions under the existing EOP by VVRP, including by way of permit conditions or new conservation area/water area designations.

- Considerations: A new EOP for Curaçao is long overdue. However, revision of the existing plan has engendered much controversy. This could argue in favor of an approach at the Ministerial level through guidance or decree.

In addition to these steps, mitigation programs for coral reefs, mangroves and seagrasses could consider the above actions as part of a mitigation program.

ADDITIONAL BACKGROUND

Excess nutrients from sewage and other sources are known factors in the decline of coral reefs due to increased turbidity, algal growth and coral disease.¹⁶ In addition to marine impacts, coastal sewage is a major cause of human illness. Trash is another form of pollution that causes impacts ranging from harming habitats to killing marine organisms. The Marine Scientific Assessment indicates a strong sewage signal from the population center



The maps above show indicators of human waste (left) and trash index (right) by zone.

in Willemstad (map on left), and trash is a prevalent occurrence on beaches and reefs (map on right).

Ocean pollution on Curaçao is the dominant concern raised during stakeholder meetings and the Ocean Stakeholder survey. For example, many Ocean Stakeholders (76%) see pollution as the key threat to marine ecosystems. Stakeholders who elaborated during meetings highlighted sewage dumping, plastic pollution near the mega pier and floating markets, solid waste from cruise ships, and sediment accumulation due to the construction of breakwaters as the main sources of pollution. They also point out the lack of a national water plan and a national sewage water ordinance to manage wastewater. Moreover, some civil servants feel that improvements are needed in the law enforcement on pollution and in water management as a whole. Nature organizations suggest that zoning plans should address the need for healthy coastal waters and the reduction of runoff.

Prior to 10/10/10, the Public Order Ordinance 1980¹⁷ and the Waste and Chemicals Waste Ordinance 1995¹⁸ provided the legal framework for the management of waste in Curaçao. However, both of these ordinances

¹⁶ Jackson JBC, Donovan MK, Cramer KL, Lam VV (editors). (2014) Status and Trends of Caribbean Coral Reefs: 1970-2012. Global Coral Reef Monitoring Network, IUCN, Gland, Switzerland.

¹⁷ Island Ordinance to promote public order and community protection [*Eilandsverordening bevordering openbare orde en bescherming gemeenschap*], A.B. 1980, no.19 expired due to the National Ordinance on general transitional arrangement legislation and administration [*Landsverordening algemene overgangsregeling wetgeving en bestuur (Bijlage a.)*] A.B. 2010, 87, modified by A.B. 2010, 102.

expired in 2010¹⁹ and were not reactivated as new laws of Curaçao when it gained country status. A new Public Order Ordinance became law in July 2015, reinstating some of the key water quality requirements, especially relating to trash.²⁰ As of today, however, there is no new Waste and Chemicals Waste Ordinance to replace the repealed version. In addition to the lack of legal mechanisms to manage water quality, Waitt Institute research and past studies demonstrate ongoing challenges with inadequate sewage treatment and waste disposal systems.²¹

¹⁸ National Ordinance containing regulations on solid and chemical wastes and amending the Island Ordinance promote public order and community protection [*Eilandsverordening houdende regelen betreffende vast en chemische afvalstoffen en tot wijziging van de Eilandsverordening bevordering openbare orde en bescherming gemeenschap* (A.B. 1980, no. 19)], A.B. 1995, no. 47 (has also expired).

¹⁹ National Ordinance [*Landsverordening algemene overgangsregeling wetgeving en bestuur (Bijlage a.)*] A.B. 2010, 87, modified by A.B. 2010, 102.

²⁰ Public Order Ordinance [*Landsverordening van de 22ste juli 2015 houdende vaststelling van regels ter bevordering van de openbare orde, rust en veiligheid, en ter bescherming van de gemeenschap (Landsverordening openbare orde)*], P.B. 2015, no. 31 (on file with ELI).

²¹ See, e.g., Government of Curaçao, National Report of Curaçao for the Third International Conference on Small Island Developing States (June 2014).

RECOMMENDATION 5: RESTORE AND MITIGATE ECOSYSTEM DAMAGE

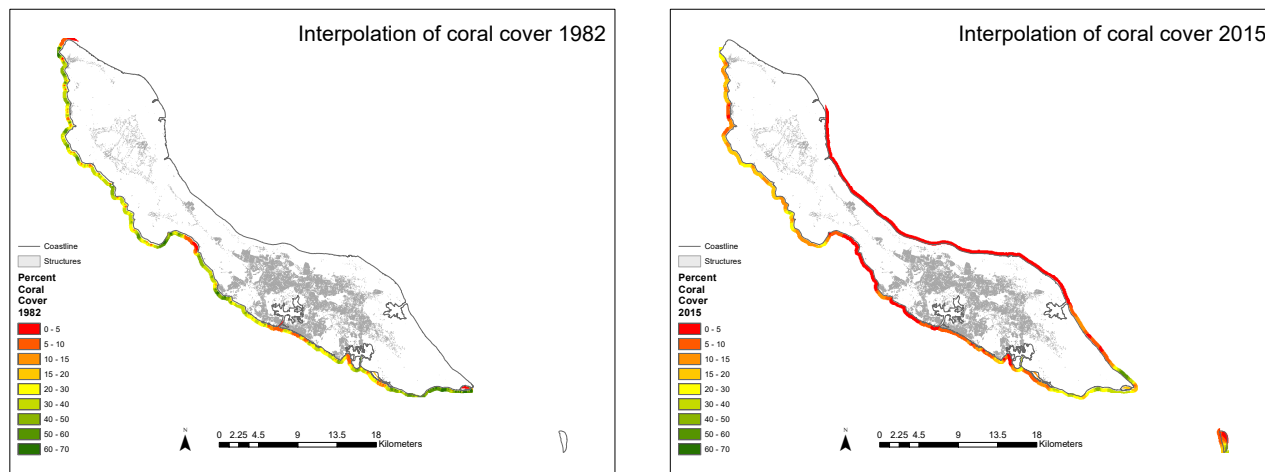
To maintain existing resources and improve upon them, Curaçao should establish restoration and mitigation programs for coral reefs, mangroves and seagrass beds.

5.1	<p>Develop natural resource damages law making responsible party liable for unpermitted injury to natural resources, including coral reefs, mangroves and seagrass.</p> <ul style="list-style-type: none"> • <u>Background</u>: Curaçao should improve its liability system by designing a more robust natural resource damages law that makes responsible parties liable for injuries to key habitats, including coral reefs, seagrass, and mangrove ecosystems • <u>Government action to date</u>: Curaçao establishes some liability requirements already through conditional permitting. Furthermore, the Fisheries Ordinance Curaçao provides for remedial damages to repair harm caused by noncompliance: GMN may order, at the offender's expense, removal of unlawful articles or restoration of associated damage.²² • <u>Action needed</u>: While some legal requirements create liability, this approach could be more formalized and expanded through the passage of a natural resource damages ordinance. • <u>Considerations</u>: Having a system where those who injure the resource pay for injury creates a mechanism for the responsible party to assume the cost of restoration rather than the government and ultimately the people of Curaçao.
5.2	<p>Pass law requiring mitigation when taking permitted actions that will destroy key habitats, including coral reefs, mangroves, and seagrass.</p> <ul style="list-style-type: none"> • <u>Background</u>: To ensure consistent and long-term habitat protection, update habitat protection provisions to require mitigation for permitted injury to resources and create a system of liability for accidental injury. • <u>Government action to date</u>: Currently mitigation occurs on an ad hoc basis. It can be part of conditional permitting or other arrangements created during a development process. For example, in order to address environmental impacts caused by the building of the second megapier, the Government of Curaçao has committed to developing a mangrove park that restores an existing mangrove area damaged by sewage, trash and poor water circulation and the designation of the Curaçao Marine Park as a legally-designated marine protected area. • <u>Action needed</u>: While some mitigation is required as part of conditional permitting, this approach could be made more robust and transparent by setting out minimum mitigation requirements by ordinance. • <u>Advantages</u>: Designing a more robust system of protection and mitigation will improve key habitat health and enable Curaçao to take consistent protection and restoration action and provide a transparent process for mitigation decisions. Such an approach will increase costs for investors.
5.3	<p>Expand the public mooring program to establish moorings in fishing areas where moorings are currently lacking.</p> <ul style="list-style-type: none"> • <u>Background</u>: Curaçao should expand the availability of public moorings to prevent anchoring damage. Anchoring on coral reefs and seagrass beds has been proven around the world to be highly destructive and to cause, in some cases, irreparable damage to these habitats. Although the island of Curaçao has 175 km of coastline, only about 75 km of extremely narrow shelf on the south shore is accessible to the vast majority of boaters. Further, this area is almost exclusively covered in coral reefs, increasing the likelihood of habitat damage. Eliminating the physical damage to habitats by anchors provides predictable results for improving the quality of coral reefs and seagrass beds. • <u>Government action to date</u>: Curaçao has some moorings in place for coral reef users. • <u>Action needed</u>: The Government of Curacao should dedicate resources to identify areas for new

²² Fisheries Ordinance Curaçao art. 35.

mooring sites and install the moorings.

ADDITIONAL BACKGROUND



Maps show change in coral cover from 1982 to 2015, indicating more than 50% loss of coral cover on the south side of Curaçao.

The Marine Scientific Assessment²³ indicates that Curaçao has lost over half of its living coral since the 1980s (see maps above). As additional development and utilization of the marine and coastal environment occurs, continued loss is anticipated. Developers are proposing the addition of a second mega pier, which will destroy substantial coral reef and mangrove habitat. Other coastal development, ship groundings, anchors, and other human activities can individually or cumulatively cause significant impacts to Curaçao's marine ecosystems.

Designed correctly, restoration and mitigation approaches can be combined to create focused improvements to key habitats in response to permitted or unpermitted injuries to natural resources. Such approaches put the responsibility for paying the cost of injury in the hands of those responsible for causing it. Three approaches can help minimize impact and restore ecosystems. First, a natural resource damages law would hold responsible parties liable for injuries to resources caused by unpermitted activities such as accidents. Second, mitigation laws require permitted activities to first avoid and second minimize impacts to natural resources. If avoidance and minimization are not possible, restoration is required. Curaçao could expand and clarify its legal authority for mitigation by designing laws to establish a marine resource mitigation system especially for impacts to coral reef and mangrove habitats. Third, Curaçao could establish a system of moorings in coral reef environments to enable ocean users to access the resource without causing long-term and potentially irreparable damage by the use of traditional boat anchors.²⁴

²³ Waitt Institute, Marine Scientific Assessment (2016).

²⁴ Saphier, Adam D., and Tegan C. Hoffmann. Forecasting models to quantify three anthropogenic stresses on coral reefs from marine recreation: Anchor damage, diver contact and copper emission from antifouling paint. *Marine Pollution Bulletin* 51.5 (2005): 590-598.

RECOMMENDATION 6: IMPROVE PROTECTION FOR THREATENED AND ENDANGERED SPECIES

Several policy recommendations in this Report will help address threats to endangered and threatened species, including those for marine reserves and fisheries management. In addition, Curaçao should improve protection to existing sea turtle nesting beaches, designate a marine mammal sanctuary, and designate a shark sanctuary.

6.1	<p>Improve protection for sea turtle nesting beaches.</p> <ul style="list-style-type: none"> • <u>Background</u>: To date, six of the existing seven species of sea turtles have been designated for protection by island decree.²⁵ The Reef Management Ordinance was amended in 1996 and now also prohibits disturbing the nests of designated marine species or destroying, possessing, selling, transporting, delivering, or exporting their eggs.²⁶ While disturbance is prohibited, the beaches themselves do not have specific protection. Therefore, Curaçao should designate specific beaches as protected areas during turtle nesting season and create restrictions for beach users and coastal property owners. • <u>Government action to date</u>: Sea turtles currently protected under Reef Management Ordinance (RMO) and Island Decree for Protection of Sea Turtles; disturbing nests is prohibited. GMN has Ministerial authority, and Curaçao a party to Sea Turtle Convention. • <u>Action needed</u>: Sea turtles and their nests already receive legal protection in Curaçao, but there is a need for additional rules governing beaches and beach access for key beaches during nesting season. This may be achieved through voluntary compliance by beach users and property owners (with appropriate Government enforcement of RMO and the Sea Turtle Decree), or through a formal ordinance passed to implement the SPAW Protocol and Sea Turtle Convention. The latter could occur with passage of an act of Parliament pursuant to Ordinance on Nature Conservation and Protection 1998. • <u>Considerations</u>: turtles nest all over the island, Klein Curacao (in particular windward side) and Shete Boka identified as most important nesting sites.
6.2	<p>Designate a marine mammal sanctuary.</p> <ul style="list-style-type: none"> • <u>Background</u>: Designating a marine sanctuary would fulfill existing commitments made by the Government of Curaçao and support the Caribbean-wide effort to create marine mammal sanctuaries. • <u>Government action to date</u>: The EEZ management plan for the Dutch Caribbean calls for the creation of a marine mammal sanctuary for the entire Dutch Caribbean including Curaçao.²⁷ In addition, Curaçao has been asked to join the Nature Policy Plan of the Caribbean Netherlands (created by the Kingdom) to assist in the implementation of international and regional instruments on nature and biodiversity, including the creation of a marine mammal sanctuary.²⁸ The plan contains support for strengthening marine parks—in particular, for the creation of a marine mammal sanctuary for the broader Dutch Caribbean. The existing Fisheries Decree Curaçao prohibits fishing for marine mammals without an exemption from GMN for scientific or educational grounds. • <u>Action needed</u>: A marine sanctuary could be designated by passage of ordinance by Parliament pursuant to Ordinance on Nature Conservation and Protection 1998; via GMN Ministerial decree pursuant to the Maritime Ordinance 2007; or by decree of Council of Ministers, absent new legal authority, drawing on existing Curaçao laws and international commitments
6.3	<p>Designate a shark sanctuary.</p> <ul style="list-style-type: none"> • <u>Background</u>: Despite their important roles in marine ecosystems, sharks have declined

²⁵ *Eilandsbesluit bescherming zeeschildpadden* (Island Decree for Protection of Sea Turtles), art. 1.1, June 20, 1996 (I.G.G. 1996 8).

²⁶ Island Ordinance for amending the Reef Management Ordinance Curaçao, Art. 1, June 28, 1996, (I.G.G. 1996 13).

²⁷ H.W.G. Meesters, D.M.E. Slijkerman, M. de Graaf, and A.O. Debrot, [Management plan for the natural resources of the EEZ of the Dutch Caribbean](#), Report no. C100/10, IMARES, 10-10-2010, at 48-49.

²⁸ Netherlands Ministry of Economic Affairs, [Nature Policy Plan: The Caribbean Netherlands 2013-2017](#) 4-6 (2013).

	<p>precipitously worldwide, including in the Caribbean. In recognition of this loss, the United Nations Food and Agriculture Organization developed an International Plan of Action for the Conservation and Management of Sharks, which calls upon all nations to adopt national plans to conserve and manage sharks.²⁹ Curaçao currently lacks such a plan.</p> <ul style="list-style-type: none"> • <u>Government action to date</u>: Along with international calls for protection, Curaçao recently committed to passing legislation for a shark sanctuary in 2016.³⁰ • <u>Action needed</u>: Designation via passage of ordinance by Parliament.
--	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

ADDITIONAL BACKGROUND



Forty-one species in Curaçao's waters that are on the IUCN Red List.³¹ These include four critically endangered species. Notably, nine fish and shark species are listed as threatened and another 21 species of sharks, fish, turtles, and corals are listed as vulnerable.

During community consultations, stakeholders from nature organizations called on the Government to better protect endangered species. The Ocean Stakeholder survey also indicates that the protection of endangered species matters to people. Almost all indicated that they support the protection of turtle nesting beaches (95%), mangroves and

lagoons (94%), endangered corals (92%), and endangered fish (87%).

The Ordinance on Nature Conservation and Protection 1998 implements international conventions, treaties, and protocols to which the Netherlands Antilles was—and Curaçao is—a party.³² Several of these conventions are relevant to the protection of endangered and threatened species, including: the SPAW Protocol to the Cartagena Convention, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the Convention on Biological Diversity (CBD), the Ramsar Convention, the Bonn Convention, and the Sea Turtle Convention. While these treaties are detailed in the Netherlands Antilles Ordinance, most requirements of the Ordinance are delegated to each island (of the former Netherlands Antilles) and described only with general reference to the relevant conventions. To further implement, the government of each island was to establish rules within two years to implement these protections.³³ To date, no such decrees have been issued. However, the proposed draft Nature Conservation Ordinance 2009 would have provided additional authority for implementation of this responsibility and could be a starting point for taking the next steps to achieve these commitments.³⁴

²⁹ FAO, International Plan of Action for the Conservation and Management of Sharks, available at <http://www.fao.org/ipoa-sharks/en/>.

³⁰ Pew Charitable Trusts, Pew Applauds New Caribbean Shark Sanctuaries: St. Maarten, the Cayman Islands, Curaçao, and Grenada boost regional protections for sharks (June 16, 2016).

³¹ Sustainable Fisheries Group, A Review of the Ecology and Economics of Curaçao's Marine Resources (2016), developed in support of Blue Halo Curaçao.

³² Ordinance on Nature Conservation and Protection 1998 [*Landsverordening grondslagen natuurbeheer en – bescherming*], P.B. 1998, no. 49.

³³ *Id.* art. 15.

³⁴ Nature Conservation Ordinance Curaçao, draft no. 3 [*Eilandsverordening Natuurbeheer Curaçao*], at IV-V (2009) (on file with ELI) (including provisions on the protection of terrestrial and marine plants and animals).

RECOMMENDATION 7: ENSURE PUBLIC ACCESS TO THE COAST

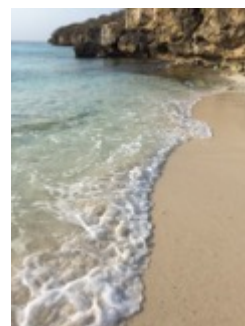
Beaches are a crucial part of Curaçao's marine tourism and development economy. As such, there is pressure for increasingly restricted access to beaches as coastal property owners expand development. Restrictions range from barring access to requiring beach-goers to pay fees for crossing private property. At the same time, the beaches and waters of Curaçao are public resources for the enjoyment and use of all Curaçaoans. Public access to such resources is essential to maintain and build ocean stewardship, awareness and education.

7.1	<p>Ensure that new development does not interfere with public access to the coast.</p> <ul style="list-style-type: none"> • <u>Background</u>: Curaçao should ensure that the public has ongoing access to the beach and ocean by requiring all new coastal developments have public access points to the beach that are free of charge. Access routes could be required as part of the permitting process. Such requirements could be tailored to the existing state of development and public access. For instance, small properties with nearby public access points could be exempt from a public access requirement. • <u>Government action to date</u>: Below high tide line, beaches are public unless otherwise designated. VVRP has existing land use planning and management authority under the National Ordinance on Planning and Zoning 1976 (LGRO), the Island Ordinance on Planning and Zoning (EROC), and the Island Development Plan 1995 (EOP). • <u>Action needed</u>: Pass a new national ordinance by Parliament requiring that new development ensure public right-of-way to coast and no fees for access. • <u>Considerations</u>: This pathway will likely limit existing property rights, even if only minimally, and could generate claims for regulatory takings by private property owners.
7.2	<p>Require existing developments to provide public access to the coast.</p> <ul style="list-style-type: none"> • <u>Background</u>: In addition to requiring new developments to ensure access, Curaçao should require existing developed properties to allow public access to the coast free of charge. Such an approach may be challenging to achieve given the existing state of development. In addition, in designing this policy as well as the previous, it should be noted that some beaches in Curaçao are privately constructed for recreation purposes. In these instances, there may be pressure to require access fees to cover the expense of developing and maintaining such beaches. • <u>Government action to date</u>: Below high tide line, beaches are public unless otherwise designated. VVRP has existing land use planning and management authority under the National Ordinance on Planning and Zoning 1976 (LGRO), the Island Ordinance on Planning and Zoning (EROC), and the Island Development Plan 1995 (EOP). • <u>Action needed</u>: Passage of new national ordinance by Parliament requiring that existing development ensure public access to coast • <u>Considerations</u>: This pathway will likely limit existing property rights, even if only minimally, and could generate claims for regulatory takings by private property owners.

ADDITIONAL BACKGROUND

Beaches and the marine environment in Curaçao are public unless otherwise designated by law. Despite the public nature of the coast, many parts of the Curaçao coastline are inaccessible to the public due to coastal development. In some places, coastal property owners charge beachgoers money for access to the beaches. As development continues, this alarming trend could mean that residents have little access to their marine environment.

The beach is important to people in Curaçao: Two-thirds (66%) of Ocean Stakeholders go to the beach once a month or more, and even more (81%) described themselves as a



“beach-goer.” Many (83%) stated they would like to see more public access to beaches. Participants of the Youth Stakeholder meeting highlighted the importance of public access to beaches saying that the beaches should not become the property of foreigners. Stakeholders from the dive industry also requested more access to beaches, explaining that access points for shore dives decrease due to restricted access and coastal construction.

In addition for Curaçao’s need to support the rights of its citizens, in order to ensure long-term support for ocean health, Curaçao needs to have a population and constituency who understand and engage with resources. Representatives from nature conservation NGOs raised this point during the stakeholder meetings, and Curaçao’s Youth highlighted the need for stronger connections to their sea.

RECOMMENDATION 8: SUPPORT RESEARCH, MONITORING AND PUBLIC PARTICIPATION

Curaçao should improve ocean research, monitoring and education to achieve improved ocean stewardship and understanding.

8.1	<p>Create a long-term ecological and fisheries monitoring program.</p> <ul style="list-style-type: none"> • <u>Background</u>: Curaçao should create a program for long-term ecological, fisheries, and socioeconomic monitoring in both the coastal as well as the offshore environments. Program requirements could be incorporated into a new fisheries management law (see recommendation 3). A simple and effective monitoring plan is vital to successfully inform any adaptive management plan. The ecological monitoring plan provides fisheries independent evaluations of the resources and their change over time. Fisheries monitoring should enable evaluation of the trends in fishers, fish catch, gear type, and fleet over time. Finally, understanding the human dimension is as important as understanding the resource including economic and social factors. These data sets are complementary to one another and provide the necessary information to inform management plans and to determine whether management objectives are being met. • <u>Government action to date</u>: Dr. Martin de Graaf will start a frame survey in September 2016 as sound basis for monitoring program. • <u>Action needed</u>: Inventory of existing monitoring programs in Curaçao and Dutch Caribbean as starting point. Next design of program through Blue Halo Curaçao and incorporate monitoring programs into new legislation (marine spatial planning, protected areas and/or fisheries management ordinance (discussed in previous recommendations))
8.2	<p>Design and implement appropriate training program for ocean managers, enforcement staff, and ocean users regarding existing and new ocean laws and policies.</p> <ul style="list-style-type: none"> • <u>Background</u>: As Curaçao moves from development to implementation of its Sustainable Ocean Policy, it is important to design and implement appropriate training programs for ocean managers, enforcement staff and ocean users regarding existing and new ocean laws and policies. Such training should support both an understanding of the ocean ecosystem and value of managing it sustainably as well as key details of the legal framework to facilitate compliance. • <u>Government action to date</u>: • <u>Action needed</u>: Training programs should be designed for and tailored to key subsets of government officials: members of Parliament; subject-matter Ministries and their relevant department staffs (including legal staff), as well as the Ministry of Justice; enforcement officers in the Police and with the Coast Guard; and judges. In addition it should include training for stakeholder/industry groups including sport fisheries, professional fisheries, boating and diving, recreational and tourism, cruise lines, and the development sector (e.g., builders) • <u>Considerations</u>: Success of a new ocean policy framework will depend on knowledgeable Government officials, policymakers, enforcement staff, and public stakeholders. This aim directly supports compliance and enforcement. The main consideration here may be identifying sources of funding to design and implement such activities.
8.3	<p>Improve ocean governance through public participation.</p> <ul style="list-style-type: none"> • <u>Background</u>: Curaçao should ensure effective ocean governance through a strong system of public participation. In addition to engaging the public in the Blue Halo Curaçao process, the Government should evaluate existing and proposed laws and their implementation to determine how to promote robust public engagement. Public participation can take many forms, including information sharing from government to the public, information exchange through public meetings and hearings as well as notice-and-comment rulemaking, establishment of stakeholder advisory bodies, and including stakeholders in decision-making through the establishment of co-management systems. • <u>Government action to date</u>: • <u>Action needed</u>: Commitment is needed by Government institutions to engage public in decision-

	<p>making to greatest extent allowable under the law. Curaçao should ensure that new ordinances or decrees implemented through other policy pathways include strong public participation mechanisms: e.g., public meetings, broad information sharing, notice-and-comment rulemaking, use of stakeholder advisory bodies, com-management structures.</p> <ul style="list-style-type: none"> • <u>Considerations:</u> Informed, engaged public participation is a fundamental principle of good governance and all environmental protection, including marine protection. It will be important for the Government to use the emergence of a new sustainable ocean policy as a vehicle to further engage the populace—one that has already in some ways become distant from the sea. This, in turn, should add legitimacy to the process and ultimately strengthen compliance and enforcement.
--	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

ADDITIONAL BACKGROUND

Fisheries management is limited by lack of reliable catch data.³⁵ In addition, despite the considerable marine research conducted in Curaçao, substantial information about key characteristics of the coastal environment is lacking. Even more profound is the lack of research in Curaçao's offshore environment, which makes up most of Curaçao's ocean territory. However, Curaçao has substantial capacity in comparison to many Caribbean nations, with world class marine scientists located at and visiting the CARMABI research station and Substation Curaçao. One area of tourism focus for the Government of Curaçao has been the development of science tourism—i.e., encouraging researchers from around the world to visit and work in Curaçao. Developing a robust system to support ocean science should contribute to this effort.

In addition to developing the knowledge needed to understand the marine environment, Curaçao must take the important step of getting that information into the hands of the government officials who will use it to manage the resources, as well as those involved in enforcement and prosecution. To the latter point, many enforcement agents, prosecutors, and judges lack training in marine resource management, and therefore may not vigorously pursue violations of marine resource laws.

Finally, ocean stewardship and management requires effective and robust public participation. Such public participation is necessary to support a transparent and accountable governance system, as well as to achieve compliance with ocean management. Ocean decisions that are developed with stakeholder engagement can lead to improved design. Therefore, Curaçao also must make the effort to provide the public with information to develop a better understanding and appreciation of the marine environment. Stakeholder from Curaçao's Youth noted 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 such as dive courses or fishing tournaments.

³⁵ Alasdair Lindop, Elise Bultel, Kyrstn Zylich and Dirk Zeller, Reconstructing the former Netherlands Antilles marine catches from 1950 to 2010 (Working Paper #2015 – 69), available at <http://www.seaaroundus.org/doc/publications/wp/2015/Lindop-et-al-Netherlands-Antilles.pdf>.

RECOMMENDATION 9: DESIGN AND IMPLEMENT A SYSTEM OF SUSTAINABLE FINANCE

Already the Blue Ribbon Committee has taken steps to evaluate options for sustainable finance for Blue Halo Curaçao and have discussed the role of departmental funding to support such management actions. These positive actions by the Government of Curaçao demonstrate the commitment of the relevant Ministries to creating a long-lasting system of sustainable finance and implementation.

9.1	<p>Pass law establishing a special fund for Sustainable Ocean Policy implementation.</p> <ul style="list-style-type: none"> • <u>Background:</u> Curaçao could establish a special fund in one of two ways. It could establish a special fund for a specific Ministry, or it could establish a special fund for a specific government task as follows: (1) Given the anticipated long-term nature and permanence of a sustainable ocean management system, a special fund may be best managed by a specific Ministry. The challenge, however, will be to determine which Ministry is best suited to oversee the management of the fund, including allocation decisions that will involve multiple departments. It may be politically infeasible to collect funds from all Ministries to be distributed by a single Ministry. This challenge could be overcome by designing an Ordinance that designates a lead Minister as the decision-maker with appropriate input and oversight from other relevant Ministers. (2) A special fund to implement Blue Halo Curaçao as a specific task could allow for broader oversight by multiple Ministries. The question is whether such a task-specific fund could be permanent in nature. In addition, a potential drawback to this approach is the potential to have a diffuse and ineffective system of oversight if the ordinance is not carefully crafted. • <u>Government action to date:</u> Post-2010 financial supervision for Curaçao is ongoing, so any pathway pursued under this overall recommendation should be coordinated with that process and with the Cft. A series of legal authorities are currently implicated in public finance decisions: Administrative Organization Ordinance 2010, GAO, Financial Supervision Act Curaçao and Sint Maarten 2010, Subsidies Ordinance 2007, Ordinance on Financial Management 2015. • <u>Action needed:</u> Pass a national ordinance by Parliament to establish a special fund for BHC implementation and enforcement needs; or create a special fund for coastal management by the MvF pursuant to the Government Accounting Ordinance 2010 (GAO) • <u>Considerations:</u> A dedicated, ongoing funding mechanism to support ocean management priorities is crucial. A new national ordinance is the clearest pathway to this end, and it would signal a national commitment and provide a point of public engagement. At the same time, it could be the most difficult pathway. Alternatively, or as a first step, the MvF could establish a special fund under existing law.
9.2	<p>Commit departmental funds on an ongoing basis to a Sustainable Ocean Policy special fund.</p> <ul style="list-style-type: none"> • <u>Background:</u> Given the value of the marine environment to Curaçao's environmental, economic and cultural well-being, each Ministry should commit a portion of its annual budget to sustainable ocean governance. • <u>Government action to date:</u> • <u>Action needed:</u> GMN/MvF assessment of public funding needs (type, amount) for Blue Halo Curaçao special fund; and public commitment of funds from key Ministries with responsibilities in this area.
9.3	<p>Create system of user fees and fines to fund management.</p> <ul style="list-style-type: none"> • <u>Background:</u> Curaçao should design a system of user fees and fines to fund a Blue Halo Curaçao special fund. First, reasonable user fees for activities such as should support ocean management and enforcement in Curaçao. User fees could include those collected from dive/snorkel tourism through tags, cruise ship passenger fees, other eco-taxes, fisheries licensing, mooring fees, and more. In addition, and discussed previously, funding through natural resource damages and mitigation measures should fund restoration of injured resources. Second, existing law establishes the potential to impose steep fines for violations of the law that injure the marine environment. Such fines may be applied in violations related to fisheries, protected fishing

	<p>areas, coral reef, protected species such as sea turtles, and more. Laws should be modified to require fines to be delivered to a special fund for Blue Halo Curaçao and used for ocean management and enforcement.</p> <ul style="list-style-type: none"> • <u>Government action to date:</u> Ministries with relevant permitting and licensing schemes include GMN, MEO, and VVRP. Government efforts here should be coordinated with MvF and the current financial supervision process. • <u>Action needed:</u> Passage of national ordinance by Parliament to establish a system of ocean user fees and fines; and/or re-examination by Ministries/ departments with ocean-related permitting or licensing authority of their legal avenues for imposing fees/fines under existing law. • <u>Considerations:</u> There is a compelling case to be made that ocean users—including divers, cruise ship passengers, boaters, and eco-tourists—should contribute to the financial health of the marine environment. Similarly, fines paid by those who misuse marine resources should support the ocean. The key considerations here may be political—with respect to both imposing costs on industry customers (fees) and potentially shifting government revenue streams from violators (fines). However, in designing such an approach, Government should evaluate the willingness of ocean users to pay for services, recognizing existing fees.
9.4	<p>Create a donor system that can feed into special fund.</p> <ul style="list-style-type: none"> • <u>Background:</u> In addition to utilizing fees and fines, Curaçao should enable the special fund to accept charitable contributions from the public. In addition to including the legal authority to accept such funding, Blue Halo Curaçao should develop appropriate “friends of” funds (which are charitable nonprofit organizations set up to raise funds for conservation work) in nations where there is high potential to develop a donor base. • <u>Government action to date:</u> • <u>Action needed:</u> Government efforts should be coordinated with MvF and the current financial supervision process. • <u>Considerations:</u> Due consideration should be given to the ability of such a donor system to generate funds. It is likely that marketing and fundraising efforts will be required to encourage donor support. Without an effective mechanism for fundraising, such a donor system could result in little to no outside donor investment.

ADDITIONAL BACKGROUND

Creating a system of sustainable financing for ocean management planning, development, implementation, monitoring and adaptation is crucial for ocean management success.³⁶ It also is one of the most challenging aspects of ocean management. Key approaches to overcoming the challenge include payments for ecosystem services, domestic budget allocation, and development assistance, among others.³⁷ In addition to creating an appropriate funding stream, it is important to ensure a dedicated and protected funding source. This type of funding stream can be achieved through the design of a special fund that has the sole purpose of funding a particular set of activities.

Current laws provide some guidance for the development of special funds. Under Article 9 of the Government Accounting Ordinance, separate budgets and accounts may be established by national ordinance for a specific part of a ministry or a special government task. Such special accounts must comply with the control and disclosure requirements set out in the Ordinance,³⁸ including the obligation of the Minister of Finance to regularly report to

³⁶ Marine Ecosystem and Management, *Money Matters: Financing Multi-Sector Ocean Planning and Management* (July 11, 2016), available at <https://meam.openchannels.org>.

³⁷ Barry Spergel & Melissa Moye, *Financing Marine Conservation: A Menu of Options* (2004).

³⁸ *Id.*

the Parliament as to how the allocated budget has been and will be used for its activities.³⁹ Given this authority, the Waitt Institute recommends that the Government of Curaçao pass a national ordinance establishing a special fund for Sustainable Ocean Policy implementation.

³⁹ *Id.* art. 42; Expl. Memo. at I.7 (“Third parties in the public sector are often privatized entities. That independence is partly reflected in the ability of different management. . . . A part of a ministry, although it remains among the central organization to be independent or devolved some extent, and that it may pursue its own management and its own budget and accounts. Also for a specific, dedicated to a government ministry task can this separation of management, budget and accounts appear desirable.”).

RECOMMENDATION 10: STRENGTHEN OCEAN EDUCATION

Compliance with sustainable ocean policies and the sustainable use of ocean resources require awareness and knowledge about marine ecosystems, as well as a commitment to ocean stewardship to protect ocean resources. Education is a critical instrument for sustainable development and requires a long-term strategy. In addition advancing a blue economy requires a workforce that has the appropriate skill set to excel in ocean-related careers. Therefore, Curaçao should invest in its long-term future by supporting ocean education from primary school through university training.

10.1	<p>Integrate marine education in the mainstream curriculum</p> <ul style="list-style-type: none"> • <u>Background</u>: Education is a key instrument for sustainable ocean use as a long-term strategy and investment. Curaçao should strengthen its education policy to incorporate ocean science, technology, management and other topics in the mainstream curriculum for primary schools, secondary schools, vocational colleges, and universities. For primary and secondary schools, content could be designed for both Biology and Geography classes. For vocational colleges and universities, content could focus strengthening knowledge and skills needed for ocean-related careers. • <u>Government action to date</u>: The Prime Minister has requested that a process be initiated in which marine education can be incorporated in the mainstream curriculum in schools.⁴⁰ The Ministry of Education Science, Culture & Sport is already working towards a Higher Education Policy and legislation, and a Strategic Note on Science Policy. • <u>Action needed</u>: Evaluate existing education policies and legislation to determine the most suitable vehicle to integrate marine education in the mainstream curriculum. Further assess the gaps in ocean-related skills and knowledge to focus vocational and tertiary education efforts effectively. • <u>Considerations</u>: Several politicians and stakeholders already emphasized the need to strengthen ocean-related education through Blue Halo Curaçao, including Curaçao's Youth, as well as presentations from conservation NGOs and the community of fishers.
10.2	<p>Build on existing partnerships with international organizations related to sustainable development</p> <ul style="list-style-type: none"> • <u>Background</u>: Curaçao is party to a number of multilateral organizations that work towards sustainable development. Curaçao could therefore leverage existing initiatives such as UNESCO 's project aimed at support Curacao's Science, Technology and Innovation Policy. • <u>Government action to date</u>: The Ministry of Education, Science, Culture & Sport is already engaged in a number of on-going collaborations the international level that could facilitate the development of ocean education policies and curricula. • <u>Action needed</u>: Evaluate the potential to build upon existing partnerships to strengthen ocean education in Curaçao. In addition, include the Executive Department of Education and Science in outreach related to the Blue Halo Initiative. • <u>Considerations</u>: Existing partnerships may provide a source of funding and expand capacity to support ocean education.

ADDITIONAL BACKGROUND

Awareness and knowledge of marine ecosystems are important pillars to develop ocean stewardship and strengthen the compliance with sustainable ocean policies. Throughout the assessment process and in conversations with Government officials, many people recognized and expressed the need to expand ocean education. These recommendations extend beyond merely engaging with students in a classroom as part of the Blue Halo Initiative. Instead they focus on a more holistic and long-lasting approach—namely, updating education

⁴⁰ Council of Ministers Meeting on August 3, 2016

policies and procedures to include ocean education as part of the regular curriculum throughout primary, secondary and college education, as well as designing specific ocean education modules for different age groups. Already there are a plethora of resources available online that can serve as a starting point for the design of education modules. With minor effort, such existing materials could be tailored to focus on the specifics of Curaçao's marine ecosystem and economy.

As part of the development of policies that advance ocean education, the Government should pay particular attention to the creation of an ocean education system that leads to an expanding ocean economy with a vibrant Curaçao workforce. Such an approach could range from educational opportunities at the vocational level and as a mechanism to support alternative career opportunities to university and post-baccalaureate education.