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Novena Reunión de las Partes Contratantes (COP)
del Protocolo Relativo a las Áreas y a la Flora y
Fauna Silvestres Especialmente Protegidas (SPAW)
en la Región del Gran Caribe

Cayenne, Guyana Francesa, 13 de marzo de 2017

**FORMATO DEL INFORME PARA EXENCIONES BAJO EL ARTÍCULO 11 (2) DEL
PROTOCOLO RELATIVO A LAS ÁREAS Y FLORA Y FAUNA SILVESTRES
ESPECIALMENTE PROTEGIDAS (SPAW)**

(Incluye una propuesta para exenciones del Gobierno de Curazao, como un estudio de caso sobre el formato)

Por razones de economía y el medio ambiente, se solicita amablemente a los delegados que lleven sus propias copias de los documentos de trabajo y de información y que no soliciten copias adicionales.

ANEXO A - Revisado

FORMATO DEL INFORME PARA EXENCIONES BAJO EL ARTÍCULO 11 (2)

SECCIÓN RESERVADA A LA ADMINISTRACIÓN:

Aplicación n° :
Fecha de recepción:
Nombre del examinador :
Fecha de revisión por el STAC:
~~Recomendación del STAC:~~ [Evaluación de Conveniencia por el STAC]
Fecha de revisión por la COP:
~~Decisión de la COP:~~ [Decisión de la COP para notar la Evaluación de Conveniencia por el STAC]

I. PARTE CONTRATANTE *

Parte Contratante:.....
Persona de contacto:.....
Cargo:
Departamento:
Dirección del contacto:
Correo electrónico:Número de teléfono:.....

**En el caso de una actividad común emprendida en cooperación por un número de Partes, un informe de exención conjunto puede ser sometido, pero la evaluación de la pertinencia de una exención se hará Parte-por-Parte.*

II. DESCRIPCIÓN Y JUSTIFICACIÓN DE LA ACTIVIDAD PROHIBIDA *

**Si el espacio proporcionado es insuficiente, por favor añada hojas adicionales a lo largo de este informe para proporcionar los detalles necesarios para la revisión por el STAC*

A. Descripción de la actividad

★ ¿Ya ha sido concedida la exención por la Parte Contratante? Sí No

★ ¿Ha comenzado la actividad? Sí No

★ Descripción general de la actividad :

★ Lugar y dirección de la actividad (adjunte mapa si es necesario):

★ Fecha de inicio:

★ Fecha de culminación /o en curso:

★ Nombre, afiliación y calificaciones del personal (gubernamental y no gubernamental) responsable e involucrado en la actividad :

Nombre	Experiencia	Afiliación (nombre, dirección)

★ *Identificación del departamento gubernamental responsable de la supervisión de la actividad – Mencione la autoridad jurídica nacional bajo la cual la exención ha sido otorgada.*

★ *Solicitud de exención para la protección de las especies de flora registradas en el Anexo I del Protocolo SPAW para :*

- la cosecha
- la recolección
- el corte
- el desenraizamiento
- la posesión, así como el comercio de estas especies, de sus semillas, partes o productos

★ *Solicitud de exención para la protección de las especies de fauna registradas en el Anexo II del Protocolo SPAW para:*

- la captura de especies, de sus partes y productos
- la retención de especies, de sus partes y productos
- la muerte (inclusive, en lo posible, la captura*, retención o muerte accidentales)
- el comercio de especies, o de sus partes y productos;

**La captura accidental incluye la matanza o la destrucción como un subproducto involuntario de cualquier clase de acción, incluyendo la industria pesquera, las actividades de construcción, actividades recreacionales, de minería, los trabajos hidrológicos, etc.*

★ *La perturbación de la fauna silvestre, en especial durante los períodos de :*

- reproducción
- incubación
- hibernación
- migración
- cualquier otro período de tensión biológica (por favor especifique)

B. Justificación de la exención:

(marque la casilla apropiada; provea detalles en hojas separadas si es necesario)

- Fines científicos
- Fines educacionales
- Fines de gestión

★ *Explique la razón por la cual la actividad prohibida garantizará la supervivencia de la especie o la prevención de un daño significativo a los bosques, cultivos o ecosistemas y por qué no pondrá en peligro a las especies afectadas.*

★ *Liste el equipo y la metodología empleada (incluya información sustantiva adjunta o enlaces). Tome en consideración que toda metodología debe ajustarse a las buenas prácticas internacionales, y deben ser especificadas :*

III. DESCRIPCIÓN DE LAS ESPECIES AFECTADAS POR LA EXENCIÓN

(Favor de proveer respuestas separadas a las preguntas en esta sección para cada especie listada, utilice paginas adicionales si es necesario)

★ Especies listadas bajo SPAW afectadas por la exención:

Especies (nombre común, nombre en latín)	Cantidad recolectada (de ser apropiado)	Descripción de las especies, especímenes, individuos ¹

★ *Por favor, dé una descripción detallada del estado actual de conservación de las especies expuestas a la actividad prohibida (esa información puede comprender los estatutos internacionales y nacionales, programas de gestión, las leyes nacionales relativas a la conservación de las especies, la naturaleza de protección legal para las especies afectadas, planes de recuperación para la especie, publicaciones técnicas relevantes a la especie):*

IV. DESCRIPCIÓN DE LOS IMPACTOS Y DE LAS MEDIDAS DE MITIGACIÓN

★ *Marque la casilla que se aplica a su situación con lo referente a las principales amenazas a las poblaciones de especies afectadas por la actividad prohibida :*

- impactos en el tamaño
- distribución (incluso nombre de subpoblaciones) y fragmentación de la población
- impactos acumulativos
- impactos a la cantidad y calidad de los hábitats adecuados y disponibles para la especie
- otras amenazas para la especie a corto y largo plazo
- impactos en otras especies como consecuencia de la actividad prohibida

¹ *Cualquier característica específica tal como el sexo, la edad...*

★ *Explique por qué la actividad prohibida no pondrá en peligro a las especies o, si corresponde, otras especies incluidas en la lista:*

★ *En el caso de especies o poblaciones de una especie que migran entre dos (o más) países, la sobrevivencia de las poblaciones debe ser evaluada por separado para cada país donde la especie reside o a través de donde migra y conjuntamente para todos los países donde la especie reside o a través de donde migra.*

★ *¿Se requiere para la actividad una exención separada por otra Parte? ¿Si procede cuál?*

★ *¿Ha sido realizado una Evaluación del Impacto Ambiental (EIA) o un procedimiento equivalente? Si la respuesta es positiva, por favor adjunte la EIA u otros estudios de impacto :*

★ *Describa las medidas de mitigación designadas para limitar o contrarrestar cualquier efecto nocivo (provea una lista y la documentación de apoyo tales como directrices, políticas, reportes, videos/ fotografías etc. adjunto o los enlaces) :*

★ *Explique en detalle los protocolos de evaluación que se utilizarán para evaluar el efecto de la actividad en las poblaciones de especies, incluyendo cambios en el ámbito, evolución numérica o éxito reproductivo (incluya archivos adjuntos o enlaces):*

★ *Observaciones adicionales:*

Firma
(Responsable autorizado por la Parte Contratante)

Fecha

**Apéndice - una propuesta para exenciones del Gobierno de
Curazao, como un estudio de caso sobre el formato**



ANEXO A
FORMATO DEL INFORME PARA EXENCIONES BAJO EL ARTÍCULO 11 (2) DEL
PROTOCOLO RELATIVO A LAS ÁREAS Y FLORA Y FAUNA SILVESTRES
ESPECIALMENTE PROTEGIDAS (SPAW)

I. PARTE CONTRATANTE *

Parte Contractante:	Curacao
Persona de contacto:	Faisal Dilrosun
Cargo:	Director de proyecto
Departamento:	Ministerio de Salud, Medio Ambiente y Naturaleza
Dirección del contacto:	Bellisimaweg 17, Willemstad Curacao
Correo electrónico:	faisal.dilrosun@gobiernu.cw
Número de teléfono:	+ (599 9) 738-1466 [F: +(599 9) 738-1467]

★ ¿Ya ha sido concedida la exención por la Parte Contratante? Sí No

II. DESCRIPCIÓN Y JUSTIFICACIÓN DE LA ACTIVIDAD PROHIBIDA *

A. Descripción de la actividad:

★ Descripción general de la actividad:

La razón de la presente solicitud es la siguiente:

Uno de los principales pilares económicos de Curaçao es el turismo en general y especialmente el turismo de cruceros. Con el aumento del tamaño de los barcos de cruceros, para Curaçao se ha convertido en una cuestión importante tener espacio también para dichos barcos de gran tamaño. De no ser así, Curacao caería por detrás de otros destinos causando la pérdida de llegadas de cruceros. El puerto St. Annabaai, que se utiliza actualmente para atracar a la mayoría de los cruceros, no es lo suficientemente grande para que entren estos grandes barcos. Otro pilar importante de nuestra economía es el puerto en relación al transporte y a los envíos. Es por tal motivo que la Autoridad Portuaria de Curaçao (CPA) ha solicitado al Gobierno de Curaçao un permiso para construir un segundo mega muelle adecuado para recibir a los barcos más grandes (de crucero). Como parte de la reciente estrategia adoptada de desarrollo económico el Gobierno de Curaçao se posiciona a favor de conceder a CPA el permiso solicitado. Sin embargo, los existentes Fundamentos de Ordenanzas Nacionales para la Gestión y Protección de la Naturaleza implementando entre otras cosas el Protocolo SPAW otorgan plena protección a cuatro especies de corales en peligro de extinción. Además, la Ordenanza Nacional sobre Arrecifes también protege a todas las especies de corales. Dichos corales son abundantes en el lugar donde se ha proyectado el nuevo mega muelle. Debido a que la región de Curacao se esfuerza por llevar

a cabo un desarrollo sostenible, la ejecución de grandes proyectos se monitoriza y regula con mucha atención por parte de las pertinentes agencias de gobierno. Como tal, se les ha requerido a los promotores del Proyecto que lleven a cabo un estudio de evaluación sobre la naturaleza, tras el cual se evalúan las solicitudes presentadas para los permisos. En el Anexo I encontrará un estudio reciente bético (2015) y un estudio de corales (2016) de la zona.

Equilibrando el desarrollo económico en relación a la protección de la naturaleza medioambiental marina resulta imperativo encontrar una solución creativa que sirva a ambos intereses. Por tanto, el Gobierno de Curaçao quiere proponer la siguiente solución: Usando la posibilidad legal de dar exenciones a CPA en relación a la prohibición de destruir corales por el interés general y sujeto a condiciones estrictas, se le permitirá a CPA construir el segundo mega muelle cerca del puerto de Willemstad. Debido a que la construcción del segundo mega muelle destruirá algunas especies de arrecifes de corales protegidas, resulta necesario que se conceda una exención. Esto sólo es posible si el Comité Asesor Técnico y Científico (STAC) acorde al artículo 11 párrafo 2 del Protocolo SPAW evalúa la pertinencia de la exención solicitada. Además, el Gobierno de Curaçao propone compensar los impactos anteriormente mencionados reintegrando el Curaçao Underwater Park (CUP), proporcionando protección a un gran número de especies protegidas que son muy abundantes en la zona donde se propone ubicar el CUP.

★ Lugar y dirección de la actividad (adjunte mapa si es necesario):

Otra banda Curaçao rumbo oeste del existente (primer) Mega Muelle - (12° 6'17.64"N, 68° 56'35.44"W)

★ Fecha de inicio/ Fecha de culminación /o en curso: **Septiembre de 2016 – Diciembre de 2017**

★ Nombre, afiliación y calificaciones del personal (gubernamental y no gubernamental) responsable e involucrado en la actividad:

<i>Nombre</i>	<i>Experiencia</i>	<i>Afiliación (nombre, dirección)</i>
Autoridad Portuaria Curacao N.V. / N.V. Bataafsche Aanneming Maatschappij (grupo Royal BAM)	Especializado en obras civiles marinas	

★ *Identificación del departamento gubernamental responsable de la supervisión de la actividad – Mencione la autoridad jurídica nacional bajo la cual la exención ha sido otorgada.*

Ministerio de Salud, Medio Ambiente y Naturaleza, especialmente la Inspección de Naturaleza y Medio Ambiente.

★ Especies listadas bajo SPAW afectadas por la exención:

<i>Especies (nombre común, nombre en latín)</i>	<i>Cantidad recolectada (de ser apropiado)</i>	<i>Descripción de las especies, especímenes, individuos (1)</i>
<i>Acropora cervicornis</i>	0	Véase ANEXO I
<i>Acropora palmata</i>	0	Véase ANEXO I
<i>Orbicella (Montastraea) annularis</i>	2190	Véase ANEXO I
<i>Orbicella (Montastraea) faveolata</i>	1149	Véase ANEXO I

(1) *Cualquier característica específica tal como el sexo, la edad...*

B. Justificación de la exención:

(marque la casilla apropiada; provea detalles en hojas separadas si es necesario)

- Fines científicos
 Fines educacionales
 Fines de gestión

★ *Explique la razón por la cual la actividad prohibida garantizará la supervivencia de la especie o la prevención de un daño significativo a los bosques, cultivos o ecosistemas y porqué no pondrá en peligro a las especies afectadas.*

Para mostrar su compromiso con la gestión medioambiental sostenible, el Gobierno de Curaçao quiere compensar la pérdida de algunas de las especies de arrecifes de corales protegidas en la localización del segundo mega muelle estableciendo legalmente un parque marino llamado Curaçao Underwater Park. Este parque acuático, aprobado a través de los Fundamentos de Ordenanzas Nacionales de Protección y Gestión de la Naturaleza protegerá a la mayoría de las estructuras de arrecifes de corales sin contaminar a lo largo de la Costa Sureste de Curaçao, por medio del cual se establecerá a una autoridad designada del parque acuático para su gestión diaria y la ejecución de las normas y regulaciones y así proteger los arrecifes de coral, los mangles y el lecho marino.

Se ha esbozado el borrador de un Decreto Nacional para el establecimiento del anteriormente mencionado Curaçao Underwater Park y ya sigue el procedimiento legal para su aprobación. Se prevé que el Curaçao Underwater Park se establezca legalmente en un plazo de dos meses a partir de la presente carta y con seguridad antes de la próxima Conferencia de las Partes en la Convención de Cartagena y sus Protocolos. Para su comodidad, se adjunta a la presente carta una traducción del proyecto del decreto, que incluye un mapa de la zona.

Además se designará formalmente una autoridad de gestión para el Curaçao Underwater Park, y la Autoridad Portuaria de Curacao ha confirmado que contribuirán a los costes iniciales de inversión y costes operativos de la autoridad de gestión del parque durante 5 años. Además contribuirán diseñando un buzón físico y digital para recaudar ingresos adicionales para la autoridad de gestión del parque.

★ Solicitud de exención para la protección de las especies de flora registradas en el Anexo I del Protocolo SPAW para:

- la cosecha
- la recolección
- el corte
- el desenraizamiento
- la posesión, así como el comercio de estas especies, de sus semillas, partes o productos

★ Solicitud de exención para la protección de las especies de fauna registradas en el Anexo II del Protocolo SPAW para:

- la captura de especies, de sus partes y productos
- la retención de especies, de sus partes y productos
- la muerte (inclusive, en lo posible, la captura*, retención o muerte accidentales)
- el comercio de especies, o de sus partes y productos

**La captura accidental incluye la matanza o la destrucción como un subproducto involuntario de cualquier clase de acción, incluyendo la industria pesquera, las actividades de construcción, actividades recreacionales, de minería, los trabajos hidrológicos, etc.*

★ La perturbación de la fauna silvestre, en especial durante los períodos de:

- reproducción
- incubación
- hibernación
- migración
- cualquier otro período de tensión biológica (por favor especifique)

★ Liste el equipo y la metodología empleada (incluya información sustantiva adjunta o enlaces). Tome en consideración que toda metodología debe ajustarse a las buenas prácticas internacionales, y deben ser especificadas:

Apilado de postes (tubos de acero), protegido con una cubierta (véase documento adjunto II)

III. DESCRIPCIÓN DE LAS ESPECIES AFECTADAS POR LA EXENCIÓN

(Favor de proveer respuestas separadas a las preguntas en esta sección para cada especie listada, utilice páginas adicionales si es necesario)

A. Estado de la especie:

★ Por favor, dé una descripción detallada del estado actual de conservación de las especies expuestas a la actividad prohibida (esa información puede comprender los estatutos internacionales y nacionales, programas de gestión, las leyes nacionales relativas a la conservación de las especies, la naturaleza de protección legal para las especies afectadas, planes de recuperación para la especie, publicaciones técnicas relevantes a la especie:

Detailed description of the national status of *Acropora cervicornis* and *A. palmata* and legislation by Dr. Mark Vermeij

Acropora species formed dominant constituents of the shallow (<10 m) reef fauna and were found along Curacao's entire coast. In the early '80's *Acropora cervicornis* and *A. palmata* covered 5% and 7% of the shallow reef terrace respectively (Van Duyl 1985) before they experienced a massive Caribbean-wide decline in 1981 caused by white-band disease (Bak and Criens 1981). The decline in *Acropora* over the last four decades is estimated at 98% (Vermeij and Bak 2003) and continues to decline (Bright et al. 2013). The decline of both *Acropora* species has also resulted in a decline of *Acropora*-associated fish (Carmabi, unpubl. data) and coral species (Nagelkerken and Nagelkerken 2004). Locally healthy patches and well developed *Acropora* communities exist (Figure 1), especially of *A. palmata*, usually at exposed sites (i.e. the southeast facing shorelines near Oostpunt, Klein Curacao and Rif Marie) along the island's protected Southeastern shore.

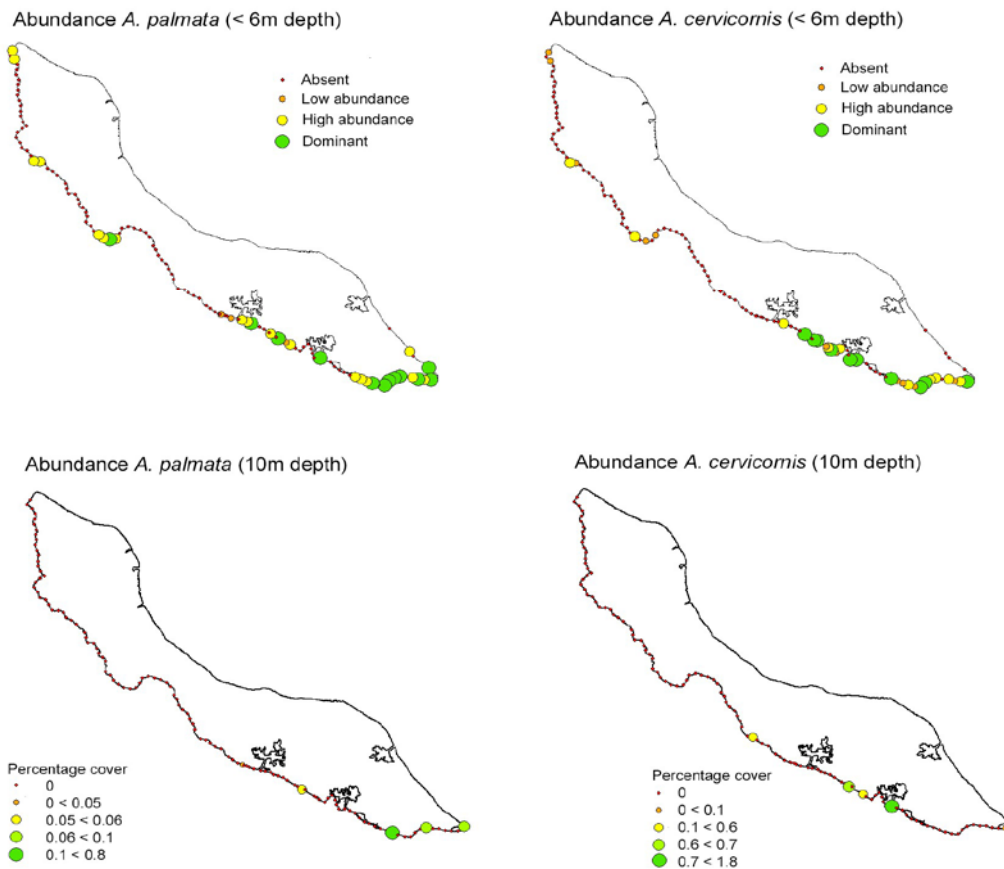


Figure 1 Distribution and abundance of *A. palmata* and *A. cervicornis* along Curacao's leeward coast in 2015

Effective recruitment of both species currently approaches zero (Vermeij et al. 2011) leaving asexual propagation as the main mechanism by which both species could increase in abundance in the near future. Recovering populations of *A. palmata* and *A. cervicornis* occur locally but are frequently impacted by storms, territorial damselfish and coastal development slowing the recovery of both species (Vermeij and Bak 2003; Bries et al. 2004; Nagelkerken and Nagelkerken 2004; Vermeij et al. 2015). When both species are present the hybrid *A. prolifera* is frequently observed. Genetic variability in *A. palmata* populations on Curacao are among the highest in the Caribbean and could act as a reservoir for future adaptation (Baums et al. 2006).

Detailed description of the national status of *Orbicella (Montastraea) annularis* and *M. faveolata*

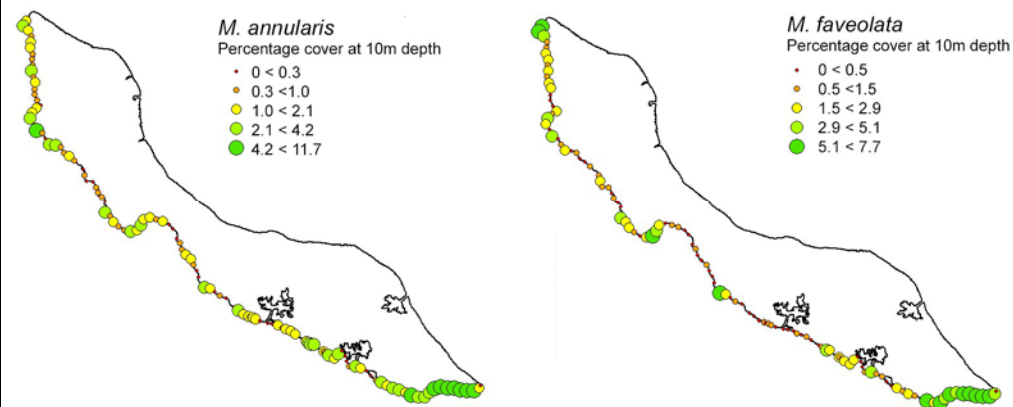


Figure 2 Distribution and abundance of *M. annularis* and *M. faveolata* along Curacao's leeward shore in 2015

Leeward reefs of Curaçao were dominated by extensive communities of members of the *M. annularis* complex between depth of 3 to 30m (Bruckner and Bruckner 2006). In 1998, colonies of the *M. annularis* complex accounted for more than 45% of all species >10 cm decreasing to 38% of all colonies in 2005, most likely due to several coral disease outbreaks (Bruckner and Bruckner 2006). Remaining communities were especially hit by Yellow band disease (YBD) emerged shortly after the 1995 bleaching event and several storms (Bries et al. 2004) causing high rates of mortality. Recruits of *Montastraea* spp. are virtually absent (Vermeij et al. 2011). *Montastraea* spp. are currently abundant along the island's eastern Leeward shore and at certain locations along the island's western shore (Figure 2). Large populations of extremely large (i.e., > 5 m diameter) *M. faveolata* colonies occur locally along the island's windward shore between depths of 20 and 40m. In 2015, *M. annularis* and *M. faveolata* covered on average 1.634% and 1.649% (n= 147 sites) of the reef bottom respectively. In contrast to *Acropora*, *Montastraea* populations on Curaçao appear dominated by a few genets and should be considered genetically depauperate relative to other locations in the Caribbean (Foster et al. 2013).

References

Bak RP, Criens SR (1981) Survival after fragmentation of colonies of *Madracis mirabilis*, *Acropora palmata* and *A. cervicornis* (Scleractinia) and the subsequent impact of a coral disease. *Proc 4th Int Coral Reef Symp* 2:221-227

Baums IB, Miller MW, Hellberg ME (2006) Geographic variation in clonal structure in a reef-building Caribbean coral, *Acropora palmata*. *Ecological monographs* 76:503-519

Bries JM, Debrot AO, Meyer DL (2004) Damage to the leeward reefs of Curaçao and Bonaire, Netherlands Antilles from a rare storm event: Hurricane Lenny, November 1999. *Coral Reefs* 23:297-307

Bright AJ, Williams DE, Kramer KL, Miller MW (2013) Recovery of *Acropora palmata* in Curaçao: a comparison with the Florida Keys. *Bulletin of Marine Science* 89:747-757

Bruckner A, Bruckner R (2006) The recent decline of *Montastraea annularis* (complex) coral populations in western Curaçao: a cause for concern? *Revista de Biología Tropical* 54:45-58

Duyf FC (1985) Atlas of the living reefs of Curaçao and Bonaire (Netherlands Antilles). Vrije Universiteit,

Foster NL, Baums IB, Sanchez JA, Paris CB, Chollett I, Agudelo CL, Vermeij MJA, Mumby PJ (2013) Hurricane-Driven Patterns of Clonality in an Ecosystem Engineer: The Caribbean Coral *Montastraea annularis*. *Plos One* 8

Nagelkerken I, Nagelkerken W (2004) Loss of coral cover and biodiversity on shallow *Acropora* and *Millepora* reefs after 31 years on Curaçao, Netherlands Antilles. *Bulletin of Marine Science* 74:213-223

Vermeij M, Bak R (2003) Status of *Acropora* Species on the Leeward Islands of the Netherlands Antilles. *Acropora Workshop: Potential Application of the US Endangered Species Act as a Conservation Strategy*:148

Vermeij M, DeBey H, Grimsditch G, Brown J, Obura D, DeLeon R, Sandin S (2015) Negative effects of gardening damselfish *Stegastes planifrons* on coral health depend on predator abundance. *Marine Ecology Progress Series* 528:289-296

Vermeij MJ, Bakker J, Hal Nvd, Bak RP (2011) Juvenile coral abundance has decreased by more than 50% in only three decades on a small Caribbean island. *Diversity* 3:296-307

Legislation

Relevant rules and regulations

Visserijeilandsbesluit (Island Fishing Decree)

Published on May 27th 2009, as: Fishing decree (2009, no. 48), implementing articles 13, 14, 15 and 20 of Fishing Ordinance (Visserijverordening Curacao, 2004; A.B. 2007, no. 117)

Visserijverordening Curacao 2004 (Fishing Ordinance Curacao 2004)

Published December 3th 2007, as: Fishing Ordinance Curacao 2004 (2007, no. 117) implementing articles 2.3 and 4 of the National Fishing Decree (Visserijlandsverordening; P.B. 1991, no. 74) in order to further regulate the economic exploitation of fish in Curacao's territorial waters and to protect the marine environment and preserve fish species therein

Visserijlandsverordening (National Fisheries Decree)

Published July 11th 1991, as: National Fisheries Decree (1991, no. 74) to provide fishing rules and regulations in the territorial waters of Curacao and its fishing zone as defined by Stb. 1977, no. 345. Made effective on November 22nd 1993 (1993, no. 110)

Rifbeheersverordening Curacao (Reef ordinance Curacao)

Published August 19th 1976, as: Reef ordinance Curacao (aka ROC; 1976, no. 48) to further protect corals, certain marine species and to maintain the natural balance within Curacao's territorial waters. This ordinance later slightly modified to allow the collection of corals for education, scientific purposes or for the general benefits of society as a whole (A.B. 1989, no. 21)

Eilandsbesluit bescherming zeeschildpadden (Island decree for the protection of sea turtles)

Published June 9th, 1996, as: Island decree for the protection of sea turtles; (A.B. 1996, no.8) to specifically protect and prevent the disappearance of sea turtles from Curacaoan waters. This decree was later amended to also include the nesting grounds and eggs of sea turtles (A.B. 1996, no. 13. These were mostly located on land, i.e., outside the scope of the original Reef Ordinance Curacao.

Landsverordening Maritiem Beheer aka, LvMB, (Maritime Ordinance)

Published March 2nd 2007, as: Maritime Ordinance (A.B. 2007, no. 18) to ensure safe ship traffic, to protect the marine environment and maritime archaeological resources of Curacao. 147 Curaçao Ramsar Proposal

Area to which rules and regulations apply

All fishing rules and regulations apply to territorial waters and inland bays of Curacao ([117], art. 2.1). Before Curacao became an independent country within the Dutch Kingdom these territorial waters concerned the territorial waters of the Netherlands Antilles as defined in Stb. 559, P.B. 1985, no. 174 (October 23rd, 1985). In locations where the distance between the islands Bonaire and Curacao is less than 24 nautical miles, this distance is divided by two to separate the areas within the former territorial sea of the Netherlands belonging to each island ([117], art. 2.2). Inland bays were defined as those areas located within the island contours of Curacao and Klein Curacao as defined by Royal Decree on December 12th, 1985 (P.B. 1985, no. 73).

General remarks

According to Curacaoan law, fishing also includes the harvesting and collecting of shellfish, corals, sea stars, sea urchins, invertebrates in general, algae, marine mammals and sea turtles, as well as eggs of fish and shellfish species ([117], art. 1.2). The Reef Ordinance Curacao 1976) additionally defines "corals" as nearly all marine species forming a calcareous skeleton, i.e., species belonging to the Scleractinia (stony corals), Antipatharia (black corals), Gorgonaceae (gorgonians), Milleporina (fire corals) and Corallinaceae (calcareous algae).

The Curacaoan government is allowed to regulate fishing practices and methods in its territorial waters through e.g. permits ([117], art. 3). Such permits, can come with certain restrictions and conditions ([117], art. 4) and detailing the period for which the permit is valid with a maximum of 12 months after which the permit needs to be renewed ([117], arts. 4.1, 4.2). When existing permits are renewed, restrictions and conditions can be changed or added ([117], art. 4.5) or a renewal can be refused if the proposed activities are expected to irreversibly impact local fish stocks ([117], art. 4.6). Permits are non transferable from person to person ([117], art. 4.8) and can be redrawn under certain conditions ([117], art. 5). Details on permitting procedures and requirements are given in [117] chapter II arts. 4-7 and chapter III arts. 12-16. For the provision of permits the Curacaoan government is allowed to ask for monetary compensation (detailed in [117] arts. 10, 21-23). Procedures to follow when regulations are violated or when one disagrees with decisions taken in this regards are overviewed in [117] arts. 24 – 52.

Responsibilities

The Department of Agriculture, Animal Husbandry and Fisheries (Dutch: Department Landbouw, Veeveelt and

Visserij aka. LVV) is responsible for the sustainable management of the marine resources in Curacao's territorial waters in general ([117], art. 8) as well as for fish stocks of certain species for which a temporal fishing ban or size limits are deemed necessary to ensure its longterm survival ([117], arts. 9, 12, 13). LVV is also responsible, on behalf of the Curacaoan government, to issue, control and supervise all matters related to the permitting procedures described above ([117], art. 10).

Enforcement of all rules occurs by those appointed by the government as described in art. 183 of the "Wetboek van Strafrecht van de Nederlandse Antillen" (e.g., police officers) or those specifically appointed by the government specifically for this task ([117], art. 40). Similar procedures pertain to the Reef Ordinance Curacao and are described in ROC [48], arts. 4, 5, 8-14, some of which were later amended (A.B. 1996, no. 13).

No take zones

At present (January 2012), there are no no-take zones within Curacao's inland bays and territorial waters, though the possibility to appoint such zones to ensure the long-term survival of marine species exists within the existing laws ([117], art. 17). In such areas, fishing other than with traditional gear types (i.e., lines, thrownets and fish traps) and the placement of any object and/ or facility would be forbidden ([117], art. 18).

Marine Park

The Curaçao Underwater Park stretches from the Breezes Hotel to the eastern tip of the island. The 60m depth contour represents the seaward boundary. The park covers 600 hectares of healthy coral reefs and 436 hectares of inland bays. Despite its good intentions and good start in 1983, the park has largely failed to accomplish the objectives of reef conservation and management. The reasons for this failure are only partly clear, the lack of an adequate legal basis for management being the most important. Despite this, the government of Curacao has expressed interest in the creation of a Marine Park on Curacao and impose additional legislation to protect its marine resources as stated in the "Memorie van Toelichting (2008. no. 3) which accompanies the proposed island ordinance "Eilandsverordening marien natuurbeschermer en – bescherming Curacao). The government based its support on a report entitled "Curacao Marine Management Zone¹", which showed that community support existed to establish a marine park on Curacao and that visitors would be willing to pay for the services rendered by a to be formed entity managing such park. The government's desire to safeguard its coastal resources (e.g., coral reefs, mangroves, salinas, seagrass beds and inland bays) was also earlier expressed in Curacao's Tourism Master Plan (1995) compiled by the Curacao Tourism Development Bureau (CTDB): "In order to conserve the coastal strip, both shore and sea, the Government will support the creation of a coastal protection zone around the island of Curacao, through the introduction of legislation to extend the existing marine park and to protect and conserve the foreshore, sea and the natural flora and fauna (Section 12.4, p. 119)". The government states that tourism is crucial to the island's economy and tourism depends to an important degree on "healthy" natural resources. As a consequence, nature protection is of economic importance as well. The possibility to create protected areas is also included in the Maritime Ordinance (LvMB [18], art. 29) following the stipulations mentioned in article 4 from the SPAW protocol which is underwritten by Curacao.

1 Van 't Hof T, Debrot AO, Nagelkerken IA (1995) Curacao Marine Management Zone: a draft plan for consultation. Carmabi report in cooperation with Marine & Coastal Resource Management, Saba. 66pp.

This Curacao Marine Management Zone (CMMZ) plan builds on the original objectives of the Curaçao Underwater Park would extend management to the entire reef system of Curaçao. The overall goal is to manage the island's near shore marine environment, including coral reefs, as well as sea grass beds and mangroves in inner bays, in such a manner that sustained economic and spiritual benefits for the people can be derived, in perpetuity. It proposes a somewhat different concept, i.e., that of a marine management zone rather than a marine park. This concept reflects the desire to manage a large area (in this case the entire near shore marine environment of Curaçao) for sustainable use. It reflects the intention of integrated management of a set of very important coastal resources. It is the closest one could come to integrated coastal zone management under the present circumstances.

Gear restrictions

Fishing without a permit in the territorial waters of Curacao is generally forbidden ([74], art. 2.1) but does not apply to those fishing from boats smaller than 12m in length or weighing less than 6 bruto tons ([74] art. 2.2), those fishing with four fishing lines or less ([74], art. 2.4). The former exception can be retracted in the future ([74], art. 2.3). 149 Curaçao Ramsar Proposal

In the territorial waters and inland bays of Curacao it is forbidden to fish with the following gear types ([no. 48], art. 2): (a) dragnets (Dutch: Schrobnetten); (b) fish traps (Dutch: visfuiken) with a mesh size less than 38mm; (c) fish traps that are not equipped with an escape opening (measuring at least 15 x 15cm) that is closed with a biodegradable material that can be expected to decay in approximately 20 days; (d) fish traps that are not equipped with a vertical escape opening measuring at least 20 x 2.5 cm to allow small by catch to escape at all times; (e) chemical substances other than Quinaldine that can only be used to catch fish for the aquarium trade; (f) explosives and (g) gear using bait derived from marine mammals.

nets in 2009 applied for a permit from the government through the agency dealing with fisheries, agriculture and animal husbandry (LVV) before July 27th 2009 and only when their nets have the following characteristics: (a) a mesh width less than 57 mm; (b) are not left unattended and (c) are not longer than 150 m ([no. 48], art. 6.2). The aforementioned permit allowing fishermen to use gill or trammel nets following the specifics above is valid for 5 yrs ([no. 48], art. 6.3). Within the territorial waters of Curacao it is forbidden to fish outside the 60m depth contour and outside the inland bays with the following gear types: (a) gill nets longer than 500m; (b) gill nets that are left unattended and (3) trammel nets, i.e., gillnets consisting of two or more layers (Dutch: trammel net) ([no. 48], art. 7).

Inside the inland bays and within the territorial waters along the south side of Curacao from Watamula to Oostpunt and around the island of Klein Curacao it is forbidden to fish with bottom long-lines ([no. 48], art. 8) or beach seines ([no. 48], art. 10). The use of the beach seines can be allowed only when fishermen apply for a permit from the government ([no. 48], art. 10.1) that can come with certain restrictions and/ or conditions ([no. 48], art. 10.2).

Fishing with spear guns, harpoons or similarly shaped or used objects is forbidden at all times (ROC [48], art. 6.1) and are considered weapons similar to fire arms as guns or pistols. Hence, their use and possession are regulated under the Firearms Ordinance which came into effect in 1930 (P.B. 1930, no.2). In addition, it is forbidden to possess, to have for sale, sell and transport organisms that were caught with spear guns or equivalent equipment (ROC [48] art. 6.2). At present one exemption is in effect, i.e., the use of a specially modified spear gun designed to kill the invasive lionfish (*Pterois* spp.). Persons using this modified spear gun were provided with a written permit by the government that exempts them from the aforementioned regulations pertaining to the use of spear guns in Curacaoan waters.

Means to harvest of any sea organism that are somehow damaging to the marine environment are generally forbidden (ROC [48], art. 7.1). Only when the government deems a certain organism damaging to the environment (e.g., lionfish) can the aforementioned means of harvesting be allowed (ROC [48], art. 7.2), but only after consultation with all relevant stakeholder groups (ROC [48], art. 7.3).

Restrictions on fishing for other marine organisms: marine mammals

Within the territorial waters of Curacao it is forbidden to catch marine mammals without a permit from the government ([no. 48], art. 9.1) that can come with certain restrictions and/ or conditions ([no. 48], art. 9.2) and will only be provided when the catching of marine mammals is necessary for education or scientific purposes or is deemed necessary for the benefit of society as a whole ([no. 48], art. 9.3). 150 Curaçao Ramsar Proposal

Restrictions on fishing for other marine organisms: sea turtles and lobsters

In the territorial waters and inland bays of Curacao it is forbidden to catch any sea turtle species ([no. 48], art. 3a) and lobsters (*Panulirus argus*) if these carry eggs or are in the process of molding ([no. 48], art. 3b). Furthermore, it is forbidden to remove the eggs from lobsters mentioned in [no. 48], art. 3a ([no. 48], art. 4). When gravid or molding lobsters are unintentionally caught in fish traps they are to be released immediately ([no. 48], art. 5.3).

It is forbidden to possess, kill or sell sea turtles and lobsters referred to in [no. 48], arts. 3 and 4, regardless of whether these organisms are dead or alive ([no. 48], art. 5.1). Sea turtles that were caught on accident or became entangled in fishing gear should be freed and released immediately ([no. 48], art. 5.2). Wounded sea turtles are to be transported immediately to a veterinarian and relevant government agencies are to be informed ([no. 48], art. 5.2). The Curacaoan government executed the right provided by the Reef ordinance Curacao (ROC [48], art. 3.1) to appoint certain species for additional protection, which led to additional legislation to protect all sea turtles (Island decree for the protection of sea turtles; A.B. 1996, no.8) meaning that the killing, possessing, processing, selling, offering for sale, having and

transporting of six sea turtle species, dead or alive, is explicitly forbidden. These six species are: (1) *Dermochelys coriacea* (en: leatherback turtle, du: leerschildpad, pa: drikil), (2) *Caretta caretta* (en: loggerhead turtle, du: onechte karetschildpad, pa: kawama); (3) *Chelonia mydas* (en: green turtle, du: soepschildpad, pa: Tortuga blanku); (4) *Eretmochelys imbricata* (en: hawksbill turtle, du: karetschildpad, pa: karet); (5) *Lepidochelys kempii* (en: Kemp's Ridley turtle, pa: tortuga bastardo) and (6) *Lepidochelys olivacea* (en: olive Ridley turtle, pa: tortuga bastardo). In 1996 (A.B. 1996, no. 13), the disturbance and destruction of sea turtle nests as well the collection, possession, destruction, transporting or selling of their eggs were specifically forbidden.

Restrictions on fishing for other marine organisms: corals

In Curacao, it is forbidden to remove corals from the bottom at all times or to possess, to have for sale, sell, steal, transport corals that were derived from Curacaoan waters (ROC [48], art.2). The same goes for certain species that can be appointed by a special government decree (ROC [48], art.3). Exceptions to the latter measure are possible in the form of temporal bans on harvesting or through size restrictions (ROC [48], art.3). The Curacaoan government is allowed, under strict formal procedures and after consultation with all relevant stakeholder groups, to provide individuals or organizations to collect aforementioned organisms for e.g. education or scientific purposes (ROC [48], arts.4-5). Such permits can be withdrawn at all times, when reasonable doubt arises about the permitted action (ROC [48], arts.4-5).

Construction in the marine environment

It is forbidden to have or erect any form construction in the territorial waters of Curacao, including the creation of new land and the laying of cables unless one has a permit from the government (LvMB [18], arts. 20-21, 23). To obtain such permit, the effects of the proposed construction on local ship traffic, the marine environment and archeological sites of potential interest need to be evaluated (LvMB [18], art. 21). Procedures, rules and regulations are all found in the Maritime Ordinance (LvMB [18], arts. 51-85).

Relevance of International Treaties

Obligations from international treaties to which the former government of the Netherlands Antilles was an underwriting party are carried over to the new Curacao government. As a result Curacao forms party to several conventions and treaties. These include the RAMSAR Convention (since 1980), the Bonn Convention on migratory species (since 1983), the Cartagena Convention (since 151 1985), and its SPAW Protocol (since 1990), Convention on Biological Diversity as well as the CITES Convention. The national legal framework for nature management and conservation, enacted in 1998 (Landsverordening Grondslagen Natuurbeheer), still requires implementation at the island.

An overview of the most important treaties and conventions that Curacao forms party:

Oil Pollution Preparedness, Response and Co-operation (OPRC), London, 1990; (Trb. 1992, 1); included in LvMB chapter 4.2 (arts. 3539). The International Convention on Oil Pollution Preparedness, Response and Co-operation (OPRC), 1990 provides a global framework for international co-operation in combating major incidents or threats of marine pollution. A protocol to this convention (HNS Protocol) covers marine pollution by hazardous and noxious substances.

The SPAW (Specially Protected Areas and Wildlife) Protocol of the Cartagena Convention (Trb. 1990, 115). The Protocol concerning Specially Protected Areas and Wildlife (SPAW Protocol) has been internationally recognized as the most comprehensive treaty of its kind. Adopted in Kingston, Jamaica by the member governments of the Caribbean Environment Programme on 18 January 1990, the SPAW Protocol preceded other international environmental agreements in utilizing an ecosystem approach to conservation and was entered into force on 18 June 2000. The Protocol acts as a vehicle to assist with regional implementation of the broader and more demanding global Convention on Biological Diversity (CBD). The Protocol also assists with the promotion and linkages of the Ramsar and CITES Conventions.

1996 Protocol to the Convention on the prevention of marine pollution by dumping of wastes and other matter, 1972;

(Trb. 1998, 134). The 1996 Protocol reflects a more modern and comprehensive agreement on protecting the marine environment from dumping activities than the original 1972 Convention and reflects the broader aims to protect the environment in general. The 1996 Protocol introduces (in Article 3) what is known as the "precautionary approach" as a general obligation. This requires that "appropriate preventative measures are taken when there is reason to believe that wastes or other matter introduced into the marine environment are likely to cause harm even when there is no conclusive evidence to prove a causal relation between inputs and their effects." The Curacao government has worked out the obligations following from the 1996 Protocol in the Maritime Ordinance (LvMB [18], arts. 44-48) which (amongst other) forbid the general disposal of any form of waste, other than ways and forms addressed in the Marpol Treaty (see: art. 6, P.B. 1993, no. 108) in its territorial waters and the sinking of ships or planes. The government is allowed to exempt persons from these laws through a permit (LvMB [18], arts. 45-46).

The Convention on the Conservation of Migratory Species of Wild Animals (also known as CMS or the Bonn Convention) This Convention aims to conserve terrestrial, marine and avian migratory species throughout their range. It is an intergovernmental treaty, concluded under the aegis of the United Nations Environment Programme, concerned with the conservation of wildlife and habitats on a global scale. Migratory species threatened with extinction are listed on Appendix I of the Convention. CMS Parties strive towards strictly protecting these animals, conserving or restoring the places where they live, mitigating obstacles to migration and controlling other factors that might endanger them. Besides establishing obligations for each State joining the Convention, CMS promotes concerted action among the range states of many of these species. Migratory species that need or would significantly benefit from international co-operation are listed in Appendix II of the Convention. For this reason, the Convention encourages the range states to conclude global or regional

Agreements. In this respect, CMS acts as a framework Convention. The agreements may range from legally binding treaties (called Agreements) to less formal instruments, such as Memoranda of Understanding, and can be adapted to the requirements of particular regions. The development of models tailored according to the conservation needs throughout the migratory range is a unique capacity to CMS.

The Convention on Biological Diversity (CBD), known informally as the Biodiversity Convention

This Convention is an international legally binding treaty. The Convention has three main goals: (1) conservation of biological diversity (or biodiversity); (2) sustainable use of its components and (3) fair and equitable sharing of benefits arising from genetic resources. In other words, its objective is to develop national strategies for the conservation and sustainable use of biological diversity. It is often seen as the key document regarding sustainable development. The convention recognized for the first time in international law that the conservation of biological diversity is "a common concern of humankind" and is an integral part of the development process. The agreement covers all ecosystems, species, and genetic resources. It links traditional conservation efforts to the economic goal of using biological resources sustainably. It sets principles for the fair and equitable sharing of the benefits arising from the use of genetic resources, notably those destined for commercial use. It also covers the rapidly expanding field of biotechnology through its Cartagena Protocol on Biosafety, addressing technology development and transfer, benefit-sharing and biosafety issues. Importantly, the Convention is legally binding; countries that join it ('Parties') are obliged to implement its provisions. The convention reminds decision-makers that natural resources are not infinite and sets out a philosophy of sustainable use. While past conservation efforts were aimed at protecting particular species and habitats, the Convention recognizes that ecosystems, species and genes must be used for the benefit of humans. However, this should be done in a way and at a rate that does not lead to the long-term decline of biological diversity. The convention also offers decision-makers guidance based on the precautionary principle that where there is a threat of significant reduction or loss of biological diversity, lack of full scientific certainty should not be used as a reason for postponing measures to avoid or minimize such a threat. The Convention acknowledges that substantial investments are required to conserve biological diversity. It argues, however, that conservation will bring us significant environmental, economic and social benefits in return.

CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora, also known as the Washington Convention)

This convention is a multilateral treaty, drafted as a result of a resolution adopted in 1963 at a meeting of members of the International Union for Conservation of Nature (IUCN). The convention entered into force on July 1, 1975. Its

aim is to ensure that international trade in specimens of wild animals and plants does not threaten the survival of the species in the wild, and it accords varying degrees of protection to more than 33,000 species of animals and plants. CITES is one of the largest conservation agreements in existence. Participation is voluntary, and countries that have agreed to be bound by the Convention are known as Parties. Although CITES is legally binding on the Parties, it does not take the place of national laws. Rather it provides a framework respected by each Party, which must adopt their own domestic legislation to implement CITES at the national level. Often, domestic legislation is either non-existent, or with penalties incommensurate with the gravity of the crime and insufficient deterrents to wildlife traders. As of 2002, 50% of Parties lacked one or more of the four major requirements for a Party: designation of Management and Scientific Authorities; laws prohibiting the trade in violation of CITES; penalties for such trade; laws providing for the confiscation of specimens.

Ongoing developments

In 1998, the central government of the Netherlands Antilles ordered each island to develop policies and a legal framework to sustainably manage and protect its natural marine and terrestrial resources (P.B. 1998, no. 49, amended in 2001, P.B. 2001, no. 41). This decision came into effect on February 1st 1999 (“Landsverordening grondslagen natuurbeheer en – bescherming”, P.B. 1999, no. 24). Specifically, this meant that islands were expected to establish nature parks and take measures to protect certain species listed in the appendices of international treaties undersigned by the former government of the Netherlands Antilles.

The Curacaoan government agreed that such legislation was required to further protect Curacao’s marine resources and proposed a new island ordinance called “Island Ordinance for the management and protection of Curacao’s marine resources” (du:“Eilandsverordening marien natuurbeheer en –bescherming Curacao”). This new ordinance would replace the existing Reef Ordinance Curacao (1976, no. 48) effectuating stricter regulations to preserve the island’s natural resources (through the establishment of (marine) parks) and develop protective measures for certain species protected under several international treaties. In contrast to the Reef Ordinance Curacao (1976, no. 48), the proposed legislation would for example also forbid the harvesting of sand and construction activities in Curacao’s territorial waters and inland bays (proposed art. 7), carry out any action that would harm the island’s marine resources (proposed art. 10) and the formation of an marine park and marine reserves around the island except where harbors (as defined in “Binnenvaartverordening Curacao; P.B. 1957, no. 11 and “Landsverordening Maritiem Beheer” (P.B. 2007, no. 18) are located (proposed arts. 14-15).

A memorandum between the Ministry of Health and Environment (VOMIL) of the former Netherlands Antilles and the Dutch Ministry of Agriculture, Nature Conservation and Fisheries (LNV) have been signed an memorandum of agreement for cooperation in the preparation of an Integrated Coastal Zone Management (ICZM) Plan, but so far, work on the ICZM Plan has yet to begin.

Recovery plans for species

No formal plans in effect, but 2 private initiatives (under Government permits) underway:

Coral Restoration Foundation Curaçao asexual propagation (fragments/cuttings)2015-2016 for both Acropora species; Secore/Carmabi sexual propagation (2009-2016) for both Acropora and Orbicella species.

Technical publications relevant to these species

Véase arriba bajo estado nacional

IV. DESCRIPCIÓN DE LOS IMPACTOS Y DE LAS MEDIDAS DE MITIGACIÓN

★ Marque la casilla que se aplica a su situación con lo referente a las principales amenazas a las poblaciones de especies afectadas por la actividad prohibida. :

- impactos en el tamaño
- distribución (incluso nombre de subpoblaciones) y fragmentación de la población
- impactos acumulativos
- impactos a la cantidad y calidad de los hábitats adecuados y disponibles para
- otras amenazas para la especie a corto y largo plazo
- impactos en otras especies como consecuencia de la actividad prohibida

★ Explique por qué la actividad prohibida no pondrá en peligro a las especies o, si corresponde, otras especies incluidas en la lista :

Debido a que se mitiga el daño (en aproximadamente 300 metros de línea de costa) por la formalización del parque Curaçao Underwaterpark, donde aproximadamente 20 kilómetros de línea de costa incluyendo los arrecifes sin contaminar Eastpoint se convertirán en un APM, incluyendo (1) medidas de control, (2) una autoridad de gestión designada (Carmabi) y (3) un presupuesto disponible durante 5 años por un donante privado

★ En el caso de especies o poblaciones de una especie que migran entre dos (o más) países, la sobrevivencia de las poblaciones debe ser evaluada por separado para cada país donde la especie reside o a través de donde migra y conjuntamente para todos los países donde la especie reside o a través de donde migra.

Mientras la conectividad genética entre poblaciones en Curaçao y otras localizaciones en el Caribe han sido mostradas tanto para *A. palmata* (Baums *et al.* 2005) como para *O. annularis* (Foster *et al.* 2012), se descubrió que dicha conectividad sucedía en grandes espacios de tiempo. Esto efectivamente quiere decir que la mayoría de las larvas producidas por la especie de coral correspondiente a esta propuesta era retenida en pequeños espacios, en otras palabras, dentro de las islas, de manera que la migración de estas especies, por lo demás no móviles y sésiles, probablemente es ecológicamente irrelevante en el futuro previsible.

Baums IB, Miller MW, Hellberg ME (2005) Regionally isolated populations of an imperiled Caribbean coral, *Acropora palmata*. *Molecular ecology* 14(5):1377-90.

Foster NL, Paris CB, Kool JT, Baums IB, Stevens JR, Sanchez JA, Bastidas C, Agudelo C, Bush P, Day O, Ferrari R (2012) Connectivity of Caribbean coral populations: complementary insights from empirical and modelled gene flow. *Molecular ecology* 21(5):1143-57.

★ Describa las medidas de mitigación designadas para limitar o contrarrestar cualquier efecto nocivo (proporcione una lista y la documentación de apoyo tales como directrices, políticas, reportes, videos/ fotografías etc. adjunto o los enlaces):

Véase solicitud de exención detallada Curaçao del 18 de julio de 2016 al Secretariado de SPAW 2016/27094

★ *Explique en detalle los protocolos de evaluación que se utilizarán para evaluar el efecto de la actividad en las poblaciones de especies, incluyendo cambios en el ámbito, evolución numérica o éxito reproductivo (incluya archivos adjuntos o enlaces):*

Usando los métodos estándares de GCRMN (véase a continuación para su consulta), el estado de las comunidades de coral en el emplazamiento afectado será monitorizado anualmente como parte del programa de monitorización anual de Carmabi. Puede emplearse la evaluación del mismo emplazamiento en 2015 y 2016 como referencia histórica.

Edwards PE, Torres RE, Belmont J. (2016) New Guidelines for Monitoring Coral Reef Ecological and Socio-economic Data in the Caribbean Nuevas Directrices para el Monitoreo Datos Ecologicos y Socio-económicos de Arrecifes de Coral en el Caribe Nouvelles Lignes Directrices pour la Surveillance de Données sur les Récifs Coralliens Écologiques et Socio-économiques dans les Caraïbes.

Anexo I

Número (basado en la Tabla 5.4 de Ecovion)

Zona de profundidad	Ancho de mapa	Superficie de talud	Longitud	Superficie
5-10m	23	23	470	10833
10-15m	16	16	470	7744
15-25m	10	14	470	6581

Cobertura (basado en datos Carmabi)

Zona de profundidad	Ancho de mapa	Superficie de talud	Longitud	Superficie
5-10m	23	23	470	10833
10-15m	16	16	470	7744
15-25m	10	14	470	6581

Densidad media (colonias m²)

<i>Apal</i>	<i>Acer</i>	<i>Ofav</i>	<i>Oann</i>
0,00	0,00	0,20	0,09
0,00	0,00	0,01	0,02
n/a	n/a	n/a	n/a

Total número de colonias en zona afectada

<i>Apal</i>	<i>Acer</i>	<i>Ofav</i>	<i>Oann</i>
0	0	2112	975
0	0	77	174
n/a	n/a	n/a	n/a

Total 0 0 2190 1149

Cobertura media (%)

<i>Apal</i>	<i>Acer</i>	<i>Ofav</i>	<i>Oann</i>
0,00	0,00	0,98	1,85
0,00	0,00	0,16	1,41
0,00	0,00	0,00	0,00

Total superficie (en m²) de colonias en zona afectada

<i>Apal</i>	<i>Acer</i>	<i>Ofav</i>	<i>Oann</i>
0	0	106	201
0	0	12	109
0	0	0	0

Total 0 0 118 310

Anexo II Mega Muelle II

