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Pre-Assessment of the Bahamian Lobster Fishery

Prepared for

WWF-US & Dept. Marine Resources, Bahamas

Prepared by

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CONTENTS

1	INTRODUCTION	1
2	SCOPE OF PRE-ASSESSMENT	2
3	GENERAL INFORMATION.....	2
3.1	DESCRIPTION OF THE FISHERY	2
3.2	HISTORICAL BACKGROUND.....	3
3.3	FISHERY MANAGEMENT	4
3.4	OTHER FISHERIES IN THE VICINITY.....	4
4	STAKEHOLDERS.....	4
5	STATE OF PREPAREDNESS FOR MSC FULL ASSESSMENT	7
5.1	PRINCIPLE 1.....	8
5.2	PRINCIPLE 2.....	11
5.3	PRINCIPLE 3.....	15
6	PROBLEMS AND OBSTACLES TO MSC CERTIFICATION.....	19
6.1	KEY ISSUES THAT COULD LEAD TO NON-CONFORMANCE IN A FULL MSC EVALUATION..	19
6.2	OTHER ISSUES FOR CERTIFICATION	22
7	THE CERTIFICATION PROCESS.....	23
7.1	ASSEMBLE EVALUATION TEAM	23
7.2	SETTING PERFORMANCE CRITERIA.....	23
7.3	STAKEHOLDER CONSULTATION	24
7.4	DATA COLLECTION AND REVIEW	24
7.5	PERFORMANCE SCORING	24
7.6	DRAFT REPORT	24
7.7	PEER REVIEW.....	24
7.8	DISPUTE RESOLUTION.....	25
8	BUDGET ESTIMATE AND JUSTIFICATION	25
8.1	PROFESSIONAL SERVICES.....	25
8.2	EXPENSES	26
8.3	DISPUTE RESOLUTION	27
8.4	13.3.2 CHAIN OF CUSTODY	27
8.5	13.3.3 ANNUAL SURVEILLANCE.....	27
9	TIME REQUIREMENTS FOR CERTIFICATION.....	27
10	CONCLUSIONS.....	28
11	LITERATURE CITED.....	29

1 Introduction

The Marine Stewardship Council (MSC) is an independent, global, non-profit organization. It works to enhance responsible management of seafood resources, to ensure the sustainability of global fish stocks and the health of the marine ecosystem. It is supported by a broad coalition of those with a stake in the future of the global seafood supply. The MSC harnesses consumer power by identifying sustainable seafood products through an eco-label. The MSC has identified the following mission statement:

To safeguard the world's seafood supply by promoting the best environmental choice.

This report sets out the results of a pre-assessment of the Bahamian lobster fishery for *Panulirus argus* in relation to the Marine Stewardship Councils (MSC) Principles and Criteria for Sustainable Fishing (the 'MSC standard'). It must be stressed that this report can provide guidance only, and the outcome of a main assessment will be the subject of deliberation by an assessment team and would not be influenced by this pre-assessment.

WWF-US and the Department of Marine Resources contracted MRAG Americas Inc. (MRAG) to conduct an MSC pre-assessment of the Bahamian lobster fishery. To date, almost all fisheries that have successfully progressed to an MSC Main Assessment has been recommended for certification but with conditions set for continuing certification. These conditions may relate to operational and management functions. The client is then responsible for ensuring that these conditions are met within the required timescale. The client should therefore have authority, or have secured agreement with the relevant organizations, to enact potential conditions should certification be successful. For this fishery, this is likely to require some degree of cooperation from the Bahamian Management Authority.

The MSC requires pre-assessments of fisheries interested in certification to help the client get a clear picture of whether the fishery is a good candidate for a full certification evaluation, to see what potential issues may arise as part of a full certification evaluation, and to determine the likely costs for a full certification. The client must provide evidence that 1) the policies, management principals, and enforcement programs of the responsible fishery management bodies and fishing fleets can be expected to meet the MSC Principles and Criteria; and 2) that the status of the entire biological stock or stocks of *Panulirus argus* utilized by the fishery are healthy, even if the fishery just fishes a small portion of the entire stock(s). This is necessary because the MSC's Standards Council has determined that the biological stock of the species fished must be demonstrated as healthy for a fishery or fisheries to be fully certified. These pieces of information are designed to help a fishery make more informed decisions regarding its ability to move forward with full certification. However, no verification of information occurs during a pre-assessment.

A pre-assessment report that meets all the requirements of the Marine Stewardship Council provides the following information:

1. A short description of the fishery;
2. General historical background information on the fishery and area;
3. The fishery management policy objectives, regulations, and practices;
4. Identification of other fisheries in vicinity, but not subject to certification;

5. List of stakeholders in the fishery;
6. State of preparedness for assessment, in particular, the extent to which the fisheries systems are based upon the MSC principles and criteria;
7. A discussion of the key issues and factors identified as potentially troublesome in completing a successful certification assessment based on the MSC principles and criteria,
8. A decision as to whether it will be possible to move from the pre-assessment to final assessment stage; and
9. A budget estimate for conducting a full certification assessment.

2 SCOPE OF PRE-ASSESSMENT

The MSC Guidelines to Certifiers specifies that the unit of certification is "The fishery or fish stock (=biologically distinct unit) combined with the fishing method/gear and practice (=vessel(s) pursuing the fish of that stock) and management framework."

The definition of the fishery under pre-assessment is therefore as follows:

Species: Spiny Lobster *Panulirus argus*
Geographical Area: Territorial waters and EEZ of The Bahamas
Method of Capture: Hook¹ with/without compressor and casita or lobster trap
Stock: Caribbean
Management System: Spiny lobster is widely distributed throughout the Caribbean region and occurs within the Bahamian EEZ under the jurisdiction of the Department of Marine Resources.
Client Group: WWF-US and Department of Marine Resources, Bahamas

3 GENERAL INFORMATION

3.1 Description of the fishery

The Bahamian lobster fishery exploits the relatively shallow and productive waters of the Little Bahama Bank, located in the north, and the much larger Great Bahama Bank, situated in the west, south and central areas of the archipelago. Combined, this region extends over an area of approximately 45,000 square miles. Distributed within the archipelago are a large number of landing sites, which cover about 20 islands.

About 9,000 part- and full-time fishers target lobster during the fishing season, which occurs between August 1st and March 31st. The majority of these fishers use a small boat, known locally as a dinghy, approximately 17 ft in length and fitted with an outboard. Typically these vessels go out for a single day trip with 2-3 fishers per boat. Lobsters are also targeted by a fleet of mothership-dory vessels that can operate up to 3 and 4 weeks at sea. Each mothership vessel may support fishers on five or more dinghies, which collect lobster during the day before returning to

¹ This device is used to help remove lobster from their habitat (casitas or reef) but unlike spearguns may not damage the animal and maintains high quality product. A sharp point on the other end of the hook can be used to stun or kill the animal quickly.

the larger vessel to process and freeze the catch. The majority of lobster is now landed as tails only, with the carapace discarded at sea. This strategy increases the number of lobsters fishers can retain on board their vessels at any one time.

Lobster is targeted using two main gear types; wooden traps and casitas. A string of 5 or more traps are used by fishers set adjacent to the reef. Fishers are then required to lift each trap in order to release and sort their catch. Casitas (or condominiums) have increased in popularity since the mid 1980s and peaked during the late 1990s. These devices are placed semi-permanently on the bottom. Fishers then dive down and retrieve their catch from each casita using a lobster hook. Although use of SCUBA diving equipment is illegal, fishers can obtain a permit to use compressed air supplied through an air hose to increase the amount of time spent underwater. Regulations also exist to restrict the depth to which a fisherman can dive (between 30-60 ft), but this is largely considered unenforceable. This activity can lead to safety issues such as the bends, although reported deaths are very rare. The Dept. of Marine Resources conducts diver safety workshops in various islands annually. Collecting lobster by hand is very selective and can minimize the retention of undersized lobster and bycatch from the fishery. Lobsters are normally pre-processed by fishers at sea by removing the carapace and leaving only the tail section. Due to space limitations on each boat, this can increase the potential to collect more lobster during any one trip. However, this practice also discards any potential for value-added from retaining the carapace.

At its peak, annual catches of lobster in 2001 were estimated to reach 6,703 mt. Today, approximately 90% of all lobster caught are exported overseas and is worth an estimated \$80-90 million. The majority of lobster tails are exported to the United States (64%) with France next accounting for approximately 28% of this product. There are currently 10 processing plants that are licensed to export lobster. The majority of product bought by these plants is supplied by mothership-dory companies, which maintain a high quality product. The frozen product is then carefully thawed and re-processed by the processing plants into different size categories. Lobster and other fishery products are also transported from the Family Islands to New Providence, the main market, by approximately 23 mail-boats that operate between New Providence and the Family Islands on a weekly basis.

3.2 Historical background

Traditionally, lobster was caught using a bully net (i.e. net on the end of a pole) and a 'tickler' that coaxed the lobster out of the reef into the awaiting net. This activity was typically conducted from a boat where the pole to which the net or tickler was attached was usually about 12 ft but could be as long as 24 ft in length. During this period lobsters were kept alive and sent directly to markets in Florida, USA. Later, widespread availability of refrigeration changed the way lobster were processed and exported. Although not initially processed in The Bahamas, lobster tails were now being removed from the animal and frozen whole. Within a short space of time, the bully net and tickler was replaced by spears, which are still commonly used today, although a lobster hook has now become more popular since the early 1990s. During this time fishing effort started to move towards other islands, thus increasing the area that the fishery was now operating (Braynen, pers. comm.).

During the early 1980s lobster traps with wooden slats became popular but these have now started to decline in favor of the casita. Lobster traps are still used, but these are mainly operated by older fishers. A casita (or condominium) is made primarily from sheet metal (zinc) that

fishers set close to the reef or in sea grass areas. Lobster and finfish are attracted to the relative protection offered by the casita but are free to move in and out without becoming trapped. Casitas can also attract a number of lobster predators such as turtles and sharks.

Today, fishers using casitas still collect lobster by hand using a hook, and most often supported by an air compressor (with air hose) to increase bottom time. Unlike the benefits of SCUBA diving, which has been banned for commercial fishing, the legal depth for diving with a compressor is restricted to 30-60 ft.

3.3 Fishery management

Within The Bahamas, fisheries management is governed by Chapter 225, Fisheries Resources (Jurisdiction and Conservation) Act 1977. This Act, however, is currently under revision and new draft Legislation is being prepared. The Department of Marine Resources (DMR) within the Ministry of Agriculture and Marine Resources is responsible for the management of fisheries in The Bahamas. However, monitoring control and surveillance (MCS) is conducted using a multi-agency approach involving the DMR, which has the primary responsibility, the Defence Force, the Police Force and the Customs Authorities.

Due to the large geographic area of the archipelago and limited resources available, fisheries management within The Bahamas has not developed output controls such as total annual catches (TACs) or quotas, which would be difficult to monitor and enforce. Instead, the domestic open access fishery is managed through a suite of precautionary measures that are designed to protect the most vulnerable stages of the life history, including minimum size at first capture to protect juveniles and prevent recruitment overfishing and closed seasons to protect the spawning adult population.

Other more wide-spread management tools such as a network of Marine Protected Areas (MPAs) are currently being implemented throughout The Bahamas that may provide a refuge for part of the lobster stock.

3.4 Other fisheries in the vicinity

Due to the highly selective nature of the gear and methods employed, only the lobster trap fishery retains a small proportion of other species taken as bycatch. These include stone crabs, finfish and occasionally octopus. Because of the high value of the lobster resource, fishers will primarily target lobster during the fishing season. Between April and July fishers will switch target species and catch mainly conch (Gittens, pers. comm.).

This MSC pre-assessment of the Bahamian lobster fishery looks specifically at the impacts of this fishery on the lobster stock and related ecosystem, and not those of other fisheries.

4 STAKEHOLDERS

The identification of potential stakeholders in the fishery is specifically undertaken in the pre-assessment due to the requirements for MSC certification. As part of the MSC certification methodology, a thorough stakeholder consultation process must be conducted by a certification

team. This means that stakeholders must be identified, contacted, and their opinions on the certification of the fishery solicited and reviewed by the certification team. This measure is considered part of the due diligence of the certification team to help ensure that no issue (large or small) is missed. It is also a measure included to try to build good will at the outset of the certification process.

The Bahamian lobster fishery is undertaken by a range of fishers throughout the archipelago operating from small day vessels and mothership-dories ventures. There are also a number of stakeholders associated with the market chain to export lobster. Stakeholder groups that are largely directly involved in the fishery are noted below.

- Individual fishers (incl. day-boats, no formal representation or active co-operatives etc²)
- Mothership-dory vessel owners (which are these)
- Buying stations (middle men between fishers and processors)
- Processors (10 plants):
 - Tropic Seafood
 - Paradise Fisheries Ltd
 - Geneva Brass Seafoods Supply Ltd.
 - Marsh Harbour Exporter & Importer
 - Ronalds Servicentre Ltd.
 - G & L Seafood Ltd.
 - Performance Fisheries Limited
 - Burnt Ground Seafood Ltd.
 - Heritage Seafood Ltd.
 - Sunshine Seafoods Company Ltd.
- Mail boat owners (move lobster from fishing settlements to processing plants)
- South Andros Co-operative Society- South Andros
- North Abaco Fishermen's Co-operative- Fox Town, Abaco
- Northern Bahamas Fishermen's Association- Grand Bahamas
- Montague Vendors' [Ramp] Association- New Providence
- Potters Cay Vendors Association- New Providence
- Arawak Cay Vendor's Association- New Providence
- Coral Harbour Fishermen's Association- New Providence
- Spanish Well's Fishermen's Association- Spanish Wells, Eleuthera
- Cat Island Co-operative- Cat Island

Management and research agencies concerned with the Bahamian lobster fishery include:

- Department of Marine Resources, Ministry of Agriculture and Marine Resources.
- Royal Bahamas Defence Force
- Royal Bahamas Force
- Bahamas Customs Department

² Although several Co-operatives and Fishermen's Associations are listed below, these are no longer considered to be active.

- Bahamian Fisheries Advisory Committee (approx. 30 members from around the archipelago)
- Western Central Atlantic Fishery Commission – FAO
- Caribbean Regional Fisheries Mechanism (CRFM)

Conservation, development oriented and academic oriented groups that have a direct interest in the Bahamian lobster fishery include:

- The Bahamas Reef Environment Education Foundation
- Bahamas Agricultural and Industrial Corporation
- The Bahamas National Trust
- The Bahamas Development Bank
- WWF-US
- Gulf and Caribbean Fisheries Institute
- The Nature Conservancy
- College of The Bahamas Marine and Environmental Studies Institute (COB-MESI)

5 STATE OF PREPAREDNESS FOR MSC FULL ASSESSMENT

The following tables provide information about The Bahamian lobster fishery in the Caribbean, with respect to the MSC's Principles and Criteria for Sustainable Fishing. This is an informational tool to educate the Client about issues within the fishery that might arise during a full MSC assessment. As a preliminary scoring method, each Performance Indicator Category is colour coded: Green equals likely to pass (score of >80), yellow equals likely to pass with conditions (score of 60-80), and red means likely to fail (score of <60). Overall, the Bahamian lobster fishery in the Caribbean is likely to fail, due primarily to concerns surrounding the stock status, lack of harvest control rules and a management system in place to implement the strategy to achieve the overall objectives.

MRAG developed these pre-assessment indicators from information received during meetings of experts convened by the MSC to review performance indicators and scoring guidelines. The working groups of experts recommended revisions to the traditional assessment trees to provide a more consistent and efficient analysis of fisheries. Neither the MSC nor the MSC's Technical Advisory Board has accepted the recommendations of the working groups at this time. **Therefore, at the time being the performance indicators used in this assessment do not represent an MSC product accepted in the MSC Certification Methodology.** MRAG believes that these performance indicators organise the available information in a manner that enhances the analysis and increases the understanding of the issues involved. These indicators will also align this pre-assessment with the expected format of the generic assessment tree that the MSC will release soon, and will request Certification Bodies to use.

5.1 Principle 1

Principle 1 Component	Performance Indicator Category	Draft Performance Indicator
Outcome	Stock status (C1)	The stock is at a level which maintains high productivity and has a low probability of recruitment overfishing.
<p>To date, the status of the stock is officially classified as “unknown” (FAO-WECAFC 2007). No information is available to determine whether the stock is currently above precautionary limit reference points or has a low probability of overfishing.</p> <p>In 2002, a WECAFC-FAO workshop indicated that Bahamian lobster was approaching a fully exploited state based on trends in total landings (FAO-WECAFC 2003). The results illustrated that both the weight and value of the total landings have increased until reaching a peak in 2001. There are now reports of a decline in landings and until very recently in mean size of capture that have led to concerns over the status of the stock. Limited information is available on the level of fishing effort and estimates of fishing mortality are not thought to reflect absolute values, but could be used to indicate trends in fishing mortality. In 2007, a recent WECAFC-FAO workshop indicated that insufficient data were available to determine the status of the stock (FAO-WECAFC 2007).</p> <p>Although limited information is available that may suggest the stock is fully exploited, and not depleted, the exact status of the stock remains unknown; if participants feel that the stock is not over-exploited, this performance indicator may be addressed using the risk-based fishery assessment methodology, if subsequently approved by the MSC.</p>		
	Reference points	Limit and target reference points are appropriate for the stock.
<p>Although biological reference points do not have to be based directly on stock biomass or fishing mortality, no target or limit reference points exists for the Bahamian lobster fishery.</p>		
	Recovery & Rebuilding (C2)	<p>Where the stock is depleted, there is evidence of recovery.</p> <ul style="list-style-type: none"> • Probability that strategy for recovery is effective • Success of rebuilding
<p>The status of the stock is “unknown” and it is unclear whether the stock is in need of a recovery and/or rebuilding plan.</p>		
Harvest strategies	Performance of the harvest strategy	<p>There is a robust and precautionary harvest strategy (monitoring, assessment, harvest control rules and management actions) in place.</p> <ul style="list-style-type: none"> • Strategy evaluated • Adaptive strategy
<p>A Fisheries Management Plan (FMP) has not yet been fully developed and implemented with details of specific management objectives (Gittens, pers. comm.). The lobster fishery remains open access to domestic fishers and no foreign fishing is allowed. Permits are required for domestic fishers using wooden lobster traps and vessels over 20 ft. Fishermen using casitas do not require permits. Fisheries management is currently limited by financial constraints and human capacity.</p> <p>Due to the difficulties in monitoring and enforcing fisheries regulations throughout the archipelago, a</p>		

precautionary management strategy has been adopted to help protect vulnerable life stages of the lobster population. These include: minimum size limits; permits for lobster traps; restrictions on fishing gear; restrictions on taking 'berried' females (stripping or otherwise removing eggs from 'berried' females is prohibited); closed seasons, and; no fishing in Marine Protected Areas. Limiting the size at first capture (L_c), is used to help protect the population from recruitment overfishing. The current regulation on minimum size is considered to be precautionary and is above the average size at maturity (L_m). Furthermore, closed seasons can be extended indefinitely if further reductions in fishing mortality are required (e.g. Nassau grouper fishery was closed for 5 years).

Limited monitoring of lobster catch exists at both landing ports and processing plants. As such, the overall effectiveness of the current precautionary management strategy is subject to uncertainty. To date, management strategy evaluations (MSE) have not been conducted.

	Harvest control rules and tools	There are well defined and precautionary harvest control rules in place that management takes in response to changes in the fishery and/or changes in the status in relation to biological reference points.
To date, no harvest control rules (HCRs) exist that describe how the exploitation rate can be reduced as the stock biomass approaches the limit reference point. Furthermore, there are no HCRs that describe how the stock can be rebuilt to the target reference point when they are below it. HCRs do not necessarily have to demonstrate a linear decline in exploitation rate with a reduction in stock productivity.		

	Information / monitoring	<p>Relevant information is collected to support the harvest strategy</p> <ul style="list-style-type: none"> • stock structure, • stock productivity, • fleet composition • harvest control rule • monitoring abundance/removal
<p>Little or no information is available regarding the stock structure of lobster populations throughout the Caribbean region, and much of the Bahamian lobster may be recruited from regions outside national jurisdiction. Building on previous FAO/WECAFC workshops, the Bahamian lobster population is thought to be part of a northern stock based around Bahamas, Bermuda, Cuba (North), Turks and Caicos Islands and United States of America (Florida) (FAO-WECAFC 2007). This assumption has been based on the ocean current patterns and not rigorous scientific studies, including genetic or other. Recruitment of lobster within The Bahamas may not depend on the abundance of adults within the archipelago, although some local entrainment of the population is likely. The results of a new genetic study of lobster populations within the Caribbean will further help to differentiate the Bahamian stock structure within the region (Hunt, pers. comm.).</p> <p>Limited information and data are available to determine the overall status and productivity of the Bahamian lobster stock. As indicated above, the productivity of the stock may be determined by a wide range of factors, including the abundance of an adult population outside The Bahamas and changes in local environmental conditions that could affect post larval recruitment, for example.</p> <p>DMR collects catch and effort data on a daily basis from landing ports in New Providence, Andros, Abaco and Grand Bahama. A Marine Resource Landing Form is used which records the general fishing location, gear used, time fished, number of fishers, catch and weight and value by species. In addition to the Landing Form, all processing plants are required to submit a Monthly Purchase Report that</p>		

details total purchases by weight and value, the source of the resource and date of purchase on a monthly basis (FAO 2001a). However, these data do not represent the total landings within The Bahamas. A revised data collection form is being developed to obtain additional information on fishers' catch and effort. Trip interviews provide catch-per-unit-effort (CPUE) data but this is highly variable and prohibits a reliable stock assessment from being conducted. Illegal, unregulated and unreported (IUU) fishing is known to occur within The Bahamas EEZ but no information is available on the scale of the problem.

The number of wooden traps and compressors are monitored through the number of licenses, although the number of casitas is not routinely monitored. In general, there is a trend away from wooden lobster traps to an increase in the use of casitas. Limited information is available on the fleet structure, with all mothership-dory vessels and day-boats larger than 20ft monitored through the vessel license scheme. Each day-boat has approximately 2-3 fishers while a mothership may contain between 4-8 dories. Since vessels below 20ft are not required to obtain a commercial fishing license, no information is available to monitor trends in the number of vessels by size category. The number and general location of wooden lobster traps are required to have an ID mark, although this does not yet occur for casitas, which remain relatively uncontrolled.

Limited biological sampling is conducted at landing sites and processing plants to monitor the fishery. This includes information on length, weight and sex.

	Assessment	There is an adequate assessment of the stock Assessment methods tested and found to be reliable
<p>In 2007, an assessment of the lobster population was made using a length-converted catch curve analysis that updated the results from the 2006 FAO/ WECAFC workshop in Merida, Mexico (FAO-WECAFC 2007). The methodology was originally developed by Ehrhardt and Legault (1996). This was reviewed by members at the 4th Annual SRFM Scientific workshop in 2008 (CRFM 2008).</p> <p>The results indicate that estimates of fishing mortality have shown a slight increase since 2005/06, although the values are believed to be much higher than the true F values. However, they are still useful in monitoring relative changes and can be considered a ceiling value for fishing mortality for The Bahamas. The methodology does not provide an estimate of stock abundance nor has it been subject to external review.</p> <p>Although the numbers of casitas are not monitored, anecdotal information derived from senior fisheries officers indicate that their use has peaked since the 1990s (Gittens, pers. comm.). Casitas are placed adjacent to the reef or on sea grass beds and may appear to increase the natural habitat available to lobster. However, they could equally be attracting the existing lobster population away from the reef, acting as an aggregating device that artificially increases catch rates. To date, no studies have been performed on the potential impacts of casitas on the lobster fishery.</p>		

5.2 Principle 2

Principle 2 Component	Performance Indicator Category	Draft Performance Indicator
Retained species (other than target)	Outcome – status	The fishery does not pose a risk of serious or irreversible harm to the retained species and does not hinder recovery of depleted retained species.
The two primary methods of capture, lobster traps and casitas, are very selective and few other fish are retained. A small bycatch of finfish (e.g. lane snappers, grunts and tulip snails) are on occasion retained in wooden traps, but these are thought to be relatively minor (Gittens, pers. comm.). During the lobster season, fishers target lobster exclusively but switch to conch during the closed season. Retained species catch falls below the 5-10% of target catch required for a full assessment of this PI.		
	Outcome – recovery	Where a retained species is depleted, management measures allow for its recovery.
n/a		
	Management – Harvest strategy	There is a strategy in place for managing retained species that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to retained species.
n/a		
	Management – Information / monitoring	Information on the nature and extent of retained species is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage retained species.
Information collected from the Marine Resource Landing Form and Monthly Purchase Report can be used to monitor the fishery from the landing ports and processors in New Providence, Andros, Abaco and Grand Bahama. Potential changes in retained species composition and abundance of catches is likely to be monitored through the Landing Form and informal discussions with between fishers and fisheries officers. Monitoring can be improved within the outer islands.		
Bycatch	Outcome – Status	The fishery does not pose a risk of serious or irreversible harm to the bycatch species or species groups and does not hinder recovery of depleted bycatch species or species groups.
The two primary methods of capture, lobster traps and casitas, are very selective with traps retaining low levels of bycatch (< 5-10% of total catch weight) while casitas allow animals to move freely in and out. Although no quantitative information is available from research studies, bycatch in traps reported in other parts of the Caribbean may prompt an assessment team to seek confirmation of this.		
	Management – Management strategy	There is a strategy in place for managing bycatch that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to bycatch populations.
n/a		

	Management – Information / monitoring	Information on the nature and amount of bycatch is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage bycatch.
Potential changes in bycatch species composition and abundance of catches will not be monitored through the Landing Form, but the close association between the fishers and fisheries officers will help determine if new trends are likely to pose an important issue. Monitoring can be improved within the outer islands.		

ETP species	Outcome – Status	The fishery meets national and international requirements for protection of ETP species. The fishery does not pose a risk of serious or irreversible harm to ETP species and does not hinder recovery of ETP species.
The two primary methods of capture, lobster traps and casitas, are selective and although traps can retain limited bycatch, no ETP species have been reported. In contrast, casitas allow animals to move freely in and out of the gear (Gittens, pers. comm.). Although no quantitative information is available from research studies, bycatch of ETP species in traps reported elsewhere in the Caribbean may prompt an assessment team to seek confirmation of this.		

	Management – Management strategy	The fishery has in place precautionary management strategies designed to: <ul style="list-style-type: none"> - meet national and international requirements; - ensure the fishery does not pose a risk of serious or irreversible harm to ETP species; - ensure the fishery does not hinder recovery of ETP species; and - minimize mortality of, or injuries to, ETP species.
n/a		

	Management – Information / monitoring	Relevant information is collected to support the management of fishery impacts on ETP species, including: <ul style="list-style-type: none"> - information for the development the management strategy; - information to assess the effectiveness of the management strategy; and - information to determine the outcome status of ETP species.
Potential changes in ETP species composition and abundance of catches will not be monitored through the Landing Form, but the close association between the fishers and fisheries officers will help determine if new trends are likely to pose an important issue. Monitoring can be improved within the outer islands.		

Habitat	Outcome – Status	The fishery does not cause serious or irreversible harm to habitat structure, considered on a regional or bioregional basis, and function, in relation to ecosystem services.
<p>Little or no research has been undertaken to demonstrate trends in habitat structure in the regions used for lobster fishing. The coral reefs and seagrass beds appear to have been maintained. It remains unclear whether fishing activities contribute to adverse impacts on habitat. Casitas are artificial habitats that may increase the potential area available to lobsters and prevent fishers having to dive directly on the reef, thus potentially reducing the level of damage to the coral. Casitas are now increasingly being placed on seagrass beds. Casitas are made from sheet metal and wooden poles, which although do not cause ghost fishing, may contribute to long-term reef damage following a hurricane or other disturbance. Fishers also use up to 25 traps that are tied together in a string. Unlike casitas that remain in position and require fishers to dive in order to harvest lobster, traps must be pulled to the surface to release and sort the catch.</p>		

	Management – Management strategy	There is a strategy in place that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to habitat types.
<p>Regulations are in place to prevent fishers from touching coral or using poisons or other chemicals without permission that may damage the habitat and living marine resources. As such, casitas and lobster traps are not placed directly on the reef, which is thought to help minimize habitat impacts. However, there are no regulations or controls in place to limit the total number of casitas or traps in use.</p>		

	Management – Information / monitoring	Information is adequate to determine the risk posed to habitat types by the fishery and the effectiveness of the strategy to manage impacts on habitat types.
<p>Baseline GIS information is available to identify main habitats types found within The Bahamas. Further information on the nature, distribution and vulnerability of all main lobster habitats (incl. seagrass beds) in the fishery area is required to determine the level of physical impact on the environment from casitas and traps prior to developing management strategies. The direct impacts of lobster traps on the habitat have not been studied in The Bahamas, but evaluations of impacts have occurred in the region (e.g., CFMC 2004) that may provide insights. The potential impacts of casitas on these habitats have not yet been studied.</p>		

Ecosystem trophic structure and function	Outcome – Status	The fishery does not cause serious or irreversible harm to the key elements of trophic structure and function.
<p>Within The Bahamas, lobster is one of the primary grazers on the reef, helping to regulate and control the level of algal growth within the environment and maintaining a healthy coral reef ecosystem. No information is available to demonstrate the impacts of reducing lobster within the ecosystem.</p> <p>Use of casitas is thought to increase the area of available habitat for lobsters, thus potentially enhancing ecosystem structure and function. However, it remains unclear whether casitas act as aggregating devices, attracting resident lobster away from the reef or increasing lobster production. Indeed, a wide range of lobster size classes are observed taking refuge within casitas, in addition to attracting predators (e.g. turtles and sharks).</p> <p>Although lobster traps are often baited, both traps and casitas act as refuges. As such, casitas have no direct impacts to other living marine resources to maintain the fishery, while lobster traps are considered to have negligible impact on bycatch species. The fishery is unlikely to disrupt the key elements underlying ecosystem structure and function although this requires quantitative analysis.</p>		

	Management – Management strategy	There are measures in place to ensure the fishery does not pose a risk of serious or irreversible harm to trophic structure and function.
<p>The size of wooden lobster traps is carefully regulated to prevent bycatch of finfish and other species. Trap fishers are required to have a permit although no restrictions are placed on the number of traps in use. Traps must also not be placed on coral to prevent damage to the reef. Improvements could be made to improve the selectivity of the traps and eliminate the risk of ghost fishing by inserting biodegradable panels.</p> <p>In contrast, no precautionary regulations exist to control the number or size of casitas, although since they operate mainly as a refuge and cannot ghost fish they are considered unlikely to disrupt key elements underlying ecosystem structure and function. Due to the materials used in their construction, casitas may remain active in the environment up to 6 or 7 years (Gittens, pers. comm.) and their potential to damage the ecosystem if lost is unknown.</p>		
	Management – Information / monitoring	There is adequate knowledge of the impacts of the fishery on the trophic structure and function.
<p>Information collected from the Marine Resource Landing Form and Monthly Purchase Report can be used to monitor fishery removals within the ecosystem from the landing ports and processors in New Providence, Andros, Abaco and Grand Bahamas. The main impacts of the fishery on the ecosystem can be determined from this data although monitoring can be improved, particularly within the outer islands.</p> <p>Currently no information is available on the number or location of fishing gear in use although a proposed revision to the data collection form may include some of this information.</p>		

5.3 Principle 3

Principle 3 Component	Performance Indicator Category	Draft Performance Indicator
Governance and policy	Legal and/or customary framework	<p>The management system exists within an appropriate and effective legal and/or customary framework that:</p> <ul style="list-style-type: none"> - Is capable of delivering sustainable fisheries in accordance with MSC Principles 1 & 2, - Observes the legal and customary rights of people dependent on fishing for food and livelihood³, and - Incorporates an appropriate dispute resolution framework. <p>Bahamian fisheries are governed by Chapter 225, Fisheries Resources (Jurisdiction and Conservation) Act 1977; Fisheries Resources (Jurisdiction and Conservation) (Amendment) Act, 1993 Fisheries Resources (Jurisdiction and Conservation) (Amendment) (No. 2) Act, 1993. To date, all commercial fishing opportunities are made available exclusively for the people of The Bahamas, and no foreign commercial fishing is permitted. The 1977 Fisheries Act is currently under revision and new draft Legislation has been prepared with a number of new regulations (cited in draft FMP):</p> <p>New Fisheries Act: to prepare The Bahamas for its obligations under the Law of the Sea Convention. This new draft Act is to be considered by the Cabinet, and defines Government's policy with respect to utilization and management of the fishery resource within the fishing zone of The Bahamas.</p> <p>New Fisheries Regulations: Coupled with the new draft Act, new fisheries regulations are being considered to better conserve and manage the fishery resource and the fishing industry.</p> <p>Bahamas Fish Inspection Regulations: These govern the processing of seafood and have been prepared and reviewed by cabinet.</p> <p>Marine Mammal Act and Regulations: This legislation was enacted in 2005 to provide for the jurisdiction, protection and conservation of marine mammals.</p> <p>Wildlife Conservation and Trade Act: This legislation was enacted in 2004 to help address a range of international issues related to CITES.</p> <p>Concern has been expressed that prosecutions are currently made under a criminal justice system, rather than a civil justice system. Thus, without sufficient guidelines on the expected level of fines and penalties, the effectiveness of fisheries monitoring, control and surveillance mechanisms can be severely undermined (Braynen, pers. comm.). Although the legal framework has a court system all citizens have access to, there is currently no formal or informal mechanism to resolve disputes in the fisheries sector.</p>

³ Certification bodies should not make their own judgements or unilateral decisions about whether custom has conferred legal rights upon any particular group or individual. Decisions of legislatures (through statutes) or courts will establish this. Only if there are questions or issues within an assessment about such rights should certification bodies be looking in detail at these issues. Certification bodies are also reminded that, in accordance with the MSC's Principles and Criteria, issues involving allocation of quota and access to marine resources are beyond the scope of an assessment against the MSC standard.

	Consultation, roles and responsibilities	The management system has effective consultation processes ⁴ that are open to interested and affected parties ⁵ . The roles and responsibilities of organizations and individuals who are involved in the management process are clear and understood by all relevant parties ⁶ .
<p>A Fisheries Advisory Committee (FAC) was appointed in 1998 and its role is to represent the views of the various sectors of the industry to the Minister responsible for Fisheries. Meetings are held infrequently and are prompted most often when a crisis occurs or problems need to be resolved (Braynen, pers. comm.). The FAC operates with two chairmen with members appointed by the Minister. In January 2000, there were twenty-five (25) persons or organizations as members of the FAC (DMR 2000). To date, no senior member of the DMR is included on the FAC. However, under the New Fisheries Act, the FAC will be a Statutory Body and that the Director of Fisheries will be included as a member.</p> <p>There is no formal documentation outlining the consultation process and roles of responsibilities of each stakeholder and management agency. Stakeholder consultation is developed in an ad-hoc manner as and when the need arises but has generally seen to be increasing within the fisheries sector (Gittens, pers. comm.). For example, public consultations have been used prior to the closure of the Nassau grouper fishery and the development and implementation of MPAs. This included town meetings with stakeholders while others were by invitation of the government only.</p>		

	Long term objectives	The management policy ⁷ has clear long-term objectives to guide decision-making that are consistent with MSC Principles and Criteria, and incorporates the precautionary approach and strategies to meet the objectives ⁸ .
<p>The draft Fisheries Management Plan (FMP) indicates the long term objectives of the fisheries sector that include achieving maximum sustainable yields whilst ensuring the conservation of the resources. These are in need of revision and a draft FMP has identified a range of key long-term objectives, including:</p> <ul style="list-style-type: none"> • Ensure that the fishing industry is integrated into the policy and decision-making process concerning fisheries and coastal zone management. • Take into account traditional knowledge and interests of local communities, small-scale artisanal fisheries and indigenous people in development and management programs. • Ensure effective monitoring and enforcement with respect to fishing activities. • Promote scientific research with respect to fisheries resources. • Promote a collaborative approach to freshwater and marine management. • Protect and restore endangered marine and freshwater species. • Maintain or restore populations of marine species at levels that can produce the optimal sustainable yield as qualified by relevant environmental and economic factors, taking into consideration relationships among various species. • Protect and restore endangered marine species (especially turtles). 		

⁴ Appropriate to the scale, intensity and cultural context of the fishery. This should include consideration of consultation processes at both the management system and fishery-specific management systems that occur within it. For example, but importantly not confined to, consultation at the level of policy development and at the level of research planning.

⁵ Depending on the context, this may include individuals, mandated representatives, participants in the fishery etc.

⁶ Consideration of the roles and responsibilities of the fishers in relation to their cooperation with the collection of relevant information and data, where relevant and/or necessary, may be considered under this performance indicator.

⁷ Management policy, in this context, means outside the specific fishery under assessment (i.e., at a higher level or within a broader context than the fishery-specific management system).

⁸ The precautionary approach, in this context, means being cautious when information is uncertain, unreliable or inadequate, and that the absence of adequate scientific information shall not be used as a reason for postponing or failing to take conservation and management measures. (Article 6, UN Agreement for the implementation of the provisions of UNCLOS of 10 December 1982 relating to the conservation and management of straddling fish stocks and highly migratory fish stocks. Also known as the "Fish Stocks Agreement".)

<ul style="list-style-type: none"> • Promote the development and use of selective fishing gear and practises that minimize waste in the catch of target species and minimize by-catch of non-target species. • Cooperate with other nations in the management of shared or highly migratory stocks. • Preserve rare or fragile ecosystems, as well as habitats and other ecologically sensitive areas, especially coral reef ecosystems, estuaries, mangroves, sea grass beds, and other spawning and nursery areas. • Develop and increase the potential of living marine resources to meet human nutritional needs, as well as social, cultural, economic and development goals in a manner that would ensure sustainable use of the resources.

	Incentives for sustainable fishing	The management system provides economic and social incentives for sustainable fishing and does not operate with subsidies that contribute to unsustainable fishing ⁹ .
Duty free concessions (under Tariff Act 1975) are given for fishing boats, engines, materials for fish pots/ traps and assembled traps, freezing units and insulation for fishing vessels, reverse osmosis and ice making machines for fishing vessels and navigational equipment.		
No information is available to determine whether these are perverse subsidies that might be contributing to increased fishing mortality within the lobster fishery.		

Fishery- specific management system	Fishery- specific objectives	The fishery has clear, specific objectives designed to achieve the outcomes expressed by MSC's Principles 1 and 2.
There are no fishery-specific objectives outlined for the lobster fishery apart from that indicated in the Fisheries Act to maintain the fishery at MSY. A revised draft FMP is currently being developed although fishery-specific objectives remain unclear for lobster.		

	Decision-making processes	The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives ¹⁰ .
There are formal decision-making processes that are designed to result in measures and strategies to maintain the stock at sustainable levels. Based on relevant information, the government is able to respond to serious or other significant issues identified from research, monitoring and evaluation. For example, the Nassau grouper fishery or Nassau grouper major spawning sites were closed during the Nassau grouper spawning season for various lengths of time during 7 of the last 10 years. With exception that the use of casitas has not been evaluated, the majority of decision-making processes are based on the precautionary approach and the best available information (Gittens, pers. comm.). Decisions are made in a private setting that incorporates public input to varying extents.		

⁹ This PI gives effect to Criterion A6. In addition to considering positive incentives, certifiers should take into account the existence of perverse incentives, i.e. incentives for fishers to fish unsustainably. For instance, management systems should not include subsidies that obviously contribute* to unsustainable** fishing. Since there is not yet international agreement on what actions should be considered subsidies and which of these may be considered "good" or "bad" under different circumstances, certifiers should not attempt to identify and classify all subsidies in the fishery under evaluation. Instead, they should only take note of any issues that are quite clearly and obviously perverse incentives which are contributing or have significant potential to contribute to unsustainable fishing.

* Contribute, in this context, means contributing to unsustainable fishing at the time of assessment for certification.

** Unsustainable, in this context, means unsustainable in an ecological / environmental sense, not economically unsustainable.

¹⁰ "...decision-making processes that result in measures and strategies etc". In this context, the relevant performance-related issue is whether the decision-making processes actually produce measures and strategies, not an evaluation under this performance indicator of the quality of those measures and strategies which is covered elsewhere in the assessment tree structure. The assessment issue is about the decision-making processes themselves.

	Compliance & enforcement	Monitoring, control and surveillance mechanisms ensure the fishery's management measures are enforced and complied with.
<p>MCS is conducted using a multi-agency approach involving the DMR, which has the primary responsibility, the Defence Force, the Police Force and the Customs Authorities. Customs primarily assist with the issue of sport permits.</p> <p>Fisheries surveillance is undertaken both jointly and separately by DMR and the Defence Force. Both agencies may appoint Fisheries Inspectors but DMR are severely constrained due to limited resources. In contrast, the Defence Force has a larger fleet capable of travelling greater distances and has recently added 2 new boats that are expected to bring significant improvements to fisheries patrols as well as enhance illegal immigration and drug enforcement efforts. However, DMR are ultimately responsible for the prosecution although facilities are often lacking to store the evidence (i.e. catch).</p> <p>MCS information, including licensing and registration details of vessels is currently held in a DOS-based database application. This allows the ability to share and analyse information relatively quickly and efficiently, on which decisions can be made. No vessels are required to have a vessel monitoring system (VMS) and no radar exists to monitor location of vessels. The level of illegal, unregulated and unreported (IUU) fishing is thought to be significant, particularly from foreign vessels entering the EEZ and domestic vessels fishing during the closed season.</p> <p>Fishing logbooks are not required in The Bahamas, although limited catch and effort data are collected by fishers on a voluntary basis using the Marine Resource Landing Form and from processing plants using the Monthly Purchase Report. Although processing plants do not currently have information on fishing effort, a revised data collection form will provide more comprehensive data on the lobster fishery. Limited biological sampling occurs to enable length-converted catch curve analysis.</p>		
	Research plan	The fishery has a research plan that addresses the information needs of management.
<p>Fisheries management and research is currently limited by financial constraints and human capacity. While there is no detailed research plan, projects are identified at the beginning of each fiscal year. In many instances the manpower and time have not been available to complete the projects. This research does not consistently address issues with stock status and ecosystem impacts of the fishery.</p> <p>Collaboration with DMR to attend WECAFC-FAO funded workshops has led to a list of regional priorities for lobster, but these are not necessarily deemed appropriate by the government.</p>		
	Monitoring and evaluation	There is a system that monitors and evaluates the performance of the fishery-specific management system against its objectives. There is effective and timely review of the fishery-specific management system.
<p>The lobster fishery provides limited information with which to monitor the performance of some of its components (e.g. MSC etc) within the management system. However, it is not known if any evaluation of management performance is made within the lobster fishery. It is believed that effective and timely reviews of the fishery-specific management system are not conducted, since the fishery does not yet have clear fishery-specific objectives to evaluate against.</p>		

6 PROBLEMS AND OBSTACLES TO MSC CERTIFICATION

6.1 Key Issues That Could Lead to Non-conformance in a Full MSC Evaluation

Under the MSC system, when an evaluation team finds the fishery does not meet the MSC standard in a given area, the area is identified as a non-conformance. There are a few areas where this could occur in The Bahamas lobster fishery. In addition to these areas, there are issues that arise that can rise to the level of controversy and objection under the MSC system, where stakeholders outside the fishery may object to the fishery being certified. Again, in this fishery there is the potential for this to occur in a few areas.

Key Factors that could lead directly to a fail or controversy (score 60 or below):

Principal 1

- **Stock status.** The official status of the stock is “unknown”, with no information available to determine whether the stock biomass has fallen below the limit reference point. The distribution and boundaries of the stock is also unknown, but is likely to extend beyond Bahamian jurisdiction. Until 2001, landings of lobster within The Bahamas have been steadily increasing, although unknown levels of total landings, fishing effort and IUU fishing may put the stock at increased risk of depletion.
- **Reference points.** The MSC methodology requires that a fishery have target and limit reference points that are appropriate for the stock. To date, Bahamian lobster does not have precautionary reference points. Because it was also determined that the status of the stock was unknown, and therefore uncertain whether the stock was at or above threshold levels (i.e. Bmsy), it is likely the assessment team would score the fishery below 60 due to the lack of defined reference points.
- **Harvest control rules.** No fishery-specific harvest control rules exist to describe management action in response to changes in the fishery and/or changes in stock status in relation to reference points.
- **Stock assessment.** Using limited fishery and biological information, an assessment of the lobster population was made in 2007 using a length-converted catch curve analysis. The results indicate that estimates of fishing mortality are unrealistically high, but may be used to identify relative trends in the fishery. The results indicate fishing mortality in 2006/07 has increased from the previous season, whilst catches have since declined from a peak reported in 2001. The current assessment does not provide information on the status of the stock biomass and cannot be related to biological reference points. During the 2008 CRFM Scientific Workshop, the results of the latest assessment and methodology were discussed in plenary sessions of consultants and fisheries scientists that provided a number of suggested improvements.

Principal 3

- **Performance of management system.** The lobster fishery provides limited information with which to monitor the performance of some of its components (e.g. MCS etc) within the

management system. It is believed that effective and timely reviews of the fishery-specific management system are not conducted, since the fishery does not yet have clear fishery-specific objectives.

Key Factors that could lead to a conditional pass (score between 60 and 80) or controversy:

Principal 1

- **Harvest strategies: Performance of the harvest strategy.** In recognition of the challenges faced by monitoring and enforcing a domestic open-access fishery across a large archipelago, a precautionary harvest strategy has been developed for the lobster fishery. Limited monitoring, however, is unable to determine whether the harvest strategy is actually working and achieving its objectives. This is confounded by the lack of information on the status of the stock and associated limit reference points.
- **Harvest strategies: Information and monitoring.** The overall stock structure of lobster within the Greater Caribbean is unknown. However, some relevant information is available to hypothesize that The Bahamas population is linked to other stocks within the northern Caribbean region. Fisheries statistics, including limited catch and effort data, are collected but are insufficient to monitor the productivity of the fishery. Information on the number of part- and full-time fishers, vessel number and type are reported, although the total number of active fishing gear, especially casitas, remains unknown. Fishery removals are monitored through voluntary landing forms and catch information supplied to processing plants. A revised data collection form is being developed that should include more information on fishing effort and location.

Principal 2

- **All topics: Information/monitoring.** While conversations with DMR suggest satisfactory status of ecosystem components (with the possible exception of habitat), no information exists to confirm this. We suggest that DMR investigate whether opportunities exist to address this lack through literature reviews and comparisons of The Bahamas fishery with other fisheries that have information, and whether these could provide sufficient information to draw inferences to confirm the status. For example, observations of interactions (or lack of interactions) of protected species with lobster fishing vessels or gear in adjacent or nearby areas could provide a compelling extrapolation to The Bahamas. Similarly, analyses of trophic dynamics of lobster populations in other areas could provide insights for The Bahamas. Additionally, a program to quantify ongoing observations by biologists and enforcement officers could provide information relevant to retained species, bycatch, and protected species.
- **Habitat: Status.** Both lobster traps and casitas are placed adjacent to the reef to prevent damage to the coral. Casitas are thought to increase the area of habitat available to lobster and also being placed on seagrass beds. The increasing popularity and number of casitas within the fishery may have unknown impacts on the habitat.
- **Habitat: Management strategy.** Regulations are in place to control the physical placement of traps and casitas away from the reef, although no limits have been placed on the number of

gear in use. Furthermore, fishers using casitas do not require a permit to fish and do not have to identify their gear.

- **Habitat: Information/monitoring.** Baseline information is available on the distribution of main habitat types within The Bahamas. However, no information is available to determine the level of risk the fishery poses on the nature, distribution and vulnerability of the main lobster habitats.
- **Ecosystem trophic structure and function: Status.** No information is available to determine the impact of the lobster fishery on the trophic structure and function of the ecosystem. However, the lobster fishery does not retain other species or discard bycatch or ETP species. As such, the potential impact of the fishery on the trophic structure and function is likely to come directly from changes in the abundance of lobster. Lobster is a primary herbivore on the reef, and their depletion would be expected to have a noticeable affect on the level of algal cover, for example. Moreover, lobsters are important prey items for a variety of predators, including turtles and sharks. Casitas act as refuges that allow lobster and other marine animals to move freely in and out of the gear. In contrast, lobster traps are designed to retain lobster, which if lost could lead to ghost fishing. The size and structure of the traps are likely to allow juvenile finfish to escape, but without a biodegradable panel, Bahamian lobster traps are capable of ghost fishing adult lobster.
- **Ecosystem trophic structure and function: Management strategy.** Regulations are in place to control the physical placement of traps and casitas away from reefs, although no limits have been placed on the number of gear in use. Lobster traps are not required to include a biodegradable panel in case the trap is lost.
- **Ecosystem trophic structure and function: Information/monitoring.** The lobster fishery is highly targeted with no known bycatch/ ETP species issues that may also affect ecosystem trophic structure and function. Existing data collection programs should be sufficient to determine changes in targeting behavior, although this is unlikely due to the high value of the product.

Principal 3

- **Governance and policy: Legal and/or customary framework.** There is a legal framework in place with fisheries regulations that can be used to manage the fishery and promote sustainable utilization of the resource. The Fisheries Act is currently under revision primarily to incorporate obligations under the Law of the Sea Convention, and is not expected to affect the operation of the lobster fishery. The management regime has previously been shown to be successful, when relevant information is available, through the adoption of a 5 year rebuilding plan for Nassau grouper and several IUU fishing arrests. Concern has been expressed, however, over the effectiveness of the legal justice system to deliver appropriate fines and penalties for violations of the regulations, which are currently made under a criminal judicial system.
- **Governance and policy: Consultation, roles and responsibilities.** A multi-agency approach is used to manage the fisheries sector (e.g. DMP, Defense Force, Police Force etc), and organizations and individuals involved in the process have been identified together with

their functions, roles and responsibilities. The management system does include a consultation process through the Fisheries Advisory Committee. To date, however, the consultation process with key stakeholders is ad-hoc with little or no formal procedures. As such opportunities for stakeholders to engage in the management process or express their opinions and knowledge are limited.

- **Fishery-specific management system: Research plan.** Due to a number of financial constraints and limitations in human capacity, there is currently no active fishery-specific research plan. While there is no detailed research plan, projects are identified at the beginning of each fiscal year. In many instances the manpower and time have not been available to complete the projects. This research does not consistently address issues with stock status and ecosystem impacts of the fishery. A list of key areas, or priorities, have been identified from various externally-funded lobster workshop reports, but these may not necessarily be fully endorsed the government.
- **Governance and policy: Long term objectives.** Fisheries policy has general long term objectives within the Fisheries Act, which include achieving maximum sustainable yields whilst ensuring the conservation of the resources, and reserving the 100% of the fishing rights within Bahamian waters to local people. More specific objectives are available within the draft FMP. This document has not yet been approved.
- **Governance and policy: Incentives for sustainable fishing.** There are no clear incentives that are developed to encourage sustainable fishing practices. A range of subsidies exist, including duty free concessions, but it is unclear whether these may contribute to unsustainable fishing.
- **Fishery-specific management system: Fishery-specific objectives.** With exception to the general long term objectives of the fisheries sector there currently are no fisheries-specific objectives. More specific objectives for the lobster fishery are available within the draft FMP. This document has not yet been approved.
- **Fishery-specific management system: Decision-making processes.** Only informal decision-making processes exist that result in measures and strategies to maintain the stock at sustainable levels. Based on relevant information, DMR is able to respond to serious or other significant issues identified from research, monitoring and evaluation. With exception to casitas, the majority of decision-making processes are based on the precautionary approach and the best available information.
- **Fishery-specific management system: Compliance and enforcement.** A number of MCS mechanisms exist and are implemented within the lobster fishery. Overall however, these need to be strengthened to enable sufficient data to be collected to conduct robust stock assessments and ensures compliance with regulations in force.

6.2 Other Issues for Certification

We believe moving from the pre-assessment stage to the full assessment stage is not recommended in this fishery at this time. If however, the client believes that it can provide

positive information dealing with the areas of possible non-conformance and controversy we have outlined above, moving to full assessment should take into account working relations with the management authorities. The Bahamian lobster fishery will have to have good working relations with both the fishers and processing plants, and should advise them of your interest before announcing any move if the fishery hopes for this exercise to go as smoothly as possible.

It is our opinion that this cannot be achieved within the time constraints available, but the ultimate decision rests with the client.

7 THE CERTIFICATION PROCESS

To carry out a successful certification of The Bahamian lobster fishery, the certification team must make sure it follows the required steps. We have outlined the steps below to inform the readers as to what would occur should a full certification be sought by the fishery. We also believe that a successful full assessment will depend on a comprehensive stakeholder consultation process, which in and of itself will be a significant portion of the MSC evaluation process given the number of fishing nations and conservation groups interested in these fisheries.

7.1 Assemble Evaluation Team

MRAG would select a team with appropriate expertise and experience. Before making a final selection of team members, stakeholder groups (industry, government, and conservation groups) would be interviewed for their concerns and their opinions on the available and appropriate experts.

The most significant issue at this step will be to ensure that at least one agreed expert has significant expertise in bycatch of fisheries, and in specific management of bycatch on birds and other listed or sensitive species.

7.2 Setting performance criteria

The MSC Principles are by necessity general. This makes it difficult to actually know exactly what to examine in evaluating the performance of the management, resource, and ecosystem measures in the fishery. As a result, the MSC Principles and Criteria need to be translated in 'Performance Indicators' and some guidelines need to be set up for use by the evaluation team in scoring the performance of the fishery against the 'Performance Indicators'.

A generic set of 'Performance Indicators' and scoring guidelines for fisheries has been assembled by the MSC, due largely in part to the efforts of the evaluation teams hired by SCS in the certification of several different fisheries. The team will review the generic set of 'Performance Indicators' and scoring guides and where required make recommendations to the MSC for any modifications found necessary for the evaluation of The Bahamian lobster fishery.

Using the set of finalized 'Performance Indicators', the evaluation team will prioritize and weight the indicators as they apply to The Bahamian lobster fishery. It is widely recognized that while all the indicators required by the MSC certification process are valid in all fisheries, the general importance of each may change in individual fisheries due to differences in geography, biology, ecology, or management agency.

It will be important for the evaluation team to fully complete this step before carrying on with Stakeholder Consultations. Stakeholders will no doubt want to read through the performance measures used to evaluate the fishery as part of their effort to understand and comment on the process and on the fishery to the evaluation team.

7.3 Stakeholder Consultation

The MSC certification process requires that the evaluation team meets with stakeholders of the fishery and allow them to provide input regarding the certification of the fishery. There is no specific requirement to address directly or indirectly the concerns raised by the stakeholders, but it is obvious that if legitimate concerns are raised they must be taken into consideration by the evaluation team. Stakeholder consultation is necessary for two reasons: (1) it allows the stakeholders to voice opinions so they are engaged in the process, and (2) it provides the evaluation team with the widest possible views of the fishery so that the team can successfully cover all aspects of the fishery in the evaluation process.

The stakeholder consultation is not designed to be an open-ended process, nor one of casting aspersions. Stakeholders will be asked to submit issues in writing and to provide supporting documentation. Political arguments and arm-waving accusations are less likely to merit much consideration, as they provide nothing for the evaluation team to critically examine with regard to the fishery's performance.

7.4 Data collection and review

With indicators selected, performance levels identified, and stakeholders interviewed, the team will collect and review all necessary and relevant information to assess the fishery. This will mean meeting with and interviewing all relevant scientists and staff engaged in the management of the fishery. The team will be requesting documentation on the status of stocks, management operations, management regulations, enforcement, environmental impacts, gear, etc. The team will also be asking for data on bycatch, discards, implications for threatened and endangered species, ecosystem impacts from gear, ecosystem impacts from removal of *Panulirus argus*, ecosystem productivity, and more.

7.5 Performance scoring

After all data is reviewed, the team will meet to work through a consensus process of scoring each performance indicator to determine if it meets or exceeds the minimum performance levels set forth by the MSC Principles and Criteria. The findings of this meeting will determine if each of the fisheries pass the certification process.

7.6 Draft report

A report will be drafted and sent to the Client for internal review. This helps to ensure that the team has not seriously missed or misinterpreted any information pertinent to the evaluation of the fishery. The evaluation team will then take the comments of the Client and revise the report as appropriate.

7.7 Peer review

The last task required of the MSC in the certification process is having the final draft report peer reviewed by experts of equal or greater stature to those conducting the evaluation. Several issues need to be addressed by the peer review process.

1. Peer reviews must determine if the information included in the assessment has been accurately reported and that there are no other data, which have been ignored or overlooked which would give a contrary picture of the fishery.
2. A peer review must determine if the management in the fishery is comprehensive and that arrangements for management and research investigations which have, or are planned to be undertaken, for the fishery, are adequate for resource protection and management of this type of fishery.
3. Lastly, a peer review must determine if the assessment procedures, practices, and results meet the certification standards of the MSC.

To accomplish all these tasks, the peer review team should have a high level of technical competence, regional expertise, and objectivity (especially as defined by stakeholders outside the industry).

7.8 Dispute Resolution

The Bahamian lobster fishery appears to have some areas where a controversy could arise. Therefore, it is important to plan ahead and be prepared in the eventuality that an objection occurs.

The MSC requirements are clear. The first step to be taken by any organization or individual wishing to complain about the certification process or outcome is to lodge a formal complaint with the certification body or organization that conducted the evaluation. The Certification Company and its team of experts must then with reasonable effort answer the complaint and try to come to some agreed conclusion.

If the complainant cannot be satisfied by the Certification Company and its expert team, then the complaint can be elevated to a formal complaint to the MSC itself. Once elevated to this level, the MSC will require that the certification company and its experts provide answers to the specific issues in the complaint to the MSC Accreditation Officer, the MSC Standards Committee, and finally to the MSC Board of Directors.

The time commitments for resolving disputes can vary considerably, especially if there are numerous complaints. As stated previously, we believe that there are no significant issues that should generate complaints in this fishery. However, as a contingency we would advise the Client to be prepared if a dispute is lodged to follow the resolution process through both in terms of time and budget.

8 BUDGET ESTIMATE AND JUSTIFICATION

8.1 Professional Services

Each fishery is slightly different in terms of the amount of time required to travel to and meet with fishery managers, fishery scientists, and stakeholders. In addition, each fishery has a

different amount of information to review and understand. All of these factors play a role in estimating a final budget. We give all these factors careful consideration and use our past experience to estimate the time requirements for the different steps in the certification process in preparing an estimated budget for an assessment project. Given our recommendation not to proceed with an full assessment, we have not prepared a budget, but have described the tasks required to complete a full assessment:

- 1 Team Selection
- 2 Review and Revise Performance Indicators
 - a. Draft Performance Indicators
 - b. Revise and Finalize Performance Indicators based on Public comments
- 3 Weight Performance Indicators
- 4 Review Submitted Fishery Data
- 5 Interview Key Fishery managers, scientists, and stakeholders
 - a. Managers, Scientists
 - b. Stakeholders (industry and conservation organizations)
- 6 Fishing Vessel Inspections
- 7 Evaluating and Scoring Fishery against Performance Indicators
- 8 Reporting
 - a. Draft Report
 - b. Discuss Conditions/Requirements with Applicant/Client
 - c. Revise Draft Report based on Client Comments
 - d. Revise Draft Report based on peer review comments
 - e. Revise Draft Report based on public review process

A full budget showing man-days required for each task, as well as the costs will be provided under separate cover to protect confidential information.

8.2 Expenses

Estimates for travel and related expenses are difficult to estimate. Expenses vary based on location of each assessment team member; the number of meetings required between the team and fisheries managers, fisheries scientists, and stakeholders; and the changing market structure for airlines and hotels. It is estimated that the assessment team will need to have at least 3 main meetings and working sessions. The first meeting to initiate the project and draft the performance indicators and scoring guidelines. This meeting will also include a consultation with the client and with key stakeholders. A second meeting is required to interview fishery scientists and managers, and key stakeholders. A third meeting is required to evaluate and score the fishery against the performance indicators. In some cases, the assessment team is able to score the fishery at the end of the second scheduled meeting. If this can take place, it reduces the need for a third meeting and therefore eliminates the additional costs. However, it is important to note that it is often impossible to determine at the outset of a project whether a third meeting will be required, as the basis for the decision is often how well other tasks have been completed by the end of the interviewing processes.

To estimate expenses we will assume that the team working sessions can be held in one place (in Seattle most likely) located as centrally as possible to the locations of the key people identified for interviews. Should there end up being a need to hold meetings in more than one location to successfully interview managers, scientists, and stakeholders, then travel related expenses could be increased.

In summary, expenses will be estimated on best available information and at current market rates, and are subject to change. Estimates will be provided under separate cover to protect confidential information, and will be based on:

- Airfares
- Hotels
- Food
- Ground Transport
- Meeting Facilities
- Miscellaneous (phone, fax, copying, etc.)

8.3 Dispute Resolution

The MSC has instituted an Objections Procedure that is an avenue for any person or organization to dispute the findings of an MSC fishery assessment. The initial step in the Objections Procedure involves the assessment team, and involves responses to specific complaints that may be raised by an objecting party. The costs for this are hard to predict, but estimates are provided with the budget under separate cover.

The second part of the MSC Objections Procedure involves a major review of the assessment process by an Objections Panel convened by the MSC. This is not the responsibility of the client, but the MSC Objections Panel does have the right to call on the original evaluation team to answer questions. At this time we are unable to provide any additional guidance on the possible costs for this part of the objections process.

8.4 Chain of Custody

Under the MSC program, each processor must also get qualified to make the claim that products come from a certified fishery and can carry the MSC logo. The Chain of Custody would be examined and documented to the extent possible for the client. A separate cost estimate could be prepared to cover this issue should the fishery be certified.

8.5 Annual Surveillance

An MSC certification requires that there is an annual audit of random aspects of the fishery and its operations. This is normally a limited operation, conducted by 2-3 team members in a period of a few days site visit and a brief report. The cost of a routine annual surveillance for this fishery could be expected to be up to 15%-20% of the initial certification costs. However, this could go higher or lower. For example, if the full assessment sets forth a number of conditions, or major aspects of the fishery change after certification, the surveillance costs could be higher. On the other hand, if the fishery evaluation goes smoothly and there are few issues, the costs for surveillance could drop to as low as 5%-10% of initial certification costs.

9 TIME REQUIREMENTS FOR CERTIFICATION

From the initiation of a certification evaluation, we anticipate that it will take a minimum of 8-10 months to complete the entire certification process, but that an assessment would more likely run for 12-15 months. This is based on 4 items:

1. Full cooperation from The Bahamian lobster fishery and the various fishers in accessing information/data about the policies, fishing practices, and management of the fishery.
2. Full cooperation from the MSC
3. Cooperation from stakeholders in eliciting comments
4. Availability of appropriate experts to participate on the evaluation team and on the peer review panel.

10 CONCLUSIONS

Based on the information available, it is anticipated that the fishery is **unlikely** to pass a full MSC assessment based on a number of key performance indicators. These are based primarily on a lack of information or knowledge on the status of the resource, stock assessments and development of biological reference points, harvest control rules and a review of the performance of the management system. We do not recommend moving forward from the pre-assessment stage into the full assessment stage for this fishery at this time.

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