

Management Performance Review of the Bahamas Lobster Fishery 2016

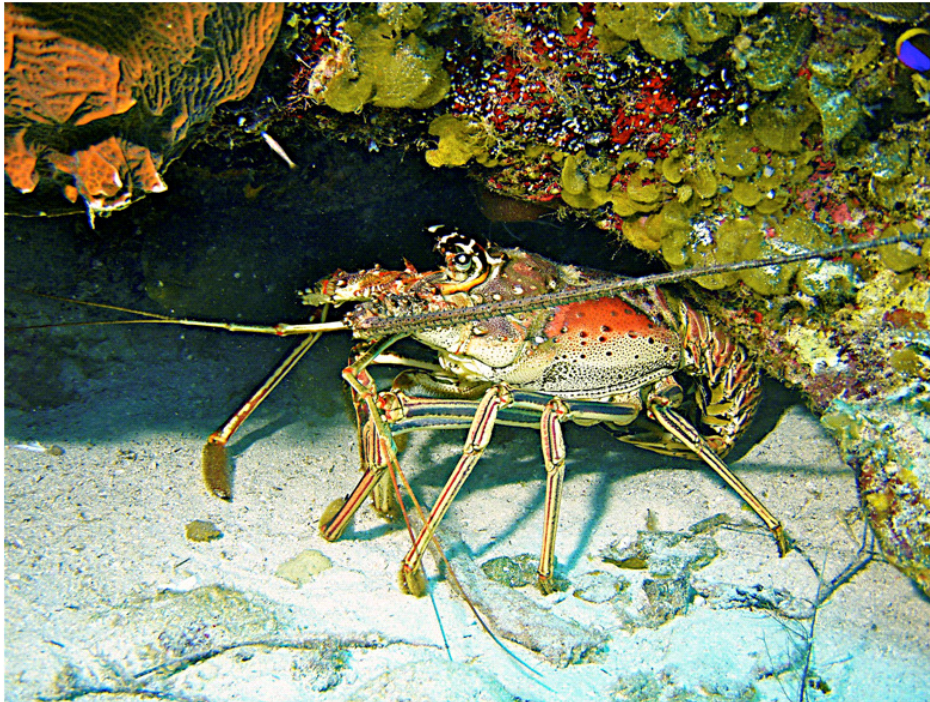


Photo: Tropic Seafood

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1 INTRODUCTION

In February 2009, WWF and the Department of Marine Resources funded an MSC pre-assessment of the Bahamian lobster fishery (*Panulirus argus*) to assess the performance of the fishery in terms of the Marine Stewardship Council's (MSC) principles and criteria for sustainable fishing (the 'MSC Standard'). A scoping document was subsequently produced to highlight areas of key concern within the fishery and provide recommendations and suggestions how the fishery may overcome these issues to reach the MSC Standard. A stakeholder workshop was held in May 2009 to raise awareness of the Fishery Improvement Project (FIP) and to discuss the main issues and concerns raised in the pre-assessment report and scoping document.

Following the initial FIP stakeholder workshop a follow-up meeting was held in October 2009 to develop a draft FIP Action Plan. This provided an opportunity for all stakeholders to contribute what they perceived as the main threats to the fishery and what action needs to be taken. The FIP Action Plan was completed in June 2010 and used as the basis to develop a series of project proposals to address key aspects in the Plan.

The fishery is currently part of a Fisheries Improvement Project (FIP) and management performance is measured against the Marine Stewardship Council's Standard. This document was created to fulfill management performance review requirements and has undergone an external review, a review by the Bahamas Spiny Lobster Working Group and the Department of Marine Resources. The Department of Marine Resources is ultimately responsible for the contents of this document.

Section 2 reviews the management performance against the stock health, which includes the lobster stock assessment and status, and the harvest strategy which includes harvest control rules and tools.

Section 3 reviews the management performance against the environmental impact of the fishery on other non-target and bycatch species, endangered, threatened and protected (ETP) species, habitats and the wider ecosystem. Specifically this addresses the outcome status, management strategy and information and monitoring of each component.

Section 4 reviews the current management performance against the Bahamas fisheries management and governance structure.

Finally, a series of recommendations from the stakeholder workshop to further improve the management performance of the fishery are provided in section 5.

2 STOCK HEALTH

To determine the status of the stock, it is necessary to define the distribution and abundance of the stock exploited by the fishery. Within the pre-assessment, the unit of certification indicated that spiny lobster has a Pan-Caribbean stock distribution. However, more recent scientific information about the likely dispersal and transport patterns of lobster larvae suggest that the stock may be considered a single management unit or stock with a self-recruiting population within The Bahamas¹. This has important implications for management of the stock, which does not require complex international multi-lateral agreements and simplifies management of the stock.

2.1 Stock Status

2.1.1 Status of resource

The results of the 2012 assessment showed that there is no evidence that the Bahamas spiny lobster stock biomass is overfished or that overfishing is occurring. An external review of the 2012 assessment recommended running a series of sensitivity analyses. One of the most precautionary sensitivity analysis used included an additional 56% in catch due to potential IUU fishing and a recruitment pattern similar to that observed in Florida.

The results of these analyses show that the adult biomass (SSB) is above that required to produce the Maximum Sustainable Yield (SSB_{MSY}). Further to this, the current level of fishing mortality (F) is below that required to obtain MSY (i.e. F_{MSY}), and indicate the fishery does not have overfishing.

The latest assessment in 2016 uses an age-structured model (see section 2.2.4) and continues to show similar trends in the stock biomass. The results indicate that the stock is not overfished and that the adult biomass is fluctuating around the target reference point.

2.1.2 Stock Rebuilding

Based on the outcome of the 2012 stock assessment and external peer review, and the preliminary results of the 2014 assessment, the stock is not deemed to be depleted (below the limit reference point) and therefore not in need of a stock rebuilding plan.

2.2 Management

2.2.1 Harvest Strategy

The main objective of the harvest strategy is to achieve levels of escapement from the fishery so that the spawning stock is not depleted. It will depend upon a measure of the recruitment each year, and export quota (or other appropriate catch limit). Although it could be argued that the strategy is specifically designed for the lobster fishery, there remain some potential issues. Notably, only commercial exports are controlled, so local consumption is uncontrolled and IUU may be significant.

¹Kough AS, Paris CB, Butler MJ IV (2013) Larval Connectivity and the International Management of Fisheries. *PLoS ONE* 8(6): e64970. doi:10.1371/journal.pone.0064970

Through and education and outreach plans to involve restaurant owners, the harvest strategy is expected to work together towards achieving the overall management objectives.

It has been suggested that more precise management controls might be needed (e.g. by bank and agreements with Cuba/Florida) to ensure the strategy has been specifically 'designed' to better meet the requirements of the lobster fishery.

The harvest strategy has been revised to include a set of harvest control rules (see section 2.4.1 below), although these have only been in place for a short time. Although the latest harvest strategy has not been fully tested at this time, the historical set of management measures in place (e.g. precautionary catch levels based on minimum size, restrictions on landing berried females and a closed season) are considered to provide sufficient evidence to demonstrate the fishery is achieving its objectives.

To ensure the harvest strategy is working, the Bahamas Spiny Lobster Working Group (BSLWG) is tasked to carry out monitoring of the fishery. This process is ongoing. It would be beneficial to provide public evidence (e.g. minutes, website dissemination) to demonstrate the BSLWG is actively reviewing the strategy and looking to improve it, where necessary (i.e. development of HCRs).

As previously highlighted in 2013, the biggest risk to the harvest strategy is activities undermining the management control (IUU catch, local consumption, possible illegal exports), and the definition of a stock. In the latter case, there is a risk of depleting some of the local populations but there is recent scientific evidence to suggest the lobster population in The Bahamas may be part of a separate stock that is self-recruiting.

In October 2012, the government of the Bahamas initiated a series of bilateral discussions with The Dominican Republic to address concerns over international IUU fishing within Bahamian waters. Historically, numerous DR vessels have been detained and are not expected to be return to service. These positive actions support an increased level of commitment by the government of the Bahamas to support a harvest strategy that reduces and helps to eliminate IUU fishing.

On 24th July 2014, the Bahamas government signed a 'Basic Agreement on Technical Cooperation Between the Governments of the Commonwealth of The Bahamas. This was to pave the way for a more detailed agreement to address IUU fishing issues. No further agreements have yet been reach.

2.2.2 Harvest Control Rules and Tools

A set of Harvest Control Rules (HCRs), which include reference points, have been developed and are well defined. Moreover, the HCR might be considered 'designed' as it was developed with stakeholders using the available stock assessment to achieve objectives including those defined by the reference points. Furthermore, the HCR has undergone simulation testing for a wide range of uncertainty as part of the external peer review.

Reference points based on MSY could not be estimated reliably from the 2012 stock assessment. Estimates of adult biomass (SSB) at MSY were 0.20 – 0.25 of the unexploited biomass (Medley and Gittens, 2012). This is low to be considered as a target reference point and would not be considered precautionary without good scientific evidence to support it. Such evidence is not currently available. However, this MSY based reference point might be a precautionary choice for a limit reference point.

Given the difficulties over stock identification, the sources of recruitment, and the inability to accurately estimate SSB at MSY, it is appropriate to apply internationally accepted reference points based on the unexploited stock size, which would be target 40% and limit 20% of SSB_0 . Therefore, an MSY proxy of 40% SSB_0 has been applied in determining stock status (Medley and Gittens, 2012).

In developing the harvest control rule and as a result of the 2012 stock assessment and review process, the limit reference point has been set above the level at which there is an appreciable risk of impairing reproductive capacity.

The HCRs have been refined following stakeholder consultation and approved by the BSLWG. The HCRs were subsequently approved by Cabinet in 2014 after further consultation with key communities. The Prime Minister has required that the HCR be shared with key stakeholders for feedback and updates.

Available evidence to indicate that the tools in place to manage the fishery (control on level of exports) are appropriate and effective in achieving exploitation levels to manage the lobster fishery on a sustainable basis. However, the new HCRs have not been in place long enough to provide clear evidence that they are effective. The HCR is also expected to be refined in response to stock assessments and further management performance reviews.

2.2.3 Information and monitoring

It is noted that the information on stock structure (or all parts of the fishery) is less than ideal to effectively manage the fishery in the wider Caribbean. Nonetheless, new evidence is providing support for a single stock hypothesis within Bahamian waters (Kough et al., 2013). However, the range of information available can be made sufficient if the harvest strategy is overall sufficiently precautionary and there is a continuation of existing data collection systems and proposed developments of data collection to support the stock assessment. It is noted that limited information currently exists on the number of and location of traps and condominiums etc.

Historically, monitoring and information within the lobster fishery has been poor although these issues have now been corrected and are regularly monitored at a level of accuracy and coverage consistent with the harvest control rule. There remains a risk however, that these data are insufficient to develop a reliable index of stock abundance in the long term. To address this issue, it is recommended that additional information be collected to

establish the spatial fishing location (i.e. develop fishery statistical grid squares) and develop routine length-frequency information at various locations within the archipelago.

Currently, limited information is available on the level of IUU catch. It should be demonstrated that the level of local IUU catch does not pose a significant threat to the status of the fishery.

2.2.4 Assessment of stock status

In 2010, the first stock assessment of The Bahamas spiny lobster in over a decade was conducted by Dr. Paul Medley using export data obtained from processors to establish the current stock status in relation to biological reference points. The stock assessment was first reviewed at the 2010 CRFM meeting, which suggested developing alternative recruitment series based on different fisheries. Such recruitment series exist for Florida and Cuba. The stock assessment was further updated in 2011 using additional data and also provided guidance on the development of harvest control rules and tools to determine management actions with varying levels of stock abundance.

In 2012, the stock assessment was updated with the latest available data and was presented with a number of scenarios to represent different sensitivities in the model². The sensitivities which were considered allowed for variations in natural mortality, an alternative catch history allowing for unrecorded catches and alternative levels of mean recruitment. The initial inputs to the model (i.e., prior probabilities) were found to have a significant impact on the stock assessment results. In addition, it is known that significant catch data are missing from the available data set. Therefore, these sensitivity analyses were used to develop a range of equally likely cases which could be used to test the robustness of harvest control rules.

A technical review of the Bahamas stock assessment was conducted in June 2012 by two international experts in lobster stock assessment, namely Dr. Robert Muller (Florida, USA) and Dr. Raphael Puga (Cuba). In summary, the reviewers considered 'the stock assessment and the projection model appropriate for evaluating management options and that the management process should proceed to the next level'. However, this view was conditional on further research and development of improved fishery monitoring.

Since 2013 a new modeling approach using a Bayesian approach has been under development to incorporate amongst other things, information on age/size structure in the assessment³. The preliminary results of this work were introduced and discussed at the FIP stakeholder meeting in May 2014. It was concluded that the new stock assessment model successfully fits the available data but the diagnostics indicate that the preliminary assessment may not be reliable and further work on the model structure is required. In particular, some decisions on the model are subjective, and therefore must be made by a group of scientists ("internal review") to ensure they are not biased and can be defended. Decisions include, for example, the way selectivity is modelled and the weight given to different information sources.

The new model structure does indicate that the productivity of the stock can be estimated without reference to external information, which is an important improvement on the previous stock assessment.

²Medley P.A.H. and Gittens L.G. 2012. 2012 Bahamas spiny lobster stock assessment. Department of Marine Resources, Nassau, Bahamas. 58pp.

³Medley P.A.H. 2014. The Bahamas spiny lobster stock assessment 2013/14. 50pp.

Furthermore, the preliminary results for the current model suggest the harvest control rule will contribute to sustainable fishing. However, it was noted that the latest preliminary results from the new model are more pessimistic than the 2012 assessment and it remains uncertain at this stage whether the HCR requires further refinement to meet the precautionary approach, dependent on other management actions. For example, if IUU is significantly reduced compared to 1988-2012, the proposed HCR would likely continue to be appropriate. Work on the stock assessment and monitoring data remains ongoing.

It is important to note that on-going development of the stock assessment forms part of the harvest strategy and will be required in the long-term. That is, the previous assessment, external review and new assessment are part of the harvest strategy cycle and follow best practice. During such a process, if conducted well, new risks to the sustainability of the fishery are likely to come to light and must be addressed. Therefore, such new risks only present a problem to the fishery if management response to the scientific advice is inappropriate. Identification of the risk itself should be seen as a positive outcome. Finally, neither the 2012 nor 2016 stock assessment models individual populations on a bank-by-bank basis.

3 ENVIRONMENTAL IMPACTS

Since 2013, there have been a limited number of ongoing activities to address potential environmental impacts of the lobster fishery. These include ongoing research by Mr. Gittens (DMR) to establish the effect of condominiums on lobster biology and fishery sustainability in The Bahamas. This research has three main objectives:

- Objective 1: Investigate the effect of condominiums compared to fishing traps and natural shelters on the size-specific mortality, growth, and susceptibility to disease of lobsters in nursery and non-nursery areas in The Bahamas
- Objective 2: Evaluate condominiums as a fishing gear in terms of lobster-size selectivity and the bycatch mortality of undersized lobster and other taxa as compared to traps.
- Objective 3: Estimate the current distribution and density of condominiums in the Bahamas and, if possible, changes in those metrics over the past few decades, using remote-sensing technology.

The preliminary results of this research are relevant to one or more component under this section.

In addition, during 2012/13 a pilot trap bycatch study was done to better understand the impact of the lobster trap fishery on the bycatch (retained and discarded) species. This was undertaken at the end of the fishing season when the availability of lobster is considered low. This has implications for the interpretation of the results and a new trap study was initiated for 2014/15 fishing season.

During the 2014 FIP review meeting, it was highlighted that although Nassau grouper (*Epinephelus striatus*) is listed as 'Endangered' under IUCN Red List, it should not be assessed under the MSC Endangered, Threatened and Protected (ETP) Performance Indicator as it is not currently listed as a protected species under Bahamas national legislation, nor is it listed under Appendix 1 of the Convention on International Trade in Endangered Species (CITES). Moreover, Nassau grouper are subject to a directed fishery, which indicates it should be assessed either as a primary or secondary species.

Given that Nassau grouper is not currently subject to management tools and measures which **intend to achieve stock management objectives in relation to reference points**, it will be assessed under Secondary Species.

Information on the status of Nassau grouper in Bahamas is limited and based on fisheries dependent data and interviews with fishermen. Recent studies indicate that the **status of the population may now be fully or reaching over-exploitation** although it has been acknowledged that this needs to be validated with more fishery data⁴.

Qualitative information received from stakeholders in addition to preliminary quantitative results from both 2012/13 and 2014/15 bycatch pilot studies indicate Nassau grouper is not considered to be either a 'main' species within the lobster fishery (i.e. comprises 5% or more by weight of the total catch of all species or a 'less resilient' species comprising 2% or more by weight of the total catch of all species of the fishery). All other secondary species not considered 'main' shall be considered 'minor' species (§ SA3.4.2 MSC FCR,

⁴ Cheung W.W.L., Sadovy de Mitcheson Y., Braynen M.T., Gittens L.G. 2013. Are the last remaining Nassau grouper *Epinephelus striatus* fisheries sustainable? Status quo in the Bahamas. *Endangered Species Research* 20: 27–39. DOI: 10.3354/esr00472

version 2.0). Nassau grouper is therefore classified as a 'minor' secondary species for MSC assessment purposes.

3.1 Primary Species

Primary species are those that are caught by the lobster fishery but are not subject to management tools and measures which intend to achieve stock management objectives in relation to reference points. They are usually species of commercial value to either the target fishery or fisheries outside the lobster fishery, with management tools controlling exploitation as well as known reference points in place.

Primary species are further categorized into main and minor. Main primary species account for 5% or more of the total catch or for 'less resilient' species making 2% or more of the total catch. All other species are considered minor primary species.

3.1.1 Status

Based on information and data received on the lobster fishery, there are no species caught subject to management tools and measures, to achieve stock management objectives in relation to reference points. Under these circumstances, the MSC Risk Based Framework (RBF) would also not be triggered (i.e. no species to assess) although continuous information and monitoring of catches remains a key task to ensure no primary species are caught in future.

3.1.2 Management Strategy

There are no reported catches of any primary species (either 'main' or 'minor') by the lobster fishery. As such there is no requirement at this time to develop specific management measures or a strategy for this purpose. To ensure this continues not be necessary, sufficient ongoing monitoring of the fishery should occur.

3.1.3 Information and monitoring

Even though the fishery may have no impact on retained non-target species, information and monitoring of the lobster fishery should still occur.

Informal discussions, including those between fishers and Fisheries Officers provide qualitative information about the nature of retained non-target catches in the lobster fishery. In addition, the EU catch certificate, Marine Resource Landing Form, Monthly Purchase Report and Processing Purchase Records are ongoing and should be sufficient to provide quantitative information on the amount of all retained species (lobster and other species) taken from certain landing ports and processors within The Bahamas, which is sufficient to support a partial management strategy for non-target retained species.

3.2 Secondary Species

3.2.1 Status

The risk of bycatch of secondary (non-managed bycatch) species is associated with the lobster trap fishery only, since condominiums allow free movement of animals in and out of the gear.

To date, little or no information exists on the status of secondary species in the lobster trap fishery. Use of the RBF methodology was used during the 2015 FIP review meeting to inform the potential vulnerability of secondary species caught from the trap fishery.

The outcome status of secondary species is specifically for species caught by the lobster trap fishery. The results of the 2012/13 and 2014/15 lobster trap bycatch study provide some quantitative information on the likely range of species to consider under the RBF. The results showed a number of species were either retained or unwanted species. According to §PF4.1.3 (MSC FCR version 2.0), a productivity susceptibility analysis (PSA) is only required for 'main' species when evaluating primary and secondary species status.

Using quantitative information obtained directly from the lobster trap pilot bycatch studies and qualitative information from stakeholders, 'margate' fish (*Haemulidae* spp. – most likely white grunt, (*Haemulon plumieri*) may be considered a 'main' species. However, given the conservation status of Nassau grouper (see above), this species was also included in the PSA although it would not be expected to be included in an MSC assessment unless the catch was known to significantly increase. The results of the PSA for margate fish were used to assess the status of these stocks.

The results show that white grunt (*Haemulon plumieri*) is a low risk species, with a high MSC score (92.6). In comparison, Nassau grouper (*Epinephelus striatus*) had identical susceptibility scores, but had an overall higher productivity risk score (2.29 compared to 1.71 for black grunt).

3.2.2 Management Strategy

A variety of management measures are in place (e.g. closed seasons, minimum size limits, gear size restrictions, trap biodegradable panels etc.) that are expected to maintain secondary species at levels which are highly likely to be within biologically based limits, or to ensure that the fishery does not hinder their recovery and rebuilding.

Given the results of the initial pilot study, feedback from local stakeholders and the results from the PSA assessment, it is anticipated that the fishery will not require a partial strategy for managing secondary species. In addition, unlike fish traps, the design of the wooden lobster traps is likely to allow juvenile finfish and other animals to escape from the trap. However, if significant interactions were known to occur, increased monitoring and enforcement would be required to ensure all lobster traps are fitted with a biodegradable panel to prevent ghost fishing if the trap is lost.

3.2.3 Information and monitoring

Even though the lobster fishery may have no impact on secondary species, information and monitoring of the trap fishery should still occur.

Similar to primary species, informal discussions between fishers and Fisheries Officers collect qualitative information about the nature and extent of secondary species within the fishery.

To date, some quantitative information about the trap fishery has been collected from the pilot studies although no planned continuous monitoring of the lobster trap fishery occurs sufficient to detect any change in risk to main secondary species. It is recommended that the appropriate level of monitoring be determined following a review by the BSLWG.

3.3 Endangered, Threatened and Protected (ETP) Species

ETP species are defined as: (§ SA3.1.5, MSC FCR ver.2.0)

1. Species that are recognized by national ETP legislation;
2. Species listed in the binding international agreements given below:

- a. Appendix 1 of the Convention on International Trade in Endangered Species (CITES), unless it can be shown that the particular stock of the CITES listed species impacted by the Unit of Assessment (UoA) under assessment is not endangered.
- b. Binding agreements concluded under the Convention on Migratory Species (CMS), including:
 - i. Annex 1 of the Agreement on Conservation of Albatross and Petrels (ACAP);
 - ii. Table 1 Column A of the African-Eurasian Migratory Waterbird Agreement (AEWA);
 - iii. Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas (ASCOBANS);
 - iv. Annex 1, Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area (ACCOBAMS);
 - v. Wadden Sea Seals Agreement;
 - vi. Any other binding agreements that list relevant ETP species concluded under this Convention.
3. Species classified as 'out-of scope' (amphibians, reptiles, birds and mammals) that are listed in the IUCN Redlist as vulnerable (VU), endangered (EN) or critically endangered (CE).

It has been noted above that the Nassau grouper (*Epinephelus striatus*) is not listed under The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and although measures are in place to help protect spawning aggregations during winter months in the Bahamas, this vulnerable species is considered a 'minor' species under secondary species

A number of turtle species are listed and found under CITES Appendix 1 (green, loggerhead and hawksbill) but reports have indicated there are no interactions. It is, since 2009, prohibited to catch these turtles in The Bahamas.

To date, conch is listed in Appendix 2 of CITES and thus subject to export controls. However, as it is only listed in Appendix 2, it is not classified as an ETP species. The directed lobster fishery using condominiums and traps does not target nor retain conch.

Marine mammal species are known to reside in, and visit The Bahamas, but there are no known interactions with the fishery. There is no known interaction with any bird species.

In conclusion, no ETP species are deemed to be impacted by the lobster fishery.

3.3.1 Status

Due to the lack of direct fishery interactions, it is highly likely that the fishery does not pose any risk to the recovery or rebuilding of ETP species. However, further consideration should be given to the range of potential indirect interactions, such as removing lobster as a potential prey item, for example. In addition, there is considerable volume of information on turtle populations within the Bahamas to determine the status of these populations.

It is recommended that the BSLWG review marine ETP species, protected under CITES that could interact with the fishery.

3.3.2 Management Strategy

Capture of all marine turtles and their eggs, and sharks has been banned in the Bahamas since September 2009 and July 2011 respectively. Unlike primary and secondary species, there are no 'main' ETP species and similarly there is no option to determine if a management strategy is 'necessary'. Consequently, a management strategy must be in place for all ETP species.

To date, there are no perceived ETP species interactions or indirect impacts within the lobster fishery. Stakeholder information from various FIP meetings has indicated that unlike finfish traps, the Bahamas lobster fishery using wooden traps and/or condominiums do not capture ETP species or have contribute towards indirect impacts.

A number of conservation measures are in place to manage the fishery and reduce the impact of the fishery on marine species (e.g. minimum slot-size of trap, closed seasons etc.) and benthic habitat (e.g. traps must not touch living coral). Taken together, these may be deemed a partial strategy to minimize the impact of the fishery on potential ETP species.

Given the suite of conservation measures currently utilized and the lack of ETP species interactions reported in the fishery, there is an objective basis for confidence and some information directly about the fishery that the management strategy would protect any potential ETP interactions.

3.3.3 Information and monitoring

The level of qualitative and quantitative information collected through DMR landing forms and new EU catch certificate program, in addition to the processor catch reports are expected to meet the MSC standard. In addition to regular monitoring of the fishery, the trap bycatch study conducted during 2012/13 and 2014/15 provides some quantitative evidence that the fishery is highly unlikely to interact with ETP species. It is recommended that these data forms are reviewed on a regular basis.

Qualitative information obtained from stakeholders and some quantitative information obtained from the lobster bycatch studies is expected to be sufficient to demonstrate the measures are adequate to manage the impacts on ETP species.

Were any interactions to be identified from the outcomes from the trap study, a revised strategy to manage the impacts would be required. This is deemed a small risk at this time.

3.4 Habitats

Limited information and data currently exist on the impacts and trends of the fishery on the status of the habitat. Both condominiums and lobster traps have the potential to impact the habitat in different ways. A literature review was conducted in 2012 to gain a better understanding of the likely impacts of the fishery on habitat status.

The revised MSC FCR (version 2.0) includes vulnerable marine ecosystems (VMEs) in the assessment as defined within §GSA3.13.3.2:

VMEs have one or more of the following characteristic, as defined in paragraph 42 of the FAO Guidelines:

- *Uniqueness or rarity – an area or ecosystem that is unique or that contains rare species whose loss could not be compensated for by similar areas or ecosystems*

- *Functional significance of the habitat – discrete areas or habitats that are necessary for survival, function, spawning/reproduction, or recovery of fish stocks; for particular life-history stages (e.g., nursery grounds, rearing areas); or for ETP species*
- *Fragility – an ecosystem that is highly susceptible to degradation by anthropogenic activities*
- *Life-history traits of component species that make recovery difficult – ecosystems that are characterised by populations or assemblages of species that are slow growing, are slow maturing, have low or unpredictable recruitment, and/or are long lived*
- *Structural complexity – an ecosystem that is characterised by complex physical structures created by significant concentrations of biotic and abiotic features*

The FAO Guidelines' Annex identifies the following species groups, communities, and habitat-forming species that may form VMEs and may be indicative of the occurrence of VMEs:

- *Certain coldwater corals and hydroids (e.g., reef builders and coral forest, such as stony corals, alcyonaceans, gorgonians, black corals, and hydrocorals)*
- *Some types of sponge-dominated communities*
- *Communities composed of dense emergent fauna where large sessile protozoans and invertebrates (e.g., hydroids and bryozoans) form an important structural component of habitat*
- *Seep and vent communities comprised of invertebrate and microbial species found nowhere else (i.e., endemic)*

It is noted that the MSC's intent is that, even though the FAO Guidelines were written for deep-sea fisheries, the Guidelines' VME characteristics also apply to non-deep-sea fisheries. Further, when the FAO Guidelines are applied in shallow, inshore waters, the definition of VME could include other species groups and communities (e.g., seagrass beds, complex kelp-dominated habitats, biogenic reefs).

Under these definitions it is anticipated there are three main VMEs identified within the Bahamas that the fishery might interact with:

- Coral reefs
- Seagrass beds, and
- Mangrove forests

As part of ongoing research Mr. Lester Gittens (DMR) presented a further update of his PhD studies on the impact of condominiums on lobster biology and fishery sustainability. The existing lobster trap bycatch study has contributed a further understanding of the likely impacts of the gear, both on the habitat and on the ecosystem. It has previously been noted that approximately 43 000 traps were licensed during the 2012-13 fishing season (Gittens, pers. comm.). It would be helpful to update this to monitor trends in this UoA.

Conservation measures and regulations are in place to protect coral, including restrictions on boat anchorage and using poisons or other chemicals without permission

that may otherwise damage the habitat and living marine resources. As such, condominiums and lobster traps are not placed directly on the reef, which is thought to help minimize habitat impacts.

Both traps and condominiums are placed on soft substrates, which include seagrass beds. Information from stakeholders indicates that lobster traps are temporary structures and as such do not impact seagrass areas. In contrast, condominiums are considered to be semi-permanent structures that can create an artificial habitat and could have an impact on seagrass beds (observed 'halo' effect around gear). Stakeholder consultation and information from the literature suggest that these impacts are reversible.

3.4.1 Management Strategy

Given the expected outcome of habitat status, it is unlikely that the fishery will require a partial strategy. It has been noted that conservation measures and regulations are in place to protect hard coral reefs, which forms a strategy to manage the impact. As such, condominiums and lobster traps are not permitted to be placed directly on the coral reef. Furthermore, stakeholder consultation indicates that lobster traps are more likely to attract finfish (a less valuable resource), if placed too close to coral outcrops and subsequently do not attract lobster. Specific avoidance behaviour by lobster fishermen may be considered a strategy.

Seagrass beds are managed indirectly through a network of national marine protected areas throughout the Bahamas⁵. This network forms a strategy to minimize impacts on both habitat and the wider ecosystem for all potential impacts, including non-MSC related fisheries. The protection offered to both coral and seagrass beds may be expected to meet the MSC standard. There is currently no control over the number of condominiums or traps used in the fishery and this should be considered as part of future monitoring and control of the fishery.

If a management strategy is deemed necessary (through result of habitat status), there is a small risk that the regulations and levels of protection offered might not be considered a strategy or partial strategy, but a suite of measures. It will be important to identify clearly what might make it a partial strategy. It is recommended that specific reference to a number of management measures to help protect habitat are highlighted within the FMP or similar document.

3.4.2 Information and monitoring

Even though the fishery may not be considered to have any significant impact on marine habitats, information and monitoring within the lobster fishery should still occur.

Environmental habitat maps are available for The Bahamas that are sufficient to understand the nature, distribution and vulnerability of all main habitat types. However, it remains unclear whether sufficient data are currently available to allow the spatial extent of the interaction between the main habitat types and the location of the fishery to be fully determined.

⁵ Various sources of information available - see Master Plan for Bahamas National Protected Area System: <https://www.cbd.int/doc/meetings/ecr/cbwecr-2014-03/other/cbwecr-2014-03-day2-07-en.pdf>

The considerable number and large spatial distribution of condominiums and lobster traps largely remain unrecorded. It is noted that the number and distribution of condominiums is part of ongoing research (Mr. Gittens, pers. comm.).

To help aid determining the scale and intensity of the use of condominiums and their potential impact on the marine habitat, it is recommended that fishermen are engaged in the process to identify the number and likely distribution of the gear used. This can be compared with the known distribution of habitats from existing sources of information (e.g. GIS mapping). The results will help inform that likely impacts of the fishery on the habitat and may require a reduction or relocation of condominiums within The Bahamas.

Furthermore, it is recommended to consider introducing fisheries statistical areas to better understand where fishing effort exists that would also help determine whether there is any risk of local depletion within the fishery.

3.5 Ecosystem

3.5.1 Status

Limited information and data exist on the impacts and trends of the fishery on the status of the ecosystem. Both condominiums and lobster traps have the potential to impact the ecosystem in different ways.

Similar to habitat status (section 3.4.1), a literature review was conducted in 2012 to gain a better understanding of the likely impacts of the fishery on ecosystem status. This resulted in limited information about the potential impact of the gear in The Bahamas due to the unknown scale and intensity of the fishery at this time.

Based on stakeholder consultation during previous FIP workshops, the lobster fishery is not expected to retain other main non-target species (with exception to Nassau grouper), discarded 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 and impact of the gear on benthic habitats. Given the outcome for lobster stock status and habitat, the fishery would be expected to be highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.

The results of Mr. Gitten's research will help inform the impact of the fishery on the ecosystem. These are not currently available for review.

3.5.2 Management Strategy

Since the removal of lobster is deemed the highest impact on the ecosystem, the results from the stock assessment indicate this impact on the ecosystem is likely to be minimal (not overfished).

The lobster fishery is therefore unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be serious or irreversible harm. Under these circumstances, a partial management strategy would not be deemed necessary.

3.5.3 Information / Monitoring

A broad understanding of the key elements of the ecosystem is available from environmental studies and relevant literature of similar ecosystem structure and function. A literature review of ecosystem impacts was conducted as part of the FIP Action Plan

and has helped to inform the likely outcome of the fishery. In addition, several studies have developed Ecopath models for similar ecosystems within the Caribbean, which include The Bahamas⁶.

The main impacts of the fishery are either known (via stock assessment) or can be inferred from the scientific literature. The direct impacts of the gear have been addressed elsewhere under section 2 (environmental impacts information and monitoring), including the current research on the ecosystem impacts of the lobster fishery.

It has been acknowledged that a continuous monitoring program is required to monitor the potential risk to benthic habitat from fishing activities (i.e., condominiums and traps). In addition to the potential impact of both gears on habitat, there is a risk over the broader impacts of condominiums on the ecosystem. This includes for example, the threat of increasing the incidence of viral infections, impeding natural migration patterns of adults into deeper water, impact of lost and/or damaged gear in addition to the previous habitat issues. Current research is looking to address these gaps in knowledge.

In addition, the main functions of the components in the ecosystem are known and no other main primary and secondary species or ETP species are thought to occur in the fishery based on information from stakeholders. Moreover, the results of the 2012/13 and 2014/15 lobster trap bycatch studies help to support this conclusion.

To date, data capture forms do not have any information on the number or location of gear deployed in the fishery. The considerable number and large spatial distribution of condominiums and lobster traps largely remain unrecorded. Similarly, it has been recommended to collect additional information on the lobster trap fishery to monitor the impacts of the fishery on retained and bycatch species. Since these issues have already been addressed elsewhere, they will not be considered here. Furthermore, the level of monitoring already conducted by NGOs and others would likely detect major effects.

⁶<http://etudescaribeennes.revues.org/4529#tocto1n2>

4 MANAGEMENT AND GOVERNANCE

A number of initiatives have been undertaken to improve management and governance within the lobster fishery.

The BSLWG was inaugurated during 2012 and the group has undertaken a series of meetings to review and confirm the HCRs, in addition to updating the lobster fisheries management plan. In November 2014, Cabinet Ministers formally approved the HCRs subject to communication and outreach to fishing communities.

In May 2013, a pilot study to test an IUU Smartphone App was conducted to help monitor IUU fishing activity within The Bahamas EEZ. The outcome of this study showed that there were a number of issues to resolve, including the quality of the photograph and the ability to send this information to appropriate management authorities in a timely manner sufficient to act. Due to these issues it was agreed that the App was not suitable for The Bahamas lobster fishery and no follow-up action was deemed necessary.

More recently, further efforts have been made to ensure the government of the Dominican Republic adheres to their agreement to reduce and illuminate IUU fishing within Bahamian waters. Whilst inter-governmental cooperation remains ongoing, The Bahamian government has invested in the Royal Bahamas Defense Force (RBDF), which includes:

- 4 Stan Patrol 4201 vessels [138 feet long with an eight feet draft]
- 4 Stan Patrol 3007 vessels [98 feet long with a 6.5 feet draft]
- 9 Rigid Inflatable Boats
- 1 RO/RO landing craft [183 feet long, with a 25 tonne crane]

These platforms will also be available for fisheries MCS and are expected to significantly reduce the threat of IUU fishing within the Bahamas EEZ. In addition to the new vessels, the RBDF will also receive new shore facilities and training.

The Bahamas will benefit from an FAO Technical Cooperation Programme—‘Strengthening Fisheries and Aquaculture Governance in The Bahamas’, which started in February 2014 and will be completed in November 2016. The project is expected to have five main outcomes:

- A fishery and aquaculture policy and strategic planning framework for The Bahamas.
- An established and functioning Fisheries Management Information System (FMIS) for The Bahamas.
- An assessment of the potential for aquaculture development in the Bahamas and the process for establishing aquaculture businesses.
- An assessment of the socio-economic impact of recreational fisheries in The Bahamas in support of fisheries policy and decision making.
- An increased commitment towards sustainable fisheries and aquaculture development in The Bahamas.

During the 2015 FIP review meeting, an IUU risk assessment was conducted on the Bahamas fisheries sector (including lobster) to determine where the greatest IUU threats arise. This is in support of fisheries ‘Compliance and Enforcement’ (see below). Further details are given below. This information has been used to determine the likely status of the fishery and the level of readiness for entering an MSC full assessment. Further details are given in section below.

In addition to the FAO TCP, an EU-funded project under the ACP FISH II programme has provided support to update the Fisheries Act in The Bahamas⁷. The main objective of this study conducted in 2013 was to improve the capability of the Fisheries Administration of The Bahamas to manage and regulate their fisheries through updating the Fisheries Act. This will directly benefit management of The Bahamas lobster fishery.

Finally, a new research facility 'Bahamas Agricultural and Marine Science Institute'(BAMSI) will be based at Morgan's Bluff on Andros, and has an MoU with the University of Miami. At this time there remains some uncertainty over the role the institute will play in the future management of the lobster fishery and implementation of the FIP and its association with DMR.

4.1 Governance and Policy

4.1.1 Legal and/or Customary Framework

The results 2013 ACP FISH II study indicate that while *'many of the components of the fishing industry perform well, it is recognised that the sustainable and efficient development of the industry in years to come requires more robust and more comprehensive fisheries legislation'*. Furthermore, the study recognized that the existing draft Act could bring improvements to the management of the fisheries sector if it can be passed into law.

The current management system has a mechanism (albeit not subject to law) for the resolution of legal disputes, and is expected to be able to demonstrate through case studies that the system is considered to be effective (e.g. Nassau grouper management etc.). Furthermore, it is noted that current fisheries policy outlined within the Fisheries Act (Chapter 244) describes exploitation of marine resources and reserving the 100% of the fishing rights within Bahamian waters to local people.

4.1.2 Consultation, Roles and Responsibilities

A multi-agency approach is used to manage the fisheries sector (e.g. DMR, Defence Force, Police Force etc.), and organizations and individuals involved in the process have been identified together with their functions, roles and responsibilities. Furthermore, the management system includes a consultation process through an officially recognized Fisheries Advisory Committee (FAC) and more recently the BSLWG. In addition to the FAC, the formation of the SLWG allows a government-approved consultation process that is designed to meet on a regular basis.

To date, the consultation process of the BSLWG is relatively young, and may not yet be able to demonstrate this. It is recommended that the BSLWG provide information on a dedicated website and are encouraged to publish minutes of each meeting (or at minimum a summary of outcomes) and identify procedures to deal with sensitive issues (e.g. remove confidential information before public version available). The website could also provide a contact and an opportunity to provide feedback.

Until recently, it was not clear that the lobster fishery exhibited a clear consultation process that provides an opportunity for all interested and affected parties to be involved. However, in November 2012, the BSLWG was formally approved by the

⁷http://acpfish2-eu.org/uploads/projects/id142/CAR%201.2%20B3a%20Bahamas_FTR_new.pdf

government to provide a forum for key stakeholders to better manage the lobster fishery. Sufficient supporting documentation should be made available for key stakeholders.

It is noted that not all stakeholders from the Bahamas archipelago may have representation within the BSLWG. This could be mitigated by developing and maintaining a website that could provide portal to inform stakeholders and provide contact details to encourage engagement.

4.1.3 Long Term Objectives

Current fisheries policy has general long term objectives outlined within the Fisheries Act (Chapter 244), which includes 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.

The Bahamas also has a 5-yr development plan, which includes as one of the key activities to achieve MSC certification.

4.1.4 Incentives for Sustainable Fishing

A range of initiatives by industry and NGOs are ongoing to promote sustainable fishing practices and maintain high quality product for the export market (e.g. education and outreach meetings between processors and fishermen). In addition, the Fisheries Act ensures that traditional fishing rights are protected and there are no known subsidies within the fishery. Overall, the fishery is likely to meet the MSC standard, although there is no evidence of regular review of management policy or procedures.

It is noted that there exist tax-free imports for fishing gear but these are not considered a perverse incentive as import taxes are being systematically reduced as the nations taxation system changes.

It is recommended that the existing range of initiatives continue to be implemented and is expanded to other areas within the Bahamas to further maximize these opportunities.

4.2 Fishery-specific Management System

4.2.1 Fishery-specific Objectives

With exception to the general long term objectives of the fisheries sector there are currently no formal fisheries-specific objectives in place. These have been included within a draft lobster Fisheries Management Plan (FMP), but this has not been submitted for adoption.

Part of the terms of reference for the new BSLWG requests the group reviews, updates and submits a revised FMP for adoption. In the short-term, it is recommended that the group review and approve a Harvest Strategy document, which provides an overview of the lobster fishery including fishery-specific objectives, harvest control rules, stock assessment etc.

4.2.2 Decision-making Processes

There are established decision making processes in place, which include those of the BSLWG. These have enabled fishery-specific management measures to be used within the fishery, such as a closed season, minimum size limits and should now include an annual review of the HCRs.

The decision making processes are considered sufficient to respond to serious and other important issues. Although no examples are currently available within the lobster fishery, actions were taken in a timely manner to respond to concerns over the status of Nassau grouper and conch.

Decision making processes are based on the best available information. In addition, due to limited resources in both capacity and skills, it has been necessary to use a simple precautionary approach. For example, without prior knowledge of the status of the lobster stock, a suite of management measures were put in place that are designed to protect the resource from overexploitation. Furthermore, the Terms of Reference of the BSLWG have been defined in terms of the FAO precautionary approach to fisheries management. Explanations have been provided for any actions or lack of action, where necessary.

It is noted that there is currently a lack of transparency from BSLWG meetings, and that the minutes of the meeting are not widely available to all stakeholders. It will be incumbent on the BSLWG to provide a forum to discuss and disseminate information to stakeholders, providing full explanations for their decisions made. It is recommended that a summary of feedback is reported in a formal manner on the management actions taken (BSLWG meeting notes, website announcements etc.).

The fishery is in a position to comply in a timely fashion to judicial decisions arising from any legal challenges and no ongoing court challenges occur to date. However, it is not clear if or how the fishery acts in a proactive manner to avoid legal disputes or rapidly implements judicial decisions arising from legal challenges.

4.2.3 Compliance and Enforcement

DMR has established an MCS system that collects information about fishery and enforces fisheries regulations. Both catch data and enforcement records from Fisheries Officers are available.

Previous concerns have been raised over the risk of IUU fishing from foreign vessels, particularly Dominican Republic vessels operating in south of the Bahamas EEZ. This led to a series of high level bilateral meetings in addition to the Bahamas strengthening the level of fisheries MSC through the acquisition of new patrol vessels and training for the RBDF.

Sanctions exist to deal with non-compliance. For example, recent arrests and convictions of a number of fishers from the Dominican Republic fishing illegally within Bahamian waters can demonstrate that sanctions are available and were consistently applied. It remains unclear at this time whether the level of sanctions (e.g. fines, confiscation of vessels) is providing an effective deterrent. These are however, currently under review.

Further evidence of compliance is available from processors. For example, monitoring of average tail size at processors has shown a significant decline in the capture of undersized lobster.

It is noted that a limited volume of undersized lobsters are likely to be distributed elsewhere but the quantity is not thought to put the fishery at risk. In addition, it is known that undersized lobsters occur in the processing chain when there is no annual education and outreach program. It is recommended that these continue and should be strengthened (additional locations), where necessary.

4.2.4 Monitoring and Management Performance Evaluation

Currently, the fishery management system is undergoing rigorous evaluation as part of the FIP Action Plan.

In future, it is recommended that either DMR or the BSLWG take responsibility for this after the FIP. A regular review of management performance could be undertaken on an annual basis. Specific components of the fishery (e.g. stock assessment results, MCS) could then be subject to an external and internal review.

5 SPECIFIC RECOMMENDATIONS

A number of specific recommendations have been developed to be considered by the BSLWG for each component within the fishery.

5.1 Stock Health

A couple of potential issues have been highlighted on the status of the stock:

Harvest strategy: Close gaps in the harvest strategy (IUU catch, local landings, bank specific monitoring/HCR, international agreements).

Data collection: Improve catch and effort data (e.g., IUU catch, local landings (all major islands), catch location, routine size information and more accurate fishing effort records).

To improve the performance of the fishery the following recommendations have been identified:

- The Bahamas Spiny Lobster Working Group (BSLWG) has now been established, which consists of representatives of all major stakeholders (i.e. relevant Government staff, processors, fishers, scientists) who will advise government of actions which need to be taken to implement and be consistent with agreed policy. It is important that the BSLWG continues to operate and take forward some of the key roles and responsibilities of helping to manage the fishery (e.g. revision of lobster Fisheries Management Plan, annual review of stock assessment results and HCRs and a review of the harvest strategy).
- A 'Harvest Strategy' document to be produced to summarize key information within a fishery harvest strategy that should be reviewed and implemented by the BSLWG. This would not necessarily replace the FMP but would provide a framework to describe management of the fishery without waiting for the review, update and adoption of the FMP.
- The DMR should continue to collect reliable data (incl. IUU catch, local landings on all major islands) and management reporting information rapidly and accurately enough that the harvest control rule can be applied, as well as providing the longer term needs of an improved stock assessment. These responsibilities may be undertaken in conjunction with the Bahamas Agricultural and Marine Science Institute (BAMSI).
- Given the latest data collection procedures, there is a risk that insufficient data (quality and quantity) become available to develop a reliable index of stock abundance. It is highly recommended that additional data collection systems be considered and piloted to support existing procedures (e.g. Smartphone App to collect fisheries statistics from a sentinel fishery).
- In 2014, a new stock assessment was developed using a new methodology to include information about the age/size structure of the population. The results should be considered as preliminary at this stage and further work is essential to improve and adopt the stock assessment in order to raise scores in the fishery, including:
 - The stock assessment should be updated to include latest data.
 - Conduct full independent evaluation of model (incl. alternative hypotheses and assessment approaches) and HCRs (internal only). Evidence is required, such

as testing the software with simulated data, to allow such an evaluation to take place.

- Increase size, sex and maturity sampling, so samples are taken every month and samples are taken from a range of gear types. This should allow improved selectivity functions in the future.
 - Collect data locally to improve the estimate of the linear conversion between carapace length and tail length, and to estimate tar-spotting of females by size for use as a maturity ogive.
 - Consider using a length-at-age key based on the normal rather than log-normal error, to see whether this improves the fit.
 - Explore the length-weight relationship to improve length-weight conversion and reduce this source of error.
 - Consider linking the growth model to weight categories directly, rather than using the length-weight conversion matrix.
 - All future routine biological sampling should be carried out before grading if possible. Further assessment of grades should be undertaken separately from the routine sampling.
 - Experts from the fishing industry should review the interpretation of the size grading within this model to ensure that it is correct.
 - Some consistent approach to develop alternate landings time series needs to be developed accounting for unrecorded historical landings.
 - The Department of Marine Resources should investigate methods to capture the currently unreported legal sales of spiny lobsters by individuals.
 - Continuing the program to measure the size of tails within the commercial grades.
 - Develop a program to monitor the season-to-date exports to prevent overruns (DMR).
- Continue and extend the education and outreach program of catching illegal lobster to support the harvest strategy throughout the Bahamas archipelago (e.g. undersized lobster, development of voluntary log book for sustainable catch certification program; catch location).

5.2 Environmental Impacts

A number of potential issues have been highlighted on the environmental impact of the fishery:

Bycatch species: Analysis of the 2012/13 and 2014/15 lobster trap pilot studies showed that the results were biased due to the timing of the sampling period, which was at the end of the lobster fishing season when catches were typically low. However, identified 'main' species were not thought to be outside safe biological limits.

ETP Species: Based on the outcome of stakeholder comments it is highly likely that the fishery has no impacts on ETP species. Quantitative evidence from the preliminary results of the lobster trap pilot study also support this conclusion. Sufficient information

and data must continue to be collected to detect any increase in risk to ETP species to support the management strategy.

Habitat: It is anticipated that the fishery will not require a partial strategy for habitats. However, where the fishery cannot demonstrate that it is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm a partial strategy should be developed. In addition, it remains unclear if sufficient data are available to allow the spatial extent of the interaction between the main habitat types and the location of the fishery to be fully determined. Data capture forms do not currently have any information on the number or location of gear deployed in the fishery. Since this information is not currently being collected on a regular basis, given the scale of the fishery, an ongoing monitoring program should be in place. Specific details of the monitoring program can be determined following the results of the ecosystem research study.

To improve the performance of the fishery the following recommendations have been identified:

- Further education and outreach programs be developed throughout the Bahamas archipelago to explain the importance of the EU catch certificate program which includes information on other retained species. This may be conducted at the same time as other education and outreach programs to improve the quality of lobster and reduce the number of undersized lobster, for example.
- Due to the lack of periodic monitoring of bycatch (and potentially ETP species), conduct a new 2014 lobster trap study similar to that undertaken during March 2013 to address this issue. This will also help better understand the potential impact of lobster traps on the habitat and ecosystem. Based on the results of these studies, a management strategy may be required for habitat.
- Ensure information sources on the status of turtle species in the Bahamas are available for further analysis and review. It is intended that this will help demonstrate the status of turtle species is known and that the lobster fishery has no impact on the population.
- Commission Mr. Gittens to provide a short summary of his findings, conclusions and recommendations so far in his research to support the MSC full assessment.
- Identify all ecosystem related monitoring within the Bahamas (e.g. reef fish counts, coral-bleaching studies, seagrass monitoring etc.) for the MSC full assessment.
- Prior to obtaining results on the likely distribution and quantity of condominiums in the Bahamas from ongoing research by Mr. Gittens, it is recommended that fishermen are engaged early in the process to help aid determining the scale and intensity of the use of condominiums and their potential impact on the marine habitat for the SICA. This can be compared with the known distribution of habitats from existing sources of information (e.g. GIS mapping). The results will help inform that likely impact of the fishery on the habitat and may, at one extreme require a reduction or relocation of condominiums within the Bahamas.
- Consideration should be given to include additional information on the existing data capture forms to include the number of gear used and broad fishing location (i.e. fisheries statistical grid reference).

- While a literature review was conducted in 2012 of the impacts of similarly designed gear on the ecosystem in other regions, the results were informative but not deemed wholly relevant due to the potential scale of condominiums used in the Bahamas compared to elsewhere. It is highly recommended to support ongoing research by Mr. Gittens to help determine the likely impact of condominiums on the ecosystem, which includes a preliminary understanding of their aggregating and/or their role in increasing lobster productivity.

5.3 Management and governance

A number of potential issues have been highlighted on the management and governance of the fishery:

Fishery-specific objectives: With exception to the general long term objectives of the fisheries sector there are currently no formal fisheries-specific objectives in place. Fishery-specific objectives have been included within a draft lobster Fisheries Management Plan (FMP), but this has not been submitted for adoption.

Compliance and enforcement: Sanctions exist to deal with non-compliance, although it should be demonstrated that these are consistently applied and to determine whether there is any evidence to indicate these are working and provide an effectively applied. This may be achieved through an example of the recent detention and prosecution of Dominican Republic IUU vessels.

Management Performance Evaluation: Currently, the fishery management system is undergoing rigorous evaluation as part of the FIP Action Plan. The BSLWG must remain active and demonstrate a willingness and ability to review and evaluate key outcomes in the lobster fishery in a timely manner for management purposes.

To improve the performance of the fishery the following recommendations have been identified:

- The results of the 2013 ACP FISH II study to support update of the Fisheries Act in the Bahamas provided a number of key recommendations that should be followed:
 - “Initiate a process to take forward the proposed Act, with a view to being able to introduce a Bill within one year.
 - The draft text should be consulted on further.
 - The draft text should be submitted to legal drafters in the Attorney General’s Office at an early stage.
 - A strategy will need to be developed and carried out at the political level in order to ensure the proposal receives sufficient priority and attention in the national political and parliamentary institutions. Implementation of this strategy will require cooperation between DMR and other stakeholders.”
- While a FIP communications plan (CP) for the overall FIP Action Plan has now been discontinued, a review of education and outreach programmes for specific activities is currently ongoing by WWF-US. It is recommended that this activity continue.
- With exception to the general long term objectives of the fisheries sector there are currently no formal fisheries-specific objectives in place. These have been included within a draft lobster Fisheries Management Plan (FMP), but this has not been submitted for adoption. In the short-term, it is recommended that the BSLWG

develop both a series of short and long-term objectives to be included within their meetings. In addition, it is proposed that a Bahamas lobster 'Harvest Strategy' document be produced describing the main elements within an FMP that the BSLWG can review and adopt. This would not be a legal document, but rather a summary of relevant regulations and legislation, fishery-specific objectives, stock status and harvest control rules appropriate to the lobster fishery that are being implemented.

- Members of the BSLWG should be made explicitly aware they are using the FAO Code of Conduct (precautionary approach) to manage the lobster fishery.
- Information is available on fishery performance and management and explanations have been provided for any actions or lack of action, where necessary. Through the Bahamas lobster FIP, a comprehensive suite of information is provided to stakeholders and provides a forum through which information and management actions can be provided. The evaluation should occur outside the FIP or MSC-related process. It is recommended that the BSLWG provides a forum to discuss and disseminate information to stakeholders, providing full explanations for their decisions made. This feedback should be reported in a formal manner (e.g. summary of key outcomes from the BSLWG meeting, website announcements etc) to obtained maximum score.
- It is highly recommended that more information is collected on the potential risk of IUU fishing, both from the domestic and international fleets. This could occur through documenting the level of surveillance, number of infringements and successful prosecutions. This will also support the results of the stock assessment to ensure all sources of removal are accounted for in the assessment.
- It is recommended that the level of tolerance of undersized lobster is obtained from each processor to determine what is deemed an acceptable level of non-compliance, so that it is not 'systematic'.
- In the short-term, implementation of the FIP Action Plan has a research plan and provide timely dissemination of the results. In future development of research plans should be done by DMR and reviewed by the BSLWG.
- To ensure the stock assessment methodology and assessment results are externally reviewed and the overall results reviewed against the fishery-specific objectives set out in the FMP. To date, the FMP has not been adopted and it remains that the BSLWG should be responsible for the monitoring and evaluation of internal management performance.