

# 2015 Revised Action Plan for Bahamas lobster Fishery Improvement Project (FIP)



**FINAL**

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**Prepared for**

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**Prepared by**

Dr. Robert Wakeford, MRAG Ltd.



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18 Queen Street  
London  
W1J 5PN  
United Kingdom

t: +44 (0) 20 7255 7755  
f: +44 (0) 20 7499 5388  
w: [www.mrag.co.uk](http://www.mrag.co.uk)  
e: [enquiry@mrag.co.uk](mailto:enquiry@mrag.co.uk)

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## INTRODUCTION

The original Fishery Improvement Project (FIP) Action Plan was first developed in June 2010 following a series of stakeholder workshops and meetings in 2009<sup>1</sup> designed to address key issues identified within a Marine Stewardship Council (MSC) pre-assessment, conducted in the same year. The overall aim of the FIP is to maintain a viable lobster fishery that will meet the MSC Standard ([www.msc.org](http://www.msc.org)). The project is supported through a partnership between WWF-US and industry.

The purpose of this FIP Action Plan is to provide a strategic overview of new, ongoing and completed projects/tasks to assist in planning and implementation of the FIP. The Plan itself can be used to inform likely time frames and associated budgets of specific tasks in addition to developing detailed terms of reference/ memorandum of understanding for participating institutions/ stakeholders. The results generated from the Action Plan should have periodic internal and external reviews to ensure they will meet the MSC standard.

The first review of the FIP Action Plan was held at the Bahamas National Trust HQ, New Providence between 27 and 28 April 2011. Following this a further four review meetings have been held, the last occurring between May 19 - 20, 2015<sup>2</sup>. A wide range of fishery stakeholders were present and provided a valuable opportunity to present the findings of current and ongoing projects within the region. This document serves to update the original 2010 and subsequent Action Plans between 2011 and 2014 based on the outcome of the 2015 FIP review meeting.

During 2015, a new format was introduced within the FIP Action Plan to provide a summary table for each task, including a short title, a description of the objectively verifiable indicators, list of organisation responsible for the implementation of the task, the timeline and a means of verification that the task has been successfully completed. The priority level for each project was assigned according to the highest level within the FIP scoping document.

The original FIP Action Plan identified a range of tasks within four major categories that would promote sustainable utilisation of the resource and improve fisheries management. In turn this would help to increase the scores of specific PIs within an MSC assessment. These categories are still relevant:

1. Data Collection
2. Education and Outreach
3. Enforcement (Monitoring, Control and Surveillance)
4. Assessment and Review

The FIP Action Plan has undertaken a wide range of number of projects under each category. The primary focus has been to address key issues or 'high priority' PIs that would otherwise result in the fishery failing an MSC full assessment. These fall under MSC Principle 1, Stock Status. However, since 2012, further attention has been drawn to address new and ongoing concerns in Principle 2 (Ecological and Environmental) and Principle 3 (Governance and Management).

The MSC continues to update their Certification Requirements document (version 2.0, October 2014) that includes a Risk Based Framework (RBF) methodology that may be used to evaluate and score specified outcome-based PIs within the MSC default assessment tree when data-deficiency is encountered, including primary, secondary and ETP species, and also habitat and

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<sup>1</sup> MRAG Americas Inc. (2010) Action Plan for Bahamas Spiny Lobster Fishery Improvement Project (FIP). June 2010. 16pp.

<sup>2</sup> MRAG (2015) Review of the Bahamian Lobster Fishery Improvement Project 2015. May 19-20, 2015. The Retreat Gardens, Village Road, Nassau, Bahamas. p102.

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ecosystem status. This Action Plan also takes into consideration recent changes in the MSC Certification Requirements, which are now based on version 2.0.

The following sections describe progress made towards each task within the past 12 months. This includes information on the stakeholders to be included within the working group, the priority of the task, the current status of activities, the proposed timeframe (duration of project), and the key PIs related to the task.

## 1. DATA COLLECTION

Ongoing data collection remains a key task to maintain and improve overall management of the lobster. As part of this, a range of tasks were identified in the original Action Plan, including the development of a revised data collection form, initiate data collection at processors and, to update and maintain a fisheries information system. To date, progress has been made in collecting better quality catch data that also includes part of the new EU catch certificate program. In addition most, if not all, processors collect a range of information that could be useful to manage the lobster fishery.

While a range of data sources currently exist, it is recommended that the collection procedures continue to be reviewed and updated to ensure adequate information and data are captured for stock assessment purposes, in addition to other non-target information (e.g., bycatch and interactions with endangered, threatened or protected (ETP) species).

To ensure the success of the approved Harvest Control Rule and tools, timely and efficient data entry and quality checks are paramount. The update and maintenance of a fisheries information system (FIS) had been removed from the FIP action plan during 2014 as it was agreed this task (formally task 1.3) was not particularly onerous and could be completed as part of the stock assessment update on an annual basis.

To date, four key tasks (and associated sub-tasks) remain within the FIP action plan, which are described in more detail below.

### 1.1 Review and update existing data collection procedures

A review and update of the data collection procedures had been undertaken by an external consultant in 2011/2012 to develop new methods to aggregate fisheries statistics obtained from lobster processors, suitable for stock assessment purposes. Additional information on individual tail weights from the processors should be made available for the stock assessment.

While relatively good information is now collected from lobster processors, efforts must continue to collect relevant information on other components of the fishery, including all other retained and unwanted species, and ETP species interactions sufficient to detect any increase in risk on these populations.

The following describe a number of new and ongoing sub-tasks to ensure the fishery has adequate information and data to manage the fishery effectively in a timely manner and to meet the MSC standard.

#### 1.1.1 Processor data capture forms

Priority: High

Given the total annual volume of lobsters exported, processing companies within the Bahamas provide a key source of information for the assessment of the lobster stock. It is recommended that individual lobster tail weights (g) are measured and made available for the annual stock assessment to better understand the uncertainty in the size structure of the population.

In addition to catch information for lobster, data capture forms provided by processors have the ability to include a range of other retained species. Given the economic importance of lobster, it is anticipated that these data are often overlooked. It is recommended that suitable mechanisms are put in place to encourage fishers supplying processors to include this information.

Finally, in addition to information on catches, it may also be feasible to include other fisheries related data on the data capture forms. This includes number and general location of fishing gear.

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Task	Objectively verifiable indicators	Responsible organisations	Timeline	Means of verification
<b>Activity 1.1.1</b> Processor data capture forms are appropriate to assist fisheries management	<ul style="list-style-type: none"> <li>Review and update processor data capture forms; include information of other retained species and fishing area/ # gear used.</li> <li>Provide raw data on individual lobster tail weights (g)</li> </ul>	BMEA DMR	6 months	<ul style="list-style-type: none"> <li>Updated data capture forms</li> <li>Revised stock assessment</li> <li>Fishery statistical reports</li> </ul>

### 1.1.2 Review of DMR data collection

Priority: High

This would be primarily a comprehensive review of existing DMR Landing Forms. Inclusion of categories for species other than target species on these data capture forms will help to demonstrate the level of impact from the lobster fishery required under Principle 2 of the MSC assessment. An ability to demonstrate a negligible impact would indicate that management measures or a partial management strategy is not required to maintain non-target species above biologically based limits. Further education and outreach may be required to ensure fishermen complete appropriate information.

In addition, data on the number and fishing region of both casitas (condominiums) and lobster traps would provide important data on the scale and intensity of fishing effort in the Bahamas lobster fishery. Improved information on fishing location will greatly facilitate new stock assessment tools to ensure local depletion is not occurring. The DMR Landing Forms could be extended to include statistical fishing areas within the Bahamas to obtain a better understanding of the spatial patterns within the fishery. It remains unclear whether these responsibilities will be undertaken in conjunction with the Bahamas Agricultural and Marine Science Institute (BAMSI). This should be clarified as soon as possible.

To date, while the data form has been reviewed this does not include information on fishing location and number of gear used etc. This remains a high priority.

Task	Objectively verifiable indicators	Responsible organisations	Timeline	Means of verification
<b>Activity 1.1.2</b> Processor data capture forms are appropriate to support fisheries management to effectively manage the fishery in respect to the MSC outcome indicators under P1, P2 and P3	Data collection forms have been reviewed and modified as appropriate.	DMR BAMSI?	6 months	<ul style="list-style-type: none"> <li>Updated DMR landing forms, where necessary</li> <li>Fishery statistical reports</li> </ul>

### 1.1.3 Extend DMR data collection

Priority: High

Where information gaps have been identified in sub-task 1.1.2 above, DMR to extend data collection to all major islands, including information on size distribution of lobster and catch data on all other retained species.

Review and update the current fisheries monitoring system where necessary. In addition to the information obtained from marine processors, DMR should continue to collect reliable data and ensure adequate information is collected through their current monitoring procedures (monthly landing form, EU catch certificate etc) to estimate IUU catch and local landings on all major islands. This should include data on all retained species, fishing location and number/type of gear used.

This information should be reported 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.

Task	Objectively verifiable indicators	Responsible organisations	Timeline	Means of verification
<b>Activity 1.1.3</b> DMR to collect more comprehensive data based on revised collection forms.	<ul style="list-style-type: none"> <li>• Summary catch data for all retained species available for main islands</li> <li>• Spatial distribution of fishing effort</li> <li>• Number of gear used</li> </ul>	DMR BAMSI?	Ongoing	<ul style="list-style-type: none"> <li>• Updated data collection forms.</li> <li>• Fishery statistical reports</li> </ul>

### 1.1.4 Ongoing DMR data collection

Priority: High

DMR should continue to update current catch data from numerous sources to ensure the stock assessment can be updated on an annual basis and the HCRs applied. This is given a high priority, although this task should be ongoing with DMR.

Task	Objectively verifiable indicators	Responsible organisations	Timeline	Means of verification
<b>Activity 1.1.4</b> DMR continue to collect and review/update fisheries dependent data for analysis and monitoring.	<ul style="list-style-type: none"> <li>• Catch volume on a regular basis from landing sites</li> <li>• Review fisheries data quality and quantity</li> <li>• Development of automation processes and procedures to address quality issues.</li> </ul>	DMR	Ongoing	<ul style="list-style-type: none"> <li>• Stock assessment outputs</li> <li>• Fishery statistical reports</li> </ul>

## 1.2 Continue existing data collection at processors

Priority: High

The original Action Plan indicated that data collected to support the Harvest Control Rule and Tools could be initiated at the processor level, rather than through Fisheries Officers. The FIP Review meeting in 2011 highlighted that processors already collect a substantial volume of data that could be used for management purposes. These data have been reviewed by an external consultant in 2011/2012 and used to provide an updated stock assessment.

Collection of some types of more sensitive information (e.g., fishing effort, location or region – see task 1.1 above) may require additional communication and outreach to help fishermen understand the importance of these data. This may be included within the existing ‘code of responsible fishing’ introduced by several processors and/or introduced as part of the planned education and outreach programs (see section 2).

Ongoing data collection from marine processors by DMR is essential for the management of the fishery and it therefore retains a high priority. New information regarding individual lobster weight and all retained species may require some additional data collection procedures. This work is ongoing and remains a high priority to monitor and maintain ‘zero tolerance’ policy of BMEA.

Task	Objectively verifiable indicators	Responsible organisations	Timeline	Means of verification
<b>Activity 1.2</b> DMR to collect data based on revised collection forms.	<ul style="list-style-type: none"> <li>• Obtain total catch volume by size category on a regular basis from marine processors for lobster and all other retained species.</li> <li>• Obtain individual weight data for lobster</li> </ul>	DMR	Ongoing	<ul style="list-style-type: none"> <li>• Outputs from stock assessment</li> <li>• Fishery statistical reports</li> <li>• Fisheries export data</li> </ul>

### 1.3 Update and maintenance of fisheries information system

Priority: Removed

This task has been removed from the FIP action plan.

Stakeholders at the 2011 FIP review meeting recognized that timely, good quality information is a key pre-requisite for successfully implementing the proposed Harvest Control Rule and tools. Although fisheries data may be available from a wide variety of sources, a central repository of high quality data is required to undertake stock assessments. The review of existing data collection procedures (task 1.1) will help determine the range and format of various data sources and inform the most suitable platform to store and retrieve the data (e.g., spreadsheet or database).

The 2011 FIP Review meeting acknowledged current limitations in human capacity at DMR and software development (Fisheries Information System, FIS). It is therefore unlikely that the current FIS can be updated in a timely manner to include the additional data requirements for the following season. As such, it was recommended that data management be developed on an ad-hoc basis as part of the data collection review in the short term until a more permanent solution can be developed.

During 2011/2012, an external consultant provided a software solution to import fisheries statistics collected from processors into a central repository for further analysis. This has proven successful although further updates and improvements are expected to be ongoing in the near future.

The original plan for DMR to hire an additional staff member in 2012 with financial support from BMEA has not occurred and alternative arrangements have been made to collate and analyze the data in the short-term. This task has therefore been removed from the FIP Action Plan at this time.

## 1.4 Lobster trap fishery

While use of condominiums allow free movement of animals in and out of the gear, concerns were raised in 2012 that unlike target and retained species, little or no quantitative evidence is available to demonstrate the impact of the trap fishery on both bycatch (unwanted catch in primary and secondary species) and Endangered, Threatened and Protected (ETP) species.

### 1.4.1 Develop research and monitoring study of lobster trap fishery

Priority: High

An initial lobster trap bycatch pilot study was conducting during 2012/13 fishing season. The results indicated that traps could potentially retain a variety of finfish and other Crustacea. Due to the limited scope of the study at the end of the fishing season, the results were considered heavily biased. As such a new bycatch study was completed during 2014/15 in an attempt to cover both seasonal and spatial variability (see sub-task 1.4.2).

However, it is noted that little or no information has been collected on the **level of compliance to fit biodegradable mesh panels to the trap to prevent ghost fishing**, if the gear becomes lost. This forms an important part of a strategy to reduce the impact of the gear on primary and secondary (bycatch) species and also potential ETP species. For this reason, this task remains ongoing and further information and data are required to demonstrate good compliance with management regulations to fit an escape panel.

Task	Objectively verifiable indicators	Responsible organisations	Timeline	Means of verification
<b>Activity 1.4.1</b> Develop a monitoring program to show compliance with trap biodegradable mesh panels.	<ul style="list-style-type: none"> <li>• A plan to establish a monitoring program for biodegradable panels in lobster traps</li> <li>• Develop appropriate tools to report outcome of monitoring</li> <li>• Analyse results of monitoring on a routine basis to demonstrate level of compliance</li> </ul>	TNC (lead) DMR BMEA Trap fishers College of the Bahamas	TBD	<ul style="list-style-type: none"> <li>• Trap monitoring plan</li> <li>• Records of inspection and compliance</li> <li>• Status of unwanted catch species</li> </ul>

### 1.4.2 Practical implementation of pilot lobster trap bycatch study

Priority: Completed

### 1.4.3 Analysis of lobster trap bycatch study

Priority: Completed

The results of the 2014/15 trap pilot study showed that few finfish were retained in the gear, with only margate fish (black grunt) making up more than 10% of the total catch volume. However, it was noted that the majority of sampling occurred towards the latter part of the season and provides a snapshot of the fishery during this period.

### 1.5 Fisheries independent research on impacts of fishery on habitats and ecosystem

In 2012, due to the limited knowledge gained from the literature review on the impacts of the fishery on habitats and the ecosystem (see 2012 FIP Action Plan, tasks 4.4 and 4.5) it was highlighted that fisheries independent research should be developed to help inform the impact of the fishery on habitats and the ecosystem. This would include consolidating environmental baseline information with the results of the trap bycatch research and monitoring study (task 1.4).

Mr. Lester Gittens (DMR) is currently undertaking research as part of his PhD studies that will help address some of the above concerns. The full results of the study would not be available until 2016, and not published in peer review journals until after this time. Initial results could be made available to the assessment team prior to this, if required.

#### 1.5.1 Review terms of reference for research studies on impact of fishery on habitats and ecosystem

Priority: Completed

#### 1.5.2 Consolidate environmental baseline information with trap study

Priority: Completed

#### 1.5.3 Implementation of research on fishery impact on habitat and ecosystem

Priority: High

As highlighted above, ongoing research is being conducted in the Bahamas to consider the impact of the fishery on habitats and the ecosystem. This work currently supports the objectives of the FIP and is expected to be completed by 2016. The sub-task is included within the FIP to ensure this information is available to be analysed during the full assessment and is supported through the FIP, where required.

Task	Objectively verifiable indicators	Responsible organisations	Timeline	Means of verification
<b>Activity 1.5.3</b> Research on impacts of Bahamas lobster fishery on habitats and ecosystem	<ul style="list-style-type: none"> <li>As part of ongoing research (see FIP review for details list of objectives), to carry out series of experiments to measure the direct and likely indirect impacts of the Bahamas lobster fishery on habitats and ecosystem</li> </ul>	Mr L. Gittens (DMR)	Ongoing until 2016	<ul style="list-style-type: none"> <li>PhD thesis</li> <li>Peer review publications</li> <li>Internal reports</li> </ul>

#### 1.5.4 Collation of all previous and ongoing research and monitoring related to habitat and ecosystem

Priority: High

Prior to a full assessment, it is highly recommended that all information on previous and ongoing studies in the Bahamas is collated to demonstrate the wealth of information available on habitats and the ecosystem. This has already been partly undertaken during the literature review, but should be extended to include recent publications and provide details of current

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research and monitoring. This will be a relatively short exercise to complete and will only be required in the event that the fishery moves forward into a full assessment.

Task	Objectively verifiable indicators	Responsible organisations	Timeline	Means of verification
<b>Activity 1.5.4</b> Collation of all relevant research and monitoring within the Bahamas on habitat and ecosystem	<ul style="list-style-type: none"> <li>• List of all publications/ references relevant to research and monitoring of marine habitats and ecosystem in the Bahamas</li> <li>• To provide internet links to ongoing research and monitoring, wherever possible.</li> </ul>	TBD	6 months	<ul style="list-style-type: none"> <li>• List of references</li> </ul>

### 1.5.5 Summary of current unpublished research on habitat and ecosystem

Priority: High

It is recognised that the current research undertaken on the impacts of the Bahamas lobster fishery on habitats and ecosystem will be completed during 2016. However, it is likely that research findings from this research will not be publically available through peer-reviewed journal articles until late 2016.

In order benefit from the ongoing research in the full assessment, it is highly recommended that a summary of the current unpublished research be commissioned by Mr. Gittens.

Task	Objectively verifiable indicators	Responsible organisations	Timeline	Means of verification
<b>Activity 1.5.5</b> Summary of current unpublished research on impacts of fishery on marine habitats and ecosystem	<ul style="list-style-type: none"> <li>• To provide a short summary of the methods and current main findings of the research for the full assessment team</li> </ul>	Mr L. Gittens (DMR)	TBD	<ul style="list-style-type: none"> <li>• Research summary document</li> <li>• MSC full assessment report</li> </ul>

## **2. EDUCATION AND OUTREACH**

Education and outreach of existing and new management measures has been indicated to play a key role in the future development of the lobster fishery and to help increase the level of compliance with regulations. It has previously been noted by members of BMEA that education and outreach programs need to be ongoing to help maintain high levels of compliance in the domestic lobster fishery, such as undersized tails and berried females.

Following development of the original FIP Action Plan, implementation of the Plan requires a level of transparency and coordination among institutions and stakeholders and sufficient funding and human capacity to conduct appropriate tasks. To facilitate implementation of the FIP Action Plan, a separate Communications Plan (CP) was proposed to monitor the status of the Plan. This would identify key messages from each product (e.g. HCRs), the intended recipients of the information (e.g. fishermen, processors), the pathway how the messages will be delivered (e.g. workshop, report) and the monitoring and feedback necessary to determine the overall success of the Plan.

### **2.1 Communications Plan**

In July 2012, a Communications Plan was developed but failed to identify specific strategies for uptake within the FIP. Instead, a Communications Strategy Memo (CSM) was developed in August of the same year from the Communications Plan to provide a series of recommendations for using various communication strategies within the FIP to: encourage better participation of those processors not members of BMEA; to decrease the number of fishers catching juvenile lobster, and; to increase the number of restaurants serving legally-sized lobsters.

A summary of the CSM was presented at the 2013 FIP Review meeting, although no specific tasks were identified. Similar to 2013, the review of specific communication strategies remains ongoing and as such no tasks have been identified for inclusion within the 2014 FIP Action Plan. However, these might include fishermen workshops to review FMP (sub-task 4.5.2); training fishermen spokespeople; develop video documentary/PSAs with fishermen. The priority level has reduced to low given other more important tasks (e.g. HCRs, FMP) and subsequently put on hold.

#### **2.1.1 Develop a communications strategy memo**

Priority: On Hold

#### **2.1.2 Review communications strategy memo**

Priority: On Hold

### **2.2 Ensure sufficient data checks are in place to support BMEA zero tolerance policy**

The original FIP Action Plan suggested that a code of responsible fishing, at the time implemented by Tropic Seafood, should be continued and extended to other processors. The program was designed primarily to educate fishermen to reduce the number of undersized lobsters through Tropic's zero tolerance policy but could be extended to obtain other information such as fishing effort and location, for example. This zero tolerance policy has now been adopted by the Bahamas Marine Exporters Association (BMEA). While initially very successful, the 2012 FIP Review meeting highlighted the need for continued education and outreach with stakeholders to maintain high levels of compliance with undersized lobster. In 2013, revised efforts by Tropic Seafood showed that number of undersized tails had fallen from 2012, showing

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the importance of maintaining an ongoing education and outreach program, which remains a high priority.

### 2.2.1 BMEA to continue data checking at processing plants

Priority: High

It has is highly recommended that BMEA continue their education and outreach program to local fishers and other stakeholders on IUU fishing, MSC, minimum landing size etc. This should be coordinated with DMR, where feasible. In addition, buying stations for BMEA are putting controls into place to prevent undersized lobsters from being sold.

Task	Objectively verifiable indicators	Responsible organisations	Timeline	Means of verification
<b>Activity 2.2.1</b> Education and outreach to local fishers on minimum size for BMEA members.	<ul style="list-style-type: none"> <li>• BMEA members to update and maintain education and outreach materials for local lobster fishers</li> <li>• Maintain record of number and location of meetings with local fishers</li> </ul>	BMEA	Ongoing	<ul style="list-style-type: none"> <li>• Size distribution of lobster tails from BMEA companies (e.g. individual tail weight)</li> <li>• Stock status of lobster population</li> <li>• Outreach materials</li> </ul>

## 2.3 Fishermen education and outreach

### 2.3.1 Develop educate and outreach programme for lobster management regulations

Priority: High

In 2011, it was recommended that a campaign should be developed to help educate fishermen on current lobster regulations. This may take the form of a poster to inform the public sector of key lobster management measures (minimum size, season length, etc). It was suggested that posters could be placed at processing facilities, landing sites, etc. to increase awareness, especially at Spanish Wells.

A ‘Size Matters’ campaign was previously successfully implemented by Friends of the Environment to help educate fishermen on Abaco Island on the importance of not catching undersized lobsters. The project included its own communications plan and used various forms of media to increase awareness (e.g., campaign songs etc). Since then, BREEF has conducted a Public Service Announcement (PSA) on lobster regulations. The 2012 FIP review meeting discussed opportunities to maintain and extend the education and outreach program to other areas, in addition to implementing other initiatives with restaurants and schools (see tasks 2.4 and 2.5 below). These additional activities are expected to take 12 months or more to complete, given sufficient resources. Due to the recent success of these programs this activity has been maintained as a high priority.

It is recommended that BMEA and DMR continue their outreach meetings with fishermen during the closed season (see also sub-task 2.2.1). In addition, an education and outreach program should be developed to inform fishermen of the new FMP when it becomes available. This activity will occur on several islands and will include development of posters, outreach meetings and letters etc. (see sub-task 4.5.2).

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Task	Objectively verifiable indicators	Responsible organisations	Timeline	Means of verification
<b>Activity 2.3.1</b> Education and outreach to local fishers on fisheries regulations & management plan, including new HCRs	<ul style="list-style-type: none"> <li>• Develop education and outreach materials (posters, leaflets etc)</li> <li>• Develop an outreach plan to include all main islands</li> <li>• Maintain record of number and location of meetings with local fishers</li> </ul>	DMR (lead) BMEA	Ongoing	<ul style="list-style-type: none"> <li>• Stock status of lobster population</li> <li>• Education and outreach materials (posters, leaflets etc)</li> <li>• List of meetings held</li> </ul>

### 2.4 Restaurant education and outreach on management measures

A Communication Strategy Memo (CSM) has been developed from the original Communications Plan (see above). Support was given at the 2013 FIP review meeting to retain a task to educate restaurant owners of the risks associated with purchasing lobster directly from fishermen (e.g. low quality, illegally caught etc), and to persuade them to purchase only legal-sized lobsters.

In 2013, an outreach study was conducted at the Bahamas Seafood Show (September 19<sup>th</sup> 2013) to determine the level of awareness of purchasing undersized lobster (see task 3.3).

The results indicated that the majority of restaurant owners were already aware of the issue of undersized lobster and that an education and outreach programme was not required at this time.

#### 2.4.1 Develop outreach program for restaurant owners

Priority: On Hold
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### 2.5 Education and outreach program for schools

Friends of the Environment has previously undertaken limited education and outreach with local schools on Abaco Island to help educate children on the importance of not catching undersized lobsters as part of their 'Size Matters' campaign. While the original campaign has now finished, the 2012 FIP review meeting discussed opportunities to extend the 'Size Matters' campaign to other areas and remains ongoing.

During the previous 2014 FIP review meeting agreed this task should remain on hold indefinitely as it is no longer considered a key high priority at this time, although it remains important in the long term.

#### 2.5.1 Develop outreach program for schools

Priority: On Hold
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### 3. MONITORING & ENFORCEMENT

To help improve the current level of monitoring and enforcement within the lobster fishery, a range of tasks were identified within the original FIP Action Plan. However, it was acknowledged at the 2011 FIP Review meeting that due to the large spatial scale of the Bahamas archipelago and limited resources and human capacity available at this time, some of these tasks are not feasible and it was recommended to remove these tasks from the FIP Action Plan. These include (i) formalization of designated landing sites (ii) develop a surveillance program at landing sites (iii) recruit additional enforcement officers, and (iv) to provide additional training for enforcement officers. The remaining tasks are developed from the original 2011 FIP review, with greater emphasis placed on developing more cost-effective alternatives to reach the same goal. These include strengthening the education and outreach programs and maintaining the zero tolerance of local processors for undersized lobster (see section 2 above).

Enforcement of existing management measures, such as minimum size limits and closed seasons, and control of poaching are expected to provide large benefits to the overall sustainability of the lobster fishery. These tasks have not required updating since 2012 FIP Action Plan.

#### 3.1 Review existing MCS strategy

##### 3.1.1 Comprehensive review of MCS strategy

Priority: High

A review of the current Monitoring, Control and Surveillance (MCS) strategy was included in the original 2011 FIP Action Plan to help identify the strengths, weaknesses, opportunities and threats to the current system.

During the previous 2014 FIP review it was highlighted that an EU-funded project to review the legislation, fines and penalties had covered aspects of MCS under the African, Caribbean, and Pacific Group of states (ACP) FISH II Programme.<sup>3</sup> This was a regional study and it is therefore necessary to extract and review the Bahamas information. It was agreed that DMR would locate the report and describe the findings relevant to the Bahamas. Depending on the outcome of this activity, further follow-up action may be required. This work is ongoing.

It is recommended that relevant MCS information continue to be collected and made available to demonstrate the effectiveness of the strategy, and particularly in the fight against IUU fishing (see sub-tasks 3.1.5, 3.1.6 and 3.1.7).

Task	Objectively verifiable indicators	Responsible organisations	Timeline	Means of verification
<b>Activity 3.1.1</b> Review of MCS strategy against ACP FISH II Programme outputs and identify follow-up action.	<ul style="list-style-type: none"> <li>Critically review outcome and recommendations from ACP FISH II report and provide options for update, where applicable</li> </ul>	DMR	Ongoing	<ul style="list-style-type: none"> <li>Number of IUU fishing activities</li> <li>Annual reports</li> </ul>

<sup>3</sup> ACP FISH II is a 4.5 year program financed by the European Development Fund on behalf of ACP (African, Caribbean and Pacific Group of states) countries. The aim of the program is to improve fisheries management in ACP countries so as to ensure that fisheries resources under the jurisdiction of these countries are exploited in a sustainable manner (<http://www.acpfish2-eu.org>).

### 3.1.2 Government strategy to reduce and eliminate IUU fishing

Priority: Complete

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, Mr Braynen, Director of DMR, provided a further update at the 2015 FIP review meeting on the status of several platforms recently purchased by the Royal Bahamas Defence 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. This strategy will be monitored in task 3.1.1.

### 3.1.3 Review MCS strategies to reduce and eliminate IUU fishing

Priority: High

A review and update of appropriate MCS strategies within the Bahamas should continue to ensure the risk from IUU fishing is minimal. This could take the form of developing a national Plan of Action against IUU fishing, for example. Whilst this remains a high priority activity, development of a national Plan of Action is unlikely to occur in the short-medium term. The review of information to determine if these strategies are effective is considered under a separate task 3.2.1 below.

Task	Objectively verifiable indicators	Responsible organisations	Timeline	Means of verification
<p><b>Activity 3.1.3</b></p> <p>Continue to review and update MSC strategies to combat IUU fishing</p>	<ul style="list-style-type: none"> <li>• Continue to monitor and review level of IUU fishing and develop appropriate MSC strategies, where appropriate.</li> <li>• Develop NPOA-IUU, if appropriate.</li> </ul>	<p>DMR (lead)</p> <p>RBDF</p> <p>BMEA</p>	<p>Ongoing</p>	<ul style="list-style-type: none"> <li>• Stock status of lobster population</li> <li>• Summary of MSC activities, including number of inspections, infringements, prosecutions/ successful outcomes etc.</li> </ul>

### 3.1.4 IUU risk assessment

During 2015, an IUU risk assessment was conducted to determine the risk of IUU fishing within the Bahamas. This provided an update on the level of risk to the lobster fishery and provided a series of recommendations to further strengthen MCS within Bahamian waters. This task is now complete but monitoring of MCS activities and level of IUU fishing activity should continue, as detailed under task 3.2.1 below.

Priority: Complete

### 3.1.5 Analysis of tolerance for undersized lobster at processors

Priority: Medium

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.

Task	Objectively verifiable indicators	Responsible organisations	Timeline	Means of verification
<b>Activity 3.1.5</b> Analysis of tolerance for undersized lobster	<ul style="list-style-type: none"> <li>Assessment of the level of tolerance deemed acceptable for undersized lobster from each BMEA member.</li> <li>Summarise data to demonstrate the policy.</li> </ul>	BMEA (lead) DMR	6 months	<ul style="list-style-type: none"> <li>Summary of individual tail weights at processors</li> <li>Assessment report</li> </ul>

### 3.1.6 Economic analysis of IUU fishing associated with sanction level

Priority: Medium

It would also be beneficial to compare economically the net gain for illegal fishing when detected against operating costs and sanction level (including “costs” of non-financial sanctions) to show the level of sanctions are appropriate for the value of fisheries of the Bahamas.

Task	Objectively verifiable indicators	Responsible organisations	Timeline	Means of verification
<b>Activity 3.1.6</b> Economic assessment of IUU fishing activities	<ul style="list-style-type: none"> <li>Assessment of the net gain for illegal fishing when detected against operating costs and sanction level to demonstrate level of sanction are appropriate for Bahamas</li> </ul>	DMR	6 months	<ul style="list-style-type: none"> <li>Evaluation report</li> </ul>

## 3.2 Compile data on MCS activities

### 3.2.1 Compile data on MCS activities

Priority: High

It is recommended that a number of elements are addressed to emphasize the comprehensive nature of the MCS system. These include collation and use of intelligence information in a coordinated fashion (i.e. from fishers, aerial surveillance), risk based assessment and planning and dissemination. It is highly recommended that more information **continue to be collected** on the potential risk of IUU fishing, both from the domestic and international fleets. This could occur through documenting the level surveillance, number of infringements and successful prosecutions. This information is also important to demonstrate that sanctions are at a level required to deter IUU fishing.

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It is highly recommended that these government initiatives are closely monitored by FIP stakeholders to ensure the results of the study are appropriate to the compliance issues raised in the MSC pre-assessment.

Task	Objectively verifiable indicators	Responsible organisations	Timeline	Means of verification
<p><b>Activity 3.2.1</b> Analysis of existing and planned MCS activities</p>	<ul style="list-style-type: none"> <li>• Provide regular summary of historical MCS activities to demonstrate actions taken and result achieved.</li> </ul>	<p>DMR BNDF</p>	<p>6 months</p>	<ul style="list-style-type: none"> <li>• Summary of MCS activities, including number of inspections, infringements, prosecutions/ successful outcomes etc.</li> </ul>

### **3.3 Restaurant audit programme**

#### **3.3.1 Review and update communications strategy memo**

Priority: On Hold

To date, this task has not been implemented and had been expected to start following the development and implementation of the Communications Plan. This task has been put on hold at this time.

#### **3.3.2 Review restaurant pledges at 2013 Seafood Show**

Priority: Complete

#### **3.3.3 Develop program to audit restaurants for out-of-season lobster**

Priority: On Hold

Increased surveillance and enforcement is required to ensure fishermen do not sell lobster directly to restaurants out-of-season. The original FIP Action Plan recommended an audit should be developed in association with processors to help demonstrate where product has been obtained. The audit will likely require sales receipts from restaurants to ensure they do not refill stocks from undocumented sources.

While it is important to ensure restaurants are compliant with fisheries regulations, this task is considered to be important over the medium-long term and has therefore been put on hold at this time.

### **3.4 Pilot study for IUU fishing Smartphone App**

#### **3.4.1 Design a pilot study to determine utility of Smartphone IUU App**

Priority: Complete

In 2012, a new innovative tool was introduced after the FIP review meeting that enabled stakeholders to help identify and monitor IUU fishing using a Smartphone App. A pilot study was conducted during May 2013 with the assistance of the Royal Bahamas Defence Force (RBDF), DMR, BMEA and local fishers.

#### **3.4.2 Review results of pilot study and determine follow-up action**

Priority: Complete

The results of the 2013 pilot study have been reviewed and it was deemed that due to a number of potential constraints, including image quality and timeliness of reporting, it was not viable to continue the Smartphone App trials at this time.

## **4. STOCK ASSESSMENT & MANAGEMENT**

Historically, the most critical issues identified as high priorities within the lobster fishery were associated with Principle 1 of the MSC assessment. In particular, these referred to stock status (PI 1.1.1), reference points (PI 1.1.2), Harvest Control Rules and Tools (PI 1.2.2), and stock assessment (PI 1.2.4). Without further improvements, the fishery would be expected to fail an MSC assessment on these key topics.

To help address these concerns, WWF initiated a study in 2010 for an external consultant to undertake a stock assessment using currently available catch and effort data, develop suitable reference points, and propose a Harvest Control Rule (HCR) for the fishery. To facilitate

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implementation of the HCR, it was recommended that a Bahamas Spiny Lobster Working Group (SLWG) be established, which consists of representatives of all major stakeholders who will advise government of actions which need to be taken to implement and be consistent with agreed policy. This task was added in 2011, and was formally approved by the government in December 2012.

A global review of the current national and international management measures for lobster management and their effectiveness was previously highlighted in the original FIP Action Plan. To date, this task (formerly task 4.7) has not been implemented. DMR has indicated that a recent document is available from the Caribbean Regional Fisheries Mechanism (CRFM) that reviewed management measures within the CARIBFORUM region. It is recommended that this document is reviewed to determine if it is sufficient to address the issues raised in the FIP. In the meantime the 2012 FIP review agreed that this task is removed from the FIP Action plan. Deleted tasks are not shown in the 2013 FIP Action plan.

During 2012, a review of the habitat and ecosystem impacts from casitas and lobster traps was completed and has now been removed from the 2013 FIP Action Plan. Given the scale and intensity of the Bahamian lobster fishery, the results of the review were not found to be fully comparable to other fisheries in other regions. However, the report stated that while further studies of the impacts that traps and casitas have on marine habitats and ecosystems in The Bahamas would be beneficial to management of the lobster fishery, several management recommendations can be made from existing studies, including: implementing measures to limit the loss of gear and the occurrence of marine debris; limiting areas in which gears may be fished to minimize habitat impacts; and restricting gear designs to minimize bycatch. To date, new research is being conducted to determine the location and number of casitas used in the Bahamas to help establish the potential impact of the gear (task 1.5), in addition to a study on the level of bycatch in the lobster trap fishery (task 1.4). The results of these studies will help inform what management strategy, if any, is required to address these issues.

It should be noted that in the original 2011 FIP Action Plan it was acknowledged that due to limited financial resources and human capacity available at the time, some of these tasks were no longer deemed feasible and it was recommended to remove these tasks from the FIP Action Plan. These include (i) develop in-house capacity to conduct stock assessments (ii) determine growth, minimum size at capture and natural mortality, and (iii) to document existing successful fisheries management processes. While these tasks have been removed, the 2011 FIP Review meeting recommended adding new tasks, including the establishment and operation of a Bahamas Spiny Lobster Working Group and to update and revise the lobster Fishery Management Plan.

### **4.1 Bahamas Spiny Lobster Working Group (SLWG)**

#### **4.1.1 Creation of Bahamas Spiny Lobster Working Group (SLWG) and adoption**

Priority: Complete

The 2010 stock assessment report recommended that a Bahamas Spiny Lobster Working Group (SLWG) be established, which consists of a representatives of all major stakeholders within the lobster fishery who will advise government on actions which need to be taken to implement and be consistent with agreed policy.

In December 2012, the Bahamas government approved the formation of a SLWG. In February 2013 members of the group were appointed and the inaugural meeting was held in October 2013. In addition to their standard terms of reference, a number of additional ad-hoc tasks were recommended for the SLWG to consider, including:

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- Provide evidence of checking lobster traps for mesh escapement panels
- Determine appropriate scale for spatial reporting of fisheries statistics
- To develop short and long-term objectives of the fishery to be included within the revised lobster FMP

The SLWG was formally approved by the government of the Bahamas in spring 2015.

### 4.1.2 Increase transparency of SLWG meetings

Priority: High

It is highly recommended that the SLWG should provide a summary of their meetings, and explain what has been discussed and the main outcomes, including reasons for their decision and indicate how stakeholders can get in touch (e.g. DMR website). This is a high priority task.

Task	Objectively verifiable indicators	Responsible organisations	Timeline	Means of verification
<b>Activity 4.1.2</b> SLWG transparency	<ul style="list-style-type: none"> <li>• Provide a summary of each SLWG meeting</li> <li>• Post the meeting summary on DMR website</li> <li>• Provide mechanism for online comments and feedback</li> </ul>	SLWG DMR	6 months	<ul style="list-style-type: none"> <li>• Summary of SLWG meeting notes</li> <li>• DMR website</li> </ul>

### 4.1.3 Review ETP species and habitat status

Priority: High

It is highly recommended that information sources on the status of turtle and shark species in the Bahamas is made available for the assessment team. It is intended that this will help demonstrate the status of turtle and shark species is known and that the lobster fishery has no impact on the population. The SLWG can help demonstrate that the number of management measures that are deemed to form part of an ETP strategy have been fully considered. It is recommended that the SLWG review ETP interactions and provide evidence that these issues have been considered in full and to draft a specific ETP strategy document, where necessary. It will also be important to provide evidence to demonstrate that the turtle and shark bans are working in the Bahamas.

Task	Objectively verifiable indicators	Responsible organisations	Timeline	Means of verification
<b>Activity 4.1.3</b> Status of ETP species in Bahamas	<ul style="list-style-type: none"> <li>• Review publically available information to provide supporting evidence on the status of all relevant ETP species in the Bahamas (e.g. turtles, sharks and marine mammals).</li> <li>• SLWG to review status information in relation to existing fisheries</li> </ul>	SLWG DMR	6 months	<ul style="list-style-type: none"> <li>• Summary document of status of relevant ETP species in Bahamas</li> <li>• ETP strategy document for Bahamas lobster fishery</li> <li>• SLWG meeting notes</li> </ul>

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	management measures and information on level of compliance <ul style="list-style-type: none"> <li>• SLWG to document process and provide management recommendations, where applicable</li> </ul>		
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### 4.1.4 SLWG continue review performance evaluation

Priority: High

Members of the SLWG have responsibility for a number of important tasks to effectively manage the Bahamas lobster fishery. These should continue and ensure that the overall performance of the fishery is monitored on a routine basis, including review of stock assessment and harvest control rules.

Task	Objectively verifiable indicators	Responsible organisations	Timeline	Means of verification
<b>Activity 4.1.4</b> SLWG continue to review performance of Bahamas lobster fishery	<ul style="list-style-type: none"> <li>• SLWG to continue to review and monitor the performance of the fishery against their terms of reference</li> </ul>	SLWG	Ongoing	<ul style="list-style-type: none"> <li>• SLWG meeting notes (made publically available)</li> <li>• Stock status</li> <li>• Relevant management strategies to address areas of key concern</li> <li>• Good level of compliance with regulations</li> </ul>

### 4.2 Demonstrate effectiveness of MPAs

In addition to the fisheries-dependent information such as catch and effort, the original 2011 FIP Action Plan recommended a study to obtain fisheries-independent data on the biological characteristics of lobster inside MPAs to help establish a baseline for Bahamian lobster populations. A comparison could then be made with areas outside MPAs that are subject to fishing pressure to help demonstrate the effectiveness of MPAs. This would also help inform the potential impact of casitas in the region as either increasing productivity of the population via artificial shelters, or whether they act as fish aggregating devices (FADs), attracting animals away from other natural habitats.

In 2011, an external consultant was tasked with (i) reviewing density of animals equivalent to the virgin population biomass, (ii) reviewing natural mortality of and growth rates, (iii) reviewing use of MPAs to provide a measure of the likely impact of using condominiums on benthic habitats (iv) reviewing current information from monitoring programs inside MPAs and provide baseline information on key biological characteristics, and (v) providing recommendations to undertake further studies.

Unfortunately, the review did not reveal significant volumes of data with which to inform the stock assessment. However, references to key scientific literature were reviewed and recommendations made how to improve monitoring inside and outside of MPAs. Although the

review found very little information and data available directly within the Bahamas, the importance of fully understanding the benefits of MPA in marine conservation and resource management remain a key issue. Stakeholders at both the 2011 and 2012 FIP Review meetings agreed that these important long-term goals lie beyond the scope of the FIP Action Plan, although the task should remain as part of the FIP Action Plan as a long-term project to ensure these issues are not disregarded in future.

#### 4.2.1 MPA effectiveness in Bahamas

Priority: On Hold

### 4.3 Develop stock assessment, harvest control rules and reference points

A key task was identified in the original FIP Action Plan to develop a new stock assessment for the lobster fishery using fisheries-dependent data and to develop appropriate HCRs and tools and associated reference points.

#### 4.3.1 Submit peer-reviewed stock assessment and HCRs to SLWG

Priority: Complete

A stock assessment on the Bahamas lobster was completed in 2011 and updated in 2012 by an external consultant using export data obtained from processors to establish the current status in relation to biological reference points. The results of the updated 2012 stock assessment indicate that there is no evidence that the Bahamas spiny lobster stock is overfished. However, the precise determination of stock status was not possible due to limited relevant information in the available data. The stock assessment was externally reviewed in June 2012, which provided a series of recommendations, which included incorporating age/size structure of the population.

The 2012 assessment provided guidance on the development of harvest control rules and tools to determine management actions with varying levels of stock abundance. The SLWG has subsequently reviewed the approved the HCRs in October 2013.

#### 4.3.2 Adoption of HCRs by Bahamas government

Priority: Complete

Formal approval of the HCRs for the lobster fishery by the Bahamas government was given in spring 2015. This activity is now complete.

#### 4.3.3 Final testing of 2014 stock assessment

Priority: High

In 2014 a new stock assessment was developed to include, amongst other things, age/size structure of the population. The results of this latest assessment are still considered preliminary and have not been used to score the fishery.

The model should have a full independent evaluation (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 including. This is a high priority.

Task	Objectively verifiable indicators	Responsible organisations	Timeline	Means of verification
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<b>Activity 4.3.3</b> Finalisation of 2014 stock assessment method	<ul style="list-style-type: none"> <li>• Update the stock assessment with latest data</li> <li>• Review HCRs to ensure they remain relevant to the fishery, given outcome of review of latest stock assessment.</li> </ul>	TBC SLWG	6 months	<ul style="list-style-type: none"> <li>• SLWG meeting notes</li> <li>• 2014-2015 stock assessment and HCRs updated</li> <li>• Stock status</li> </ul>
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### 4.3.4 Review of 2014 stock assessment

Priority: High

It is recommended that the 2014 assessment is internally and eventually externally reviewed before the results may be distributed more widely before assessing the current status of the stock. This will also determine whether the current HCRs are relevant and enable the stock to recover from depletion, if it were to occur. This is a high priority.

Task	Objectively verifiable indicators	Responsible organisations	Timeline	Means of verification
<b>Activity 4.3.4</b> Review (internal and external) of stock assessment	<ul style="list-style-type: none"> <li>• Conduct an independent evaluation of the stock assessment methodology and results</li> <li>• Conduct a review of HCRs to ensure they are robust to uncertainties</li> </ul>	TBC SLWG	6 months	<ul style="list-style-type: none"> <li>• SLWG meeting notes</li> <li>• Internal and external review documents</li> </ul>

## 4.4 Review of fisheries legislation, fines & penalties

### 4.4.1 Undertake review of current fisheries legislation, fines & penalties

Priority: Complete

Within the Bahamas there is a management system that operates within national and international laws that are aimed at achieving sustainable fisheries in accordance with MSC Principles 1 and 2. However, while fisheries legislation may appear as a transparent mechanism for the resolution of legal disputes, it remains unclear whether the fishery would pass some, if not all the scoring issues under SG80 for PI 3.1.1. To help address this complex issue, this task is designed to provide a review of the fisheries legislation, fines and penalties within the Bahamas.

### 4.4.2 Review outputs from ACP FISH II and FAO projects

Priority: Complete

In 2014, The Bahamas benefited from an FAO Technical Cooperation Programme – ‘Strengthening Fisheries and Aquaculture Governance in the Bahamas’, which started in February 2014 and will complete next August 2015. The project is expected to have five main outcomes:

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- 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.

In addition to the FAO TCP, an EU-funded project under the ACP FISH II programme will provide support to update the Fisheries Act in The Bahamas. The main objective of this study is 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, information about the new Bahamas Agricultural and Marine Science Institute (BAMSI) was briefly discussed. This new research facility 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.

### 4.4.3 Implement relevant outputs from ACP FISH II and FAO projects

Priority: Medium

It is highly recommended that the outputs from the ACP FISH II and FAO projects reviewed under sub-task 4.4.2 are implemented. This is a medium priority.

Task	Objectively verifiable indicators	Responsible organisations	Timeline	Means of verification
<b>Activity 4.4.3</b> Implementation of ACP FISH II Programme and FAO recommendations	<ul style="list-style-type: none"> <li>• Review key recommendations from ACP FISH II Programme and FAO</li> <li>• Implement relevant recommendations</li> </ul>	DMR SLWG	6 months	<ul style="list-style-type: none"> <li>• SLWG meeting notes</li> <li>• FMIS</li> <li>• Annual report on stock status</li> </ul>

### 4.5 Update and implement revised lobster FMP, including fisheries monitoring

To date, fisheries policy has general long-term objectives outlined within the Fisheries Act (Chapter 244), 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. In addition, a 5-year Development Plan for the Bahamas has recently been completed that will help identify the long-term objectives for the development of the fisheries sector as a whole. However, fishery-specific short and long-term management objectives are outlined in a draft Lobster Fisheries Management Plan (FMP), which has not yet been submitted for adoption.

In the short-term, it is recommended to develop, review and adopt a harvest strategy document that provides a summary of the management of the lobster fishery, including short and long-term objects to provide structure and transparency on the management of fishery.

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In addition, the performance of the fishery should be monitored and evaluated against a set of performance indicators. For this purpose, a management performance review document that provides a structured analysis of the fishery has been developed for review and approval by SLWG and DMR.

### 4.5.1 Review, update and approve the Bahamas lobster harvest strategy document and management performance review document

In 2015, both the Bahamas lobster harvest strategy document and lobster fishery performance review document were reviewed, updated and approved by members of the SLWG. This activity is now considered complete.

Priority: Complete

### 4.5.2 Review FMP with stakeholders and incorporate comments

Priority: High

It is recommended that the draft FMP is subject to review and updated by the SLWG following comments and feedback from local fishers. This remains a high priority is ongoing.

Task	Objectively verifiable indicators	Responsible organisations	Timeline	Means of verification
<b>Activity 4.5.2</b> Review draft FMP with stakeholders	<ul style="list-style-type: none"> <li>Conduct outreach with local fishers to review draft FMP</li> <li>Incorporate major comments and feedback into FMP</li> </ul>	DMR SLWG	Ongoing	<ul style="list-style-type: none"> <li>SLWG meeting notes</li> <li>Finalised FMP</li> <li>Stakeholder consultation comments/ feedback</li> </ul>

### 4.5.3 Adoption of FMP by Bahamas government

Priority: High

Following the review of the FMP by stakeholders (task 4.5.2), the FMP must be formally adopted by government. This important task is ongoing and may require support and lobbying from local stakeholder to get formal approval (see task 4.6.1 below).

Task	Objectively verifiable indicators	Responsible organisations	Timeline	Means of verification
<b>Activity 4.5.3</b> Adoption of revised FMP by government	<ul style="list-style-type: none"> <li>Ensure that the revised FMP gets formal approval by Bahamas government</li> <li>Provide local support for adoption, where required</li> </ul>	DMR	Ongoing	<ul style="list-style-type: none"> <li>Approved FMP</li> </ul>

### 4.5.4 DMR to approve management performance review and harvest strategy documents

Priority: High

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In the short-term, before the FMP can be updated, reviewed and finally approved by government, a harvest control strategy document has been developed to describe current management of the Bahamas lobster fishery, including short and long-term objectives. In addition, an evaluation of the performance of the Bahamas lobster fishery has been evaluated by the SLWG. It is highly recommended that these documents are formally reviewed and officially adopted by government.

Task	Objectively verifiable indicators	Responsible organisations	Timeline	Means of verification
<b>Activity 4.4.5</b> Officially adopt Bahamas lobster harvest strategy and management performance review documents	<ul style="list-style-type: none"> <li>DMR to review and officially adopt Bahamas lobster harvest strategy and management performance review documents</li> </ul>	DMR	6 months	<ul style="list-style-type: none"> <li>DMR-approved documents available on website</li> </ul>

### 4.6 Implementation of FMP

#### 4.6.1 Develop stakeholder advocacy to implement lobster FMP

Priority: Medium

To encourage the government to expedite the adoption of the revised lobster Fisheries Management Plan, it is recommended to evaluate the benefits of writing a letter of support from various stakeholder groups and forwarded to senior government officials. Support from local fishermen could be garnered during Task 2.3 and is currently ongoing as a medium priority.

Task	Objectively verifiable indicators	Responsible organisations	Timeline	Means of verification
<b>Activity 4.6.2</b> Formal adoption of FMP	<ul style="list-style-type: none"> <li>Develop a letter of support from local stakeholders to Bahamas government for approval and adoption of FMP</li> </ul>	DMR	Ongoing	<ul style="list-style-type: none"> <li>Adopted FMP</li> </ul>

### 5. Next Steps

To date, the following key tasks have been identified as high priority, with some deemed more critical before the fishery moves forward into an MSC full assessment (highlighted in blue). Some of these were first identified following the external review of the FIP Action Plan in September 2014.

#### Principle 1

- DMR to adopt a **'Bahamas lobster harvest strategy'** document, which will include **formal fisheries-specific objectives**.
- DMR **continue to collect reliable data** (IUU, catch, local landings on all major islands).
- Obtain the **level of tolerance of undersized lobster** from each processor to determine what is deemed an acceptable level of non-compliance.

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- **2014 stock assessment** (& HCRs) updated and tested with latest data.
- Continue and **extend education and outreach program** for catching illegal lobster (undersized, out of season etc) at processing plants.
- DMR to review and update data collection forms to include **spatially explicit catches** (from all main islands) and **information on fishing effort** (number of gear used etc).

### Principle 2

- **Provide a short summary** of Mr Gitten's PhD research, conclusions and recommendations so far in his research to support the full assessment before the site visit takes place.
- **Provide information sources on the status of turtle and shark (ETP) species** in the Bahamas for the full assessment team.
- **Identify all habitat and ecosystem related monitoring within the Bahamas** (e.g. reef fish counts, coral-bleaching studies, seagrass monitoring etc.) for the full assessment.
- 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.
- Provide quantitative evidence of **compliance with lobster trap biodegradable panel** to reduce risk of ghost fishing.
- It is recommended that **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 reporting **other retained species**.

### Principle 3

- Government to formally adopt a Bahamas lobster '**Management Performance Review**' document.
- Members of the SLWG should be made explicitly aware they are using the **FAO Code of Conduct** (precautionary approach) to manage the lobster fishery.
- It is recommended that the Bahamas SLWG 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 SLWG meeting, website announcements etc) to obtained maximum score.
- SLWG members to **review current ETP status** (turtle and shark) and habitats to determine level of impact from the fishery and reasons for any action required (or not) to review or develop new management measures/ strategy and adequate level of monitoring (may be added to harvest strategy doc).
- Analyse the number of offences committed against indicators of control activity (recommended as part of the IUU assessment) to demonstrate that sanctions are at a level required to deter IUU fishing. compare economically the net gain for illegal fishing when detected against operating costs and sanction level (including "costs" of non-financial sanctions) to show the level of sanctions are appropriate for the value of fisheries of the Bahamas.

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- To ensure the **stock assessment methodology and assessment results are externally reviewed** and the overall results reviewed against the fishery-specific objectives.
- 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.
- Compare economically the **net gain for illegal fishing when detected against operating costs and sanction level** to show the level of sanctions are appropriate for the value of fisheries of the Bahamas.
- It is highly recommended that **more information is collected on the potential risk of IUU fishing**, both from the domestic and international fleets.

## APPENDIX 1: Outline of revised tasks for Bahamas Lobster 2015 FIP Action Plan

Task	Description	Responsible	Deadline	Status
<b>1.1</b>	<b>Review and update existing data collection procedures</b>			
1.1.1	Processors to include categories for all retained and bycatch (discarded) species on data capture forms and provide individual weight information to DMR to inform the stock assessment.	BMEA, DMR	TBD	High
1.1.2	DMR to review data collection forms and data (species recorded, geographic location - statistical grid, #gear etc)	DMR	TBD	High
1.2.3	DMR to improve data collection - all major islands , routine size information etc	DMR	TBD	High
1.2.4	Continue to update data systems and review data quality etc	DMR	Ongoing	High
<b>1.2</b>	<b>Ongoing data collection from processors</b>			
1.2.1	DMR to continue the data collection from processors	BMEA	Ongoing	High
<b>1.3</b>	<b>Update and maintenance of fisheries information system - Hire FIP Assistant position to be seated in DMR offices – REMOVED</b>			
<b>1.4</b>	<b>Research and monitoring of lobster trap fishery</b>			
1.4.1	Develop a research project to provide a series of stratified random catch samples from observers placed onboard trap vessels to monitor the level of bycatch and ETP species, and look at level of compliance with use of biodegradable mesh panels.	TNC to coordinate with DMR, BMEA, trap fishers, College of the Bahamas	TBD	High
1.4.2	Conduct the trap bycatch study	TNC, DMR, BMEA, trap fishers, College of the Bahamas	Complete	
1.4.3	Results evaluated by DMR/ SLWG	BSLWG and DMR	Complete	
<b>1.5</b>	<b>Fisheries independent research on impacts of fishery on habitats and ecosystem</b>			
1.5.1	Review Lester Gittens' terms of reference for his PhD thesis and identify sources of financial support for part of his studies.	BMEA, WWF, DMR, TNC	Complete	
1.5.2	Consolidate environmental baseline information with the results of the bycatch research and monitoring study (listed above)	Mr. L Gittens (DMR)	Complete	

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<b>Task</b>	<b>Description</b>	<b>Responsible</b>	<b>Deadline</b>	<b>Status</b>
1.5.3	Implementation of fisheries research of habitat and ecosystem impacts	Mr. L Gittens (DMR)	Ongoing until 2016	High
1.5.4	Existing information and monitoring on habitats and ecosystems (MPA) should be collected for the assessment team to demonstrate impact of fishery is low/negligible	TBD	6 months	High
1.5.5	Provide summary of current ecosystem research by Mr Gittens (not publically available)	Mr. L Gittens (DMR)	TBD	High
<b>2.1</b>	<b>Communications Strategy Memo/ Information</b>			
2.1.1	To develop a Communications Strategy Memo (CSM) as part of a Communications Plan.	WWF	On Hold	
2.1.2	Review CSM to develop strategies	WWF	On Hold	
<b>2.2</b>	<b>Ensure sufficient data checks to support BMEA zero tolerance policy</b>			
2.2.1	BMEA to continue data checks in 2015/16 season and continue outreach	BMEA	Ongoing	High
<b>2.3</b>	<b>Fishermen education and outreach on management measures</b>			
2.3.1	Develop outreach program for fishermen (HCR/FMP etc)	WWF/TNC/DMR/BME A/BREEF	Ongoing	High
<b>2.4</b>	<b>Restaurant education and outreach on management measures</b>			
2.4.1	Develop outreach program for restaurants	WWF/TNC/DMR	On Hold	
<b>2.5</b>	<b>Education and outreach program for schools</b>			
2.5.1	Develop outreach program for schools	DMR/ NGOs	On Hold	
<b>3.1</b>	<b>Review existing MCS strategy</b>			
3.1.1	To provide a comprehensive review of the existing MCS strategy and continue to collect and summarise key MCS information and data	DMR, ACP Fish II Programme	Ongoing	High
3.1.2	Government strategy to reduce and eliminate IUU fishing	DMR, ACP Fish II Programme	Complete	
3.1.3	Identify what other activities need to take place to develop a plan to eliminate IUU	WWF-lead w/DMR & BMEA	Ongoing	High
3.1.4	IUU Risk Assessment	Consultant	Complete	
3.1.5	Obtain the level of tolerance of undersized lobster from each processor to determine what is deemed an	DMR/BMEA	6 months	Medium

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Task	Description	Responsible	Deadline	Status
	acceptable level of non-compliance.			
3.1.6	Compare economically the net gain for illegal fishing when detected against operating costs and sanction level to show the level of sanctions are appropriate for the value of fisheries of the Bahamas	TBD	6 months	Medium
<b>3.2</b>	<b>Compile data on MCS activities</b>			
3.2.1	It is recommended that to analyse the number of offences committed against indicators of control activity (recommended as part of the IUU assessment) to demonstrate that sanctions are at a level required to deter IUU fishing. compare economically the net gain for illegal fishing when detected against operating costs and sanction level (including "costs" of non-financial sanctions) to show the level of sanctions are appropriate for the value of fisheries of the Bahamas .	DMR, ACP Fish II Programme	6 months	High
<b>3.3</b>	<b>Audit restaurants for out-of-season lobster</b>			
3.3.1	A review of the Communication Strategy Memo (CSM) will help determine the requirements of this task	WWF/ TNC	On Hold	
3.3.2	Review/analyze restaurant pledges and surveys completed at Bahamas Food Show- Sept 2013.	WWF	Complete	
3.3.3	Develop program to audit restaurants for undersized/ out-of-season lobster.	WWF-lead with TNC/DMR/BMEA	On Hold	
<b>3.4</b>	<b>Pilot study for IUU fishing Smartphone App</b>			
3.4.1	To conduct pilot study to determine utility of Smartphone IUU App	DMR/BMEA/ consultant	Complete	
3.4.2	Review results of pilot study and determine follow-up action	WWF-lead w/DMR & BMEA	Complete	
<b>4.1</b>	<b>Spiny Lobster Working Group</b>			
4.1.1	Develop and send the letter with confirmed participants to Minister Gray	Mr. M. Braynen (DMR)	Complete	
4.1.2	SLWG to summarise meetings and put in public domain - explain what has been discussed and outcome, including reasons why and indicate how	SLWG	6 months	High

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Task	Description	Responsible	Deadline	Status
	stakeholders can get in touch (DMR website). Include that the SLWG uses the precautionary approach in their decision-making.			
4.1.3	SLWG members to review current ETP status (turtle and shark) and habitats to determine level of impact from the fishery and reasons for any action required (or not) to review or develop new management measures/ strategy and adequate level of monitoring (may be added to harvest strategy doc).	SLWG	6 months	High
4.1.4	SLWG continue to review performance of fishery	SLWG	Ongoing	High
<b>4.2</b>	<b>Demonstrate the effectiveness of MPAs</b>			
4.2.1	To conduct research to help determine how MPAs can help protect lobster and provide other benefits	DMR, others	On Hold	
<b>4.3</b>	<b>Development and adoption of stock assessment and HCRs</b>			
4.3.1	Submit peer-reviewed stock assessment and HCRs to SLWG	DMR	Complete	
4.3.2	Adoption of HCR by the government	Minister Gray/ WWF/ MRAG	Complete	
4.3.3	Conduct final testing of model, including range of uncertainties	TBC	6 months	High
4.3.4	Conduct internal and external review of assessment	TBC	6 months	High
<b>4.4.</b>	<b>Review of fisheries legislation, fines and penalties</b>			
4.4.1	To undertake a review of current legislation, fines and penalties to improve fisheries compliance	DMR, ACP Fish II Programme	Complete	
4.2.2	Review outputs from ACP FISH II and FAO-TCP projects	DMR	Complete	
4.2.3	Implement relevant outputs from ACP FISH II and FAO projects	DMR	Ongoing	Medium
<b>4.5</b>	<b>Review, update and adoption of the FMP. FMP needs to include:</b>			
	• Legal framework			
	• Consultation, roles and responsibilities			
	• Fishery specific objectives of the lobster fishery (+ long term objectives of the fishing sector)			

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<b>Task</b>	<b>Description</b>	<b>Responsible</b>	<b>Deadline</b>	<b>Status</b>
4.5.1	Review and update management performance document	SLWG	Complete	
4.5.2	Review FMP with stakeholders and incorporate comments	SLWG and TNC	Ongoing	High
4.5.3	Adoption of FMP by the government	Minister Gray	Ongoing	High
4.5.4	Review and approve MPR and HS documents (include short/long-term objectives)	DMR	6 months	High
<b>4.6</b>	<b>Develop stakeholder advocacy to implement lobster FMP</b>			
4.6.1	Develop letter of support from stakeholders to government to encourage adoption of FMP	BMEA/WWF/TNC & NGOs	Ongoing	Medium