

# The adaptative process of improving fisheries management of vulnerable fish spawning aggregations in the Caribbean: the case of Nassau grouper and mutton snapper

## El proceso de adaptación para mejorar la ordenación pesquera de agregaciones reproductivas de peces vulnerables en el Caribe: el caso del mero Nassau y el pargo sama

### Le processus adaptatif d'amélioration de la gestion des pêcheries des bancs de frai vulnérables dans les Caraïbes : le cas du mérrou de Nassau et du vivaneau ovin

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#### ABSTRACT

Given the serious population declines in the Nassau grouper and mutton snapper, the CFMC/WECAFC/OSPESCA/CRFM Working Group on Spawning Aggregations agreed to strengthen efforts at the regional level. These efforts are aimed to improve the conservation of a critical life stage, their spawning aggregations, including development of a regional management plan and a communication strategy that would support the urgent call for action to maintain / recover the spawning aggregations of these two-coral reef-associated and highly commercially and cultural valuable species.

KEYWORDS: Nassau grouper, mutton snapper, spawning aggregations, regional conservation efforts

#### INTRODUCTION

Decades of Nassau grouper (*Epinephelus striatus*) population decline from overfishing resulted in a critically endangered listing by IUCN. Similarly, significant declines in mutton snapper (*Lutjanus analis*) populations resulted in its near threatened status. Both transboundary coral reef fishes form spawning aggregations during a couple of weeks annually, associated with full moon periods, variously between December and March for the former and April to June for the latter species.

To improve management of both species and secure active fishers' engagement along with other key stakeholders, in 2012 the WECAFC/CFMC/OSPESCA/CRFM Working Group on Spawning Aggregations (SAWG) was established to increase implementation and/or effectiveness of regional conservation measures. The SAWG has met four times since 2013 and has agreed to develop a Regional Fisheries Management Plan and a communication strategy named "Recovering Big Fish".

#### METHODOLOGY

With the financial support of the Caribbean Fisheries Management Council, a consultancy was conducted to develop the regional management plan referenced, a highly consultative process that took 1.5 years. At its fourth meeting (December 2019), the SAWG expressed strong support for the plan entitled "Regional Fish Spawning Aggregation Fishery Management Plan focused on Nassau grouper and mutton snapper" (FSAMP), and endorsed its adoption by WECAFC. At the same meeting, the SAWG also adopted the "Recovering Big Fish" communication strategy generated by Beluga Smile Productions during 2018 and 2019.

The FSAMP is expected to be presented and formally adopted at the next WECAFC 18th session prior to the approval by the WECAFC Scientific Advisory Group (SAG), both expected to take place in 2022. The "Recovering Big Fish" communication strategy was adopted in 2019 and is currently under implementation.

#### RESULTS

The FSAMP is comprised of six main objectives which in conjunction seek to increase inter-sectoral coordination thereby ensuring harmonized planning for effective implementation and management across Wider Caribbean Region.

These objectives are as follows:

1. To increase the availability of information for and understanding of NG and MS population status to build support for FSA protection.
2. To determine the status, including presence and fish abundance, location/timing of known FSAs and identify those in most need of protection.
3. To develop regionally consistent/harmonized monitoring frameworks and protocols to collect key biological, trade and other socio-economic information associated with NG and MS, both during and outside of FSA seasons and areas.
4. To establish coordinated and harmonized mechanisms for effective protection of FSAs from extractive use across the Wider Caribbean region.
5. To significantly increase awareness and engagement among key stakeholders to enhance support for the protection of FSAs, with special attention to equitable benefits for local communities.

6. To integrate FSA protection into broader planning and ecosystem-scale management initiatives.

It also identified 16 priority actions that integrate precautionary principles while retaining adaptive management measures, including closed seasons based on scientific information. Community-based solutions, alternative livelihoods and public understanding and engagement are also all priorities. Proposed actions are expected to be implemented in the next 10 years; thus, the FSAMP demands urgent action by WECAFC membership and active involvement of key stakeholders including fishers. As such, the need for education and outreach was identified to be of critical importance.

Given the high degree of regional collaboration and participation of several stakeholders contemplated in this regional plan, there is need to establish a coordinating group that helps to ensure and enhance the well-integrated work. As such, the WECAFC secretariat is expected to continue coordinating actions on fisheries related issues among WECAFC, OSPESCA and CRFM membership. Those efforts include the work for securing and updating existing bilateral and multilateral agreements to incorporate issues related to spawning aggregations of Nassau grouper and mutton snapper, poaching at national, regional, and international levels, and protocols to develop linkages between, and among, enforcement, customs, fisheries and port authorities. In addition, the plan implementation advised for the conformation of an educational and outreach, technical advisory, and legal support groups.

Therefore, the SAWG simultaneously developed a regional communication strategy called “Recovering Big Fish” that initiates a 3-year public engagement campaign designed to bring people into the fold to support FSA conservation, and the voice of the communication protocols, images and procedures inviting for a positive tone to act.

The following are the main expected results from this communication strategy:

a. 1-hour film for international broadcast, “The Secret Crown,” in co-production with Nature/Public Broadcasting Service (PBS), Terra Mater/Red Bull, and The Howard Hughes Medical Institute (HHMI), expected to premiere in November 2022.

b. The Big Fish Hub, digital home of the campaign and SAWG’s online presence, which will contain a library of information on FSAs and products translated into the three working languages of WECAFC (English, Spanish, and French).

c. Short-films: Nassau Grouper Against the Clock: A 3-min film for decision-makers; F2F Advice: Fish Smart: A 4-min call to action from fishers to their colleagues; Once upon a Tide There was a Mutton Snapper: A 3-min film for the fishing community; Love is in the Water: a 2-min film for the general public to promote the benefits of not consuming grouper and snapper during the spawning season.

d. Citizen Science Program for fishers & enforcement officials: short videos, posters and banners, along with ra-

dio kits. Radio kits include PSAs -- focused on banning fishing during spawning seasons for both species-- as well as podcasts.

#### e. Nature/PBS & HHMI’s Outreach

Both the FSAMP and the communication strategy utilize an Ecosystem Approach to Fisheries and would respond to changing and cumulative threats of human or natural origin, including climate change.

While these efforts initially focused on two iconic species, the concept and approach developed are applicable to other aggregation-spawning fishes.

### RECOMMENDATIONS

Regional efforts to improve the health of the NG and MS spawning aggregation will continue with the development of the following steps:

- Approval and formal adoption of the regional management plan by SAG & WECAFC translated into English, Spanish, and French,
- Strengthen partnerships and coordination utilizing existing mechanisms across the WECAFC region,
- Pursue country actions as recommended by WECAFC in its past two meetings,
- Work collaboratively to secure funding needed for FSAMP implementation,
- Develop guidelines for aggregation identification, prioritization and monitoring at both national and regional levels,
- Establish an outreach online platform (Hub), and
- Completion of the one-hour film and the launch Big Fish campaign.