Managing a Nassau Grouper Fishery – A Case Study from Belize

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ABSTRACT

Although Belize has a long history of investigations of its Nassau grouper fishery, action to manage the species was not taken until 2002, in response to a national survey of several spawning sites in 2001 that revealed the low numbers of aggregating Nassau grouper at most of the banks. The National Spawning Aggregation Working Group was established in an attempt to introduce protective legislation that would halt this alarming decline. In 2002, 11 spawning aggregation sites were protected as marine reserves and a four-month closed season was introduced. Despite high expectations for the recovery of the banks as a result of these regulations, the numbers have continued to decline and illegal fishing has been evident at several sites. Protecting the spawning aggregations is obviously a critical step in the protection of this species. We also need to consider the other life history stages, however, and take into account the impact of spear fishing. With the continued decline in numbers, the Working Group is recommending that additional measures be introduced. Furthermore, the Group has recognized the need to provide more assistance for management and enforcement, public awareness, alternative livelihoods, and sustaining the political will at the highest levels to enforce the laws. We have shared some of our successes within the region in terms of monitoring and establishment of our Working Group. Nevertheless, Caribbean-wide action that is supported at the highest level by all countries may be the best hope for the recovery of the species.

KEY WORDS: Nassau grouper, aggregations

Manejo de la Pesca del Mero de Nassau – Estudio de Caso de Belice

Aunque Belice tiene una historia larga de investigaciones en la industria pesquera del Mero de Nassau, las acciones para manejar la especie no fueron tomadas sino hasta el 2002, en respuesta a un examen nacional de varios sitios de desove en el 2001, que reveló un número bajo en las agregaciones de la mayoría de los bancos del mero de Nassau. Se estableció el Grupo Nacional de Trabajo de Agregación Reproductiva, en una tentativa para introducir una legislación para proteger éste declive alarmante. En el 2002, 11 sitios de agregación reproductiva fueron protegidos como reservas marinas y se introdujo una estación cerrada de cuatro meses. A pesar de las altas expectativas para la recuperación de los bancos como resultado de estas regulaciones, los números han continuado declinando y la pesca ilegal ha sido evidente en varios sitios. La protección de las agregaciones reproductivas es obviamente un paso crítico en la protección de esta especie. También necesitamos considerar las etapas de la historia de la vida de estas especies, sin embargo, y considerando el impacto de la pesca de la lanza. Con el declive continuo en números, el Grupo de Trabajo está recomendando que se presenten medidas adicionales. Además, el Grupo ha reconocido la necesidad de proporcionar más ayuda para la gerencia y la aplicación, la conciencia pública, los sustentos alternativos, y la voluntad política en los niveles más altos para hacer cumplir las leyes. Hemos compartido algunos de nuestros éxitos dentro de la región en términos de la supervisión y el establecimiento de nuestro Grupo de Trabajo. Sin embargo, la acción Del Caribe que es apoyada en el nivel más alto por todos los países puede ser la mejor esperanza en la recuperación de la especie.

PALABRAS CLAVES: Meros de Nassau, agregaciones

INTRODUCTION

Belize has a long history of research on the Nassau grouper, with Alan Craig documenting the spawning aggregation fishery at Caye Glory in 1968; this fishery has been described more recently by Paz and Truly (2007). Jacque Carter reported on his grouper surveys in the early 1980s and his development of a management plan to guide the fishery. Concrete action to manage and conserve the species was not taken until 2002, however, in response to a national survey of several spawning sites in 2001 that revealed the extremely low numbers of aggregating Nassau grouper at most of the banks (Paz and Grimshaw 2001). For instance the Caye Glory site, which in its heyday in the 1950s and 1960s was teeming with tens of thousands of aggregating fish, had been diminished to a mere 21 Nassau groupers in 2001. Sala *et al*. (2001) also recorded the decreasing numbers of spawning Nassau grouper at the Glover's Reef site since 1999.

CONCLUSIONS

The National Spawning Aggregation Working Group was established in an attempt to introduce protective legislation that would halt this alarming decline (Gibson *et al*. 2007). As a result of the advocacy work of a coalition of NGOs, in 2002 11 spawning aggregation sites were granted protection as marine reserves and a four-month closed season was introduced. Despite our high expectations for the recovery of the banks in response to these new regulations, however, the numbers of Nassau grouper have continued to decline. This site-based protective measure may not have been sufficient on its own to protect the species. The effect of this measure is unclear, however, as enforcement has been weak. Although the sites have been offered some added protection through the presence of monitoring teams and an increase in patrols during the spawning season, illegal fishing has been evident at several sites. Enforcement of the closed season has also been ineffective, with reports of Nassau grouper being sold in several local markets during this time. Enforcement efforts

are made more difficult by the concession made to permit fishing at two spawning sites, where monitoring of the catch has not been carried out adequately, and to allow for traditional fishers to continue fishing at three co-managed sites.

Protecting the spawning aggregations is obviously a critical step in the protection of this species. This is only one stage of its life history, however, and we also need to consider the other stages, and take into account the impact of spear fishing. For instance, Sala *et al*. (2001) noted that 14% of the adult population is removed annually by year-round spear fishing at Glover's Reef. This is an unsustainable rate of fishing. Spear fishing is also a very selective method, quickly removing the largest groupers and upsetting sex ratios.

With the continued decline in numbers, as documented very clearly for Glover's Reef (Starr *et al*. 2007), the Working Group is recommending measures be taken to improve enforcement, reduce effort generally by limiting entry at certain sites, introduce a ban on spear fishing within marine reserves, and declare a moratorium on the take of Nassau grouper.

Although the Working Group has had several successes, acting in a collective manner as a group, such as establishing many protected sites, we have learnt that this may be the easiest step. In hindsight, we now recognize that this needs to be backed up by much more effort in providing assistance for management and enforcement, and sustaining the political will at the highest levels to enforce the laws. Initially, the laws were not fully implemented as there seemed to be some ambiguity in their interpretation. Laws need to be absolutely clear and straightforward, with no special exceptions. We are also applying a mix of single-species and multi-species management measures, and we are not yet sure what is the most effective approach.

We appreciate that monitoring of the sites and data collection are essential, and we have been successful in this aspect, although some of the monitoring has been inconsistent and needs to be improved. We also need more research on the species to be able to fully address the arguments still being raised by some fishermen that the aggregating sites have shifted to different locations.

We have made great strides in offering training for alternative livelihoods for fishermen, but the program has been carried out in a piecemeal fashion without much coordination as a national effort. We must also strengthen our public outreach campaign and continue to focus efforts on keeping fishermen and the general public informed.

We have also been able to share some of our successes with our neighbors, Mexico and Honduras, in terms of the monitoring protocol and the establishment of our Working Group. The monitoring protocol is being used widely within the Mesoamerican region and a closed season is being implemented in Mexico as well. But some Caribbean-wide action may be the best hope for the recovery of the species; action that is supported at the highest level by all countries and which will then hopefully stimulate the political will required at the national level. We face the real risk of some of our sites going extinct, similar to the one at Mahahual in Mexico (Aguilar-Perera 2006), and we are keenly aware that no Nassau grouper spawning site that has been depleted has ever recovered.

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