

## URGENT ACTIONS NEEDED TO SAVE BELIZE'S NASSAU GROUPEL FISHERY

Nassau grouper were once abundant in Belize and throughout the Caribbean. Fishermen caught 2 tons of Nassau grouper each day from the Caye Glory spawning site in 1960, but in 2001, divers spotted only 21 Nassau Grouper at this site. After the Mauger Caye site was fished out in Turneffe, fishers found a new site at Dog Flea Caye in 1999-2000, when 6 fishers took Bz\$35,000 worth of Nassau groupers. In the 2001 season, 16 fishers showed up but found only about \$8,000 worth, followed by 3 fishers taking \$500 worth in 2002. Nassau groupers have been over-fished throughout the Caribbean, have disappeared completely from some reefs, and have been listed as an endangered species.

Recent national surveys of historical aggregation sites found only two still have over 1,000 Nassau Grouper each (at Lighthouse & Glovers), which still represents less than 20% of the 1970's population. Most of the other sites have less than 20 Nassau grouper, although a few sites have about 100. It is unknown whether the groupers will ever return to abandoned spawning sites, but only a rapid conservation effort can possibly bring them back.



**Effects of Fishing** - Hand-line & spear fishing are very damaging to spawning aggregations. Traditional hand-line fishers can remove more than 10% of male & female fish from a spawning aggregation, and tag returns show that spear fishing over the balance of the year can remove as much as 14% of the adults from a local population. Fisheries models developed with local data indicate that the current level of fishing will wipe out Belize's population by 2013. Nassau groupers spend most of the year in their chosen territory at their parent reef; they don't move to replenish other reefs. Tagging studies at Glovers indicate that only 3% of the Nassau groupers spawning there left the atoll after spawning.

**Proposed Actions:** Thus we need both site protection for spawning sites (which exist due to their unique physical / environmental characteristics) and other management measures throughout the year in order to save these fish from virtual extinction and revitalize the fishery. The recommendation of a coalition of conservation groups is for both of the first options (below), although any combination of options would likely assist recovery.

Species Protection	Spawning Site Protection
1) Total closure of fishery for Nassau grouper throughout Belize	1) Year-round closure of 14 known spawning sites <sup>1</sup> for Nassau grouper
2) No spear fishing in MPAs; Nassau grouper closed season and ban on 'live' trade	2) Year-round closure of 8 known viable spawning sites <sup>2</sup> for Nassau grouper

**Economics and Alternatives** - The catch of Nassau groupers during the spawning season represents only a minor component of the annual income of a few fishers. For example, the January 2001 season fishery yielded gross revenue Bz\$5,200 between 14 fishers at Glover's Reef; and, less than \$16,000 for 40 fishers across the entire country (these data ignore fishing costs).

Fishermen of spawning aggregations have already been given preferential access to training in SCUBA diving, sport fishing (guiding), fisheries research techniques and employment for monitoring and surveillance at the spawning sites, and NGO's are committed to long-term continuation and expansion of these efforts. The income expended on these activities over the past year totaled over \$100,000. The money to be spent on fisher training and employment in the upcoming season is over \$150,000; almost 10 times the value of the current spawning site fishery. A study of Fish Aggregating Devices (FADs) to be implemented next year should provide a new offshore fishery that will offset the small financial losses from spawning sites. If strong actions are not taken now, Belize's fishers will lose this fishery in the near future.

<sup>1</sup> See Map (reverse); these sites were endorsed for full closure by the Spawning Aggregation Working Group

<sup>2</sup> Noted with \* on map; "viable" refers to sites with some groupers present, or to historically very productive sites.

# Nassau Grouper Spawning Sites in Belize

*"Di fish deh no di de. ...." words from many fishers of the spawning banks*

1. Rocky Point: "In the early 80's I found this bank while guiding some tourists. The next day my brother and I fished it and brought back a boatload of grouper. About 45,000lbs was caught that season." **Bill Gonzalez**

6. Sandbore: "I remember when we use to see Nassau groupers by the hundreds crossing over the shallow reef south of Sandore site after they had finished spawning. We use to strike them easily with harpoon. At the site we use to catch them very easily. Our catch has decrease drastically, even though we spend more time on the fishing drop." **Jack Cabral**

5. Caye Glory (Emily): "In the early 60's there would be 50-60 boats here from San Pedro, Caye Caulker, Belize City Dangriga and Hopkins. The bank was so big that you could see boats a half mile away and everyone was catching groupers" **Jaime Paz**

"During the early 40's there were so many groupers at Caye Glory bank that some fishermen were not able to clean all the fish they catch, so they just took the roe and throw away the rest of the fish" **Alpheus "Bucky" Martin**

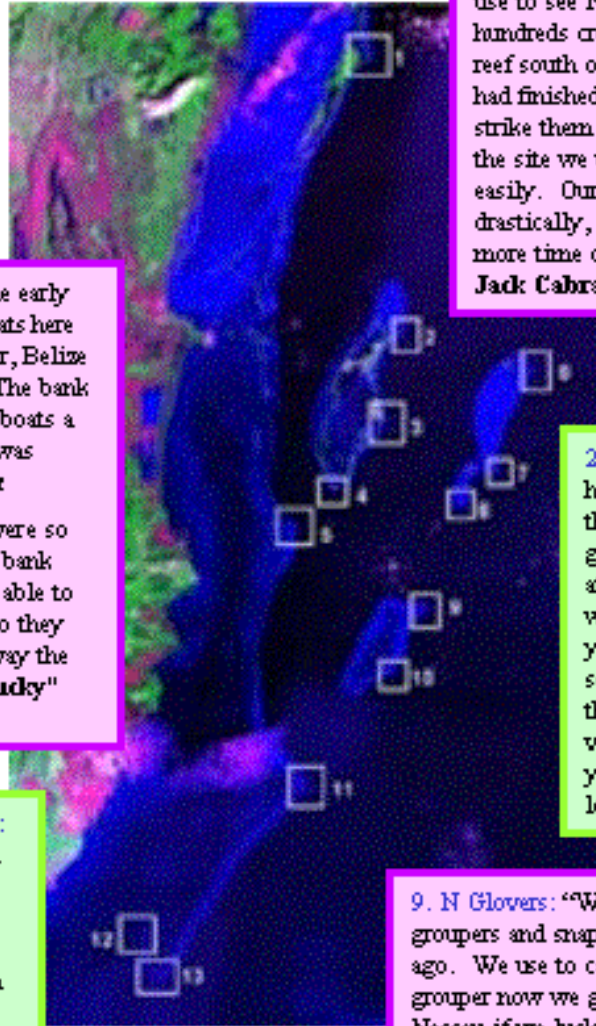
2. Maugre Caye: "We used to have to stop fishing by 2 in the afternoon just so we could get all the fish cleaned by 10 at night. We never imagined we could fish that out. But if you think about it - it makes sense. If you went out killing the pregnant women in the village each year one day you'd have no population left." **Tuli Lara**

12. Rise and Fall and 14. Seal Caye: "In the late 70's and early 80's each fishing trip we use to catch over 1000 pounds of Nassau grouper per fishing crew, now a days we only catch one one. It is no longer worth it to go out fishing for Nassau groupers at these sites." **Victor Jacobs Jr.**

9. N Glovers: "We can no longer catch Nassau groupers and snappers like we use to 20 years ago. We use to catch boat loads of Nassau grouper now we go and catch one or two Nassau if we lucky. I do support a complete closure on these sites" **Leonard Nunez**

10. Middle Caye 11. Gladden Spit 13. Nicholas Caye

3. Caye Bokel 4. Dog Flea Caye  
7. Half Moon Caye 8. South Point



*These 14 sites cover less than 0.5% of Belizean territorial waters, with 8 of the 14 sites already within MPAs. MPAs with co-management agreements can make special arrangements with local communities.*

*As new sites for Nassau grouper are identified, they should be added to the list.*

*Closing the sites year-round (as agreed by the Spawning Aggregation Working Group) provides the added benefit of protecting more than 20 other species, which spawn at different times at the same banks*

