



Conservation Council
of South Australia Inc

CCSA Fish Forum 1 – Notes of meeting

12th November 2008, Western Blue Groper (WBG)

Attendance

Approximately 40 people were in attendance, including representatives of:

- CCSA, member groups and Reef Watch (with apologies from P & M Hall of MLSSA)
- Scuba diving clubs (Sea Wolves and Southern Oceans Divers Social Club)
- Research organisations (including Dr Scoresby Shepherd and Dr Bronwyn Gillanders, with an apology from consultant Janine Baker)
- DEH – Marine Parks (Andy Burnell) and Threatened Species (Dr Simon Bryars)
- PIRSA Fisheries (Sean Sloan, Michelle Besley, Alex Chalupa, Keith Jones, Adriana Montoya and Lianos Triantafillos)
- Fisheries Council (Christopher Deane)
- Charter boat operators (David Clayfield and five others)
- Wildcatch Fisheries SA (Neil McDonald, Executive Officer)
- Fishers for Conservation
- Scuba Divers Federation
- Spearfishing clubs

Presentations

Biology of WBG, by Dr Scoresby Shepherd:

Notable biological features:

- A sex-changing species: sexual maturity is at ~15 yrs of age (60 cm size)
- Spawning season – winter-spring
- Larval life – not known, (likely >4 wks)
- Growth rate –slow
- A site-attached species (i.e. has a home-range)

- Habitat changes with size
- Adult foraging behaviours includes “ram-and-bite” and “bite, suck and spit”
- Adults reside in deeper water and spawning occurs in late winter to spring. Larval longevity is not known but could be 1-2 months. Hence it is likely that larvae from the parental spawners of South Australia’s populations are transported east in the easterly flowing Leeuwin Current from WA and western and central SA.

Effects of fishing:

- High mortality of sub-adults in near-shore waters
- Long-term decline of adults on Yorke Peninsula, and there is now pressure on adults from charter boat fishing (mainly West Coast) around offshore islands
- The shark gill-net fishery causes high mortality to groper at 30 – 50 m depth in State (and Commonwealth waters) - closure of the gillnet fishery in State waters is one option available, due to the fact that the 6 SA fishers mostly fish in Commonwealth waters.

Conservation Status of WBG – by Dr Simon Bryars

Is the Groper threatened?

- Not listed as threatened
- No fisheries stock assessments or population estimates
- Very little historical quantitative data on abundances
- Recent State-wide survey by divers led by Scoresby Shepherd
- Anecdotal evidence of declines on Fleurieu and Yorke Peninsulas during 1960-70s
- Adults are apparently still abundant in west of State and on KI - partly related to natural distribution and historical fishing, but have declines also occurred there (“shifting baseline syndrome”)? There is anecdotal evidence to suggest that adults are no longer present at some sites, e.g. Smooth Pool on the west coast.
- Juvenile abundances are high inshore, therefore recruitment must be coming from somewhere offshore.
- There is relatively little targeted fishing effort on groper
- Intrinsicly vulnerable to exploitation.
- Highly susceptible to barotrauma.
- Overall conclusion: We don’t know if it is threatened, and more research is needed.

What is DEH doing

- Creating a GIS database of reef fish abundances and distributions
- Collating new information
- New Marine Parks will have Sanctuary Zones
- Acoustic tracking project (in collaboration with SARDI researchers)
- Fish tagging program with charter operators and Austag to provide data on released fish survival, movements, growth
- Will be working with PIRSA Fisheries on fisheries review next year

Sean Sloan

Stakeholders include conservation groups, recreational, charter, traditional and commercial fishers, tourism operators, PIRSA Fisheries and DEH.

Management considerations include:

- Biological factors (slow growth, long lived, slow to mature, sex changing, territorial/sensitive to localised depletion)
- Sensitive to barotrauma
- Limited understanding of population spatial distribution

The high conservation status was recognised in the 1980s and a range of management measures have since evolved, including:

- prohibition on commercial sale by State licenced operators
- 50 kg trip limit for Commonwealth operators
- recreational and charter bag/boat limits
- minimum and maximum size limits (creating a 'slot' limit)
- area closures (some specifically for WBG, some primarily for other purposes)

Future considerations:

- Recreational survey and management review
- Compatibility between State and Commonwealth fisheries laws
- Controlled take vs controlled mortality
- Full protection in SA waters?
- Marine Parks

Discussion

Conservation status of Blue Groper

- The Western Blue Groper (WBG) is not currently listed as threatened under State or National legislations, nor by the International Union for the Conservation of Nature (IUCN)
- The conservation status of all temperate labrids is currently being reviewed by Australian scientists (including Professor Howard Choat) for the IUCN.

[Editors note: it should also be noted that Janine Baker's report recommended it be listed as Near Threatened, possibly Vulnerable]

Population structure

- It was suggested that the spawning parents of WBG in South Australia could be from eastern WA/western SA.
- Recruitment in SA may be related to spawning success in WA as well as the strength of the Leeuwin Current.
- The Flinders current, which runs up the western side of the Eyre Peninsula, affects the recruitment of other species and is only active in spring/summer.
- There may be a need for collaborative interstate management between WA and SA depending on the dependence of the SA population on local spawning compared with WA spawning.
- There is no genetic data to inform the relationship between the WA/SA populations
- There is some research in WA regarding age composition and it shows a number of strong year classes in the populations.
- Western Blue Groper are occasionally reported as far east as Port Phillip Bay.

[Editors note: discussion between Dr Scoresby Shepherd, Paul Rogers and Keith Jones since the forum led to the conclusion that larvae are unlikely to be transported far longitudinally, the Leeuwin Current is too early for the winter/spring spawning of WBG, and it could easily take weeks for the larvae to swim in to the coast from offshore to the right sort of shallow habitat. Therefore significant larval sources in WA for SA populations seem unlikely. It has however been suggested that groper larval life may be >60 days, based on a near relative, the genus (*Bodianus*)].

Juvenile habitat

- Juvenile habitat is shallow rocky reef, with several known hotspots including Memory Cove, Penneshaw and Browns Beach.
- Clarification was made about net fisheries and their impact on WBG. It is the large mesh, deep water gill net, shark fishery that has the largest interaction with WBG, not other gill net fisheries that only go to 5 m and operate over sandy/seagrass habitat.

WBG Abundance

- A charter fishing operator suggested that large WBG appear to be abundant on the south side of Kangaroo Island, but this area was poorly represented in the recent surveys.
- PIRSA are trying to get estimates of Western Blue Groper caught recreationally through the State-wide recreational fishing survey. However, the survey is not designed to get accurate numbers of less targeted species such as WBG, so it would be best not to rely on this data when it comes out. They will be finalising the report in early 2009.

Catch and release survival

- It was clear that reduction of fishing mortality is required rather than reduction of fishing take.
- Reef fish are definitely targeted by Charter Boats, but they believed that they were achieving a high level of catch and release survival of Groper.
- Venting tools (as used in WA for Samson fish) were used for successful return to the water. Charter operators put a lot of energy into returning fish to the water successfully. They attach a 3 kg weight to the fish which drops them very quickly, and gives a rush of oxygen over the gills, which seems to revive them [Editor's note: see <http://www.info-fish.net/releasefish/files/406/Release%20Weight.pdf>]. It gets them down to 25 m where the pressure seems to be enough that it decreases the size of the swim bladder – with the result that they can sometimes be seen swimming off the line, without floating to the surface of the water with a still enlarged swim bladder.
- The tagging study (collaboration between DEH and Charter Boat operators) will help to determine the survival of released fish.
- A Charter boat operator stated that WBG were hard to catch and they had never caught one with an old hook in the mouth. It was suggested that old hooks would be smashed off the reef when the fish are feeding and they are designed to dissolve in 2-3 days.

- It was confirmed that the Charter Boats did not use stainless steel hooks precisely because they last longer in the water in released fish. Most other types of hooks have a high carbon content so they rust more quickly. It was noted that Dr Karina Hall gave a talk at the Australian Society of Fish Biology (ASFB) conference in Sydney this year about different fishing hooks and their corrosion, which could be useful.
- It was suggested that there is an opportunity to combine the use of the barotrauma tools and video to examine the survival of released fish, if the charter fishery were willing to extend their collaboration.
- Appropriate handling of fish was important and pictures featured on websites were not necessarily representative of the handling of live fish destined for release.

Size and sex considerations

- Not all females are subadults (defined by Shepherd as 20-60 cm length, age 2-14 years). A WA study showed that females change to males on average at around 35-39 years old (approximately 80-90 cm), but were sexually mature at 15-20 years old. The colour change from green to blue was suggested as a good indicator of sex change.
- It was suggested that sex changing fish species don't require much fishing pressure to deplete the population because usually the large males are taken and this impacts on the population. It was also suggested that repeated cycles of fishing pressure may prevent a new male from ever becoming established in a harem group.
- It was noted that 'slot' size limits (i.e. a minimum and maximum size limit) were used for other species such as Murray Cod, and this would create a size 'gauntlet' through which the fish have to grow to reach their breeding size. It creates a targeted fishing pressure on a particular size/age class of fish. The question was raised as to whether it creates fishing pressure on only the females, and whether the right size/age class of fish was being protected.
- There is complexity regarding the timing of male replacement, and the time needed to change from female to male is unknown but likely to be relatively quick given few fish in the process of changing sex have been found.
- It was suggested that there were information gaps that required modelling of fishing mortality at sex changing ages.
- Size information is not required to be collected and is not currently collected by charter boats.

Miscellaneous

Charter boat operators agreed that it would be impossible to avoid catching WBG over reef. It was suggested, therefore, that protected areas would be necessary to protect specific locations.

We have higher bag limits than WA despite having lower densities. Also, it could be useful to check limits (numbers, sizes, whether there is a number limit for different size fish - e.g. more small fish, fewer large fish) elsewhere. [Editor's note: in WA there is a minimum size of 50cm and a bag limit of one, in NSW there is a bag limit of two for Eastern Blue Groper but only one for fish greater than 60 cm].

It was clear that in the absence of a known irreversible threat to WBG, PIRSA would not review management arrangements for WBG until the recreational review in 2009

Summary of information gaps:

- Early life history characteristics
- Released fish survival
- Genetic information to support understanding of relationship between WA/SA populations or populations in SA
- More detailed understanding of the impact of 'slot' size limits on sex changing fish [Editors note: there is good information on WBG age/size at sex change in Coulson et al. 2007 – 80% of 85cm fish and 100% of 1m fish are male].

[Editors note: Keith Jones (with input from Bronwyn Gillanders) has suggested since the forum that the collection of age structure data from SA areas is critical to see if they match the age structure as seen from the WA fishery data and hence determine whether or not there is a common environmental signal in WA and SA which determines recruitment in both areas. He suggested that the use of a small number of charter boat operators who work in areas where WBG are known to occur, with a limited number of research permits, together with sampling of by-catch from the commercial gill net fishery, would be the best way to collect the whole range of sizes of WBG for use in determining age structure of the population in SA, although some concerns remain about the representativeness of such samples.]