



Welcome to the RAP newsletter, designed to supply you with feedback on the data you are collecting as well as keeping you informed as to what is happening at Fisheries Research.

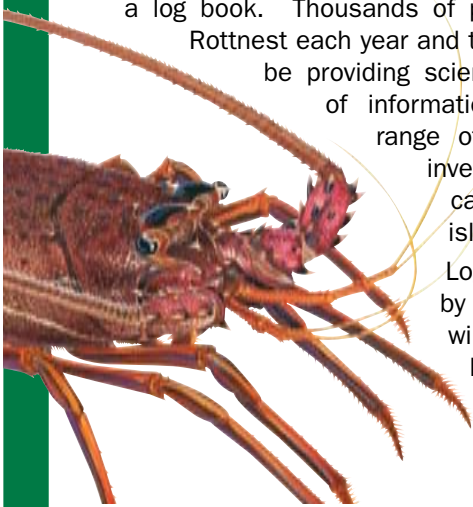
Calling all Rottnest Island fishers!

The Rottnest Island Authority (RIA) and the Department of Fisheries (DoF) in association with the Swan Catchment Council and Recfishwest have recently begun a campaign to encourage more recreational fishers to keep a log book while fishing at Rottnest Island.

The campaign was launched in mid-March when the 3,200 boat users listed in the Rottnest Island Moorings Database who regularly visit Rottnest were contacted by mail and invited to join the Angler's Log Book Program. The immediate response has been good with more than 30 Rottnest boat users already registered as Ocean Edition log book holders.

The campaign is not just aimed at boat users. Anyone who fishes around Rottnest Island (either boat or shore-based) is being encouraged to keep a log book. Thousands of people go fishing at Rottnest each year and they could potentially be providing scientists with a wealth of information about the wide range of species (fish and invertebrates) that are caught around the island.

Log book data supplied by recreational fishers will greatly assist the RIA and the DoF to develop a more



Western rock lobster (*Panulirus Cygnus*) are a popular target for recreational fishers at Rottnest Island.



informed approach to marine resource management within the Rottnest Island Marine Reserve, including a better understanding of trends in recreational fishery catches after the introduction of new sanctuary zones. It is important that the impacts of sanctuary zones are investigated over time to determine their advantages or potential disadvantages, particularly in regard to recreational boat fishing, which is an important pastime for island visitors.

More broadly, the data from recreational log books on Rottnest Island will also contribute to the sustainable management of fish resources in the metropolitan region and elsewhere on the lower west coast.

If you fish at Rottnest Island and already hold an Ocean Edition of the Angler's Log Book, contact Mike Hammond (ph 9203 0213 or email Michael.Hammond@fish.wa.gov.au) to obtain the new block locations map of Rottnest Island and surrounding water. Any new fishers that register for an ocean log book will automatically receive the new map.

For more information on the new sanctuary zones go to www.rotnnestisland.com

Mike Hammond and Dr Kim Smith

Marine Discovery Centre Now Open!

A new public education facility, known as the Naturaliste Marine Discovery Centre, was officially opened on the 4th of April.

The facility incorporates viewing windows into scientific research areas and aquariums, school training areas and an interactive exhibition hall. A range of education programs for adults and schools are also planned.

A gift shop offering a range of marine-themed publications, products and souvenirs is part of the facilities, along with a coffee shop.

The manager of the marine discovery centre, Bruce Mackay, said the exhibition and facilities have been aimed at people from a wide cross-section of ages.

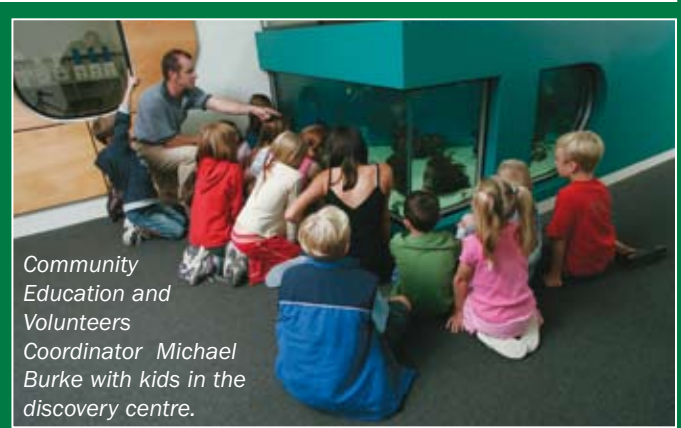
"The stories of Western Australia's rich marine life and fisheries are told through images, words, multimedia and special effects," Mr Mackay said. "The aim is to reveal the information in an entertaining

fashion but through multiple layers of complexity, so that people can choose to delve deeper into subject matter of interest if they wish.”

Andrew Cribb, the manager of the Department of Fisheries’ Communications and Education Branch, said that the Naturaliste Marine Discovery Centre will bridge an enormous gap in marine education for Western Australia and will complement the exhibitions and services offered by AQWA (the Aquarium of Western Australia) and the WA Museum.

“Our Centre will explore in particular the marine biology and ecology of WA’s coastal and inland waterways, the impact of recreational and commercial fishing on people and communities and the importance of knowledge-base management to ensure healthy and abundant aquatic life for future generations,” Mr Cribb said.

If you would like to know more about the marine discovery centre, please contact Customer Service on ph 9203 0339, or email nmdc@fish.wa.gov.au



Community Education and Volunteers Coordinator Michael Burke with kids in the discovery centre.

Spawning Aggregation Research News

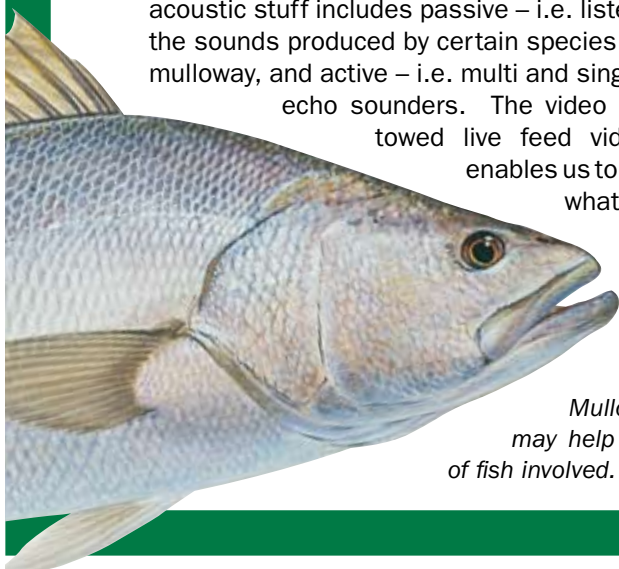
Spawning aggregations (schooling by fish to reproduce) are crucial for many species, and enable individual fish to select mating partners, synchronise spawning time and increase the survival rate of resulting offspring. It is obviously a successful evolutionary strategy because these fish have been around for a long time! However, this strategy also makes fish more vulnerable to modern fishing activities, as highlighted by the decimation of populations of some species – for example orange roughy and Caribbean groupers. Here in WA, there are many species that also aggregate for spawning purposes – from whiting to pink snapper and even dhufish. A principal aim of our research is to examine ways of monitoring aggregations in order to assess potential impacts of fishing pressure and to provide managers with more information to make informed decisions about protecting stocks.

The methods we are trialling in our study include acoustic, underwater video and tagging. The acoustic stuff includes passive – i.e. listening for the sounds produced by certain species such as mulloway, and active – i.e. multi and single-beam echo sounders. The video includes towed live feed video that enables us to observe what the camera sees

in real time and baited underwater video, which is viewed after the unit is retrieved from the bottom. The tagging includes conventional dart tags as used by many recreational anglers and acoustic tags, which emit a signal that is picked up by a receiver positioned on the seabed.

Just as the manner in which fish aggregate varies between species, so does the best method of studying and monitoring their aggregations. For instance, we are finding that for Samson fish, which form large fairly stationary aggregations over wrecks west of Rottnest, the best method is the single beam acoustics. This is because it is relatively cheap and the fish don’t move around much so the aggregation can be criss-crossed sufficient times without the fish moving away. However, video is needed to check on whether other fish may also be present.

In contrast, the schools of snapper that form each summer in Cockburn Sound are too mobile for single beam acoustics and the depth is too shallow for the large vessel needed to run multi-beam. Video is also not much use because it doesn’t provide a good means of counting actual numbers when the fish are zipping in and out of the camera field of view (as snapper do). For these fish the best means of monitoring them is probably by the more conventional ‘daily egg production method’, which has been used previously in Cockburn Sound and Shark Bay (this method uses counts of snapper eggs in the water and knowledge of how many eggs a female produces to estimate fish numbers).



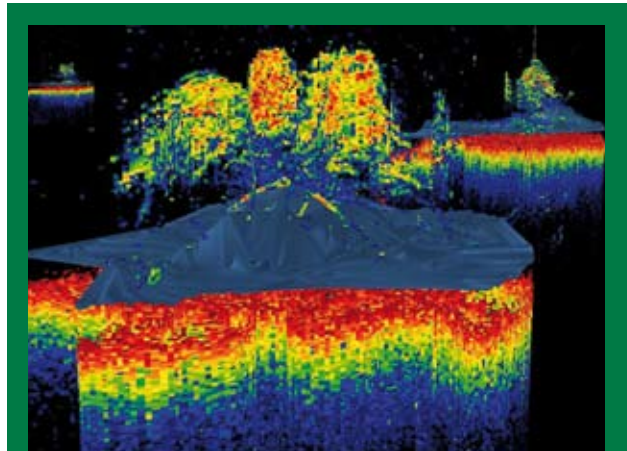
Mulloway in the Swan River make audible ‘grunts’ that may help researchers determine spawning times and numbers of fish involved.

However for fish such as mulloway in the Swan River, none of the above is of much use because the aggregations are more spread out, they occur mainly at night and visibility is often poor. However these fish make audible 'grunts' and passive acoustic techniques are likely to be the best means of determining spawning times and how many fish may be involved.

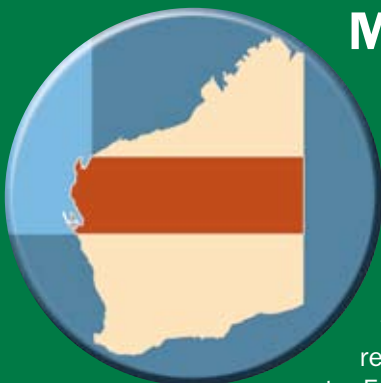
Finally, for dhufish the best method is probably baited video cameras since they are usually 'aggregated' in small numbers and are less active in front of the camera (making counts more reliable). We also know that this species forms large aggregations at times and that these may be amenable to acoustic methods of study. However the difficulty in locating these large aggregations means that we are unlikely to use them as a reliable means of monitoring the health of the population.

Our studies so far are therefore showing that a suite of equipment is needed for monitoring the wide diversity of fish that occur off our shores and the aggregations they form. These 'fishery-

independent' methods are becoming increasingly more utilised as alternative (and often unique) sources of information that can be used to ensure fish populations are sustained into the future. **Mike Mackie**



3D image of a Samson fish aggregation surveyed using single-beam acoustic equipment (Department of Fisheries and Curtin University)



More news on Integrated Fisheries Management in the Gascoyne

In the December RAP newsletter we flagged the upcoming arrival of Integrated Fisheries Management (IFM) to the Gascoyne (the region from Shark Bay to Exmouth Gulf, inclusive).

Here we discuss the IFM initiative developed by the DoF to help preserve the State's fish stocks and research planned for the Gascoyne in 2007/08 in more detail.

The IFM process involves setting the total amount of fish that can be sustainably caught in each fishery and then allocating catch shares equitably between the commercial, recreational and indigenous fishers. Once these allocations have been established each sector will be continually monitored and managed to ensure that they are being fished sustainably. For more information on IFM check out the Department of Fisheries website www.fish.wa.gov.au

The IFM process has steadily been moving forward since its introduction in 2004. With the Western rock lobster and abalone fisheries, the IFM process is close to completion and the West Coast demersal scalefish fishery process is approaching its middle stages. Next on DoF's

agenda is the Gascoyne demersal scalefish fishery. In preparation, the Research Division has been busy planning the research necessary to provide information on the four key Gascoyne IFM species - spangled emperor, goldband snapper, pink snapper and Spanish mackerel – and on recreational fishing activity in the region.

Commencing in March 2007, the Research Division will begin conducting a Gascoyne recreational fishing survey, taking in key locations from Steep Point to Exmouth Gulf. This survey will repeat work first carried out in 1998/99. During the survey, researchers will visit boat ramps and shore-based fishing locations collecting information on numbers of persons fishing, number and size of fish kept, number of fish released, time spent fishing and where fishers live to compare local, versus tourist, ratios. Recreational shore and boat-based anglers who fish in the region are encouraged to participate in these surveys. Look out for research staff in red t-shirts who will be carrying out the interviews. The data collected from these surveys will provide valuable information about recreational fishing effort, recreational catch and size composition of the key IFM species. For further information on the recreational fishing surveys please contact Neil Sumner on ph 9203 0141, mob 0417 924 417 or email Neil.Sumner@fish.wa.gov.au.

Gascoyne news continued...

- To coincide with the recreational fishing survey, new research is being conducted on spangled emperor *Lethrinus nebulosus*, one of the main recreational target species in the Gascoyne. This research will be focusing on the age, growth and reproductive biology of spangled emperor for its stock assessment. Anglers can help this research by donating filleted fish frames of spangled emperor to research staff when they are conducting the recreational fishing surveys. Also, look out for signage and fliers at key locations between Steep Point and Exmouth, which will provide further details about how you can help with the collection of filleted fish frames for research. For further information regarding the spangled emperor research please contact Dr Ross Marriott on ph 9203 0201 or email Ross.Marriott@fish.wa.gov.au
- Research on two other key IFM species, pink snapper and goldband snapper, will continue this year. Fisheries research staff will be on board commercial line-fishing vessels operating out of Carnarvon and Kalbarri to collect biological samples and to monitor catches and fishing effort. For any further information on the pink snapper and goldband research please contact Gary Jackson on ph 9203 0191 or mob 0419 046 435 or email Gary.Jackson@fish.wa.gov.au
- Spanish mackerel research will also be conducted this year in conjunction with the



Fisheries Management Officer Matt Stadler with a goldband snapper caught off Coral Bay. The frame was donated to Fisheries Research as part of the biological sampling program for IFM.

Gascoyne IFM process. The main objectives are to improve understanding of movement patterns of species in the southern areas of their range and the extent of their area of spawning. Anglers can participate by donating filleted fish frames or heads (with guts attached) of Spanish mackerel *Scomberomorus commerson* caught in the Gascoyne. As for spangled emperor, please look out for signage and fliers with further details in key locations between Steep Point and Exmouth. For any further inquires with regards to the Spanish mackerel research please contact Dr Mike Mackie on ph 9203 0209 or mob 0427 472 121 or email Michael.Mackie@fish.wa.gov.au

We'll keep you posted on how the research is progressing through the year.

Ben Rome and Gary Jackson

RAP log book anglers needed in the Gascoyne

In addition to the Gascoyne recreational fishing survey mentioned above, the Research Division is also hoping to obtain further catch information from anglers using RAP log books.

By having anglers voluntarily recording their catch details in RAP log books on a long-term basis, research scientists are able to track the health of local fish populations from year to year. Although the Gascoyne recreational fishing survey will provide very precise information for stock assessment this year, it will not be able to run every year due to cost. However, information

from RAP log books can be used for intervening years in order to provide the Research Division with a useful relative index of how the fish stocks are going in between such large-scale surveys.

If you would like to know more, please contact Dr. Ross Marriott (ph 9203 0201 or email Ross.Marriott@fish.wa.gov.au) or if you would like to register for the program and help the research effort please contact Mike Hammond (ph 9203 0213 or email Michael.Hammond@fish.wa.gov.au).

Ross Marriott

THANK YOU FOR YOUR ONGOING SUPPORT.

THE RESEARCH ANGLER PROGRAM IS RUN BY THE ESTUARINE AND COASTAL FINFISH RESEARCH TEAM

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