



Welcome to the RAP newsletter, giving you feedback on the data you are collecting and keeping you informed about what is happening at the Research Division of the Department of Fisheries.

## Project Progress - Nearshore Finfish Status



Chris Dowling extracting an otolith from an Australian herring.

In August, the Nearshore and Estuarine Finfish research team commenced work on a project funded by State Natural Resource Management Strategy to investigate the status of nearshore finfish stocks in the West Coast and South Coast Bioregions.

The project involves the collection of monthly samples (frames) of recreationally caught Australian herring, tailor and southern sea garfish.

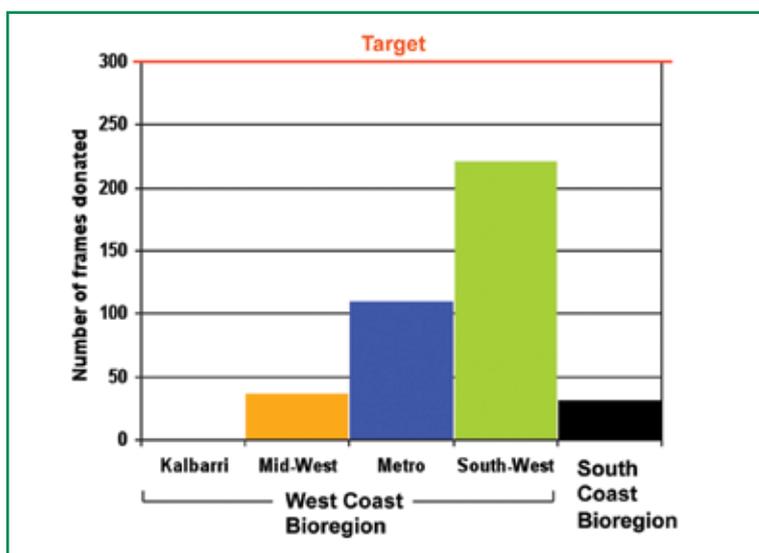
The collection of a sufficient number of samples for each species is crucial in developing the age-composition data that is required in the 'weight of evidence' approach for determining stock status.

**We need your help!** We need to increase the numbers of Tailor and Garfish that are being collected in all areas so please get in touch (contact details on page 3) if you can assist with the collection of these species. At least 300 frames of each species are needed from each management zone of the West Coast Bioregion – Kalbarri, Mid-West, Metropolitan and South-West, and 300 frames of each species are needed from the South Coast Bioregion.

The graph below shows the number of Australian Herring frames donated by recreational fishers to the end of November 2009. The graph shows that we are on track to collect adequate numbers of herring in the Metropolitan and South-West zones of the West Coast Bioregion but more frames are needed from the Kalbarri and Mid-West zones and also in the South Coast bioregion.

Thank you to all the recreational fishers that have donated fish frames and especially to those who donate regularly!

*Michael Hammond and Chris Dowling*



Number of Australian herring donated by recreational fishers from the start of the project to November 2009.

## Fisher of the Month prize!

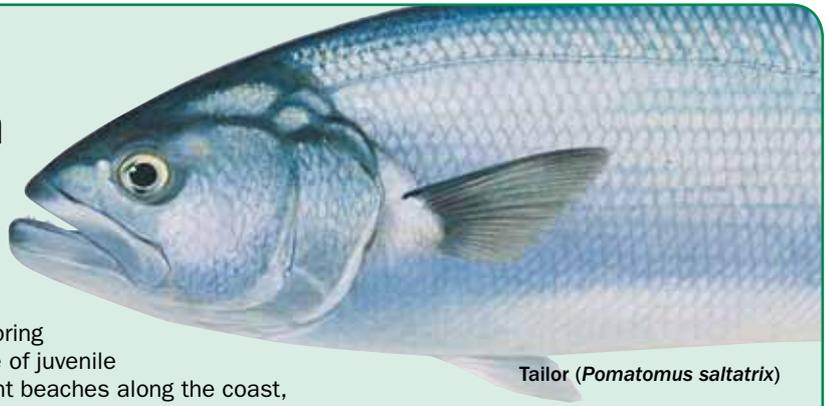
The RAP 'Fisher of the Month' prizes for June, July, August, September, October and November were decided by randomly drawing one log sheet returned in each month.

Congratulations to the following 'Fishers of the Month':

June	<b>Scott Clark</b>	(West Coast)
July	<b>Kevin Hughes</b>	(West Coast)
August	<b>John Hogan</b>	(West Coast)
September	<b>Andrew Cowan</b>	(West Coast)
October	<b>Herman Breitreuz</b>	(Gascoyne)
November	<b>Monica Ryder</b>	(West Coast)

Each winner will receive a RAP floating key ring and stubby holder together with a family pass to the Naturaliste Marine Discovery Centre. Future winners will be published in upcoming newsletters. Make sure you fill out your log book and get your returns in to ensure your chance of winning!

# Metro Tailor - where do they come from and where do they go?



Tailor (*Pomatomus saltatrix*)

This is a question asked by many anglers and fisheries researchers alike. Tailor can turn up in good numbers at various times of the year and then disappear as quickly as they arrived. The timing of the well known spring/summer metropolitan runs of tailor can be highly variable, so to the duration and number of fish. A current State NRM funded research project is looking to shed some light on the questions of:

1. Where do tailor come from?
2. Where do tailor go?

Research by this project includes monitoring the appearance of juvenile tailor at different beaches along the coast, measuring juvenile tailor at Point Walter in the Swan River, following the reproductive cycle of adults and using new high tech fisheries acoustic tags.

### Where do they come from?

The Nearshore and Estuarine Finfish research team conducts regular beach

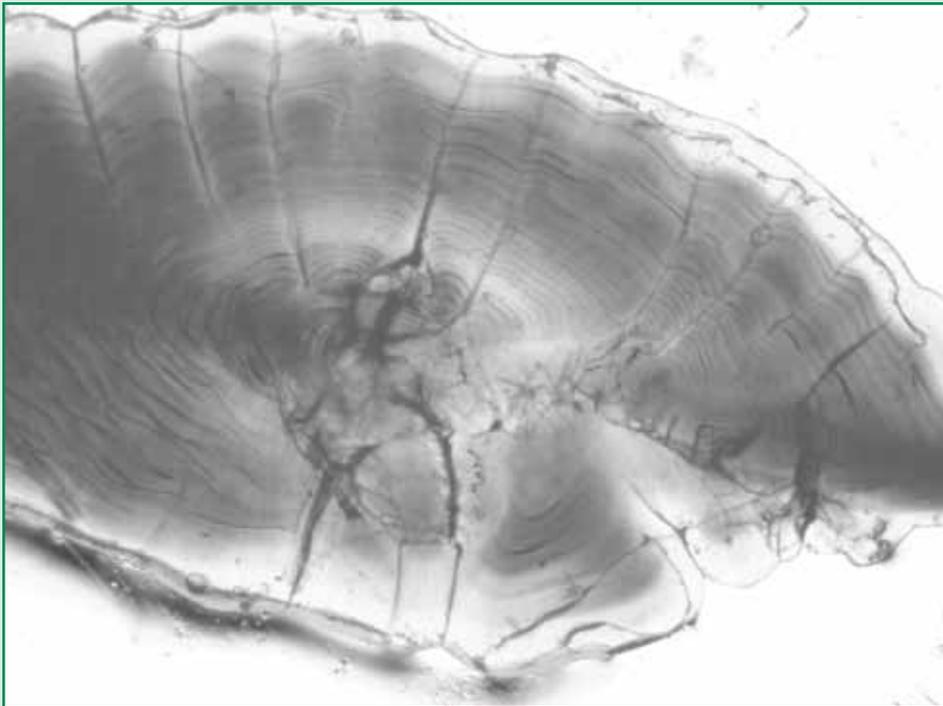
seine sampling at various sites along the coast to monitor the abundance of nearshore fish species. The annual number of juveniles of each species is used as an indicator of stock status and spawning success. Over the past 15 years, more than 1000 recently spawned juvenile tailor (20 - 70 mm) have been caught, measured (and usually released alive) from sites in the Metropolitan Zone of the West Coast Bioregion. They have been caught in almost every month of the year but mainly occur from September though until April.

By extracting the otoliths (ear bones) from juvenile tailor and processing them in the laboratory we are able to determine an accurate age, in days, for each individual. Much like estimating the age of larger fish to the nearest year by studying annual increments in otoliths, we are able to study daily increments in juvenile otoliths to estimate their age in days. Daily increments in otoliths are discernable in the juveniles of many species, particularly fast growing species such as tailor. This information not only gives us important growth rate information for juvenile tailor but also the date when each was spawned.

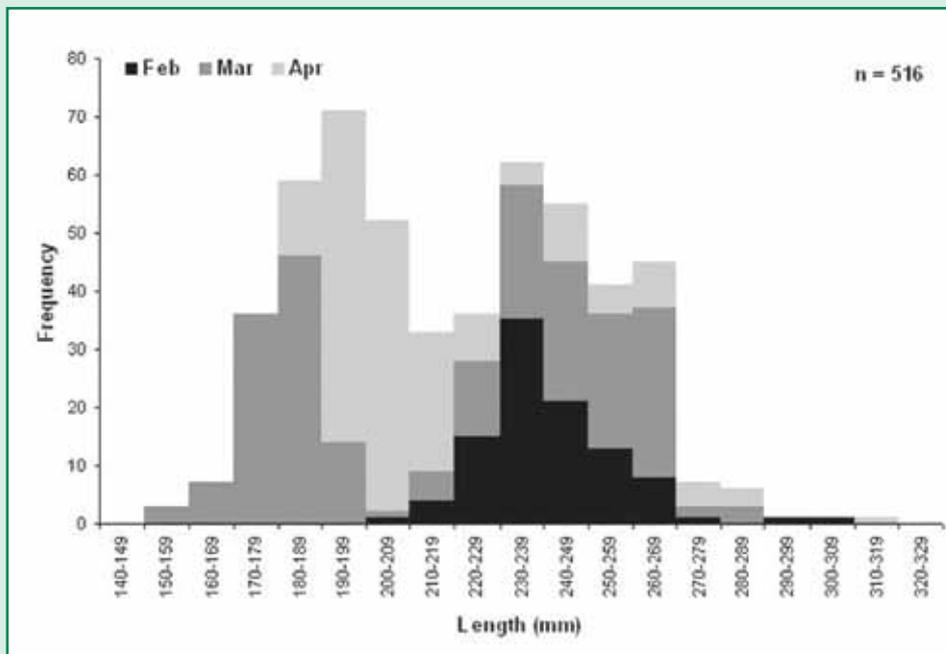
Once tailor eggs and larvae are spawned they are largely at the mercy of the prevailing currents (for up to 30 days) and can drift a considerable distance in this time. On the lower west coast of WA, travel can be either southwards with the Leeuwin Current or northwards with the Capes Current depending upon the time and location of spawning. By combining the date they were spawned with information on the prevailing currents at the time we can deduce possible areas from which they were spawned.

Evidence from Point Walter tailor fishing, conducted annually in the Swan River, suggests juvenile tailor in the Metropolitan Zone come from two separate spawning events. The annual catch at Point Walter usually contains two separate size groups of fish, which differ in age by approximately three to four months. Their birth dates correspond with the start and end of the spawning season.

The presence of these two size groups is consistent with a long held theory on tailor reproduction proposed by fisheries researcher Dr Rod Lenanton. This theory suggests that tailor spawn in spring in the north (with larvae then being transported south into the metro region by the Leeuwin



Daily increments in the otolith of a juvenile tailor. Photo: Nadia Beale.



Length frequency of tailor caught at Point Walter in 2009.

Current) and in late summer/autumn in the south (with larvae then travelling north with the Capes Current).

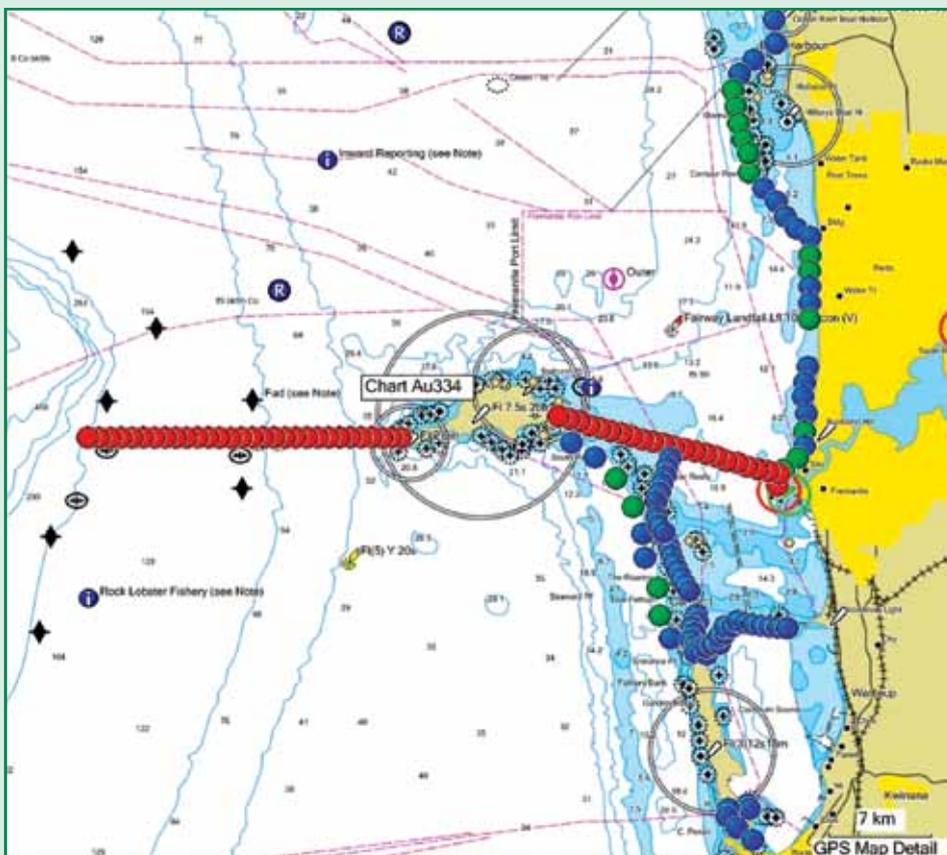
At the moment the evidence suggests that the two size groups seen in the Swan River come from different spawning events and possibly different areas. These spawning areas may be the source of tailor recruitment to the general metro area, so they need to be identified to ensure the sustainable management of the metro fishery. However, further evidence of spawning in the adult fish from each region is needed to support the theory of two separate spawning events producing the juvenile tailor we see in the Metropolitan Zone.

#### This is where we need your help!

To monitor the spawning activity of adult tailor in different regions we need to collect adult tailor frames throughout the year in each region. Please contact us if you can assist with frame collections (see below).

#### Where do they go?

We hope to get some insight into tailor movement patterns through the use of acoustic tags. These tags, becoming widely used in fisheries research, emit regular signals that are picked up by acoustic receivers or listening posts. We are planning to make use of an array of over 100 acoustic receivers that has been deployed off the metropolitan coast for other projects, such as the shark monitoring network and west coast demersal Pink Snapper monitoring, and use some of the smallest acoustic tags on the market. Tailor will be caught at reefs near the array of receivers and an acoustic tag surgically implanted into each fish, after it has been anaesthetised.



Array of acoustic receivers deployed off the metropolitan coast.

This pilot study, using only a small number of tags, should give us an idea of the residency of individual fish in the Metropolitan Zone and provide information of their movement north or south and whether they return to the same reef year after year.

We hope to gain considerable insight into the early life history, reproduction and

movement of tailor from studies completed as part of the project. The next step will be to compare the otolith chemistry within Tailor otoliths to determine the contribution of different spawning and nursery areas to the metropolitan stock, as we are currently doing with Australian herring, but that is another story.

Paul Lewis

## How to donate your frames

We need frames of Australian herring, tailor, southern sea garfish.

If you can assist in the collection of any of these frames please contact the Department of Fisheries Research Division on **9203 0111** or at **ResearchVolunteers@fish.wa.gov.au** so that you can be sent sample bags and tags, along with more information on the project.

Fish frames (with guts intact) should be bagged and tagged with a label that details the following essential information:

- **Who caught the fish** (Name, and phone number)
- **When the fish was caught** (Date)
- **Where the fish was caught** (General location or latitude / longitude)

All fishers that donate frames with labels that include all the required details will gain entry to a prize draw being September 2010. Prizes include \$500 worth of tackle store vouchers and passes to the Naturaliste Marine Discovery Centre at Hillarys. Winners will be notified by phone.

Entries end either on 31st August 2010 or when we reach our target (300) for each species in each bioregion/zone.

The West Coast Demersal Scalefish researchers are also giving out prizes to fishers who donate frames from species such as dhufish and pink snapper. See additional flyer for details.



## Recent Changes to Recreational Fishing Rules

Stocks of some of Western Australia's most prized demersal (bottom-dwelling) scalefish like dhufish and pink snapper are known to be at critically low levels in the West Coast Bioregion (Kalbarri to Augusta).

To help demersal scalefish stocks recover and be sustainable in future, a series of changes to the recreational fishery has been implemented. These are available in detail at our website at [www.fish.wa.gov.au](http://www.fish.wa.gov.au) along with information about the introduction of a Recreational Fishing from Boat Licence and other licensing changes.

For further information, visit [fishforthefuture.com.au](http://fishforthefuture.com.au) or contact the Department of Fisheries on **1800 726 586**.



Western Australian Dhufish (*Glaucosoma hebraicum*)



Baldchin gopro (*Choerodon rubescens*)



Pink Snapper (*Pagrus auratus*)

# Cockburn Sound Open to Crabbing – 15 December 2009 to 31 March 2010

Danielle Johnston and the Crab Research team have been busy preparing for the re-opening of the Cockburn Sound Blue Swimmer Crab Fishery, which has remained closed for the past three seasons as the crab stock recovers from a significant decline. A combination of biological, environmental and fishery-dependent factors contributed to the collapse, including:

- vulnerability to environmental fluctuations as this species is at the southern extreme of its temperature tolerance,
- the life cycle contained in embayment and is self-recruiting,



The Crab Research team (Chris Marsh and Brooke Hay) preparing pots in Cockburn Sound.

- the change in fishing method from gill nets to pots increased fishing pressure on pre-spawning females in winter and reduced egg production to one age class,
- four consecutive years of cooler water temperatures resulted in poor recruitment, and
- continued high fishing pressure during period of low recruitment resulted in low breeding stock numbers.

Following a comprehensive research program, an abundance index has been developed that incorporates the strength of recruitment and the remaining stock, to indicate the size of the next season's breeding stock and predict the commercial catch. This catch prediction has been used in the development of a draft framework for the future management of this fishery. While the adult stock of crabs in Cockburn Sound has risen sufficiently since the closure to re-open the fishery, close monitoring will be required to ensure a balance between access to and future sustainability of the crab stock.

Consequently, the fishery will re-open for an abbreviated season for both commercial and recreational sectors from 15 December 2009 to 31 March 2010. The commercial sector will be subject to



Measuring a blue swimmer crab across the carapace.

a 20 per cent pot reduction and fish to an increased minimum carapace width of 140 mm. The minimum size limit for the recreational sector will remain at 127mm carapace width, with a personal possession limit of 10 crabs per day and a boat limit of 20 crabs per day. Commercial catch and effort will be closely monitored during the season, along with changes in stock structure and the strength of juvenile recruitment. The Recreational Fishing section will expand their current West Coast Bioregion recreational fishing survey to monitor crab recreational catch and effort.

*Danielle Johnston  
and David Harris*

## Goodbye...

In February, after more than 6 enjoyable years working within the Nearshore and Estuarine research team at the Department of Fisheries I am transferring to the Department of Water where I have accepted a position in their Environmental Water program. I would like to take this opportunity to express my thanks to everyone who I have worked with on the RAP and to everyone who has volunteered their time to research over the years.

All the best,

*Michael Hammond*

## E-news

Over the last couple of weeks I have been ringing and emailing many of you in our RAP database, asking fishers if they are still interested in being a part of the program. Most people have said they would like to remain a log booker, which is much appreciated. To those of you who can no longer participate due to ill health, work related or other reasons we thank you for your past efforts. It has been great hearing about your fishing anecdotes and helping out with various enquires.

We are now sending the newsletter via email as well as mail to reduce the number of paper copies printed. We only have names and addresses for many of you, so if you haven't been contacted and are interested in receiving this newsletter via email please contact me on [amber.howard@fish.wa.gov.au](mailto:amber.howard@fish.wa.gov.au) or **9203 0203**.

*Amber Howard*



## THANK YOU FOR YOUR ONGOING SUPPORT. KIND REGARDS AND HAPPY FISHING

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

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**Fisheries**

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