



# RESEARCH ANGLER PROGRAM

Newsletter No. 29  
October 2014



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

## 20 years of the tailor angling recruitment survey

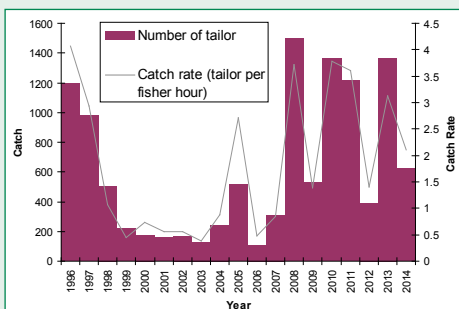
The tailor survey has volunteer fishers catching juvenile tailor from the Swan River, and Fisheries staff recording fish details before returning them to the water.

The data gathered allows scientists to forecast future abundance of the adult tailor stock, which is important to ensure it is managed sustainably.

In 2014, the tailor tally was 622 fish. Catch per unit effort (CPUE) was 2.11 fish per fisher hour, which is slightly higher than the average of 1.8 fish per fisher hour.



Carolyn Benniman caught the most tailor in the 2014 annual Department of Fisheries tailor survey with 79 fish, beating husband John with 67.



Tailor angling recruitment survey – catch and catch rate (Feb–Apr)

## Your Crab Fisheries Need You!

We are looking for keen crabbers who will help the Department of Fisheries with research into our popular blue swimmer crab. The True Blue Swimmer Supporter Initiative, part of the Southwest Recreational Crabbing Project (SWRCP), is a great opportunity for recreational crabbers to help by recording their crabbing exploits in a simple logbook. This data will help managers make decisions that keep blue swimmer crab stocks sustainable so there will be plenty of crabs to catch in the future.

### Southwest Recreational Crabbing Project

The blue swimmer crab (*Portunus armatus*) is the most commonly caught recreational species in southwest WA. The Southwest Recreational Crabbing Project (SWRCP), designed by the Department of Fisheries and RecFishWest and funded by the Recreational Fishing Initiatives Fund (RFIF), shows how licence fees are used for research. The three-year project, which began in June 2013, allows us to work with the local crabbing community. Our aim is to gather annual information on the blue swimmer crab fisheries of the Swan-Canning Estuary (SCE), the Leschenault Estuary and wider Bunbury area (LE) and Geographe Bay (GB).

Information on commercial crab fisheries such as Cockburn Sound and Peel-Harvey Estuary is readily available, but stock data for the SCE, LE and GB fisheries is harder to obtain. Researchers must rely on recreational crabbers to document their crabbing catch and effort.

### New crabbers needed – rope in a mate!

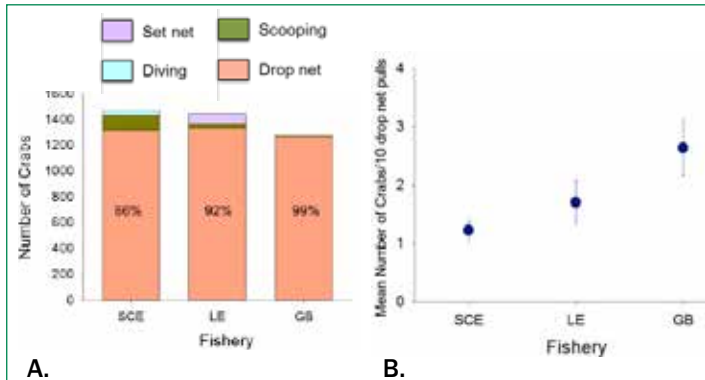
Although we can't comment on the total catch and effort for each fishery, information from participants in the study's first year has given us a valuable insight into the size, sex and reproductive state of the stock, the different types of gear used, and the temporal and spatial variation in fishing effort within these fisheries. If you have any family or friends who enjoy crab fishing and regularly crab within one or more of these locations, we would love to have them on board!

### First year logbook results

The first year of the project had a good response from participants, although many crabbers didn't go fishing. There are currently 69 participants within the SCE, 29 in the LE and 52 in GB. Thirty-six per cent of participants from the SCE have returned log sheets, compared to 41% in the LE, and 25% in GB.

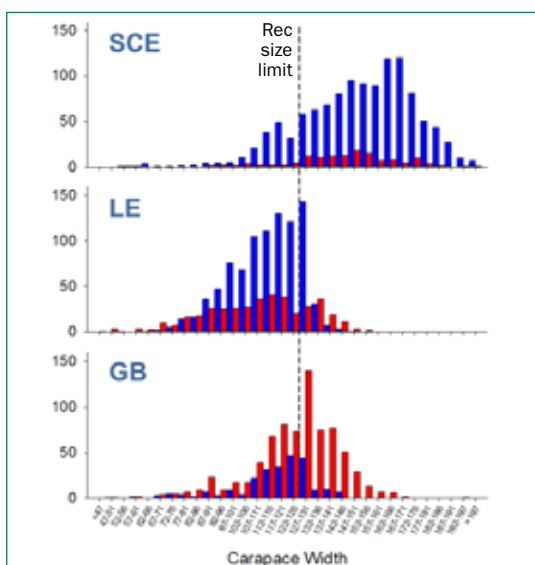
Drop netting was by far the most common fishing method, catching 86% of the crabs in SCE, 92% in LE, and 99% in GB (Figure 1.A). Crabs were also caught by scoop nets, set nets, and hand caught by divers. A total of 4195 crabs were reported during the first year across the three fisheries, 1472 from SCE, 1443 from LE, and 1280 from GB. Though a similar number of crabs was caught in each fishery, the numbers of crabs kept varied noticeably. Crabs caught in SCE were generally above the legal size limit (127 mm carapace width), with 70% of the catch retained. But in the LE and GB most of the catch was undersized, so retention rates there were much lower than SCE at 22% and 39% respectively.

It took a lot more effort to catch a feed in the SCE than in the LE and GB. The mean kept catch rate (number of crabs kept for every 10 drop nets pulled) in SCE was 1.2 crabs, so on average it took almost 10 runs with 10 drop nets for crabbers to get their bag limit (Figure 1.B). The mean kept catch rates were greater in LE and GB, with 1.7 and 2.6 crabs kept respectively for every 10 drop net pulls. Monthly catch rates in SCE were reasonably consistent across the year (0.5 – 1.6 crabs caught for every 10 drop net pulls) compared with LE (0.3 – 3.4 crabs) and GB (1.1 – 6.6 crabs). The catch rate increased significantly over the winter in GB, with up to 6.6 crabs kept for every 10 drop net pulls between July and September.



**Figure 1.** A. Total number of blue swimmer crabs caught by participants 1st June 2013 – 31st May 2014 by fishery and method. B. Mean catch rate (numbers of crabs/10 drop net pulls) by fishery of retained blue swimmer crabs captured using drop nets by logbook participants.

Length-frequency analyses show that the crab catch from True Blue Swimmer Supporters in SCE and LE in this period had more males, whereas GB was mostly female. More legal-sized male crabs were reported within SCE, whereas males in LE were much smaller with very few legal-sized males reported. The sharp decline in legal-sized males within LE suggests that the majority of larger males are either caught, or they are migrating from LE into adjacent waters (Figure 2).



**Figure 2.** Mean pooled length frequency distributions of male (■) and female (■) blue swimmer crabs by fishery captured using drop nets by logbook participants in the first year of the SWRCP (1st June 2013 – 31st May 2014). Recreational size limit is 127 mm carapace width.

## Fishery Independent Surveys

We also conducted annual fishery independent surveys to assess the strength of the blue swimmer crab spawning stock and success of each spawning season. It was great to have some SWRCP participants gain hands-on experience by helping with these surveys. We will be beach seining and tagging again in the coming year so please let us know if you would like to join in.

Monthly spawning stock surveys were done in October and November 2013, at 15 different locations within each fishery, to get a measure of sexually mature females in the stock. Female crabs are mature in southwest WA at a carapace width of around 87 mm and 6 – 8 months old. We set three research hourglass traps with two-inch mesh for 24 hours at each site using yellow-eyed mullet as bait. The surveys were successful in all three fisheries, with sexually mature female crabs captured. It will be interesting to see how these figures compare with those of the next two years.

Juvenile recruitment surveys were also done in the three fisheries between February and June 2014. Juvenile blue swimmer crabs in southwest WA are those sized from 30 – 110 mm carapace width, generally reached at 4 – 6 months old. These surveys give an idea of the number of juvenile crabs in the stock as a measure of the success of the last spawning season.

Seine nets were used at several sites in each fishery to catch the juvenile crabs. The success of the juvenile recruitment surveys varied, with some juveniles caught in all months in LE and in May in SCE. But very few juveniles were caught at the few sites in GB suitable for seining, so hourglass traps were trialled during the June survey. Enough juveniles were caught to suggest that trapping is better means of sampling juvenile crabs in GB. We will have to wait for next year's sampling to gauge the relative abundance of the juvenile stocks in each fishery.



Fisheries staff and volunteers prepare for a night's beach seining in the Leschenault Estuary (from left: Fisheries researchers Shelley Foster and David Harris with Stuart Rob, Dave Fishlock and Scott Reid)



Sampling the breeding stock in Geographe Bay

## Tagging Study and Rewards

Watch out for tagged crabs! A large number of tagged crabs are being released into SCE, Cockburn Sound (CS) and Parmelia Bank (PB – the area between SCE and CS) between September to December.

We are using glue-on tags in a short-term field trial this spring/summer to try and assess movement of crabs both within, and between SCE, CS, and PB. We hope to tag 1000 crabs each month from September to December 2014. The tags are glued onto the top of the carapace and should

stay on until the crab moults. We rely on our recreational crabbers and commercial fishers to re-capture tagged crabs, so please give us information on your tagged crab to collect your reward!



A blue swimmer crab with a glue-on tag

### We need:

- The tag number
- Crab size – measure the carapace from point to point
- Crab sex – male/female? If female, is she carrying eggs? If so, what colour are the eggs?
- The precise location you caught the crab (GPS coordinates if on a boat)
- Depth in metres at catch site

To report tagged crabs or for more information please contact:

#### David Harris

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#### Josh Baker

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iPhone users can submit tagged crab sightings using our FISHTAGWA app which can be downloaded free from the app store.

## Bight redfish update

Bigger Bight redfish are caught off Albany than Esperance, according to new research into the recreational fishery on the south coast.

Hundreds of Bight redfish (aka nannygai) frames donated by recreational fishers to the Department of Fisheries' Send Us Your Skeletons program show that, on average, larger fish are caught off Albany compared to smaller Esperance fish. The frames are being used to assess the health of Bight redfish stocks on the south coast.

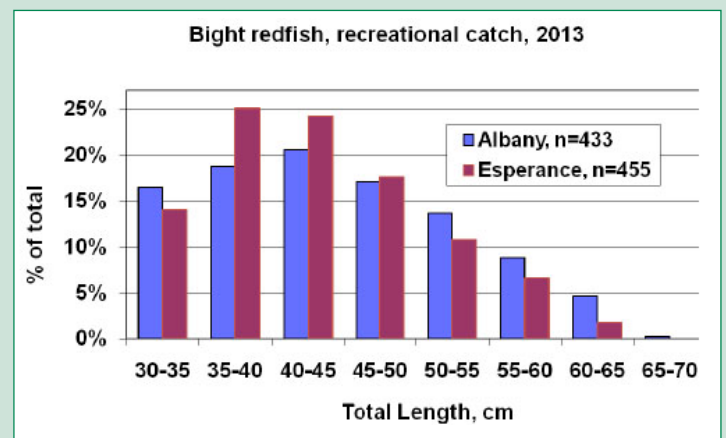
The graph (right) shows a contrast in sizes for the 2013 recreational catch. Smaller sizes are not as common at Albany compared to Esperance, and fish over 50 cm comprise a bigger share of the catch in Albany than Esperance.

### Why are Albany fish bigger?

Nobody knows. Perhaps they grow faster, or there is some size/age-related movement along the coast. Another

controversial explanation you might hear coming out of Albany is that Albany fishers are more skilled, but we won't enter that debate.

The most likely explanation is that the continental shelf is wider off Esperance, so fishers have to travel further to get to deeper water where the big fish live. Like much research, it raises more questions.



# Send us your skeletons




You can play a vital part in our research by donating your fish skeletons to help our long-term monitoring program of fish stocks.

Also known as 'frames', filleted skeletons, with the heads and guts intact, are essential for us to be able to assess the status of our fish resources. By analysing data from the frames we can make science-based decisions to sustainably manage our fisheries.






By donating your frames before July 1, you could also win prizes thanks to our generous supporters, including a week long charter trip for two to the Montebello Islands.

To donate frames, label them with your name and address (so we can send you research feedback and enter you into our prize draw – see below), the date and location of your capture (shore catch: general location; boat catch: latitude/longitude or distance and bearing from port and the name of the port). Information about the location of your catch is confidential and only used for research purposes, so you can keep your favourite fishing spots secret.




## Nearshore species – West Coast and South Coast Bioregions

	<b>Australian herring</b>
	<b>Tailor</b>
	<b>King George whiting</b>

## Demersal species – West Coast Bioregion

	<b>West Australian dhufish</b>
	<b>Pink snapper</b>
	<b>Bight redfish</b>
	<b>Redthroat emperor</b>
	<b>Baldchin groper</b>

## Demersal species – South Coast Bioregion

	<b>Pink snapper</b>
	<b>Bight redfish</b>
	<b>Blue morwong</b>

## Fisher of the month

The RAP 'fisher of the month' prizes were decided by randomly drawing one log sheet returned in each month.

Congratulations to the following 'fishers of the month':

- January 2014 Les Saxey (West Coast Bioregion)
- February 2014 Patrick Garvey (West Coast Bioregion)

Each winner will receive Department of Fisheries Research merchandise.

## Thank you for your ongoing support and happy fishing!

The Research Angler Program is run by the Nearshore and Estuarine Finfish Research Team:

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*Fish for the future*