



Research Angler Program Newsletter

Issue 39 – May 2019

Fishers and researchers working together to monitor your iconic blue swimmer crab fisheries

History of the Southwest Recreational Crabbing Project (SWRCP)

The SWRCP is a research program developed by the crab researchers at the Department of Primary Industries and Regional Development (DPIRD) to monitor the iconic recreational blue swimmer crab fisheries of the Swan-Canning Estuary (SCE), Leschenault Estuary and wider Bunbury area (LE) and Geographe Bay (GB). A Research Angler (logbook) Program was instigated in each fishery, with local crabbers recording their catch and effort. The project also developed fishery-independent breeding stock and recruitment surveys in each fishery, with logbook participants accompanying Crab Research staff to provide further information on stock status.

More than 200 enthusiastic crabbers have joined the project and the catch and effort data generated from logbooks provides one of the few reliable information sources the Department has for these important recreational crab fisheries. This allows researchers to track how crab numbers and sizes are changing over time, which is fundamental in sustaining crab populations for future generations.

Summary of findings from recreational logbook data

Across the three fisheries, 77 dedicated fishers submitted over 1,000 log sheets between June 2013 and May 2018, reporting a total catch of 18,342 blue swimmer crabs. The greatest logbook activity was recorded in the SCE, with 239 trips and 3026 crabs logged during 2015/16 alone. Fewer trips were reported from the LE and GB, but crab catches were still generally high in these areas (Figure 1).

Drop netting was by far the most popular crabbing method, being used for nine out of every 10 crabbing trips. Drop netters used over 20 different bait types, with the most popular being fish (heads, frames), spleen and chicken (frames, necks and wings). Scoop netting was the next most popular

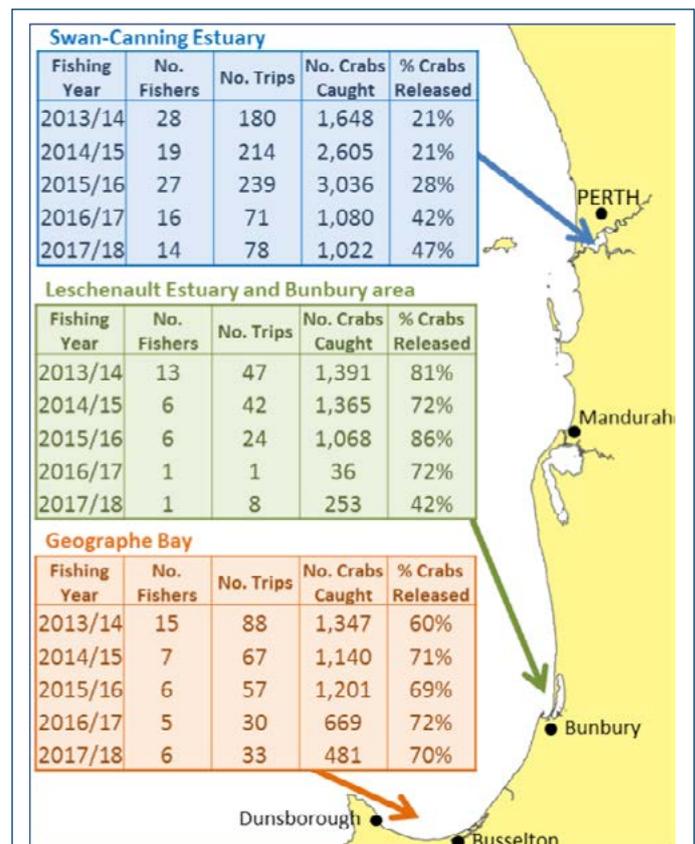


Figure 1: Annual catch and effort statistics for SWRCP logbook fishers reporting crabbing trips from the Swan-Canning Estuary, Leschenault Estuary and wider Bunbury area and Geographe Bay from June 2013 to May 2018. Each fishing year is based on a 12-month season from June 1st to May 31st the following year.

method in the LE and GB, while diving or snorkelling was popular in the SCE and resulted in large sized crabs (average carapace width [CW] 150 mm).

The most popular months for crabbing in the SCE and LE were December to February, accounting for 60–70% of total annual catch and effort (Figure 2). In GB, catch and effort was more evenly spread from August to January.

Release rates of crabs varied between regions and years. In the SCE, 21 to 47% of caught crabs were

released, while in LE and GB as many as 60–86% of crabs were released most years (Figure 1). The majority of released crabs were undersize, but fishers also released legal sized crabs. The main reasons for releasing legal sized crabs were: preference for larger crabs, preferred to release females, and that the crabs were berried.

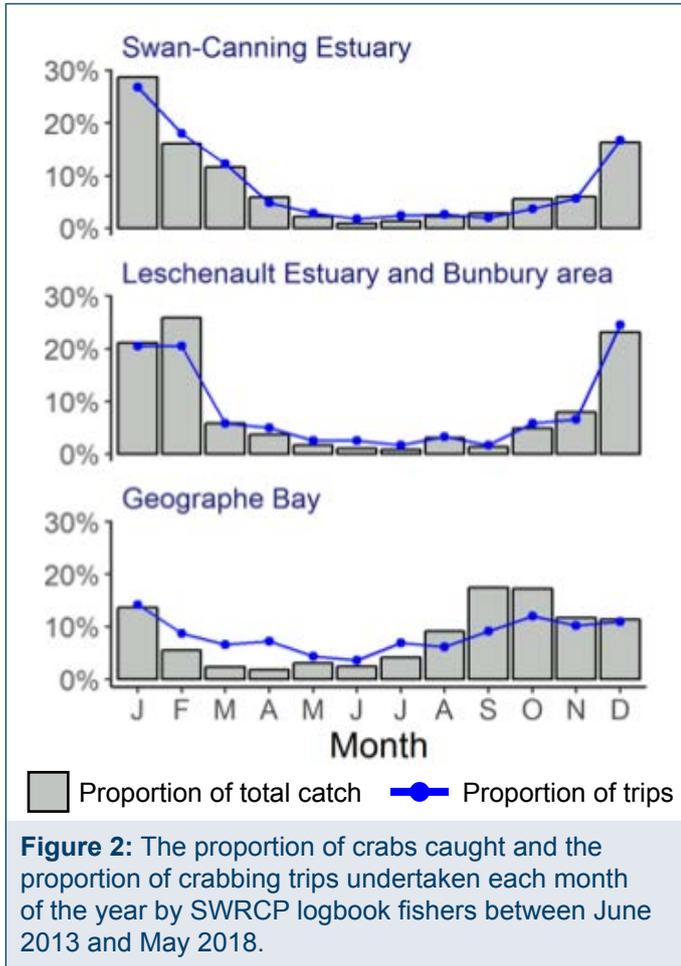


Figure 2: The proportion of crabs caught and the proportion of crabbing trips undertaken each month of the year by SWRCP logbook fishers between June 2013 and May 2018.

Crab sizes ranged from 20 to 210 mm CW. Good sized males were consistently caught each year in the SCE, with large numbers of males between 127 and 167 mm CW (Figure 3). In 2016/17 and 2017/18, however, a lower proportion of large crabs were recorded from this estuary. In the LE a much higher proportion of crabs were below legal size, with many young males ranging 76–127 mm CW, and a maximum size of 163 mm. In contrast, catches in GB were dominated by female crabs ranging 97–147 mm, with the largest being 192 mm. A high proportion of large berried females (127–147mm) were also recorded between October and December (Figure 3).

Between 2013/14 and 2017/18 the annual catch rate in the SCE ranged from 0.9–1.7 kept crabs per 10 drop net lifts, with a five-year average of 1.3 kept crabs per 10 drop net lifts (Figure 4). Catch rates in the LE ranged from 0.5–3.8 kept crabs per 10 lifts

(average of 2.4), and from 1.5–2.2 kept crabs per 10 pulls (average of 1.8) in GB.

Breeding stock and recruitment surveys

In addition to the valuable information reported by our recreational fishers, the Crab Research team also conduct their own surveys to monitor your blue swimmer stocks. Breeding stock surveys are conducted during October and November each year (the peak spawning period) using research hourglass traps (Figure 5) to catch sexually mature female crabs as a measure of the spawning potential in each fishery. These surveys assess the number of sexually mature female crabs caught and also their size (as this influences how many eggs a female can produce per batch and season). Spawning success each season is then measured by surveying small juvenile crabs (less than 90 mm CW) in the following April and May using a fine mesh trawl net towed behind a research vessel (Figure 5).

Annual egg count estimates in the LE and GB have been consistent from 2013 to 2018, ranging from 10 to 30 million eggs per research trap lift. However, there has been a decline in recent years in the SCE (Figure 6).

The recent declines in crab size and abundance in the SCE were also evident in the recreational logbook data. These changes followed unseasonably heavy rainfall in February 2017 (137mm total rainfall, the wettest February in over 60 years), which initially caused the estuary to become unusually fresh for that time of year. In later weeks, widespread low oxygen conditions developed in the deeper waters of the estuary which placed additional stress on SCE crab stocks. However, given that blue swimmer crabs are a short-lived, fast growing species that produce large numbers of eggs, a return to more normal environmental conditions should see stocks recover over time.



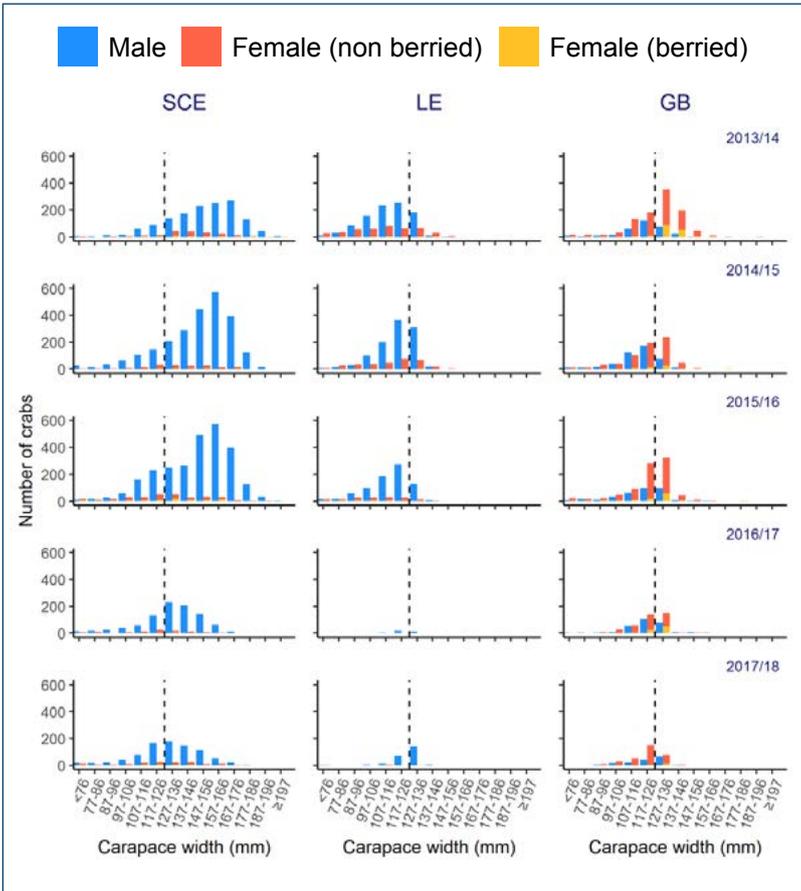


Figure 3: Annual length frequency distributions of male and female blue swimmer crabs caught by SWRCP fishers in the Swan-Canning Estuary (SCE), Leschenault Estuary and wider Bunbury area (LE) and Geographe Bay (GB) between June 2013 and May 2018. The dashed line represents the recreational minimum legal size of 127mm carapace width.

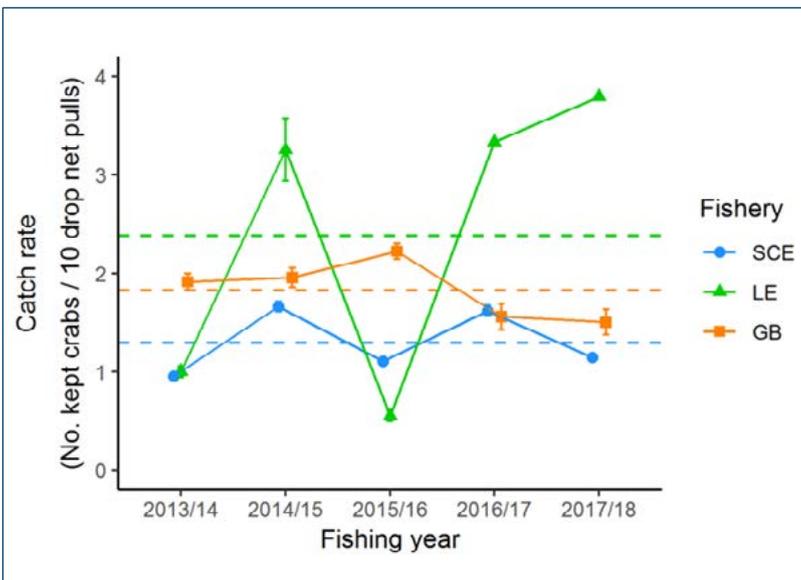


Figure 4: Annual average drop net catch rates (\pm 95% confidence intervals) in the Swan-Canning Estuary (SCE), Leschenault Estuary and wider Bunbury area (LE) and Geographe Bay (GB) between June 2013 and May 2018. The dashed lines represent the five year average catch rate for each fishery from 2013/14 to 2017/18.

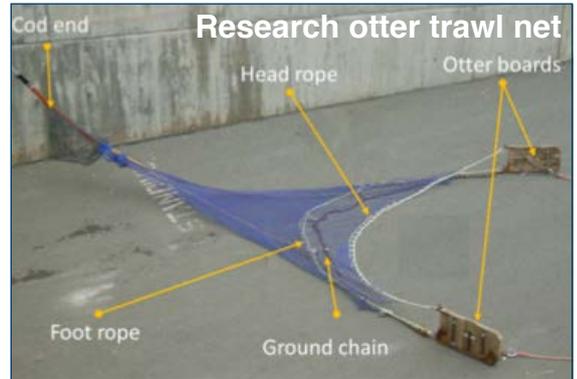


Figure 5 Research crabbing gear used during breeding stock and recruitment surveys.

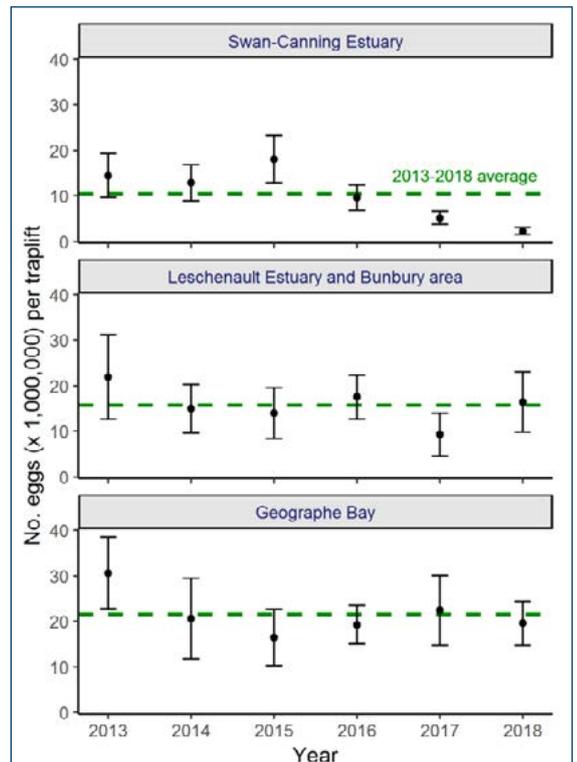


Figure 6: The average number of eggs (\times 1,000,000) recorded per trap lift (\pm 95% confidence intervals) during annual breeding stock surveys in the Swan-Canning Estuary, Leschenault Estuary and wider Bunbury area and Geographe Bay between 2013 and 2018. The dashed line represents the six-year average.

Keep a lookout for the Asian paddle crab

The Department recently advised the public to stay on the lookout for Asian paddle crabs (*Charybdis japonica*) after one was found by a recreational crabber at Blackwall Reach in December 2018.



This follows the detection of four other paddle crabs in the Swan River in 2012 and 2014. While the species has not established any significant

populations in Australia, it has the potential to do so and become a major pest.

Since its detection in New Zealand in 2000, the species has spread to nearby estuaries and has been eating bivalve shellfish and smaller crustaceans, prompting fears its presence may be impacting on the local ecosystem. To know what to look for visit: http://www.fish.wa.gov.au/Documents/biosecurity/asian_paddle_crab.pdf

What to look for

- Six sharp spines between the eyes. If there are no spines between the eyes, it's a native crab.
- Six spines down each side of the shell.
- Obvious contrast with blue swimmer crabs.
- Carapace up to 120 mm wide.

What to do

- Take photos of the suspect crab, especially from above.
- Make a note of where you saw or caught it.
- Keep the specimen and phone the FishWatch 24 hour hotline on 1800 815 507 as soon as possible.

How you can help to monitor your crab fishery

The Department relies on the support of recreational crabbers to give us the best understanding of how your crab fisheries are performing and make sure there are plenty of crabs for years to come. So we really appreciate the support of all the crabbers who have taken the time to submit log sheets over the past five years.

Unfortunately, the number of fishers submitting logs of their crabbing activity has declined during recent years, which reduces the amount and accuracy of information that researchers can gather. We're keen to hear from you again, and from any other interested crabbers who would like to join the program. So if you, your family or friends are interested in finding out what the program involves, call or email:

David Harris

Ph (08) 9203 0252

email david.harris@dpird.wa.gov.au

Marcus Newman

Ph (08) 9203 0132

email marcus.newman@dpird.wa.gov.au

Alternatively, you can find out more and sign up online at www.fish.wa.gov.au/About-Us/Pages/Volunteers.aspx



Thank you for your ongoing support and happy fishing!

Crab Research Team: Danielle Johnston, David Harris, Marcus Newman & Daniel Yeoh

Nearshore and Estuarine Finfish Research Team: Kim Smith, Amber Quinn, Chris Dowling and Tim Leary

West Coast Demersal Team: David Fairclough, Brett Crisafulli, Elaine Lek, Rhys Allen and Kim Clayton

Email: enquiries@fish.wa.gov.au Telephone: +61 (08) 9203 0111

Deliveries: 39 Northside Drive, Hillarys, Western Australia 6025 ABN: 18 951 343 745

