

## **Real-time probe illuminates snapper stocks**

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Adult Pink Snapper are measured, tagged and released by DoFWA staff to assist in monitoring the health status of this important species. Credit: Elaine Lek

Department of Fisheries (DoF) scientists are 'lighting up' DNA from pink snapper (Chrysophrys auratus) eggs to better estimate the health of west coast stocks.

Snapper <u>eggs</u> can be difficult to visually identify with features like egg and oil globule diameter occurring in size ranges that are not unique to



snapper.

Faced with this problem, scientists have developed a real-time polymerase chain reaction (PCR) method to validate whether eggs visually identified as pink snapper are in fact that species.

Senior supervising scientist Dr Mike Snow says they developed a snapper-specific probe which seeks out its complementary DNA sequence and fluoresces (glows) when it finds the specific 'snapper' sequence.

He says the technique's advantage is that the reaction can be monitored in real-time and is highly specific to the target species.

"The target probe can discriminate based on a single nucleotide difference between closely-related species," Dr Snow says.

The PCR method was used to screen visually identified snapper eggs which were sourced locally and found 70 per cent of eggs taken from Cockburn Sound and 65 per cent of eggs from Warnbro Sound were correctly identified.

DoF senior research scientist Dr David Fairclough says the level of accuracy varied greatly amongst the seven sample sites.

"We found that at some sites the [visual] IDs were 100 per cent accurate," Dr Fairclough says.





Eggs were collected from seven sites adjacent to the Perth metro area. Credit: Corey Wakefield

"The further we were from the centre of the spawning aggregation, the



less accurate the visual IDs were, as eggs of other species began appearing in the samples."

Now having some idea of the sources and amount of error associated with visually identifying snapper eggs scientists can accurately use the more resource-efficient visual method in stock assessment models.

Daily egg production models (DEPMs) use egg counts which are collected during spawning, along with biological data such as average weight, to back-calculate the biomass of spawning fish required to produce that number of eggs.

The spawning biomass estimated from the DEPM could add to data already collected on catch, fishing mortality and age structure.

"We want to gather a weight of evidence—get as much data as possible—so we can gain confidence about the health of the stocks of snapper on the lower <u>west coast</u>," Dr Fairclough says.

He says while the DEPM is not yet used for west coast snapper, it may in future help monitor the spawning biomass of iconic metropolitan snapper aggregations, without having to extract large numbers of <u>spawning</u> fish.

Provided by Science Network WA

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