



Research & Education

Using 'sound' advice to enhance management of Victoria's fisheries

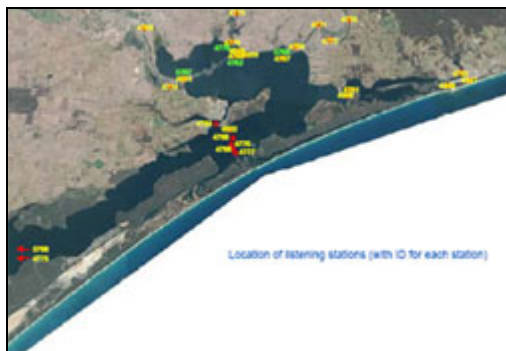
September 2006
FN0592
ISSN 1329-8062

Jeremy Hindell, PIRVic, Queenscliff

Black bream are the gipsies of the Gippsland Lakes, according to the findings of new research.

With support from Fisheries Victoria, the Nicholson Angling Club and Gippsland Lakes commercial fishers, a team of scientists from DPI's research arm, Primary Industries Research Victoria (PIRVic), electronically monitored the movements of larger juvenile (> 20 cm length) and adult black bream in the Lakes system using novel acoustic technology.

To do this, a system of 30 river and lake 'listening' stations (acoustic receivers) was established in the estuary (see below).



Map showing location of listening stations

Members of the Nicholson Angling club were enlisted to catch black bream from the Nicholson and Tambo Rivers, while commercial fishers caught fish in Jones Bay. Within minutes of being caught, each fish was implanted with a small acoustic transmitter. Each transmitter emits a unique signal that enables the researchers to identify individual fish, and, when they swam within the range of a listening station, their location.



Black bream after surgery to implant acoustic transmitter (scar on the belly of the fish) and the external tag so the fish can be identified after release

Anglers and researchers caught, implanted, tagged and released 69 black bream over 18 months.

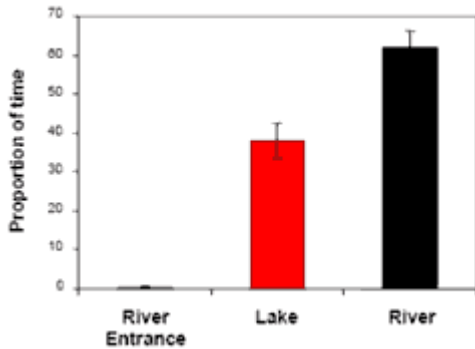
Happily, all black bream survived surgery, and only four tagged fish went missing in the first month after they were released. Neither the surgery nor presence of a transmitter detrimentally affected fish health.

The batteries in the transmitters have lasted longer than the predicted 300 days, and even after 18 months the movement patterns of nine fish tagged in December 04 were detected. This increased the amount of valuable information collected.

By interpreting this 'sound' information, PIRVic Project Leader Dr Jeremy Hindell has built a comprehensive picture of black bream movements in some parts of the Gippsland Lakes with the mobility of black bream being surprising.

"This species moves quite extensively throughout the Gippsland Lakes," Jeremy said. "At present black bream are spending more time in the rivers than in the lakes of the estuary. They appear to be using the lakes system to move among the inflowing rivers" (see graph below).





Graph showing proportion of time black bream spent at the river mouths, in the lake system and up the rivers

These movement patterns are typified by individual tagged bream called “Margaret” (named after the wife of a Nicholson Angling Club member who caught the fish), “Big John” and “Doc” (see movement traces in next page).

“Margaret” covered approximately 607 kilometres in her travels over 15 months.

Jeremy cautions that the research does not suggest that all black bream in the Gippsland Lakes are found up the rivers at all times.

“This is a highly mobile species that uses all of the Lakes system, and movement patterns may be influenced by local environmental conditions.”

The pattern detected over this 18 month study may simply reflect black bream’s response to the present environmental conditions.

Jeremy and his team are currently analysing the information to give us a better insight into how bream movement patterns might change with season, from day to night, or according to the age or sex of the fish. Ultimately, it is hoped that the movements of bream will be tracked during periods of high river flow to see if these patterns change.

“Bream are thought to have quite specific salinity preferences, especially for spawning. So the input of freshwater to the system, and associated effects of freshwater flow on the salinity profile of the estuary, is likely to strongly influence the degree to which bream use the rivers.”

Results from this project will contribute to the on-going sustainable management of the Gippsland Lakes’ black bream resource.

Further Information

For more information about this project, please contact Dr Jeremy Hindell at PIRVic Queenscliff on (03) 5258 0231, or log onto the Fishtrack website: www.dpi.vic.gov.au/fishing

Fisheries Research and Education Notes are available on the web at the following address: www.dpi.vic.gov.au Follow the prompts to Fishing and Aquaculture and then to Publications and Fisheries Notes. The notes are listed under the heading Research and Education.

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