

option4 Update #112

NZ Fishing News March 2009 edition

February 2009

Do more eggs equal more snapper?

A perennial question over summer is why not close the snapper fishery during spawning season? People think that it stands to reason - if there are more eggs in the water there will be more fish in the future.

But fisheries science says that the number of eggs is not what limits the spawning success in a sustainable fishery. What is important is the number of fish that survive long enough to become recruits to the fishery from that particular spawning season.

Female snapper produce 100,000s even millions of eggs each, but the mortality of eggs and juveniles is extremely high. Good recruitment years are determined by environmental conditions and water temperature, not by having a slightly bigger surplus of eggs.

Every season a number of different conditions can prevail. You could say that the best years is like hitting the jackpot when all the favourable factors line up at once, such as:

Good summer	*No storms*	*Warm water*	*Plentiful food*	*Few predators*
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Fish biology

Fish are not like sheep. There is no lambing percentage where offspring numbers are directly related to the number of breeding females in the paddock.

But like a paddock there is limited carrying capacity. Normally there are more than enough eggs to use the habitat available. If too many young survive through to winter there is less food available for the numbers of mouths to feed.

Fish have developed a breeding strategy to take advantage of the good years because survival can be 10 times higher than in colder years. So a one or two percent increase in egg numbers will make no difference when survival can vary by up to 1000 percent.

Does it matter when you fish?

Snapper are serial spawners so do not spawn during a set period, spawning several times during spring and summer. It would be impossible to forecast when these spawning episodes are going to occur and ban fishing in that period.

A fish is removed from the breeding population whether it is caught during spawning, a week prior, or six months earlier. The important factor is to maintain the reproductive potential of the population so that the fish can take advantage of the good seasons.

The good news is the Ministry of Fisheries recently reported the warm period from 1998 to 2002 has resulted in strong snapper recruitment, although this varies depending on the area.

Management concerns

Often people's concerns are more related to management and providing for the future, rather than spawning success. A huge amount of time, effort, and money has been spent defending the public's right to fish through meetings, submissions and more recently the Kahawai Legal Challenge.

A closure during the snapper school season would be a huge loss to the public's access right, cause massive disruption and create an enforcement nightmare.

One of the very real threats to snapper productivity is the loss of juvenile habitat in our inshore waters. Increased sedimentation and acidification of coastal waters is turning once-productive sea grass and horse mussel beds into slime-coated wastelands.

Restoration of healthy harbours and bays should be the top of the agenda when discussing how to improve snapper recruitment.

* Factual data verified by John Holdsworth, scientist, Blue Water Marine Research Ltd.