

Community based sustainable fishing education project

## Why Should we Sometimes Let the Big Ones Go?

### BOFFFF theory – Not just for boffins!

For many years conventional wisdom has told us that best thing to do to conserve fish stocks for the future is to throw the little ones back and only keep the big ones. This theory has shaped modern recreational fisheries management and led to minimum size limits being imposed for most popular species. Scientists are now beginning to question whether minimum size limits alone can be effective.

### What does BOFFFF mean?

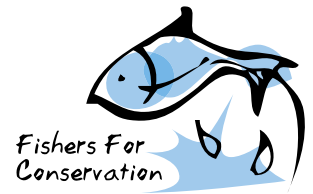
#### **BOFFFF = Big Old Fat Fecund Female Fish**

BOFFFF are the larger, older females which, according to recent research results, generally produce a lot more offspring, more times per year, than younger females do. Additionally, the offspring of larger females are often healthier and more likely to survive. Older fish are more likely to survive and contribute in the 'bad years' when environmental factors mean reduced recruitment to the fish stocks. For many species, one of the best ways to ensure long term successful reproduction and replenishment of the fish stocks is to protect the larger, healthy female breeders.

The theory behind minimum size limits and bag limits is still valid – let as many fish as possible reach maturity before capture (especially for more short lived species). However this research has opened up another factor to consider: protecting the BOFFFF.

#### Minimum size limits and evolutionary pressure

There is increasing evidence that fishing may alter fish evolution. Anecdotal evidence indicates King George Whiting average size at maturity has actually reduced over time. This has been linked to the release of smaller fish and the selective fishing pressure on the larger individuals. Some fish species may actually be getting smaller on average due to minimum size limit fishing!



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### How can we protect the BOFFFF?

There are two major ways to protect the BOFFFF to help ensure healthy future generations of fish stocks:

1. Return captured large females to the water alive and healthy.
2. Avoid the capture of some, or all, of the largest females.

The first option relies on identifying which large fish are female (this is not always possible) and that the returned fish survive and reproduce in a healthy manner. The stress of capture and release has been proven to affect reproduction. The level of impact is dependant on the species being caught and factors such as the fishing method, length of time it takes to land the fish, depth of capture and the level of care taken when releasing the fish (see Info Sheet #1 *Conserving Your Catch* for more info).

The second option relies on fishing locations and/or tackle that exclude the capture of the largest fish – this is a new concept for many fishers.



The contribution of one large female fish (BOFFFF) to the future of the stocks can exceed the contribution made by many more smaller female fish.

## Slot Limits and Proper Fish Handling

Many fishers have understood the need to let the big breeders go for a long time now, this is especially true of those who target species like Flathead or Barramundi. For these species, the largest fish are always BOFFFF and scientists predict a high survival rate for properly released fish. There is still a long way to go before this concept gains general acceptance.

One way to ensure that a proportion of the BOFFFF survive to breed is the introduction of 'slot limits'.

Slot Limits are limits on both the minimum *and* the maximum size of fish allowed to be kept for the table. Bag limits may restrict the number of larger fish that can be taken such as the current rules for Snapper – allowing the take of only two fish over 60cm per person but allowing five 38-60cm fish to be kept.

Critical to the effectiveness of slot limits is the survival rate of released fish – there is no point in releasing fish if they are not going to survive. Proper fish handling is critically important and more information is available in FFC Info Sheet #1 *Conserving Your Catch*.

## BOFFFF and Marine Parks

One way to guarantee the second of the two BOFFFF protection options (avoid the capture of some of the largest females) is by setting aside some areas where there is no fishing allowed to enable the BOFFFF to breed in peace, ensuring stock stability and replenishment and great fishing everywhere else.

In the past the inaccessibility of some areas (offshore or far from population centres) provided some protection to BOFFFF, however this is no longer the case. Modern boat technology and the increase in boat ownership has allowed more fishers to travel further, more often. Modern GPS and sounder technology has allowed fishers to return to known BOFFFF aggregation areas (including spawning grounds) time and time again.

Marine Protected Areas protecting BOFFFF will be most effective in protecting species that are likely to remain within the protected area (e.g. Blue Groper) or when the Marine Park protects spawning aggregation sites (e.g. known deep water King George Whiting spawning grounds).



Larger fish such as this King George Whiting can contribute more to the future of fish stocks than many smaller individuals together. Think about releasing a BOFFFF next time you go fishing - the smaller specimens usually make better eating too!

Murray Cod is one of the few South Australian species to already be subject to a 'slot limit' to protect the large females (BOFFFF). A minimum length of 60 cm is combined with a maximum length of 100 cm. A closed season and other restrictions also apply.



## Help ensure fish for the future - protect the BOFFFF

- Support the introduction of 'slot limits' (both maximum and minimum size limits and/or bag limits protecting large fish) for appropriate species.
- BOFFFF are vital to the next generation. Return the big breeding fish to breed another day. Encourage your family, friends and fishing club members to do the same.
- Support the introduction of Sanctuary Zones within SA Marine Parks – Zones that maximise the protection for fish and habitat (including BOFFFF) while minimising the impact on, enjoyment of and access to recreational fishing.
- Learn how to handle fish to ensure maximum survival when you catch and release (See FFC Info Sheet #1 *Conserving Your Catch* more information).

Want to find out more about the science behind the BOFFFF theory? -

Check out [http://www.ffc.org.au/Sustainable\\_fishing\\_education.html](http://www.ffc.org.au/Sustainable_fishing_education.html) for articles and links on BOFFFF theory and the implications for fisheries management.



Australian Government

Department of Agriculture, Fisheries and Forestry

Recreational Fishing Community Grants Programme



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This information sheet has been produced by Fishers For Conservation as part of the Community Based Sustainable Fishing Education Project and was made possible by Federal Government funding as part of the Recreational Fishing Community Grants Programme.