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1. **Summary**

The National Strategy for the Survival of Released Line Caught Fish was an initiative of the Fisheries Research and Development Corporation aimed at improving the survival of released fish. The national strategy commenced in April 2002 and was completed in March 2008. Some projects commenced prior to the strategy and some projects will continue beyond the strategy. Work on released fish survival will continue beyond the strategy and be addressed under Recfishing Research.

A review of current knowledge and priority issues for the State fisheries agencies was undertaken at the start of the strategy to determine the status of knowledge and the priorities that needed to be addressed in the strategy. This has guided investment in National Strategy projects since then.

Management and leadership of the strategy have been through a steering committee and a manager (Bill Sawynok of Infofish Services) overseeing and guiding the development of projects to address the priority issues identified. In August 2005 the steering committee was expanded and given a broader role and became the Recfishing Research steering committee.

The strategy commenced with the promotion of best practices based on a code practice adopted by the Australian National Sportfishing Association and later also adopted by Recfish Australia. During 2003 a national television advertising campaign was conducted to promote best practices featuring Andrew Ettingshausen from the Escape with ET television show. Surveys before and after the campaign into attitudes and practices showed that 35% of fishers indicated they had changed their practices based on that promotion.

Since the commencement of the national strategy there have been 20 projects and a total investment commitment of $7.3 million on issues dealing with released fish survival that have come under the umbrella of the strategy. The Fisheries Research and Development Corporation has provided $2.4 million to 12 of these projects while state agencies, industry bodies and other funders have contributed $4.9 million.

Projects under the national strategy have significantly improved knowledge of all issues involving the survival of released fish. Projects under the national strategy have extended the species where there is now an estimate of survival rate from 4 to 20 and significantly improved knowledge of, particularly, the effects of deep hooking and barotrauma. There was also a significant improvement in knowledge of best practices to improve fish survival.

The national strategy was instrumental in getting information on the survival of released fish and the results of research into fisher’s communication networks and ultimately to recreational fishers. The strategy extended information obtained from the research projects to recreational fishers by getting new information into the communication networks used by recreational fishers, charter operators and fisheries managers. This included through a website, government fisheries agencies, national and state fishing organisations, schools, marine education programs, Fishcare volunteers, tackle stores, fishing media and fishing clubs which ultimately got information to individual fishers.

Over the life of the national strategy there has been at least 1 project that has addressed each of the priorities identified. New priorities have been identified for 2008 and beyond and these will be perused through Recfishing Research.
Figure 1: Summary of survival rates derived from Australian research (data for species in orange derived from research prior to National Strategy)
1. **Background**

The National Strategy for the Survival of Released Line Caught Fish was an initiative of the Fisheries Research and Development Corporation (FRDC) in conjunction with the Australian National Sportfishing Association (ANSA), Australian Fishing Tackle Association (AFTA) and Recfish Australia. The national strategy aim was to improve the survival of released fish. It commenced in April 2002 and was completed in March 2008.

The National Recreational and Indigenous Fishing survey, undertaken in 2000, estimated the recreational finfish catch in Australia at 107.7 million fish caught of which 47.3 million (43.9%) were released. At the commencement of the national strategy minimal information was available on the survival of these released fish with an estimate of survival available for 4 species.

A review of current knowledge and priority issues for the State fisheries agencies was undertaken at the start of the strategy to determine the status of knowledge and the priorities that needed to be addressed in the strategy. This has guided investment in national strategy projects and assisted in the identification of national priorities.

The national strategy involves projects aimed at achieving the following outcomes.

**Improving the survival of released line caught fish through:**

- A better understanding of the effects of fishing; and
- Increased adoption of best practices in handling fish.

**Improving fisheries management through:**

- A reduction in the total mortality of released line caught fish; and
- Inclusion of recreational catch and fish survival data in fisheries stock assessment.

2. **Implementing the Strategy**

The development and implementation of the strategy was the responsibility of the Released Fish Survival Steering Committee. The steering committee comprises a wide range of expertise relevant to the issue. In August 2005 the steering committee was expanded and given a broader role and became the Recfishing Research steering committee but retaining the responsibility for the national strategy.

**Recfishing Research/Released Fish Survival Steering Committee (December 2007)**

<table>
<thead>
<tr>
<th>Ross Winstanley – Independent chair</th>
<th>Bill Sawynok – Infofish Services</th>
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</thead>
<tbody>
<tr>
<td>Julian Pepperell – Industry research</td>
<td>Doug Joyner – Aust Fishing Tackle Assoc</td>
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<tr>
<td>John Harrison – Recfish Australia</td>
<td>John Diplock – Rec Fishing management</td>
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<td>Steve Sutton – Social Research</td>
<td>Howel Williams – Fisheries Communicators</td>
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<tr>
<td>Matthew Barwick – FRDC</td>
<td>Alistair McIlgorm – Economic research</td>
</tr>
<tr>
<td>Jim Harnwell – Fishing Media</td>
<td>Daniel Tillack – Fishing media</td>
</tr>
</tbody>
</table>

The steering committee played a role in the development of projects to address the national priorities identified in this strategy. Other issues will need to be addressed and funded by government agencies and industry groups, preferably as part of the national strategy. The steering committee provided assistance in the development of these projects, securing funding and in the extension of new knowledge.
Two documents formed the basis for developing projects to address these issues.

“National Strategy for the Survival of Released line caught fish: A review of research and fishery information” (2002) by Lachlan McLeay et al. This report provides a summary of the current research knowledge and priorities where future investment should be made. This was an initial objective of the strategy. The report is available at [www.info-fish.net/releasefish](http://www.info-fish.net/releasefish).


3. **Key Areas for Investment**

From 2001/02 to 2006/07 the R&D investment by FRDC were targeted at the following areas:

- Management of the national strategy
- Development and promotion of best practices
- Determining survival rates for the 4 national priority species (groups) being whiting, bream, flathead, snapper
- Determining survival rates for icon species barramundi and Murray cod
- Reduction of mortality from barotrauma and deep hooking

The national priority species are considered to be a higher priority than the icon species.

Where groups of species are to be investigated it is recommended that an initial series of experiments be conducted into survival across the group before additional work is proposed.

For each of the key species identified the following information is required:

- The number of fish caught and released
- The extent of deep hooking
- The survival rate for the species
- Best practices for releasing species

Research into other areas should be the responsibility of state fisheries agencies, industry groups and other R&D investors, however it will be encouraged that this work come under the National Strategy and steering committee.

Last updated: 7 January 2008
From 2007/08 the Released Fish Survival priorities under this strategy will be:

- Promotion and extension of best practices for the release of line-caught fish
- Pelagics, in particular mackerel species, and billfish
- Species highly susceptible to barotrauma, in particular Tuskfish species and deep water Jewfish species Black Jewfish and Teraiglin
- Reduction of mortality from deep hooking
- Factors affecting the survival of large catch-and-release iconic fish

4. National Strategy Information Products

As part of the National Strategy a range of information products were produced through the various projects to promote best practices and the results of research into survival. Products were generally branded under the banner of “Gently Does It”.

The Released Fish Survival website [www.info-fish.net/releasefish](http://www.info-fish.net/releasefish) has a wide range of fact sheets on all aspects of fish survival, best practices on releasing fish and how to handle different fish species.

The range of best practices products now includes:

- Gently Does It! pamphlet promoting best practices in releasing fish (NEW in 2006/07) and best practices DVD/video (DVD currently being updated)
Posters on the results of barramundi research in the Northern Territory and the use of landing nets on barramundi

Posters promoting the use of fish friendly tackle

Left: Released Fish Survival is Your Business pamphlet for charter operators and fishing guides

Right: Pamphlet on Released Fish Survival for Fisheries Management
Left: Poster on survival of Sand Flathead

Right: Pamphlet on Releasing Tropical Reef Fish

Left: Pamphlet on Releasing Snapper and Bream

Right: Catch and Release poster produced by NSW DPI
Figure 2: Range of information products on fish survival produced or promoted under the National Strategy
5. Summary of Survival Rates from Research

A number of research projects have now provided an estimate of survival for a range of species. Figure 3 provides an overall summary of the survival rates however care is required in the interpretation of these results as they come from a number of projects using different methodologies. Reference to the underlying research is required for more details on the interpretation of the results.

Survival rates were obtained from the following sources.

WA Dhufish/Snapper – WA: Jill StJohn and Ian Keay: Preliminary results from FRDC project 2000/194: Maximising survival of released undersize west coast reef fish: FRDC milestone report


Mulloway – NSW: Paul Butcher, Darren Reynolds and Matt Broadhurst (2003): Using recreational anglers to estimate and maximise the survival of released line-caught fish


6. **Completed FRDC Projects**

Projects funded by FRDC that have been completed.

FRDC project 2001/099 “National Strategy for the Survival of Released line caught fish: planning, project management and communications” was set up to manage the initiative and address the promotion of best practices in releasing fish to recreational fishers. This national project ran from July 2002-June 2004. It has been completed and 4 reports from this project are available at [www.info-fish.net/releasefish](http://www.info-fish.net/releasefish).

FRDC project 2002/039 “Assessment of post-release survival and stress physiology of barramundi.” Northern Territory project ran from July 2002-June 2004. This project has been completed and the report is available at [www.info-fish.net/releasefish](http://www.info-fish.net/releasefish).

FRDC project 2004/071: “National Strategy for the Survival of Released Line Caught Fish: maximizing post-release survival of line caught flathead taken in sheltered coastal waters.” This project has been completed and the report is available at [www.info-fish.net/releasefish](http://www.info-fish.net/releasefish).

6. **FRDC Projects in Progress**

The following projects funded by FRDC are currently in progress. Status reports may be available from the website.


FRDC project 2006/053: “Sustainability of recreational fisheries for Murray cod in the Murray Darling Basin” Objective 3 of this project is to determine the post release hooking survival of Murray cod under various hooking scenarios. Victorian project June 2006-July 2009.


7. Externally Funded Completed Projects

Completed projects that were developed to address some of the key issues, but were funded by other than FRDC, have been incorporated under the National Strategy. The National Strategy is assisting with the extension of the results of this research.

“Handling and releasing big fish” completed DPI&F project in Queensland produced a CD outlining how to release big barramundi. The presentation is now on the Released Fish Survival DVD and available from Infofish Services.

“Effects of landing nets on barramundi” NT Fisheries project was incorporated into project 2002/039. Completed and report available at www.info-fish.net/releasefish. Poster available.

“To obtain a preliminary measure of survival rates resulting from anglers releasing undersized snapper and black bream” MAFRI project in Victoria that collected preliminary data for project 2003/074. The Department of Primary Industries Victoria produced the report using funding provided by Victorian Recreational Fishing Licence fees. Completed and report available at www.info-fish.net/releasefish.
“Fishtag 2005” ANSA Qld project collected hooking data on key strategy species in July 2005 and was funded by the Queensland DPI&F Recreational Fisheries Grant Program. The report is available from www.info-fish.net.

The National Strategy and Deakin University co-funded a Travel Fellowship by Daniel Grixti to attend the Florida’s 7th Annual Edison Big Snook Tournament in 2006. The fellowship was to examine Snook survival in a live release tournament. A report resulting from the fellowship is available at www.info-fish.net/releasefish.

“Using recreational anglers to estimate and maximise the survival of released line-caught fish”. NSW DPI project from December 2003 – August 2006 funded by the NSW Recreational Fishing Trusts.

8. Externally Funded Projects in Progress

Projects in progress that were developed to address some of the key issues, but were funded by other than FRDC, have been incorporated under the National Strategy. The National Strategy will assist with the extension of the results of this research.

“Survival from hooking and tagging” ANSA Suntag project in Queensland to obtain data on locations where fish are hooked that has been extend to include data from Newtag in NSW and Victag in Victoria. This is an ANSA funded project from July 2003 – June 2007. Extended to June 2008 to continue collecting hooking locations for key recreationally caught species.

“Estimating and maximising the post-release survival of key angler-caught fish in NSW”. NSW DPI project from March 2006 – February 2009 funded by the NSW Recreational Fishing Trusts.

“Quantifying and improving the survival of Murray cod, golden perch and Australian bass released by anglers in NSW”. NSW DPI project from August 2006 – July 2008 funded by the NSW Recreational Fishing Trusts.
9. University Student Projects relevant to the Strategy


“Hook retention by black bream *Acanthopagrus butcheri* from the Glenelg River, Victoria”. Honours project by Ruben-Lee Roennfeldt at Deakin University, Victoria. Currently in progress.

“Swim Bladder properties and implications for barotrauma”. Honors project by Olivier Bittar at Queensland University July 2004 – June 2005. Funding for this project has been provided from the National Strategy.

Biology, ecology and fishery for Samsonfish (*Seriola hippos*) along the west Australian coast. PhD project by Andrew Rowland as part of FRDC Project 2004/051 "Management and monitoring of fish spawning aggregations within the West Coast Bioregion of Western Australia" and co-supervised through WA Department of Fisheries and Murdoch University. Thesis commenced February 2005 and has focused on catch care, tag and release, barotrauma and related issues within the Samsonfish sports fishery.

Since January 2005 a large scale intensive tagging program involving researchers and members of the WA recreational fishing public, called Samson Science, has tagged over 7600 Samsonfish during the summer spawning period in the waters around Rottnest Island. This tagging project has revealed Samsonfish to be a highly migratory species and produced strong evidence that many individuals only visit this area for spawning purposes before returning to the southern coastal regions where they spend much of the year. For instance, two Samsonfish tagged near Rottnest Island during summer were recaptured near Kangaroo Island in South Australia during August and September. Each had travelled over 2,500 km. Recaptures have revealed a high survivorship of Samsonfish released after capture from deepwater tag sites (>100m depth) and that the effects of barotrauma are minimal.

Short term post release survival trials have also been conducted as part of this research using a large floating enclosure or ‘sock’. The key findings of these trials were that most Samsonfish survive capture from depths of up to 195m, mortality occurs within the first 5 hours post release and the time between capture and release is a critical factor in maximising post release survival within this sportfishery.

Most Samsonfish sustain barotrauma related injuries when captured by fishers in the deep waters west of Rottnest Island but appear healthy and swim away strongly when released.

“Effects of salinity and anatomical hook location on the survival and physiological response of angled-and-released Sand Whiting”. Honours project by Shane McGrath at Southern Cross University. Report available.
## 10. Summary of Investment in Released Fish Survival

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Table 1: Summary of current investment in Released Fish Survival

Last updated: 7 January 2008