

# Wild Fisheries

## – Winter 2011

### INTRODUCTION

The wild fisheries resources of NSW are diverse and the recreational and commercial fisheries that exploit them are complex. NSW's wild fisheries are valued in excess of \$600 million per annum. The species involved are also extremely difficult to study as they are invisible to most forms of observation and move a lot.

The NSW Government is responsible for the monitoring and management of these valuable publicly-owned resources. Industry & Investment NSW has a range of research projects that support management policies and strategies for their sustainable harvest and conservation.

The Unit's research forms the basis of our management advice which underpins the regulations and legislation governing how our fisheries are managed.

### RESEARCH CAPABILITIES

- » A strong team of dedicated researchers and technicians.
- » Cronulla Fisheries Research Centre of Excellence.
- » Cronulla Fisheries Research Centre Aquaria Facility.
- » Numerous small research vessels.
- » State-wide projects with high public good benefit.
- » Strong links with fishers and fisheries management.
- » Strong partnerships with the Recreational Fishing Trust, National Marine Science Centre, University of New South Wales, University of Wollongong, Sydney Institute of Marine Science, University of New England, Southern Cross University, University of Western Sydney.

### CONTACT US

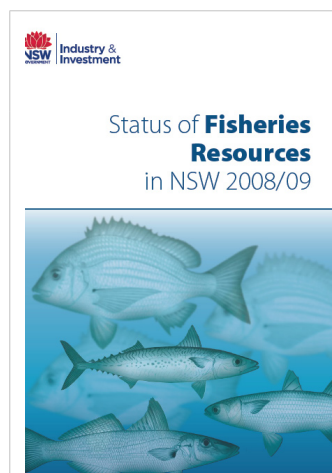
For more information on our full portfolio please contact Dr Charles Gray (02) 9527 8472 or [charles.gray@industry.nsw.gov.au](mailto:charles.gray@industry.nsw.gov.au)

### PROJECT UPDATES

#### STATUS OF FISHERIES RESOURCES IN NSW (2006-ONGOING)

**INTRODUCTION:** Knowing about the exploitation status of harvested stocks of fish and invertebrates is needed to determine appropriate management strategies for each species and their associated fisheries. Researchers in the Wild Fisheries Unit undertake annual reviews of the status of species harvested by commercial and recreational fishers in NSW.

**FINDINGS:** The Status of Fisheries Resources in NSW 2008/09 is a report which provides an overview of the state of marine and estuarine fish populations that are harvested by the commercial and recreational fisheries of NSW. The document contains an up-to-date summary of the state of knowledge for 108 fish and invertebrate species (or species groups). The data is sourced from many ongoing wild fisheries biology and assessment projects and from collaborations with external scientists and students. Each species is assigned an 'exploitation status', as determined by expert opinion at an annual Resource Assessment Workshop. For 2008/09, 43 species were assessed as "Fully Fished", five were considered "Growth Overfished" and six were "Overfished", while 54 species were assessed as "Uncertain/ Undefined".



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## MOVEMENTS AND BIOLOGY OF BULL SHARKS IN NSW (2009-2015)

**INTRODUCTION:** A range of commercially and recreationally harvested species of shark, including the bull shark (*Carcharhinus leucas*) inhabit estuaries and coastal waters of NSW. We have very limited knowledge of their general biology and ecology. Understanding the biology of sharks and where they move and live is essential to help protect sharks and their habitats and to keep people safe.

**FINDINGS:** Since March 2009, 50 bull sharks have been acoustically tagged in Sydney Harbour (25) and the Clarence River (25). Results from tracking these sharks demonstrate that large bull sharks: (1) move very large distances within short time periods, (2) vary in movement-patterns among individuals, (3) move similar distances at night and during the day and (4) those tagged in Sydney Harbour, returned to the Harbour in following summers.



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## MAXIMISING THE SURVIVAL OF RELEASED ANGLER-CAUGHT FISH (2003-2012)

**INTRODUCTION:** Recreational fishing is among the most popular pastimes in Australia. The perception of recreational fishing as a sport, combined with legal sizes and bag limits, means that 44% of all fish are released. For such practices to contribute towards the sustainability of recreational fishing, most of the released fish should survive with few negative impacts.

**FINDINGS:** More than 45 experiments have been done to investigate the short-term fate of 14 of our important coastal marine and freshwater species after being caught and released. Survival rates have been quite high (mostly > 70%), with the few mortalities explained by particularly harsh treatments, including swallowing hooks and extended onboard handling. Simple changes in techniques and gears have been identified as strategies for promoting survival. Ongoing research is now focusing on assessing longer-term sub-lethal impacts for surviving fish.



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## OBSERVER-BASED RESEARCH IN NSW COMMERCIAL FISHERIES(2007-2013)

**INTRODUCTION:** The Fishery Management Strategy (FMS) for most major commercial fisheries operating in NSW require that scientific observer programs be done to identify and quantify the levels of discarding of commercial, non-commercial, threatened and protected species in each fishery. This scientific work is vital to the effective management of NSW's commercial fisheries.

**FINDINGS:** Two years of observer-based sampling of retained and discarded catches from the line-fishing sector of the Ocean Trap & Line Fishery (OTLF) has been completed. This data is being used to develop management strategies for this fishery. More than 114 observed fishing days in the large coastal shark fishery saw approximately 1400 sharks captured; most of them being whaler sharks. A two-year observer project in the Ocean Prawn Trawl Fishery (OPTF) is about to begin.



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## SURVEYS OF THE FISHERIES RESOURCES IN NSW ESTUARIES (2003-2015)

**INTRODUCTION:** Developing fishery-independent surveys (i.e. collecting data using standardised research surveys) of NSW's estuarine fisheries resources has been the focus of significant research in recent years. In many estuaries, commercial fishing has been removed to create Recreational Fishing Havens and Marine Parks, removing commercial fisheries information as a data source. So new data sources are needed to meet the goals of sustainable management and conservation.

**FINDINGS:** The sampling gears and strategies to assess populations and assemblages of fish in NSW estuaries have been developed. These were vital in determining when to reopen the Richmond River to normal fishing activities following the major fish-kill event in January 2008. On-going sampling is being used to evaluate the status of estuarine fisheries resources and provides important information for long-term monitoring, evaluation and reporting.



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# PIS&R PROJECT UPDATES