

December 2004

Integration of fisheries issues into regional NRM plans



Guiding Integration

Regional Natural Resource Management (NRM) bodies, when developing their regional NRM plans are required to have regard to statutory and non-statutory plans that exist across the State. To provide guidance to Regional NRM bodies, a series of information modules has been developed on natural resource issues. This module focuses on fisheries issues.

This information aims to assist Regional NRM bodies to better understand fisheries issues in their region and where relevant, integrate these issues into their regional plans, thus ensuring consistency across the State. This information should assist regional NRM bodies in developing a plan that meets the accreditation criteria.

The guidance provided here does not change the Department of Primary Industries' (DPI) existing status, role or responsibilities with respect to statutory requirements over fisheries matters. Rather, it identifies opportunities and benefits arising from community-based regional planning and statutory processes working more closely together.

What are Fisheries Issues?

In short, fisheries issues relate to fisheries resources, which include fish, marine plants, fish habitat and aquaculture, whether on or in land within the limits of the State and Queensland waters¹. For the purposes of this document, both freshwater and marine fisheries resources and marine plants are encapsulated in the term 'fisheries issues'. The areas of potential interest extend from coastal waters to freshwaters, both coastal and inland.

Activities that may impact fisheries resources and habitats include (but are not limited to): commercial, recreational and indigenous fishing, aquaculture activities, coastal development, dredging and dredge spoil disposal, extractive industry and mining activities, coastal agricultural, urban and industrial activities, riparian clearing and related development, design/construction of waterway barriers and fish ways, and pest/weed control.

DPI has the statutory responsibility for administering the Fisheries Act 1994² and the Fisheries Regulation 1995³. These statutory processes stipulate the conditions for 'management, use, development and protection of fisheries resources and fish habitats, and the management of aquaculture activities, and for related purposes'⁴. The Act focuses predominantly on ensuring the application of principles for ecologically sustainable development (ESD)⁵ in the use, conservation and enhancement of the community's fisheries resources and fish habitats.

Plans, policies, codes, guidelines, maps and other resources have been developed to assist in meeting the management, use and protection objectives of the Fisheries Act 1994 and Fisheries Regulation 1995. These resources have management and conservation foci.

In addition, to assist in the management of fisheries resources and fish habitats, DPI also undertakes fisheries & aquatic ecosystem research and provides technical advice on best practice research and monitoring methods.

Key inputs for regional NRM plans

Given that fisheries issues extend from coastal waters to freshwaters, both coastal and inland, all NRM regional bodies may have to consider these issues in the development of their regional NRM plans.

¹ *Fisheries Act 1994* can be downloaded from <http://www.legislation.qld.gov.au/Legislation.htm>

² *Fisheries Act 1994* can be downloaded from <http://www.legislation.qld.gov.au/Legislation.htm>.

³ *Fisheries Regulation 1995* can be downloaded from <http://www.legislation.qld.gov.au/Legislation.htm>

⁴ *Fisheries Act 1994* can be downloaded from <http://www.legislation.qld.gov.au/Legislation.htm>.

⁵ See *Fisheries Act 1994* section 3, page 12 can be downloaded from <http://www.legislation.qld.gov.au/Legislation.htm>.

For accreditation purposes, it is essential that regional NRM plans have regard for fisheries issues. Regional NRM plans can include strategies/actions that complement or incorporate fisheries issues. Actions or strategies in regional NRM plans should not be inconsistent with fisheries management arrangements or impact negatively on fisheries resources.

A series of DPI publications and services have been listed under the section titled 'information on fisheries issues' (see page 4). The intent of these materials is to provide information to NRM bodies, local government and other stakeholders on:

- The legislative/regulatory requirements relating to fisheries;
- Tools, maps and data available for the identification of fisheries resources and fish habitats;
- Monitoring programs; and
- Management practices.

The following diagram illustrates how this information on fisheries issues may support development of regional NRM plans.

Materials

Provides information on

Use in Regional NRM plans

Legislation and Regulation

- **Fisheries Act 1994**
- **Fisheries Regulation 1995**
- **Integrated Planning Act 1997**
- **Fisheries Management Plans**
- **Fish Habitat Areas**

Queensland 's legislative requirements

- Specifies whether approvals or permits are required for certain activities and what activities are prohibited.
- Helps identify appropriate land uses in or adjacent to fish habitats on or in land within the limits of the State and Queensland waters.

Resource identification tools

- **Fish Habitat Areas**
- **Fish Management plans**
- **Coastal Wetlands mapping**
- **Coastal Habitat Resources**

Location of fisheries resources and fish habitats in Queensland

- Identifies regional priority areas in terms of fish and marine habitats, biodiversity, water quality and land use planning.
- Helps identify compatible and appropriate land uses for catchments.
- Helps identify priority areas for regional land use and investment planning;
- Informs target setting for biodiversity, water quality, and land use planning
- Provides baseline information on fish, marine and estuarine resources;

Monitoring programs or fisheries resources, rehabilitation and recovery

- **Seagrass and Mangrove – Watch community monitoring**
- **Long Term Monitoring Program**
- **Aquatic Fauna Surveys**
- **In-stream Barrier Surveys**
- **Recovery plans**
- **CHRIS**
- **Restoration & enhancement of fish populations**

Long term performance, condition of fisheries resources and fish habitats, and information on rehabilitation and recovery processes

- Provides baseline data for monitoring and performance assessment.
- Provides information on pertinent issues related to aquatic resources.
- Helps prioritise the protection of native fish species, marine plants and other resources in the region;
- Helps establish water quality, biodiversity and land use targets that may benefit fish habitats, marine and estuarine resources and their sustainability.

Recommended management practices

- **Fisheries policies, codes of practices, guidelines**
- **Fisheries Management Plans**
- **Tropical Aquatic biodiversity**

Management practices

- Identifies appropriate management practices in or adjacent to fish, marine or estuarine resources;
- Helps determine suitable management practices for new activities in the region with respect to fisheries issues;
- Informs target setting for biodiversity, water quality, and land use planning

Information on fisheries issues

Following is a list of DPI publications and services available to Regional NRM bodies on management of fisheries issues. These are presented in alphabetical order, and where possible, links to their website addresses have been made. For more information see 'important contacts' section.

Aquatic fauna surveys

DPI undertakes catchment surveys on a fee for service basis to assess and monitor the condition of aquatic eco-systems, using a range of survey techniques including habitat assessment and fish sampling using electrofishing and netting. For information on monitoring programs, see <http://www.dpi.qld.gov.au/fisheriesmonitoringprogram>.

Aquaculture development

DPI supports the sustainable development of the aquaculture industry in Queensland. It provides assistance to local governments and industry in addressing aquaculture development related issues as well as providing aquatic health services to the industry. For further information, see <http://staffwww.dpi.qld.gov.au/thematiclists/1028.html> or search the Department of State Development site www.sd.qld.gov.au for aquaculture related information.

Coastal Habitat Resources Information System (CHRIS)

CHRIS is a geographic information system that integrates fish habitats and marine and estuarine data sets with fisheries catch and effort and management boundary data. The data sets display the critical habitat features. The information identifies coastal habitats and their characteristics, supports performance monitoring, and forecasts trends and conditions of fish habitats. Specific information can be prepared and collated by DPI on a fee for service basis. For further information, see <http://chrisweb.dpi.qld.gov.au/chris/>

Coastal Wetland Mapping

DPI has mapped the coastal wetland resources of the entire Queensland coastline. The distribution of coastal wetlands throughout Queensland can be displayed, queried and printed from CHRIS. For selected catchments, maps of both marine and freshwater wetlands, landuse and riparian width and historical changes in wetlands composition are also available. For further information, see <http://www.dpi.qld.gov.au/fishweb/7871.html> or view examples at www.barronriver.com.au/Publications.html.

Community monitoring programs

DPI and the CRC Reef Research Centre support a community habitat monitoring program, which collects information on changes in fish habitats. There are presently about 100 sites in Queensland where local communities are monitoring intertidal seagrass habitats. Sites are monitored four times a year. A variety of information is collected on seagrasses and the animals that reside within them. Methods are detailed in a manual. DPI also compiles and distributes the information through a monthly newsletter. A smaller program in Mackay is collecting information on mangroves. For information on seagrass and mangrove monitoring, see www.reef.crc.org.au

Control of exotic pest fish species

The control of exotic pest fish species is critical for the sustainability of native fish and their habitats across the State. The 'Operational Strategy for Queensland Freshwaters 2000-2005' provides guidance on the control of exotic pest fish species. A list of exotic species can be found on DPI's website www.dpi.qld.gov.au. In addition, specific regional advice can be provided by DPI to Regional NRM bodies on a fee for service basis.

Fish Habitat Areas

Fish habitats are fundamental to the sustainable management of fish species and marine plants. In order to protect and conserve these habitats, the Fisheries Act 1994 has provisions for the declaration of Fish Habitat Areas (FHAs). A FHA can be declared under Management 'A' (the highest level of protection) or Management 'B'.

FHA can be declared across the State, either coastal or freshwater. These Areas are based on fish habitat diversity, biodiversity, and role as fish nurseries and shelter to support fisheries resources. Management policies and measures have been developed for these declared Areas. These measures stipulate which activities or uses are permitted in or adjacent to these Areas, and conditions associated with those activities. For further information, refer to Table 1 at <http://www.dpi.qld.gov.au/fishweb/10675.html> site.

Fisheries Management Plans

Fisheries Management Plans can be developed for fisheries, fish habitats, fish ways, fishery resources or aquaculture. The overall intent of these plans is to ensure ecologically sustainable fisheries, including economic sustainability and equitable access by different users. The plans stipulate the licensing, allocation, and monitoring conditions for specific locations and/or species. To date, five Fisheries Management Plans have been developed for different fisheries and/or fish resources across Queensland. These are: Fisheries (Freshwater) Management Plan 1999, Fisheries (East Coast Trawl) Management Plan 1999, Fisheries (Spanner Crab) Management Plan 1999, Fisheries (Gulf of Carpentaria Inshore Fin Fish) Management Plan 1999, and Fisheries (Coral Reef Fin Fish) Management Plan 2003. Copies of these plans are available on <http://www.legislation.qld.gov.au/Legislation.htm>. The development of an Inshore Fin Fish Fishery Management Plan on the East Coast is expected to commence in 2004.

Fisheries Policies, Codes and Guidelines

These fisheries policies relate primarily to specific activities that can impact upon fish and marine plants and their habitats (e.g. dredging, extraction and spoil disposal activities), and have an operational focus. Permits and licences may be required for such activities under the Fisheries Act 1994. Each policy provides information on the specific activities that are permitted, the process to obtain a permit, and the conditions necessary to minimise impact on fisheries issues. Certain policies have a regulatory basis, while others are non-regulatory in nature, providing technical advice on specific issues. Information on fish habitat policies is provided in Appendix A. For other documents, refer to www.dpi.qld.gov.au.

Fish recovery plans

In 1996 a recovery plan was produced for the endangered Mary River cod. This plan identified community education and involvement, regulation administrative procedures, breeding and restocking program, research, habitat rehabilitation and a long-term monitoring program. For more information on this plan, see <http://www.dpi.qld.gov.au/far/9230.html>.

Monitoring fish stocks and key habitats

A Long-Term Monitoring Program commenced in 1999 to obtain vital information about the sustainability of Queensland's fish stocks and associated habitats. Information on the status of fish stocks including ten commercial and recreational species, all freshwater fish species in ten river systems and key habitats is collected and assessed. The information is used to monitor the effectiveness of fisheries management strategies. Information is provided in a series of biennial reports produced for each major fishery, and can be obtained from <http://www.dpi.qld.gov.au/fisheriesmonitoringprogram>. The DPI Fisheries Program has a skilled fish stock assessment group, which analyses commercial, recreational and long-term monitoring data in order to provide advice on sustainable fisheries practices. For further information see <http://www.dpi.qld.gov.au/far/12389.html#Stock>

Freshwater Fish Habitat Rehabilitation

DPI undertakes in-stream rehabilitation works in freshwater fish habitats in Queensland. A Freshwater Fish Habitat Rehabilitation Plan is currently being developed for the Mackay-Whitsunday Region. It is intended that this will act as a template for other regional groups across the State. DPI officers based at Deception Bay and Walkamin also work in collaboration with regional groups to restore fish habitat and monitor restoration works.

In-stream barrier surveys

In-stream barrier surveys identify barriers to fish movement and identify degraded aquatic habitats in catchments. This information, together with the expertise of DPI staff, can assist in developing appropriate, cost effective rehabilitation strategies (including the removal of in-

stream barriers). DPI carries out these surveys and develops rehabilitation strategies on a fee for service basis.

Guidelines on the design of stream crossings are available as a free publication on <http://www.dpi.qld.gov.au/fishweb/2887.html>.

Environmental flow research

DPI is conducting research in environmental flow requirements for estuaries. The research methods being used can also be applied to inland catchments. For further information see <http://www.dpi.qld.gov.au/far/13055.html>

Rehabilitation or Restoration

Provisions exist within the Fisheries Act 1994 to respond to unauthorised activities that impact negatively on fish stocks and fish habitats. A Restoration Notice may be issued to people causing impact, requiring restoration at their cost.

Restoration and enhancement of fish populations

A significant amount of research has been undertaken to determine optimum stocking rates for native freshwater fish species. A summary of the research has recently been published in the "Fish Stocking Manual" and is available on the DPI website.

The "Native Fish Management Strategy for the Murray Darling Basin⁶" document outlines a suite of actions that are necessary to rehabilitate fish populations in the Murray Darling Basin, including habitat rehabilitation. It is important that regional NRM plans in Queensland are consistent with the outcomes identified in this strategy (for Queensland). The document provides a useful summary of threats to freshwater fish populations and potential rehabilitation activities.

In addition, recent work by DPI on jungle perch provides a useful example on factors that can contribute to declines in fish populations in coastal catchments and offers suggestions on ways to address these problems. For further information see <http://www.dpi.qld.gov.au/far/13485.html>

Tropical aquatic biodiversity reports

A series of reports and scientific papers are available from DPI on bio-indicators, habitat requirements of fish, and impacts of land use on fish populations in river systems in north Queensland. See Appendix A.

Specialised species studies

DPI has done extensive scientific research on a range of marine and freshwater fish species including mangrove jack, barramundi, tailor, sooty grunter, threadfin salmon etc. There are also extensive databases of the fish species composition for a variety of catchments throughout the State. An example of the type of information that already exists can be viewed at www.dpi.qld.gov.au/fishweb/7096.html.

NRM State of the Region Reports

DPI officers have already assisted in the development of a State of the Region report for the Wet Tropics bioregion and can assist in the development of similar reports for other regions.

Commonwealth management of fisheries and marine resources

The Commonwealth Government has jurisdiction over the management of fisheries and marine resources in the Australian fishing zone (i.e. to 200 nautical miles from the Queensland coast), but has devolved management responsibility to the Queensland Government for most fisheries in waters adjacent to Queensland, except tuna and billfish and the Northern Prawn Fishery (in the Gulf of Carpentaria). For further information refer to www.affa.gov.au and www.afma.gov.au.

⁶ Expected to be released during 2004.
Author: Planning Arrangements Working Group
Date last modified: November 2003
Sunset review date: December 2004

The Great Barrier Reef Marine Park Authority (GBRMPA) is the Commonwealth agency responsible for planning and management of the Great Barrier Reef Marine Park, see www.gbrmpa.gov.au.

Opportunities for better integration

Some suggested approaches or steps that could be taken to progress integration and coordination opportunities between NRM regional bodies and DPI officers include:

- Encourage the development of operational links between NRM bodies' staff and DPI officers⁷, to enable the transfer of technical, scientific and policy information to regional bodies
- Where necessary, include DPI officers (both technical and policy) on Technical Advisory Panels
- Where new information or investigations are needed, encourage the development partnerships with DPI
- Encourage the integration of other government policies, programs and technical information relating to fisheries issues into regional NRM plans (e.g. Reef Protection Plan, State Coastal Management Plans, Regional Coastal Management Plans, see www.epa.qld.gov.au and issues such as stormwater management, water quality)
- Raise awareness of other plans such as the Local Government Planning Schemes.

Important contacts and support

For further information or information on fisheries issues, plans, policies, research and guidelines, contact DPI on 13 25 23 or go to their website www.dpi.qld.gov.au/fishweb or www.dpi.qld.gov.au/far. For information on opportunities to work collaboratively with DPI see <http://www.dpi.qld.gov.au/far/12287.html>.

⁷ Within DPI, officers from Queensland Fisheries Services (QFS) and Agency for Food and Fibre (AFFS) address fisheries issues.

Author: Planning Arrangements Working Group

Date last modified: November 2003

Sunset review date: December 2004

Appendix A (not an exhaustive list)

PUBLICATIONS (to obtain electronic versions of fisheries publications including the following, go to www.dpi.qld.gov.au)

Fish Habitat Management Operational Policies

Fish Habitat Management Operational Policy for the Management and Protection of Marine Plants: Departmental Assessment Procedures and Policy Position (FHMOP 001 (2002));

Marine Plant Policy Supplement 2003

Being revised - *Departmental Procedures for Permit Applications Assessment and Approvals to Perform Works or Related Activity in a Declared Fish Habitat Area* (FHMOP 002);

Departmental Procedures for Permit Applications Assessment and Approvals for Insect Pest Control in Coastal Wetlands (FHMOP 003); (PDF 186KB)

Dredging, Extraction and Spoil Disposal Activities: Departmental Procedures for Provision of Fisheries Comments (FHMOP 004);

Mitigation and Compensation for Activities and Works Causing Marine Fish Habitat Loss: Departmental Procedures (FHMOP 005); (PDF 175KB)

Fish Habitat Area Declaration and Review: Departmental Consultation Procedures (FHMOP 006); (PDF 575KB)

Fish Habitat Area Selection and Assessment: Departmental Procedures (FHMOP 007); (PDF 94KB)

Waterway Barrier Works Approvals and Fishway Assessments: Departmental Procedures (FHMOP 008); (PDF 314KB)

Restoration Notices for Fish Habitats - Formulation and Implementation: Departmental Procedures (FHMOP 009); (PDF 248KB)

Fish Habitat Guidelines

Fish Passage In Streams: Fisheries guidelines for design of stream crossings (FHG) 001

Restoration of Fish Habitats: Fisheries guidelines for marine areas (FHG 002)

Fish Habitat Buffer Zones: Fisheries Guidelines (FHG 003)

Mangrove Nurseries: Construction, Propagation and Planting - Fisheries Guidelines (FHG 004); (PDF 1,357KB)

Codes of Practice

Local Government Runnelling Works for Saltmarsh Mosquito Control: Fish Habitat Code of Practice for use with Strategic Permits issued under Section 51 of the Fisheries Act 1994 (FHC 001)

Local Government Works for Public Infrastructure Maintenance: Fish Habitat Code of Practice for use with Strategic Permits issued under Section 51 of the Fisheries Act 1994 (FHC 002)

Cane Growers On-farm Maintenance of Drains with Marine Plants: Fish Habitat Code of Practice for use with Strategic Permits issued under Section 51 of the Fisheries Act 1994 (FHC 003)

Maintenance of Power Lines and Associated Infrastructure: Fish Habitat Code of Practice for use with Strategic Permits issued under Section 51 of the Fisheries Act 1994 (FHC 004)

Technical guidelines

Declared Fish Habitat Areas in Queensland, February 1997

Berghuis A.P. and Long, P.E., (1999), The Freshwater Fishes of the Fitzroy Catchment, Central Queensland. Proc. R. Soc. Qld. (As a component of a multi discipline water quality project the authors sampled 21 sites across the Fitzroy Catchment. One site only coincided with Midgley's 1979 work.)

- Berghuis, A., (1997), *A Limited Fisheries Assessment of Bedford Weir, Mackenzie River, Central Queensland*. Department of Primary Industries, Queensland.
- Brooks S. G. and Kind P.K., *Ecology and demography of the Queensland lungfish Neoceratodus forsteri in the Burnett River, Queensland with reference to the impacts of Walla Weir and future water infrastructure development*. 158 pp.
- Brooks S. G. and Kind P.K., *Fish Communities in the Lower Burnett River Queensland with reference to the Walla Weir and future water infrastructure development*. 46 pp.
- Cogle A.L. et al, *Natural resources of the Barron River Catchment 2: Water quality, land use and land management interactions*. 87 pp.
- Heidenreich, M. and Broadfoot. C., (2001), *Migratory Fish Communities and Fish Passage options at Tartrus Weir, Mackenzie River*. Department of Primary Industries, Queensland.
- Hutchison M. et al, *Restoring jungle perch *Kuhlia rupestris* fisheries to south-east Qld: A pilot study*. 10 pp.
- Long P.E. and Meager B.J., (2000), *The Assessment of Eden Bann Weir Fishlock, Fitzroy River, Queensland, Supplementary Report (QI00069)*, Department of Primary Industries, Queensland.
- Long, P. E., (2000), *Fish Communities in the Dawson River – Weir and Riverine Environments*. In *River Health in the Fitzroy Catchment, Community Ownership*. Ed: Noble R. M. Department of Natural Resources, Queensland.
- Marsden T. J. et al, *Gooseponds Creek Fish Passage Project, Final Project Report*. (2003) 56 pp
- Marsden T. J. et al, *Reconstruction of Culverts and Causeways to Assist Migrations of Adult and Juvenile Fish Project, Final Project Report* 30 pp.
- Marsden T. J. et al, *Reconstruction of Culverts and Causeways to Assist Migrations of Adult and Juvenile Fish Project, Final Project Report* 30 pp.
- Marsden T. J. et al, *Rehabilitation of Freshwater Drains Project, Final Project Report (2003)* 47 pp
- Marsden, T J. and McGill, D. (In prep.) *Moura Weir Vertical-slot Fishway Assessment, Dawson River, Moura*. Department of Primary Industries, Queensland.
- Marsden, T J. and McGill, D. (In prep.) *Neville Hewitt Weir Fishlock Assessment, Dawson River, Baralaba*. Department of Primary Industries., Queensland
- Midgley, S.D (1979), *Fitzroy River Catchment Survey, a Report for the Queensland Fisheries Service*.
- Russell D. J., Hales P.W. and Helmke S.A., *Fish resources and stream habitat of the Moresby River catchment* 50 pp.
- Russell D. J., Hales P.W. and Helmke S.A., *Stream habitat and fish resources in the Russell and Mulgrave Rivers catchment*. 52 pp
- Russell D.J. et al, *Biology, management and genetic stock structure of mangrove jack *Lutjanus argentimaculatus* in Australia*. 189 pp.
- Russell D.J. et al, *Natural resources of the Barron River Catchment 1: Stream habitat, fisheries resources and biological indicators*. 108 pp.
- Simpson B. et al *Fish Stocking in Impoundments: A best practice manual for eastern and northern Australia*. 47 pp.
- Stuart I.G., (1997), *Assessment of a modified Vertical Slot Fish way, Fitzroy River, Queensland*. QO97023. Department of Primary Industries., Queensland.
- Stuart I.G. and Berghuis A.P, (1997), *Assessment of Eden Bann Weir Fishlock, Fitzroy River, Queensland*. Department of Primary Industries, Queensland.