



Preparing ^a stormwater drain management plan *in coastal areas*

Stormwater infrastructure is essential for quality of life, safety and health in urban environments. It is also increasingly recognised that open stormwater systems can provide environmental benefits and habitat for aquatic plants and animals. Improving the quality of stormwater can also reduce the pollution of downstream receiving waters and improve in-stream habitat for native fish.

This is the fourth factsheet in a series designed to inform drain managers how stormwater drains can be managed to improve their habitat value and to assist in implementing the National Recovery Plan for the endangered Oxleyan pygmy perch (*Nannoperca oxleyana*), a small native fish which inhabits wetlands in coastal NSW. The other factsheets are:

- Assessing the habitat values of stormwater drains in coastal areas (#1)
- Managing coastal stormwater drains for fish habitat (#2)
- Retrofitting drains using *Water Sensitive Urban Design* (WSUD) principles (#3)

The need for a DMP

Preparation of a Drainage Management Plan (DMP) is one of the actions listed within the National Recovery Plan for the Oxleyan pygmy perch (*Nannoperca oxleyana*) (OPP). These small, native fish are listed as 'endangered'¹ and as such the occurrence of these fish within, upstream and downstream of drains poses legal and management issues. A DMP can guide development and maintenance activities. It also shows how minimising threats associated with OPP populations can also benefit native fish in general.

A DMP will usually be one of a suite of management tools that a Council or other management authority can use to protect native fish populations. Other tools can include:

- Stormwater Management Plan
- Estuary Management Plan
- Development Control Plans
- Asset Management Plan
- controls placed on individual developments
- projects relating to on-ground rehabilitation, community education and staff training.

¹ 'Endangered' under the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999* and the *NSW Fisheries Management Act 1994*.

The purpose of a DMP

The purpose of a DMP is to:

- identify priority drainage schemes where native fish habitat issues must be addressed during maintenance and construction activities
- provide Council with a practical guide for drain management, construction and maintenance procedures in order to minimise impacts on native fish populations and habitat and to meet legislative requirements
- implement actions consistent with the National Recovery Plan for OPP or other native fish
- be a component of, and supporting document for, any legal agreement between the Council and State and / or Federal agencies to undertake drain maintenance.



One of the priority sites in the Richmond Valley Council area. Habitat management and drainage issues were complicated by this site's listing on the NSW Heritage Register. Photo: I&I NSW

Preparing the DMP

Identify scope

- Define the areas and types of drainage schemes that the DMP will apply to.

Identify site characteristics

- Map the topography, soils, drainage (including groundwater) and any areas of special concern, for example, acid sulphate soils. Predictive mapping of sea level changes due to global warming is advisable.
- Collect data on rainfall. It is important to note periods when high rainfall events tend to occur.
- Collate data on water quality and trends. Sampling sites should be mapped to ensure consistency of data collection over time.

Identify actual & potential OPP sites

- Map the location of known and potential OPP (or other native fish species) habitat. 'Hot spots' include areas where known habitat occurs within a drainage system. State and Commonwealth agencies can be useful sources of data.
- Be mindful of using very detailed maps during public consultation. Collectors have been known to use such maps to denude sites of specimens.

Identify relevant legislation

- Site characteristics may mean that unanticipated legislation becomes applicable. For example, the identification of heritage issues, cultural artefacts or other listed species.

Identify best practice drain management practices

- Identify current drain management needs and the approaches and equipment used.
- Identify alternatives, where necessary, to minimise impact on native fish habitat.

Identify strategies for new drainage schemes

- New schemes provide opportunities to install 'treatment trains' (see Factsheet #3) and other mechanisms to manage stormwater with minimal impact on fish habitat.

Identify options for existing drainage schemes

- Identify options for retrofitting source reduction at individual lot level and / or treatment trains to whole or parts of the drainage system.
- Identify options specific to fish habitat 'hot spots'.

Review other fish habitat issues

- Other issues affecting fish habitat that are relevant to drainage management include road crossings, bank vegetation and flow control devices that might impede fish migration.

Develop education & awareness raising strategies

- Identify key stakeholders and develop strategies to raise awareness about OPP and fish habitat in stormwater drains in general, and about Council's regulatory responsibilities.

Develop a monitoring program

- Ensure monitoring activities are consistent with routine maintenance activities wherever possible.
- Identify other agencies who do monitoring or otherwise have data that can be used and organise agreements for access to this data.

Engage with Council staff, government agencies, affected landholders and the general community

- The DMP needs to become normal business for people whose activities impact upon or who are affected by the drainage system.



A site visit during the development of the DMP can be an effective way of building awareness and capturing expertise.
Photo: I&I NSW

For more information and technical advice, contact:

Industry and Investment NSW
Fisheries Conservation and Aquaculture Branch
Wollongbar Primary Industries Institute
Telephone: 02 6626 1200
www.dpi.nsw.gov.au/fisheries

These factsheets are part of ongoing commitment to improving the aquatic habitat values of stormwater drainage systems and to assist with the implementation of the Recovery Plan for the Oxleyan pygmy perch by Richmond Valley Council and Industry and Investment NSW, supported by the NSW Government through its Environmental Trust.