

MANAGING THE RIVER CHANNEL

Importance of the river channel

Rivers are dynamic systems that will, over time, naturally change course through the processes of erosion, sedimentation and avulsion. However, because of activities in the catchment, these processes may be occurring more quickly than they would naturally. Because of human settlement and use of the floodplain, their impact on regional communities can be significant.

Floods can cause significant bed and bank erosion, which can often lead to loss of major public assets (e.g. roads and bridges) and of significant areas of private land. The damage to regional communities from floods can be devastating.

Thirty to 40 years ago, the major focus for river management was on the conveyance of flood waters and the protection of assets against erosion.

Whilst there is still a major need to manage bed and bank erosion and to protect high value public infrastructure assets, there is also a much better environmental understanding of the importance of river channels, particularly to provide in stream habitat.

The components of the channel that are important in determining the quality of instream habitat are:

- substrate type and diversity, such as the presence of pools and riffles, cobbles, sand;
- channel shape, which influences aspects like water depth, velocity and quality as well as the presence of backwaters and undercut banks;
- presence of woody debris;
- presence of riparian vegetation; and
- connectivity – the degree to which there is access for biota, organic material and sediments to move both along the river and laterally into floodplains and wetlands.

Flora and fauna that live in rivers will be affected by changes to the presence or amount of any component of physical habitat in the rivers.

The main issues

Issues or activities that can affect the capacity of the channel to provide in-stream habitat include:

- bed and bank erosion;
- mobilisation and deposition of sediment;
- removal of instream woody debris;
- activities that physically disturb the substrate, such as dredging, bridge building; and
- introduction of barriers.

There are a number of issues associated with the management of the river channel. These include:

- making decisions on how much investment should be put into:
 - protection of assets from bed and bank erosion which requires decisions on the level of risk acceptable to the community, and the quality of the work undertaken;
 - restoration of instream habitat and connectivity to protect and restore environmental values; and
 - relative importance of asset protection and restoration activities; and
- preventing damage to the channel and its capacity to provide instream habitat from other activities.

The final issue is the management of fish resources. These may be an asset or a threat to river health. This includes management of non-indigenous fish, stocking and fishing.

Solving these issues requires a management framework that has:

- clear management objectives and priorities for protection and restoration based on consideration of the value of the community assets and the level of acceptable risk;
- consistent guidelines governing the level and quality of protection and restoration activities; and
- clear policies, relating to the management of other activities, that are aimed at preventing damage to the channel.

For management of the river channel the VRHS:

- Establishes a framework for determining priorities for protection and restoration, based on an assessment of the importance of the assets and the threats to them.
- Provides direction for the management of in-channel structures to improve their environmental performance. This includes provision of fishways and modification to the design or operation of regulating structures.
- Prohibits the removal of in-stream woody debris, except where human life or high value assets are threatened.
- Requires that guidelines for restoration work will be reviewed and revised to ensure that restoration work is carried out to a high standard.
- Sets direction for new works on waterways, ensuring that these will only proceed where they maintain or improve environmental values.