Case Studies

Long-finned eels *(Anguilla reinhardtii)*, have been found living in Illawarra wetlands and have a very interesting life cycle. Adult eels migrate to the Coral Sea where they spawn. The larval eels travel back to eastern Australia on ocean currents, and migrate through estuaries into the fresh water section of streams. The eels live in freshwater until they mature which may take 10-20 years. At this time female eels may have grown to 1.5m in length and up to 22kg, male eels do not grow to be as large. Once mature the eel will migrate the vast distance back to its spawning grounds, where the cycle will begin again.

Sea mullet *(Mugil cephalus)* are one of the common fish found in Illawarra estuaries and wetlands. Sea mullet spend a large part of their life in estuaries where they feed on algae, detritus and small organisms. At maturity (usually at about three years old) mullet leave the estuary to spawn in the ocean where they can produce millions of eggs.

There are many native 'gudgeons' in the Illawarra. The most commonly found in Illawarra estuarine wetlands is the flathead gudgeon *(Philypnodon grandiceps)*. Gudgeons are small, usually growing to between 3-10cm, making identification difficult. Although there are many species of gudgeon little is known about their biology and ecology. They are increasingly becoming aquarium fish due to their attractiveness, small size and their adaptability to aquariums.

Yellowfin bream which spend their first few years in shallow waters of estuaries and lagoons.

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Bellambi Lagoon

Further Reading

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Protecting Estuarine Fish in Illawarra Wetlands

TCM Total Catchment Management
Community And Government Working Together

Why are Estuaries and Wetlands Important?

Estuaries and wetlands are recognised as important fisheries habitats, particularly as nurseries for juvenile fish. Many economically important species of fish live in estuaries for at least part of their life cycles. Examples are, mullet, bream, whiting and some species of flathead. Estuarine wetlands, such as seagrasses, mangroves and saltmarshes provide shelter and food that fish depend upon.

Since European settlement in the Illawarra over 1500 ha of wetlands have been reclaimed for industrial, urban, sporting and agricultural purposes (Chafer, 1997). Many other wetlands have become degraded as a result of human activity. The community can play an important role in their management and protection, so that these estuarine areas remain viable habitats for fish and other animals.

In order to protect remaining wetlands we need to understand the role they play as fish habitats. The University of Wollongong and the Illawarra Catchm Management Committee have completed a study of 11 Illawarra estuarine wetlands that has provided baseline data on fish communities in these wetlands. The wetlands sampled include:
Stanwell Creek, Stoney Creek, Hewitts Creek, Tramway Creek, Slacky Creek, Bellambi Creek, Bellambi Lagoon, Towradgi Creek, Fairy Creek, Werri Lagoon and Crooked River.

Sampling Fish in Shallow Waters

What have we found out about fish in Illawarra Estuarine Vetlands?

- 11 estuaries from Stanwell Park to Gerroa were surveyed for fish. The fish caught were identified and counted, their length was measured if they were of commercial or recreational significance. Captured fish were returned to the estuary.
- Surveys were carried out each season from the summer of 1996/97 to the summer of 1997/98.
- About 30,000 fish of 45 species were captured. The majority were less than 12 cm in length, verifying the importance of these habitats for juvenile fish.
- 21 species of fish of commercial and/or recreational significance were captured. The most commonly caught commercial species were sand mullet (*Myxus elongatus*), sandy sprat (*Hyperlophus vittatus*), sand whiting (*Sillago ciliata*) and sea mullet (*Mugil cephalus*). At least two species of commercial importance were found in each estuary.
- The introduced mosquito fish (*Gambusia holbrooki*) was among the most commonly caught fish. This species has been implicated in the decline in frog numbers due to its predation upon tadpoles.
- The more marine wetland areas, such as Fairy Creek and Crooked River, contain significant beds of seagrass and were found to have the largest numbers of fish and the highest diversity of fish species.

Protecting Fish in Illawarra Wetlands

When fishing, understand and adhere to relevant angling laws, particularly those concerning legal lengths and bag limits.

Don't wash detergent down stormwater drains or dump grass clippings and garden waste near local waterways. The oxygen content of water can be severely affected by nutrients and algal blooms, leading to 'fish kills'.

Don't wash litter, oil, paint or other toxic substances into stormwater drains, they will usually end up in local waterways or the ocean, where fish live and people l to swim.

The best way to control introduced fish species is to prevent their release into waterways. Introduced species, such as most aquarium fish, not only compete with native fish for food and other resources, but can introduce disease.

Play a part in the planning of new developments in your area that affect estuarine wetlands, lagoons and other natural areas. This can be done by providing your local council with feedback on proposed developments when plans are exhibited.

Maintain vegetation around wetlands; these buffer zones protect the wetland and enhance diversity in the area.

Join a local landcare or bushcare group to help restore vegetation around estuarine wetlands. Protecting or restoring vegetation not only provides a suitable habitat for animals but also controls erosion.

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