

New South Wales

Don't shoot the messenger

Environmental damage is costing the fishing industry of New South Wales dollars and jobs

A sustainable fishing industry depends as much, if not more, on a clean and healthy environment as it does on controls on harvesting pressure. In New South Wales (NSW), nearly two-thirds of the fish and shellfish spend some part of their life cycles in estuaries, and the bulk of fishing effort is concentrated in the nearshore zone.

Fishermen are affected by environmental damage in a number of ways. These can be categorized as follows:

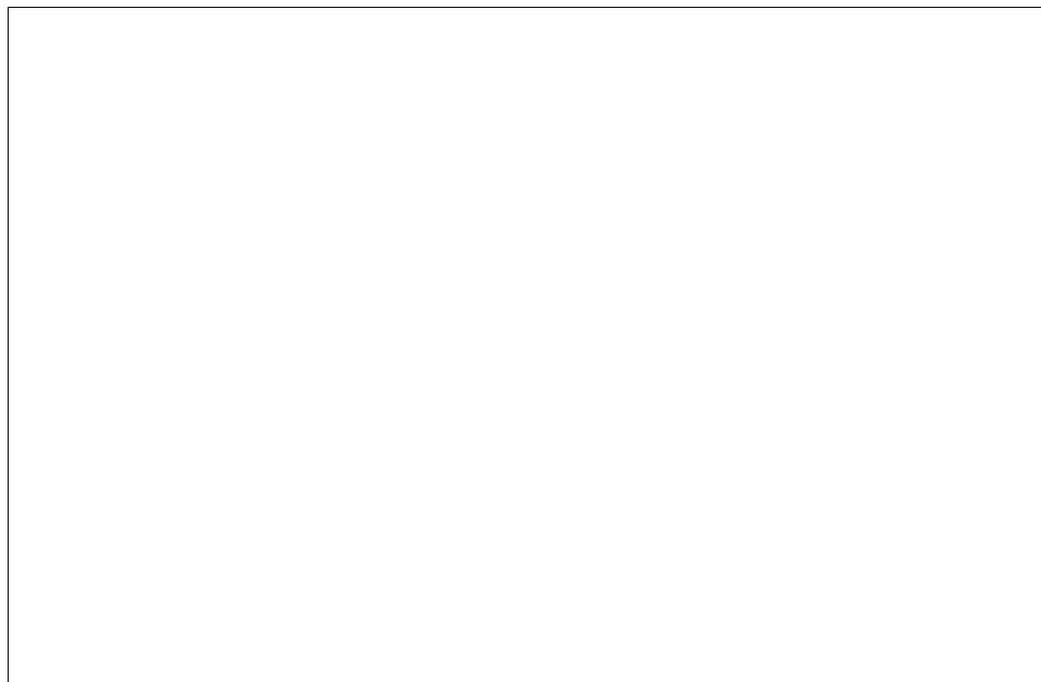
1. Reduction in stock. Pollution and the loss of vital fish habitats can reduce the numbers of fish being recruited into the fishery. There are well documented cases of reductions in both the number of species and individual animals caused by industrial pollution and urban/agricultural *run-off*. Floodgates, dams and weirs prevent fish access to spawning grounds, thus also reducing stock availability. Sea grass loss in NSW is phenomenal (a 50 per cent loss in the past 40 years) and this has reduced the nursery area available for juvenile fish and prawns.
2. Contamination and disease. Fish which are contaminated or diseased are unmarketable and the industry, at times, loses hundreds of thousands of dollars due to disease. The most common disease is the fungal infection called red spot, which is related to the input of acid water from overdrained wetlands. Public concern about contamination (even though this is relatively uncommon) has cost the industry millions of dollars through lost sales.
3. Loss of access to fishing grounds. Large areas of waterways are now inaccessible to fishermen due to blockages by weirs, dams and floodgates. Indeed, some areas that were once fishable waterways are now dry land. Smaller areas near big cities have been lost due to closures arising from contamination by substances such as dioxins.
4. Increased pressure for fishery closures. Recreational or sport fishing catch on the NSW coast is at least equal to the commercial catch. In the estuaries, the recreational catch of some species is almost 100 times more than the commercial catch in some areas. As the environmental squeeze on fish increases, the pressure for resource re-allocation from the recreational sector also increases. Indeed, there are already proposals for the complete removal of all commercial fishing within three nautical miles offshore.

The costs resulting from these problems are difficult to ascertain but it is not unreasonable to estimate them in the order of millions of dollars. The trickle-down effects into the community of the loss of commercial fishing activity are also difficult to quantify, but we do know that each dollar earned by a fisherman generates at least another dollar in the community.

Costs involved

The costs to tourism also need to be taken into consideration, as do the costs to aquaculture operations such as oyster farming.

What we are experiencing in NSW is unique to neither Australia nor many



other countries of the world. The eastern states of Australia have problems similar to many areas in the US, Europe, the Middle East and Asia. From experience in the northern hemisphere, it is clear that the costs of repairing the damage are phenomenal, and that a case for preventing further damage by protecting fish habitats and managing them with a long-term view in mind is easier and cheaper to implement. It also makes common sense.

The NSW commercial fishing industry has made a major commitment to protecting fish habitats and the broader aquatic environment throughout the state. Fishermen have done this principally through the Commercial Fishing Advisory Council and Ocean Watch, but many have become greatly involved in environmental issues personally at a local level.

The common goal is to protect and enhance the natural environment and ensure that healthy fish stocks are available for future generations of fishermen (commercial and recreational) as well as seafood consumers.

In terms of fish habitats, there is little doubt in the minds of fishermen that these have been heavily affected over the past 100 years and that we are starting from low base in trying to both protect what is

left and also restore whatever habitats we can.

Fish habitats can be broken down into four regions: inland and three coastal regions defined as the areas from the Queensland border to the Manning River, the Manning to the Shoalhaven, and the Shoalhaven to the Victorian border.

Some types of habitat losses are common to all regions. These include those arising from the impact of urban development and the construction of roads and railways. The latter facilities often have culverts which block fish passage. Inland fish habitats are in dire straits and enormous problems have been caused to the commercial fishing industry largely due to the huge impact of agricultural activities.

Loss of habitats

The loss of fish habitats has been attributed to many things, such as, too much water being removed from the rivers; blockages to fish passage by dams, weirs and river regulators; introduced species like carp, trout and redfin; wetland drainage; pollution by nutrients and pesticides; prevention of water from reaching spawning areas such as billabongs by floods and small rises in the river; and, reversal of flow seasonality (especially from melting snow into the Murrumbidgee river).

It is not surprising that the only threatened and endangered fish species in NSW, such as trout cod, are in inland waters. Some species which were once commercially valuable have almost disappeared, despite radical reduction in the numbers of commercial fishermen. Such species include silver perch and the freshwater catfish. Trout cod continue to disappear, despite being totally protected from fishing.

The region from the Manning River north to the Queensland border is characterized by the existence of large 'barrier' river estuaries, such as the Manning and Clarence Rivers. These rivers have large floodplains which once supported extensive wetlands.

Over the years, the floodplains have been heavily modified by land drainage and flood mitigation systems to enable agricultural activities like cattle grazing and sugar cane production. Losses and modifications to habitats have been extensive. Wetlands have been lost due to drainage and reclamation and many creeks have been floodgated. Unrestricted access by cattle to the banks of waterways has resulted in a loss of riparian vegetation and has accelerated bank erosion.

Flood mitigation works have reduced the frequency of wetland inundation, removed riparian vegetation and straightened waterways, as well as exposed acid sulphate soils. Dams and weirs have blocked access by fish such as mullet and bass, and have led to the decline in bass numbers in some waterways.

The drainage and lowering of wetland water tables have exposed acid sulphate soils, which leach huge quantities of acid water into creeks and waterways. This causes fish kills and loss of food organisms and sea grasses. It also leads to fish diseases such as red spot.

The quality of the water in the rivers is highly variable, but there does seem to be a problem emerging with excess nutrients and bacteria (*F. coli*). These pollutants come from both agricultural activities and sewage disposal. It is somewhat of an irony that the current opposition over

ocean outfall is actually causing more sewage pollution due to the upgrades of estuarine outfall of sewage disposal.

Excess bacteria are mainly a problem for the oyster industry but can be a problem where prawns are cooked in river water. Nutrients may benefit in small doses, but any further increases may result in blooms of toxic algae. Minor losses of habitats continue to occur via sand and gravel extraction, dredging and reclamation of wetlands for housing and urban run-off.

The region south from the Manning River to the Shoalhaven River is characterized by a mix of large, shallow estuarine lakes and several drowned river valleys, including Port Stephens and the Hawkesbury River.

This region supports the major proportion of NSW's population and its problems relate primarily to the effects of urban development. Sydney harbour demonstrates just how hardy many species of fish and shellfish can be. The fact that it still supports a small commercial fishery should be a source of pride to Sydney-siders, given the abuse of fish habitats that has occurred over the past 200 years.

The harbour has lost many wetlands, and many tributaries are nothing more than storm water drains. Major pollution problems exist in some bays, such as the Olympic Games venue of Homebush Bay, where dioxin pollution has closed the fin fish fisheries for some six years.

Direct industrial pollution of the Parramatta River has been substantially reduced (by transferring to ocean sewers), but the critical problem of urban run-off has not been properly addressed.

Several pollutants

Urban run-off contains a wide variety of pollutants such as nutrients, *F. coli*, heavy metals, pesticides and silt. It is a major problem in coastal lakes such as Tuggerah, Illawarra and Macquarie. Siltation rates are up to 30 times the natural rate in Lake Illawarra, and nutrient inputs have caused excessive algal growth (eutrophication) in Tuggerah and Illawarra. Catchment controls are inadequate and 'band-aid' solutions such

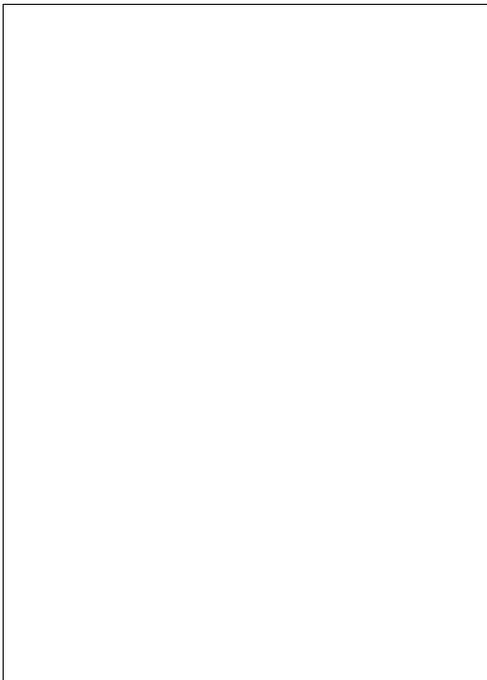
as shallow dredging have resulted in losses of sea grass. Another threat to these two lake systems is sand mining.

Although Wallis Lake does not face these problems yet, the continuing urbanization of the lake, especially on the western side, will result in these problems cropping up in the not too distant future.

The Hawkesbury and Georges Rivers have many similar problems, such as fish migration blockages, urban run-off and loss of habitats, especially by sand extraction operations. The Shoalhaven River shares many of the problems of the northern rivers. It too is a barrier river estuary with an acid soil problem and loss of wetlands due to land drainage for agriculture and flood mitigation. The Shoalhaven also has a major dam (Tallowa) which modifies flows to the river and prevents fish migration. Port Stephens is a fish producing machine that should be better looked after.

Wetland losses have been significant and continuing. There are huge pressures on the small villages in the area from tourism developments. Sea grass loss due to marina developments has already occurred.

The South Coast is characterized by small estuaries (except the Clyde) and supports many lagoons that may only occasionally open to the sea. It is sparsely populated,



but subject to enormous development pressure by tourists and retired people. With a few exceptions, most of the waterways on the south coast appear to be in relatively good shape.

Trunketabells Lagoon, just north of Bodalla, has a serious eutrophication problem, but funds have recently been allocated to assist this, if only by increasing the flushing of the area. (Eutrophication involves pollution by fertilizers, detergents and other nutrients that cause excessive growth of algae and other pest plants.) Wetland losses have also occurred, but their true extent is unknown.

The major source of concern is the expansion of urban development around the small estuaries, which have little capacity to deal with run-off. Major expansion is proposed around St. Georges Basin (which may already have nutrients in excess), Burill Lake and Wallaga Lake, amongst others. Other developments which will affect the area include an expanded canal estate at Sussex Inlet and a caravan park at Cullendulla Creek.

A major source of concern is the management of the opening of the small coastal lagoons. Prior to human intervention, these lagoons closed off during dry periods and opened up when a mix of high water levels and big sea tides removed the sand bar at the entrance.

However, due to the settlement of areas within the zone that may be flooded by rising lake levels, these lagoons are now commonly opened artificially.

Despite many representations by fishermen and the NSW Fisheries Department, the control over such openings rests with council and state government engineers, who have refused to find out which is the most appropriate time to open these Lagoons. This problem occurs along the north and central coasts.

Restoration needed

The inland waterways are in urgent need of restoration. Immediate attention to the allocation of environmental flows of water and the removal of migration blockages is needed if fish are to have any chance of recovery.

Unfortunately, it appears that the commercial fishery is to be treated as the sacrificial lamb, due to the incapacity of the government to tackle big problems: better to shoot the messenger than make the hard decisions.

Both the northern and central regions of the NSW coast have experienced substantial habitat losses. The priority has to be a focus on restoration. There are big wins to be made for habitat conservation if funds and political will are forthcoming.

Unfortunately, it seems that the government largesse has dried up. Alternative sources of funds need to be found for progress to be made.

The south coast is still in relatively good shape, but the small size of the estuaries calls for extreme caution if the problems found to the north are to be avoided. Good planning and implementation of workable catchment *run-off* controls are vital if estuaries are to be protected.

These environmental consequences can be summarized as physical impacts (wetland drainage; flood mitigation; dams and weirs; loss of riparian vegetation; dredging and mining; environmental flows, including wetland flooding) and pollution (sewage pollution; acid soil run-off; agricultural run-off)

Ocean Watch believes that an integrated program that addresses these issues will go a long way towards restoring fish habitats and fish production. ♣

This article is by Duncan Leadbitter,
Executive Director, Ocean Watch,
Australia