



## ***GUIDELINES***

# ***CRITERIA FOR THE PROTECTION OF RECREATIONAL FISHING HABITAT***

Recreational fishing can be adversely affected by many human development activities and Recfishwest is concerned to insure that responsible authorities are aware of the potential impact of such developments on fish habitat. To a considerable extent, it shares these concerns with the professional fishing industry. However, Recfishwest wishes to emphasise that recreational fishing has quite broad interests in habitat. Recreational fishing is not merely a matter of going out to get enough fish to eat, nor is it just a competitive sport in which one catches the most, or the biggest fish, or the greatest variety of species. For some people there are elements of each of these things; but overall recreational fishing is a total experience, the value of which far exceeds the market value of the fish caught. For most recreational fishers there is a substantial element of aesthetic enjoyment of the environment in which the fishing takes place. Recreational fishers also enjoy the feeling of freedom and the possibilities for unusual and exciting experiences which are a feature of natural environments retaining maximum diversity. Although by no means all recreational fishing takes place under these conditions, an unspoiled environment must be recognised as a significant value for fishing habitat.

### **1. Recreational fishing habitat values**

The concern of recreational fishers over fishing habitat is driven by a desire to protect the characteristics which they value. A simple description of some of those values is given below.

#### **Access**

Access to the water is an essential part of fishing whether it be river bank, beach, boat launching sites or jetties. As well as requiring general access, recreational fishers place particular value on the unusual, such as rocky outcrops on sandy coasts and conversely sandy beaches on rocky coasts. This value is sometimes due to fish accumulation; but it also may enable a different kind of fishing. Developments which inhibit access to, or modify, or remove unusual significant features are deleterious to recreational fishing. The ability to explore for fish over an unlimited area is highly valued and artificial boundaries are conversely resented.

### **Biomass / productivity**

The productivity of fish and other marine or aquatic life at a site is vitally important to all kinds of fishing. Of course every fisher wants to catch fish and wants to catch bigger and more exciting fish. This means that some areas, like reefs, which support higher fish numbers, have specially high value. Anything that reduces productivity, like impaired water quality, or increased turbidity is deleterious. However, the converse does not necessarily apply - enhanced productivity, by nutrient enrichment for example, is likely to lead to change in species composition and can be harmful.

### **Biodiversity**

Fishers are conservationists and appreciate the full range of marine or aquatic life for its own sake and consider it important that no components of the ecosystem are removed from a fishing habitat site. All the living part of the ecosystem, the biota, contributes to the food chains which may support targeted fish species. High biodiversity is also valued by fishers because it provides treasured opportunities to observe unusual and interesting things such as whale sharks, frigate birds, penguins fishing or sailfish jumping.

### **Total environmental quality**

Because recreational fishing involves a variety of benefits, anything that reduces the quality of the environment in which it is carried out can be harmful. Fishing is a traditional activity which is appropriately carried out in natural habitats. Floating rubbish or oil slicks degrade that habitat. Similarly, destruction of visual amenity by obtrusive ugly structures, or excessive noise, discoloured water or industrial fumes reduce the value of that environment as a fishing habitat.

## **2. Environmental Protection Criteria for fish habitat**

The following factors all have the potential to affect fishing, fish productivity or biodiversity. Some, like toxic chemicals, are harmful and need to be prevented or monitored to acceptable levels. Other factors, like the presence of seagrass, are reminders that action may need to be taken to protect an important and vulnerable part of the ecosystem.

### **Chemical pollution**

This covers a range of toxic, and potentially harmful chemicals including heavy metals, metallo-organic compounds and hydrocarbons. The harmful effect depends on the specific chemical and the concentration. Chemical pollution can best be dealt with by adhering to a set of water quality standards like the draft Environmental Quality Objectives proposed in the Southern Metropolitan Coastal Waters Study. Recfishwest wishes to support the recommendations in that study, recognising that they may need to be amended as further information is collected.

### **Obstacles to fish passage**

Fish movement can be necessary for breeding or other life cycle migration and dams on rivers or other structures may inhibit or prevent such movement. The inclusion of adequately designed fish ladders in dams or other methods should be used to overcome such problems.

### **Changes to water flow**

This can have significant effects both in inland and marine waters. For example, the Garden Island Causeway has reduced the flushing of Cockburn Sound and thus contributed to its problems

### **Nutrient enhancement**

Although nutrient enhancement, usually due to increased nitrogen or phosphorus levels, frequently increases biomass productivity, it will often lead to changes in species composition and can lead to algal blooms. Algal blooms with toxic organisms are directly harmful; but the collapse of any algal bloom causes reduced oxygen levels. In general, nutrient enhancement should be avoided and always must be controlled.

### **Mangroves**

Mangroves are a characteristic feature of parts of the WA coastline and have an important role in the ecosystem in these areas. They should always be protected.

### **Coral reef**

Where coral is a major component of a reef structure, special protection of the reef is warranted. Coral reefs have high biodiversity and provide a habitat for many fish.

### **Seagrass**

Seagrass is an important primary producer in marine ecosystems. It is estimated that healthy seagrass produced about 5-6 tonnes dry matter per hectare annually in Cockburn Sound. This is a very large contribution into the base of the food chain. It also provides protected habitat for juvenile fish. It is such a vital component of the ecosystem in coastal waters of WA that it warrants high priority protection.

### **Oxygen depletion**

Anything which reduces oxygen levels in water bodies has the potential to be harmful. Low oxygen levels can result from eutrophic conditions following an algal bloom or other introduced organic matter. Oxygen level in water above organic sediments can be dependent on the degree of mixing and exchange of water and can thus be affected by structures.

### **Salinity regime**

Most biota are sensitive to salinity so any changes can have adverse affects. This can happen in salt ponds, effluent discharges etc.

### **Sediment disturbance**

A variety of activities can disturb sediments such as dredging, filling, removal of protective banks, and erosion. Harmful effects can include reduction of light penetration and nutrient or toxic material release.

### **Vegetation destruction**

Apart from mangroves and seagrass, other types of vegetation can be important to recreational fishing including fringing vegetation and snags in streams.

### **Exotic organisms**

At least 18 species have already been introduced into Perth coastal waters, probably from ballast discharge. There are many possible sources for introduction and all have the potential to damage local ecosystems and fishing in both marine and inland environments.

## **3. Developments which can have impacts on recreational fishing habitat**

Some broad categories of developments which may have an impact on fishing habitat are listed below. It is the opinion of Recfishwest that any development which comes into one of these categories may need to consult with appropriate fishing interests and should seek advice from Fisheries WA.. If the development seems likely to have a significant impact, formal assessment should be considered through the Environmental Protection Authority.

In many cases management programs will be required which will involve ongoing monitoring to insure that the impacts of a development remain within the expected and acceptable limits.

### **Development activities with potential impacts for marine recreational fishing habitat**

Any activity on the sea . This includes aquaculture sites, artificial reefs, underwater pipelines, ocean dumping, filling, enclosures for any purpose etc. Temporary activities, such as oil exploration, also need appropriate attention including consideration of aspects such as timing.

Any activity on the coastline. This could include a wide variety of developments on the shore such as harbours, coastal groynes, bunds or walls, and industrial or commercial structures. Any activity involving direct discharge into the sea. This includes drainage discharge from urban, industrial or agricultural areas, industrial effluent disposal, domestic waste-water disposal, industrial cooling water intake and disposal, and industrial and commercial surface wash-down. Near coastal activities resulting in nutrient or chemical ground water discharge. It is necessary to limit the flow of harmful chemicals or nutrients in ground water discharge to the sea. If the intake area is close to the coast and in sandy soils of low water-holding and ion exchange capacity, or the quantities discharged are high enough to saturate any buffering capacity, then specific consideration needs to be given to prevent excessive contaminants from entering the groundwater.

### **Developments on or adjacent to estuaries**

All of the types of developments discussed for marine habitat also have the potential to affect fishing habitat in estuarine areas. Of course, potential impacts are likely to be greater due to the smaller water body and restricted water exchange.

Specific concerns for estuaries are:-

Canal developments. The dredging and channel construction can disturb sediments which reduce water clarity and release nutrients.

Dredging and reclamation of tidal/flood-prone areas. Shallow sand banks and mud flats are a functioning part of the natural system.

Land management in the catchments of the river/estuary system. Changes in the catchment such as increased fertiliser use will increase nutrient loading to the estuary. Similarly, increased cultivation will probably increase silt load.

### **Developments affecting freshwater fishing habitats**

These habitats are very sensitive to disturbance because of the lower water volumes and periods when water exchange is nil or at very low rates. The high ratio of shore to water makes these habitats vulnerable to disturbance of fringing vegetation and obtrusive developments. Any developments close to permanent lakes, streams or rivers may need investigation.