

CHAIRPERSON'S INTRODUCTION

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Introduction

The management of fisheries cannot be effective without the integration of stock management with management of the habitat and environment upon which these living systems depend.

As information grows, the relationships between fish populations and fish habitats become better understood but there remain many questions yet to be answered. In the meantime policies and management programs need to be implemented to protect and conserve, and where appropriate restore, remaining fish habitat quality and quantity.

In developing policies the objectives must be clearly defined and the expected outcomes identifiable or measurable. Fish habitat management programs need to set a policy framework including the general underlying question, i.e. *What is happening to fish habitats and what do we need to achieve?*

Should we aim to:

- restore or rebuild lost habitat?
- maintain the status quo—no further loss?
- maintain the area of critical habitats as understood?
- protect the diversity of habitat types and their relative proportions?

And:

- What environmental factors are central to effective habitat management?

The answers to these questions will depend largely upon what we know now and this is certainly an incomplete understanding.

Canada's Department of Fisheries and Oceans has a policy to increase the productive capacity of habitats for the nation's fisheries resources. This has as its guiding principle that there be no net loss of fish habitat and provides for compensatory habitat where losses are likely to be incurred through development.

NSW Fisheries has as its major objective to protect the diversity of habitats as functional units with special emphasis on protection and restoration of critical habitats.

Habitat management strategies

Strategies involved in habitat management programs include amelioration, enhancement and conservation measures. For the purposes of this workshop, amelioration is defined as measures to improve a degraded environment or restore a habitat. Enhancement can be considered as the means to add some additional productivity. Conservation is the suite of measures that aim to protect the remaining natural habitats and ecosystem integrity.

Determining when and where these strategies are to be used requires localised knowledge, accurate recognition of the problem and a capacity to monitor the ecosystem response.

Amelioration

The types of habitat degradation or inadequate environmental management which are appropriate for amelioration include:

- controlling point source pollutants—pollution reduction programs;
- restore flushing and tidal exchange to impacted wetlands or landlocked coastal lakes;
- revegetation of aquatic and riparian habitats;
- return streamflows to meet instream needs;
- provision of fish passage facilities.

Who's responsible?

The legislative provisions and agency responsibility may well lie in several different government portfolios. Furthermore these programs may also require a coordinated effort between private companies, individual land owners, and local government. Often a combination of policies and legislation is required to achieve amelioration.

Who should pay for amelioration?

The costs of undertaking these programs could be subsidised by levies on polluters, poor land managers, large scale water users, etc.. Given the problem of identifying individuals responsible in the majority of cases, these costs are more commonly borne by governments. This may partially account for the limited amelioration which is undertaken.

Enhancement

Enhancement is usually applied where a particular opportunity exists or is created. Compensatory habitats, artificial substrates and man-made habitats, or stocking programs could be included in this category. These opportunities are a valuable learning tool as well as a step towards returning some component of lost productivity.

The objective in this strategy would be to increase the ecosystem productivity, fish abundance or diversity, or possibly to replace or increase the area of a particular habitat.

The scope to undertake enhancement may be affected by whether or not the owner of the land, lake, seabed etc. is in agreement. Generally most works would be undertaken on Crown-owned lands or leaseholds. This is the case for a project being undertaken on Kooragang Island in the Hunter River, NSW, whereby leasehold land is proposed to be re-levelled and channels created to provide for wetland creation.

Compensatory habitat creation is a tool which could be legislated for as a means to amend damage from illegal activities or restitution. The more likely application is the negotiation of compensatory habitat with developers who seek to destroy or modify an area of naturally occurring habitat. The costs are met by the proponent developer in a form similar to "polluter pays". One needs to ask: Is this likely to be as effective as natural habitat, and if not, how much replacement habitat would be appropriate?

Conservation

One of the first questions to consider is: Should we concentrate on species conservation or ecosystem conservation? The capability of the aquatic environments to be productive and sustain fisheries is dependent on a functional ecosystem. However, in the case of endangered or threatened species, it is difficult to manage the problem solely by general ecosystem conservation.

A strategy for conservation of habitats and ecosystems is needed in day to day management programs. Without complete knowledge of the ecosystem, I believe it is most important to maintain the diversity of habitats and the proportional representation wherever possible. This begs the question: Do we know enough to only protect perceived critical habitats?

Conservation can be undertaken in the form of guidelines and policies for assessing developments and environmental impacts. The objective in this strategy is to identify any activities which may have unacceptable impacts on aquatic ecosystems or to minimise the impacts arising from developments which are seen as justification in the public good. Fisheries legislation and environmental planning legislation are both important to achieve this. However this alone could continually reduce the quality and quantity of fish habitats without the balance of amelioration and enhancement strategies.

The development of a representative reserve system which would allow long term conservation of habitats and communities is one appropriate conservation measure which can be an effective addition to fisheries closures which protect habitat. The size and selection of reserves can vary but there seem to be greater benefits to be derived from larger areas with some form of buffer area than small isolated pockets as protected areas.

A further means of protecting fish habitats can be by environmental protection zones incorporated in local and regional planning instruments as well as reserves and closures under fisheries legislation. Community education and awareness is most important in delivering conservation programs to greatest effect (Moberly this meeting). The public can participate in the planning process and raise the level of performance of local governments in protecting fish habitats. Furthermore, the community, including user groups such as fishermen or passive users such as conservationists, divers etc., can participate in habitat management programs, eg. planting mangroves, clean up programs.

The above ideas are suggested strategies and concepts and are by no means comprehensive. The workshop session may challenge and debate these issues with a view to proposing more effective means of sustaining fish habitats.