

**POLICY ON  
HABITAT ENHANCEMENT  
STRUCTURES  
IN WESTERN AUSTRALIA**

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Government of **Western Australia**  
Department of **Fisheries**

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## 1.0 INTRODUCTION

Habitat enhancement structures range widely in design. They generally aim to enhance fish habitat by providing a structure for fish and other aquatic life to colonise and potentially lead to an increase in their biological production.

Habitat enhancement structures can have a variety of specific purposes and benefits, including:

- creating or enhancing habitat for fish and other aquatic animals;
- enhancing fishing and tourism opportunities;
- restoring, mitigating or offsetting damage to or loss of natural reefs or habitats;
- supporting aquaculture or marine ranching; and
- providing research opportunities for testing ecological processes.

Purpose-built habitat enhancement structures range in size, complexity and cost. They are generally categorised as either floating style fish attracting (or aggregating) devices (FADs) or artificial reefs consisting of purpose built concrete or steel modules designed to sit directly on the seabed.

The primary function of a FAD is to attract oceanic pelagic fish, such as mahi mahi, tuna and marlin. FADs usually consist of buoys or floats that are moored to the ocean floor using an anchor system. The buoys or floats can sit on the surface of the water or lie sub-surface to avoid hazards such as turbulent weather or shipping traffic.

The primary function of an artificial reef is to provide additional structure and habitat to support an increase in production of fish and other aquatic organisms. Fish and other aquatic organisms are initially attracted from surrounding waters to populate the new structures (this process is known as a concentration effect). The structures then develop over time into fish production devices by providing additional habitat to support increased fish-carrying capacity of the structure and surrounding waters (this process is known as a production effect).

Purpose-built artificial reefs work on the following principles:

- Creating complex space and habitat that provides light and shade options and modified flow regimes to encourage colonisation of marine organisms. Structures are tailored to suit the requirements of specific target species such as rock lobster, abalone, and demersal or pelagic finfish.
- Creating an upwelling effect – water currents of colder, more nutrient-rich, water from close to the seabed are deflected up into the water column. This creates food for plankton and larval fish, attracting small fish which in turn attract larger fish.

International experience has shown that artificial reef structures provide clear environmental benefits and, in some cases, support greater biodiversity than adjacent natural reefs. In addition to the primary structure which is made of concrete or steel, cylinders or compartments of rubble or shell can also be incorporated in the structure. These materials increase the overall surface area of the structure, enhancing biological filtering and promoting the growth of microbial life, amphipods, decapods, seaweed and other marine organisms. These, in turn, then support a diverse aquatic community.

Habitat enhancement structures have the potential to generate broader social and economic benefits to the State and local communities. The recreational fishing experience is improved and

tourism opportunities are likely to develop, particularly if habitat enhancement structures are located within key recreational fishing areas or in proximity to population centres.

The Department of Fisheries (the Department) recognises the potential for habitat enhancement structures to assist in its mission to conserve, sustainably develop, enhance and share the use of the State's aquatic resources and their ecosystems for the benefit of present and future generations.

The *Fish Resources Management Act 1994* (FRMA) confers the power to regulate or prohibit the use of fish aggregating devices. The FRMA definition of a fish aggregating device includes an artificial reef or other man made structure that is used or is intended to be used for attracting fish or increasing fish production. All habitat enhancement structure proposals (as defined by this policy) must receive approval from the Department prior to deployment.

This policy has been prepared to assist with the assessment of proposals to deploy habitat enhancement structures in Western Australia.

It is important to recognise that the deployment of purpose-built habitat enhancement structures does not diminish effective aquatic resource management as the primary focus to ensure the long-term sustainability of any aquatic resource (including fisheries).

Habitat enhancement structures are part of a suite of aquatic resource management tools that may be used to deliver an ecosystem-based approach to the sustainable management of fisheries and the aquatic environment.

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## **2.0 POLICY OBJECTIVES**

The key objectives of this policy are to:

- ensure proposals for habitat enhancement structures are consistent with the objects of the FRMA;
- provide guidance to proponents of habitat enhancement structures;
- ensure proposals for habitat enhancement structures are appropriately assessed and managed;
- ensure habitat enhancement structures have beneficial impacts on the marine environment; and
- ensure habitat enhancement structures do not adversely affect natural and cultural heritage values or other users of the marine environment.

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### 3.0 DEFINITIONS

For the purposes of this policy:

- 3.1 **Habitat enhancement structure** means any purpose-built structure or material placed in the aquatic (oceanic, estuarine, river or lake) environment for the purpose of creating, restoring or enhancing a habitat for fish, fishing, and recreational activities generally.
- 3.2 **Artificial reef** means a purpose-built habitat enhancement structure generally consisting of concrete or steel modules designed to sit directly on the seabed to attract and increase productivity of various marine species.
- 3.3 **Fish aggregating (or attracting) device (FAD)** means any purpose-built, moored and positively buoyant (floating or submersible) structure that is designed to attract and/or aggregate fish in order to facilitate fishing activities.
- 3.4 **Fish** means an aquatic organism of any species as defined in the FRMA.

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### 4.0 SCOPE

- 4.1 This policy relates to ‘fish’ as defined in the FRMA. Among other things, fish includes coral, sea grasses and macroalgae, shellfish, molluscs and both demersal and pelagic finfish.
- 4.2 This policy relates to habitat enhancement structures purpose built to support the aggregation and/or production of fish.
- 4.3 This policy provides guidance for the assessment of proposals to deploy habitat enhancement structures within WA waters (as defined in the FRMA).
- 4.4 The installation of structures such as boating, jetty and mooring facilities, aquaculture facilities, navigation markers, coastal protection structures or submarine cables or pipelines are not considered to be habitat enhancement structures for the purposes of this policy.

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## 5.0 ISSUES

Key issues which need to be taken into consideration in the deployment of habitat enhancement structures in WA include:

- The objectives of the habitat enhancement structure including target species.
- The design, construction, placement and relationship of habitat enhancement structures with the hydrology, sediment dynamics and surrounding environment are all important in determining how successful the habitat enhancement structure will be in achieving its objectives.
- The evaluation of the habitat enhancement structure against proponent objectives.
- Gaining appropriate environmental approvals (under State and/or Commonwealth legislation) is required prior to the deployment of habitat enhancement structures.
- The potential to significantly harm or damage a listed critical habitat or threatened species, population or ecological community.
- The creation of new fishing opportunities that shift fishing effort from other popular fishing locations, reduce travel times to fishing sites (with associated cost reductions), and shifting fishing effort from some species to others.
- Stakeholder expectations and needs in the design, use, location, and management of habitat enhancement structures.
- The design specific lifespan.
- A cost/benefit analysis.

Future policy directions will be guided by the assessment and evaluation of deployed habitat enhancement structures.

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## **6.0 POLICY**

Proposals to deploy habitat enhancement structures will be assessed by the Department using a risk assessment methodology. The following principles will apply:

### **6.1 General**

- Habitat enhancement structures of suitable scope, scale, design and construction will be assessed in accordance with this policy and the objects of the FRMA.

### **6.2 Materials, design and construction**

- The design and construction of the habitat enhancement structure must be inspected and approved by a suitably qualified marine engineer prior to the structure being installed. The inspection is to confirm the works are structurally sound, safe for the intended purpose and do not pose risks to other activities in the long-term.
- The design must consider hydrological effects, tides, currents and storms.
- Habitat enhancement structures must be constructed of materials that do not adversely impact the marine environment. Tyres or other ‘materials of opportunity’ should not be used.

### **6.3 Location and use**

- A habitat enhancement structure should be placed in an area that:
  - provides safe and convenient access for the intended users;
  - has public support, drawing on the outcomes of consultations; and
  - is sufficiently isolated from other uses, for example, navigation areas, mooring areas, and underwater infrastructure.

### **6.4 Access and management arrangements**

- Specific access and management arrangements may be implemented in relation to individual FADs and artificial reefs. These arrangements will depend on the purpose and objectives of each habitat enhancement structure. There must be appropriate consultation on any proposal to limit or restrict certain sectors or types of fishing gear from a habitat enhancement structure.

### **6.5 Environment**

- The proponent must demonstrate that the proposed habitat enhancement structure will not have a significant, adverse environmental impact.
- Appropriate environmental approvals from the relevant authorities (State and/or Commonwealth) must be secured before any habitat enhancement structure is deployed.
- A monitoring plan must be provided to evaluate the habitat enhancement structure against the proponent’s objectives. The monitoring plan will require approval from the Department.

## **6.6 Costs**

- All costs associated with the environmental assessment and the process of obtaining approvals will be met by the proponent.
- All costs associated with deploying, monitoring and reporting will be met by the proponent, subject to negotiation with the Department.
- The proponent must demonstrate adequate financial resources are available for the construction, installation and monitoring requirements of an approved habitat enhancement structure.

## **6.7 Ownership and liability**

- Once successfully deployed, the ownership and liability associated with the habitat enhancement structure will move to the State.
- An artificial reef deployed within an aquaculture lease for the purpose of aquaculture will form part of the aquaculture gear included in that lease. The ownership and liability associated with the aquaculture gear in this case resides with the lease holder.

## **6.8 Socio-economic benefits**

- The proponent must outline the expected benefits from the proposed habitat enhancement structure.
- Once deployed, the proponent must evaluate the impacts/benefits of the habitat enhancement structure.

## **6.9 Legislative framework**

- The installation of infrastructure, such as a habitat enhancement structure, requires environmental assessment and approvals from relevant agencies and/or authorities.
- The following agencies and authorities administer legislation for which approval and/or consultation is required, depending on the locations, scope and nature of the proposed habitat enhancement structure.

### **State approvals**

- Department of Fisheries:
  - *Fish Resources Management Act 1994.*
- Department of Transport:
  - *Western Australian Marine (Sea Dumping) Act 1981.*
- Department of Regional Development and Lands:
  - *Lands Administration Act 1997.*
- Minister for Environment advised by Environmental Protection Authority:
  - *Environmental Protection Act 1986.*
- Department of Environment and Conservation:
  - *Conservation and Land Management Act 1984.*

## Commonwealth approvals

- Department of Sustainability, Environment, Water, Population and Communities administers three pieces of legislation:
  - *Environment Protection and Biodiversity Conservation Act 1999*;
  - *Environment Protection (Sea Dumping) Act 1981*; and
  - *Sea Installations Act 1987*.

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## 7.0 PROPOSAL ASSESSMENT

When considering a proposal to establish a habitat enhancement structure the Department will consider the:

1. primary objectives of the proposal, including the target species for the habitat enhancement structure;
  2. site survey of the proposed site, including, but not limited to, hydrology, shipping routes, marine substratum and habitats, ecological communities, ecological processes, biodiversity and threatened species;
  3. specifications of the structure and component materials, including anchoring devices and a marine structural engineer's report;
  4. environmental management plan that addresses the:
    - environmental risk assessment;
    - stakeholder needs, including potential conflicts between users;
    - deployment; and
    - potential for decommissioning;
  5. monitoring plan to assess the project against objectives;
  6. socio-economic assessment;
  7. consultation process, undertaken with stakeholders, in support of the proposed location of the structure;
  8. timetable for the proposal including construction, deployment, monitoring and reporting; and
  9. evidence of availability of funds to complete the proposal including construction, deployment, monitoring and reporting.
- Conditions may be attached to any approval granted for the purpose of deploying a habitat enhancement structure.
  - Approval may be withdrawn or varied, or activities otherwise restricted, at any time if risks are deemed above acceptable levels.
  - Concurrently, with the proposal to the Department, the proponent must obtain any other necessary approvals from relevant State and Commonwealth agencies. Guidance on these approvals may be obtained from the Department and project proponents are encouraged to contact the Department at an early stage in the project planning.

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## 8.0 CONTACT AT THE DEPARTMENT

**Responsible officer:** Manager, Strategic Policy, Aquatic Management Division,

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