

Policy on artificial reefs and fish attracting devices in NSW marine parks

INTRODUCTION

Artificial reefs range widely in design but generally aim to achieve one or more of the following objectives:

- improving fishing or diving opportunities by providing a structure on and around which plants and animals can aggregate
- improving surfing by changing wave patterns
- protecting the coastline from storm surge and erosion by altering coastal processes such as sediment transport.

Artificial reefs can have a variety of specific objectives, including:

- enhancing commercial fishing or recreational fishing
- assisting in the rehabilitation of degraded fisheries
- providing underwater tourist attractions for diving
- restoring, mitigating or offsetting damage or loss of natural reefs or other habitats
- supporting aquaculture or marine ranching
- providing research opportunities.

Fish attracting devices or fish aggregating devices (FADs) are a moored or free-floating device designed to attract and/or aggregate fish, generally to provide recreational fishing opportunities. The FADs deployed in NSW are smaller than most artificial reefs, and are installed seasonally to attract some pelagic species.

Artificial reefs range in size, complexity and cost. Examples include scuttled large ships, specially constructed underwater towers, and arrays of small structures such as geotextile bags or specially designed concrete 'Reef Balls®'. FADs also vary from permanent constructions to small floating buoys that are anchored to the seafloor and may be deployed on a seasonal basis.

There are several artificial reefs present on the NSW coast, primarily scuttled ships and estuarine artificial reefs constructed of Reef Balls®. There are currently no known artificial reefs within marine parks in NSW.

Twenty five FADs have been deployed off the NSW coast, typically outside NSW waters. FADs are deployed from September until June each year. Five FADs occur in marine parks, two on trial in Port Stephens Great-Lakes, two on trial in Lord Howe Island Marine Park and one in Cape Byron Marine Park.

DEFINITIONS

For the purposes of this policy, an artificial reef is defined as any structure or material placed in the marine (oceanic or estuarine) environment for the purpose of:

1. creating, restoring or enhancing a habitat for plants and animals; and/or
2. providing a place for diving or fishing activities, or recreational activities generally.

For the purposes of this policy, a FAD is defined as any moored or free-floating structure or material that is designed to attract and/or aggregate fish in order to facilitate fishing activities.

The installation of structures that may act in a similar way to artificial reefs, such as boating and mooring facilities, aquaculture facilities, navigation markers, some research experiments,

coastal protection structures or submarine cables or pipelines are not considered to be artificial reefs or FADs under this policy unless they are installed with the intention of creating an artificial reef or FAD.

OBJECTIVES

To ensure proposals for artificial reefs and FADs in marine parks are consistent with the objects of the *Marine Parks Act 1997*.

To provide guidance to proponents of artificial reefs or FADs within marine parks.

To ensure proposals for artificial reefs and FADs in marine parks are appropriately assessed and managed.

To ensure artificial reefs and FADs have minimal negative impacts on the marine environment, natural and cultural heritage values of marine parks and minimal negative impacts on other users of marine parks.

SCOPE / APPLICATION

This policy applies to proposals for artificial reefs and FADs to be located within marine parks declared under the *Marine Parks Act 1997*.

ISSUES

Issues identified with artificial reefs and FADs include:

1. Considerable scientific uncertainty remains whether artificial reefs increase biological production or simply redistribute fish stocks from surrounding areas despite many studies of artificial reefs. Significant differences have been found in the biological productivity of different artificial reef types, suggesting that the reef design, materials, structure, placement, porosity and relationship to currents, hydrology, sedimentology and the surrounding environment are all important in determining how successful the artificial reef will be in achieving its aims. Reef proposals need to be carefully researched and designed with the assistance of specialists in this field to ensure that the reef can achieve its designated purpose. Scientifically valid assessments by specialists in this field will be needed to ensure the reef is in fact achieving its designated purpose.
2. Artificial reefs and FADs are usually designed to increase the aggregation of fish at a particular site as well as increasing catchability (through improved access and convenience). There is a risk that artificial reefs and FADs may be overfished. Managing depletion of natural fish populations that may be attracted from surrounding areas to the location of the artificial reef or FAD, where they may be more easily targeted by fishers, is an issue that proposals should consider.
3. Artificial reefs and FADs may benefit recreational fisheries by reducing crowding at popular fishing locations, providing new fishing areas, reducing travel times to fishing sites and associated costs, reducing pressure on marine park natural values and in the case of FADs reducing pressure on some species by redirecting effort on to more suitable fast growing pelagic species such as dolphin fish. However, these benefits may decrease over time if the number of fishers continues to increase at a particular site.
4. Pollution from the materials used to construct artificial reefs has been a problem in some cases, for example the breakdown of tyres used as artificial reefs and the leaching of toxic chemicals from shipwrecks.
5. Artificial reefs have the potential to provide habitat for and may be colonised by marine pests. There is also the potential for marine pests to be spread by boating activities around artificial reefs.

6. The design, materials used and placement of an artificial reef and hence its ecological role and impact will vary according to its intended purpose. Unless specialists in this field are consulted in relation to these matters, there is a risk artificial reefs will not meet their intended objectives.
7. The needs of various stakeholder groups in relation to artificial reefs and FADs need to be considered and balanced. For example, fishers and SCUBA divers may have different and potentially conflicting requirements for type, use, locations and management of artificial reefs. Identifying and managing conflicts between uses, including Aboriginal uses, navigation routes, commercial and recreational fishing grounds, research, and existing tourism and recreation sites, are essential considerations.
8. Artificial reefs are usually deployed in areas with sandy or silty sediments, as it is often thought that these areas have lower biodiversity than reef ecosystems. Comparatively little scientific research has been conducted on seafloor sediment habitats and their conservation values are less well known. The deployment of artificial reefs represents a modification of these habitat types that should be considered as a potential negative environmental impact.
9. Even small artificial reefs are highly expensive to install and remove. For that reason, installation should be carefully considered and proponents need to assess whether the financial resources needed for the installation and subsequent management of an artificial reef are available.
10. Depending on the nature of the materials used, artificial reefs will have a specific operational lifespan. Appropriate ongoing maintenance will need to occur to ensure longevity of the artificial reef. There is the potential for artificial reefs which have reached the end of their operational lifespan to become rubbish on the seabed. The decommissioning of artificial reefs will need to be considered as part of any proposal.

POLICY

General

1. NSW marine parks provide for multiple-uses. Artificial reefs and FADs of suitable scope, scale, design and construction can be installed in marine parks provided they are assessed to be in accordance with the objects of the *Marine Parks Act 1997* and any other legislative or regulatory requirements.
2. Artificial reefs are not permitted in sanctuary zones or habitat protection zones as they do not accord with the objects of these zones. Artificial reefs may be permitted in general use zones and special purpose zones in a marine park, where there is no suitable alternative location outside the marine park. Artificial reefs are only permitted in special purpose zones that are designated for that purpose.
3. FADs are not permitted in sanctuary zones but may be installed in habitat protection zones where:
 - a. no other locations in general use zones, special purpose zones or outside the marine park are suitable and
 - b. the purpose of the FAD is to reduce pressure on the natural values of the marine park.

Materials and design

4. The design, materials and proposed placement of the artificial reef should be developed in consultation with specialists in this field to increase the likelihood the artificial reef will meet its intended objectives.

5. The design and materials proposed for installation of the artificial reef must be inspected and approved by a suitably qualified marine engineer prior to the structure being installed in the marine park, to determine the works are structurally sound and safe for the intended purpose.
6. Artificial reefs and FADs must be constructed out of materials that do not cause pollution of the marine environment.
7. Ships must be suitably prepared for scuttling and achieve the required environmental and safety standards.

Location and use

8. An artificial reef must only be placed in an area that is sufficiently removed from sanctuary zones and habitat protection zones so as to minimise the risk of attraction of fish away from these zones.
9. A FAD must only be placed in an area that is sufficiently removed from sanctuary zones so as to minimise the risk of attraction of fish away from these zones.
10. An artificial reef or FAD must only be placed in an area that:
 - a. is sufficiently removed from natural reefs, shoals, vegetated habitat, other structured habitat areas or estuary entrances so as to minimise the attraction of fish away from existing natural habitat or estuaries
 - b. provides safe and convenient access to the intended users in a desired and wide range of wind and sea conditions
 - c. enables management and compliance activities of the Marine Parks Authority
 - d. is sufficiently isolated from other uses – for example, trawling grounds, navigation areas, aboriginal uses, whale migration routes and research and tourist programs
 - e. Is sufficiently removed from underwater infrastructure such as pipes and cables and mooring areas.

Environmental assessment and consent

11. An assessment to a level deemed satisfactory by the Marine Parks Authority of the environmental impacts of any proposed artificial reefs or FADs in marine parks will need to be prepared and determined before any consent is issued under the *Marine Parks Act 1997* or regulations.
12. The proponent will need to supply all information necessary to assess the application in sufficient detail. This includes but is not limited to:
 - a. the primary objective of the proposal
 - b. detailed site survey of the proposed site, including hydrology, influence of ocean currents, shipping routes, marine substratum and habitats, ecological communities, ecological processes, biodiversity and threatened species
 - c. detailed specifications of the structure and component materials including anchoring devices
 - d. environmental assessment, including social, economic and cultural impacts.
13. Consent for an artificial reef or FAD will only be granted by the Marine Parks Authority where it is demonstrated by the proponent through a Review of Environmental Factors (REF) or, if necessary, an Environmental Impact Statement (EIS) that the artificial reef or FAD will not cause a significant environmental impact.

14. Consent for an artificial reef or FAD will only be granted by the Marine Parks Authority when the proponent demonstrates the financial resources needed for the construction, installation and ongoing long-term maintenance and management of the artificial reef or FAD is available.
15. A permit or other relevant consent for an artificial reef or FAD will only be granted by the Marine Parks Authority when a monitoring program for the duration of the project and a maintenance program for the artificial reef or FAD is submitted to the Marine Parks Authority by the proponent and approved by the Authority.
16. A permit or other relevant consent for an artificial reef will only be granted by the Marine Parks Authority when appropriate public consultation on the proposal has occurred.
17. A permit or other relevant consent for an artificial reef or FAD may require the proponent to submit an environmental management plan that addresses:
 - a. installation
 - b. stakeholder needs, potential conflicts between users, risks for the reef to be overused (for fishing or diving)
 - c. emergency responses to situations where the artificial reef may become a hazard and
 - d. decommissioning.
18. Conditions may be attached by the Marine Parks Authority to any consent granted for the purpose of installing or operating an artificial reef or FAD.
19. Consent may be withdrawn or varied, or activities otherwise restricted, at any time for the protection of the marine environment (see Marine Parks Authority Permits Policy and Procedures).
20. A permit or other relevant consent for an artificial reef or FAD will only be granted by the Marine Parks Authority when the proponent submits a certificate of currency of public liability insurance to the value of \$10 million or greater if required for the particular proposal.
21. A permit or other relevant consent for an artificial reef or FAD will only be granted by the Marine Parks Authority if the proponent indemnifies the Marine Parks Authority, the Ministers administering the *Marine Parks Act 1997*, and the state of NSW against all claims and demands arising out of or in connection with the artificial reef or FAD.

Costs

22. All costs associated with the environmental assessment and obtaining of consents will need to be met by the proponent.
23. All costs of installing, maintaining and removing an artificial reef or FAD will be borne by the proponent.
24. Monitoring and reporting is to be funded by the proponent.
25. The Marine Parks Authority may require the proponent to submit a bond or other financial guarantee to cover any environmental remediation costs. The bond or financial guarantee should be proportionate to the potential environmental remediation costs.
26. The Marine Parks Authority may direct the proponent to remediate any environmental impacts resulting from the installation or operation of the artificial reef, at the proponent's cost.

LEGISLATIVE AND POLICY FRAMEWORK

The installation of infrastructure, such as an artificial reef or FAD in a marine park requires environmental assessment and consents from relevant authorities.

General consent and assessment requirements are outlined here but a range of other legislation may also apply depending on the scope and nature of the proposed artificial reef or FAD and the specific site in question.

Consents

- Landowner's consent: as the seabed in marine parks is Crown land, a lease or licence agreement under the *Crown Lands Act 1989* permitting the installation and operation of a facility on Crown land will usually be required. Concurrence from the Minister for Climate Change and the Environment will be required under the *Coastal Protection Act 1997* in certain circumstances. Before proceeding to environmental assessment (see below) the Land and Property Management Authority should be contacted to discuss the proposal.
- Marine park consent: artificial reefs and FADs will require consent from the Marine Parks Authority under the Marine Parks regulations. Clause 1.39 of the *Marine Parks (Zoning Plans) Regulation 1999* specifies that consent is required for installing FADs in marine parks. The *Marine Parks Act 1997*, *Marine Parks Regulation 2009* and *Marine Parks (Zoning Plans) Regulation 1999* do not contain any specific provisions relating to artificial reefs. However, the installation of an artificial reef will require consent under the *Marine Parks (Zoning Plans) Regulation 1999* as it will involve the interference and damage of habitat and may cause harm to plants or animals (see clauses 1.11, 1.16, 1.19 and 1.22). Clause 9 of the *Marine Parks Regulation 2009* outlines the assessment criteria against which applications to undertake proposed activities in marine parks, such as the construction of an artificial reef or installation of FADs, are assessed. The criteria can be addressed as part of the environmental assessment documentation (see below). The Permits Policy and Procedures of the Marine Parks Authority apply (see <http://www.mpa.nsw.gov.au/pdf/MPA-Permit-Policy.pdf>).
- Commonwealth consent: proposals for artificial reefs require consent under the Commonwealth *Environment Protection (Sea Dumping) Act 1981*, except where an artificial reef is proposed in enclosed waters. Approval under the *Environment Protection and Biodiversity Conservation Act 1999* will be required if the installation of an artificial reef or FAD constitutes a significant impact on listed threatened species, endangered communities or migratory species.

Licences

- A licence under the *Threatened Species Conservation Act 1995* or the *Fisheries Management Act 1994* will be required if the placement of the artificial reef potentially significantly harms or damages a listed critical habitat or threatened species, population or ecological community.
- An environmental protection licence under the *Protection of the Environment Operations Act 1997* if the installation of an artificial reef constitutes or may constitute a pollution of waters.

Environmental assessment and planning approval

- Development within marine parks or affecting marine parks is assessed under the *Environmental Planning and Assessment Act 1979* and sections 19 and 20 of the *Marine Parks Act 1997*.
- Part 4 of the *Environmental Planning and Assessment Act 1979* concerns consent for development. The consent of local councils is unlikely to be required for artificial reefs or FADs in marine parks so long as the development is the exercise of a function of the

Marine Parks Act 1997 (see clause 65 of the State Environmental Planning Policy (Infrastructure) 2007).

- Under Part 5 of the *Environmental Planning and Assessment Act 1979*, an assessment of the environmental impacts of any proposal for artificial reefs or FADs will need to be prepared and determined before the above consents are issued. DECCW has a well-developed system for these types of environmental assessments, which are prepared in the form of a REF. If a REF determines that the environmental effect is likely to be significant, the assessment under Part 5 must be by way of an EIS.

DECCW guidelines for preparing a REF are available at

<http://www.environment.nsw.gov.au/resources/protectedareas/08370ProponentsREFGuide.pdf>.

The REF is usually submitted at the same time as a formal request for consent is lodged. The REF must be determined before consent can be granted.

As noted above, the principal assessment criteria under the *Marine Parks Regulation 2009* can also be addressed by inclusion of relevant information in the REF.

In addition, it should be noted that the REF guidelines are generic and are not specific to particular proposals. The particular requirements that would apply to an individual proposal can be determined after scoping of the project, and would typically be the subject of discussion at a planning focus meeting or similar.

As consents are likely to be required from both the Land and Property Management Authority and the Marine Parks Authority for FADs and artificial reefs, the preparation of a single REF that meets the environmental assessment requirements of all agencies and can be jointly determined will need to be considered. This is also a mechanism that can be used to streamline the approvals process and can be further discussed and agreed on a case by case basis at any planning focus meeting.

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Approved by: Marine Parks Authority, New South Wales

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