NSW Biodiversity Offsets Policy for Major Projects

Fact sheet: Aquatic biodiversity

Introduction

The NSW Biodiversity Offsets Policy for Major Projects (the policy) applies to all biodiversity in NSW, including aquatic biodiversity[1]. This fact sheet outlines the steps proponents of major projects and their ecological consultants should take to assess the impact of a major project on aquatic biodiversity and, where impacts are unavoidable, determine the offset requirements.

How are biodiversity values maintained?

For aquatic biodiversity, offsets must have a relationship to the biodiversity values being lost. Offsets can be targeted to a higher conservation priority but must still relate to the biodiversity being lost. Offset sites can include the **same or a similar habitat in the same catchment** that is more threatened than the habitat being impacted on.

Broadening the scope of habitats that can fulfil the offset requirements provides more flexibility for proponents and recognises that exactly the same biodiversity is not always available for an offset. The policy recognises that protecting and improving biodiversity that is of similar value but under a greater level of threat can also provide beneficial outcomes for NSW.

As aquatic biodiversity offsets are largely located on public land, in-perpetuity offsetting mechanisms such as biobanking agreements are not always necessary. Offset sites for aquatic biodiversity are preferred over supplementary measures, as they achieve a more clearly measurable conservation gain.

If appropriate offset sites are not feasible, proponents can provide funds for supplementary measures which provide additional flexibility in fulfilling offset requirements.

[1] The policy applies to biodiversity managed under the *Threatened Species Conservation Act 1995*, the *Fisheries Management Act 1994* and the *Marine Parks Act 1997* in NSW.

For aquatic biodiversity, supplementary measures may include:

- actions outlined in threatened species recovery plans[2]
- actions that contribute to threat abatement plans
- biodiversity research and survey programs
- rehabilitating degraded aquatic habitat.

The amount of money to be contributed will be equivalent to the cost of an offset site. Ensuring the amount a proponent is required to contribute to supplementary measures is commensurate with the cost of establishing an offset site prevents an artificial bias towards supplementary measures over offsets.

Environmental assessment to determine aquatic biodiversity offsets

Environmental assessment applies to aquatic biodiversity and associated fish habitats regulated under the *Fisheries Management Act 1994,* which regulates fin fish, aquatic macroinvertebrates, freshwater, estuarine and marine fish habitats, and the *Marine Parks Act 1997*, which regulates all marine biodiversity in, or in the locality of, NSW marine parks.

Saline wetlands vegetation will be assessed in accordance with Fisheries NSW *Policy and Guidelines for Fish Habitat Conservation and Management* (Update 2013) (policy and guidelines). All other non-saline wetlands and riparian vegetation will be assessed under the Framework for Biodiversity Assessment (FBA).

Step 1: Impact assessment

Impact assessment information

First, refer to **Chapters 3** and **4** of the policy and guidelines.

Chapters 3 and 4 provide general guidance on the information required for aquatic biodiversity and habitat impact assessment, including:

- site description and associated mapping requirements
- consideration of impacts on other aquatic resource users (e.g. fishing and aquaculture industries)
- requirements for describing aquatic environments and biodiversity.

This information needs to be provided as part of the environmental assessment of the project.

Map aquatic habitat types and waterway classes

Using a GIS, map or aerial photographs, map the key fish habitats on the development site and the waterway classes, as defined in Tables 1 and 2 of the policy and guidelines. Use publicly available maps of key fish habitat on the Fisheries NSW website if required.

[2] See www.dpi.nsw.gov.au/fisheries/species-protection/conservation for threatened species recovery plans and threat abatement plans

Impacts on key fish habitat and fish passage

Overlay the proposed development footprint on the GIS, map or aerial photograph, and 'ground-truth' this information via field surveys on the development site. This assessment will also determine the likely direct or indirect impact on marine protected areas (marine parks or aquatic reserves) within or adjoining the development site.

Determine whether any waterway classes (see Table 2 in the policy and guidelines) may be affected temporarily or permanently by the construction of waterway crossings or other in-stream structures and how these may restrict fish passage in the short-term or long-term.

Step 2: Importance of site in the context of the broader catchment

This step involves assessing the value of aquatic biodiversity to be affected on or adjoining the development site in the context of the broader catchment, and considers ways in which the development may change this value. Consider:

- the aerial extent of the key fish habitat types to be affected in the catchment area as a percentage of the total area
- how well connected the habitats are to other habitats, to facilitate natural regeneration
- impacts on fish passage.

This assessment will provide valuable information on the impact of the proposed development on the catchment as a whole.

Step 3: Determine the threatened species present on the development site

To determine whether any threatened species, populations or communities of fish or marine vegetation listed under the *Fisheries Management Act 1994* and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* occur on, or near, the development site, including upstream and downstream, use:

- the map of key fish habitat produced in Step 1
- information from Fisheries NSW's Threatened Species Record Viewer
- the NSW Wildlife Atlas
- local data
- targeted on-ground surveys
- commissioned expert reports.

This determination will be used to assess if a site needs to be redefined as a Type 1 Key Fish Habitat or Class 1 waterway (see Tables 1 and 2 in the policy and guidelines) as it is the habitat of a listed threatened species, population or ecological community, or is declared 'critical habitat' under the above Acts. Calculations of areas of habitat impacted on may need to be adjusted in light of this information.

Apply avoidance and mitigation measures to minimise aquatic biodiversity impacts

The policy and guidelines provide details of mitigation measures to avoid or minimise impacts on aquatic biodiversity, as follows:

- **Chapter 3** outlines ways of avoiding and minimising impacts on marine vegetation, riparian and aquatic vegetation and in-stream snags. It also summarises mitigation measures used for most developments, such as sediment and erosion controls and programming of works to avoid spawning periods.
- **Chapter 4** outlines ways of avoiding and minimising temporary and permanent blockages to fish passage associated with waterway crossings, dams and weirs and other possible in-stream barriers.
- **Chapters 5–6** outline ways of avoiding and minimising impacts from various development types such as foreshore works and waterfront development, urban development and stormwater, dredging and other activities.

Once these chapters have been reviewed, the proponent can determine how the development may need to be changed, or alignment reconfigured, to avoid and minimise the impacts on key fish habitats or fish passage within waterways.

Officers from Fisheries NSW can assist with technical advice if needed during this stage.

Fish passage considerations

Where a temporary or permanent blockage to fish passage on a Class 1–3 waterway is likely, **Chapter 4** of the policy and guidelines details fish passage requirements that must be met.

Costs associated with fish passage requirements will not be allowed to form part of the offsetting calculation or supplementary measures (see next section) as the value of the impact on aquatic biodiversity is too variable. The value depends on the type of development, waterway class and aquatic biodiversity values being affected. Fish passage requirements will continue to be assessed on a case-by-case basis.

Officers from Fisheries NSW can assist with technical advice if needed during this stage.

Step 4: Offset requirements for key fish habitats

Once the above steps are completed, the final area of each key fish habitat type to be affected can be determined.

Chapter 3 of the policy and guidelines outlines the requirements for environmental compensation to ensure there is a 'no net loss' of key fish habitat. It allows for both site-based offsets to compensate for the loss of each aquatic habitat type or the payment of an amount to compensate for the value of the aquatic habitat being lost to be considered.

The policy and guidelines require a minimum 2:1 offset for Type 1–3 key fish habitats (defined in Table 1) to help redress both direct and indirect impacts of development. This is currently calculated at a rate of $\$54/m^2$ or $\$108/m^2$ to meet the 2:1 offsetting requirement[3].

[3] This rate is consistent with aquatic ecosystem services rates calculated by Costanza R, d'Arge R, de Groot R, Farber S, Grasso M, Hannon B, Limburg K, Naeem S, Paruelo J, Raskin RG, Sutton P, van den Belt M 1997, 'The value of the world's ecosystem services and natural capital', *Nature* 387, pp 253–260.

Chapter 3 also notes that **seagrass cannot be rehabilitated**, and where impacts cannot be avoided or mitigated, offsetting for supplementary measures in line with the above ratio and dollar values will be required.

Payment of any offset funds will be deposited into the Fish Conservation Trust Fund established under the *Fisheries Management Act 1994* and quarantined for use for site-based offsets and/or supplementary measures where site-based offsets are not fully achievable in the catchment area.

Aquatic habitat offset site considerations

If the proponent undertakes a site-based offset themselves, or through the use of third parties, the policy and guidelines require the offset to meet the following requirements:

- the enhancement and/or protection of existing key fish habitats, by avoiding impacts, is preferred and should always be explored as the first option
- site offsets should be undertaken as close as possible to the development site or in the same catchment
- pre-development compensation is preferred to post-development compensation
- compensation should focus on enhancing or protecting more sensitive or threatened key fish habitats, for example, saltmarsh is a more threatened key fish habitat than mangroves
- a plan of management should be prepared which outlines proposed offset site rehabilitation requirements, including the need for monitoring to achieve proposed performance measures
- an environmental bond or a bank guarantee will be required as security to ensure the offset requirements are adequately delivered in accordance with the agreed plan of management.

The offset will be enforced through the conditions of consent for the major project, and can be linked to a planning agreement.

Alternatively the developer may pay the value of the negotiated site-based offset requirement into the Fish Conservation Trust Fund, and Fisheries NSW will manage the delivery of the site-based offset in partnership with a relevant public authority, such as Crown Lands, a relevant local council or the NSW Marine Park Authority.

An example of the application of this policy to a major project is provided below.

Case study – Banora Point Pacific Highway Upgrade Project

Kimberley Canal is an artificial canal that connects Lake Kimberley with the Tweed River. During the construction of the Banora Point Upgrade, a narrow band of mangroves (Type 2 key fish habitat) had to be removed along each side of a 70-metre section of the canal so a new culvert could be constructed (Figure 1). As part of the conditions of consent for this major project, the NSW Minister for Planning required the proponent to develop and submit, for the Director General's approval, appropriate compensatory measures based

Fisheries NSW adjust the rate in line with the annual inflation rate from 1 July each financial year. The rate quoted in this fact sheet is for the 2014-15 financial year. Fisheries NSW officers can advise the new rate for subsequent years.

on the required 2:1 offset ratio for the mangroves directly impacted on by the proposal, in consultation with Fisheries NSW.

Stakeholder consultation was undertaken with Fisheries NSW, Tweed Shire Council, the Tweed Byron Local Aboriginal Land Council and the Banora Point Upgrade Alliance (BPUA), which identified Kerosene Inlet as a suitable offset site. The site is located approximately three kilometres north-east of the upgrade site in the same catchment, and is owned by the Tweed Byron Local Aboriginal Land Council.

The proposed works included:

- widening the existing inlet into a lagoon area and opening a channel between the lagoon and inlet area to improve tidal flushing in order to promote the natural rehabilitation of seagrass in the lagoon
- installing access restrictions to prevent vehicles from entering the lagoon and wetland areas to allow mangroves and saltmarsh to passively regenerate (Figure 2).

The total loss of mangroves was estimated at 1,400 m^2. This equated to $145,600 to meet the minimum 2:1 offset ratio requirement.

The BPUA chose to implement the works themselves, rather than pay the offset funds required to the Fish Conservation Trust Fund, and developed a plan of management as a requirement of their conditions of consent. The works were undertaken at a total cost of $40,000 and allowed for the passive regeneration of mangroves (Type 2), and seagrass and saltmarsh (both Type 1 and more sensitive key fish habitats).

The recovery of the site is being monitored for three years by BPUA and Fisheries NSW to determine the success of the passive regeneration. Extensive mangrove and saltmarsh rehabilitation have already been observed after two years.

Figure 1

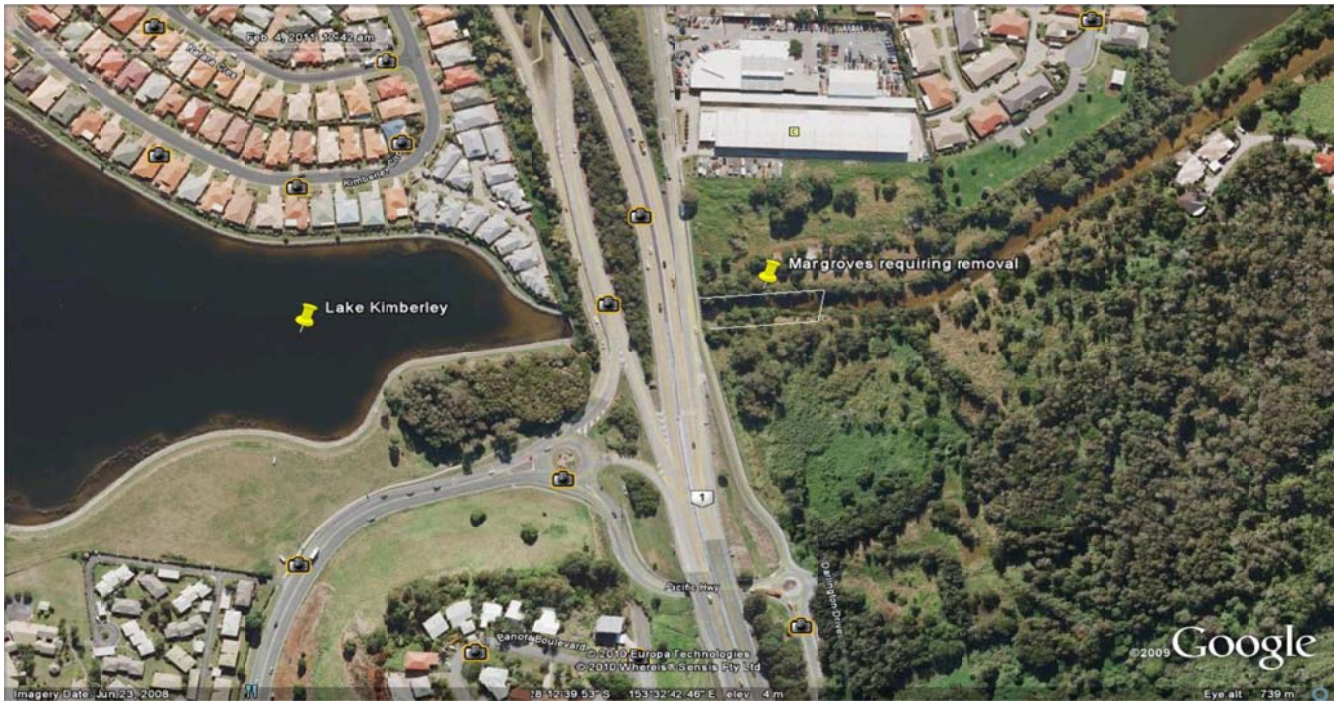

Photo: Tweed Shire Council and NSW Roads and Maritime Services.

Figure 1 – Banora Point, Tweed Heads, showing the location of the mangroves that were removed as part of the Pacific Highway Upgrade.

Figure 2

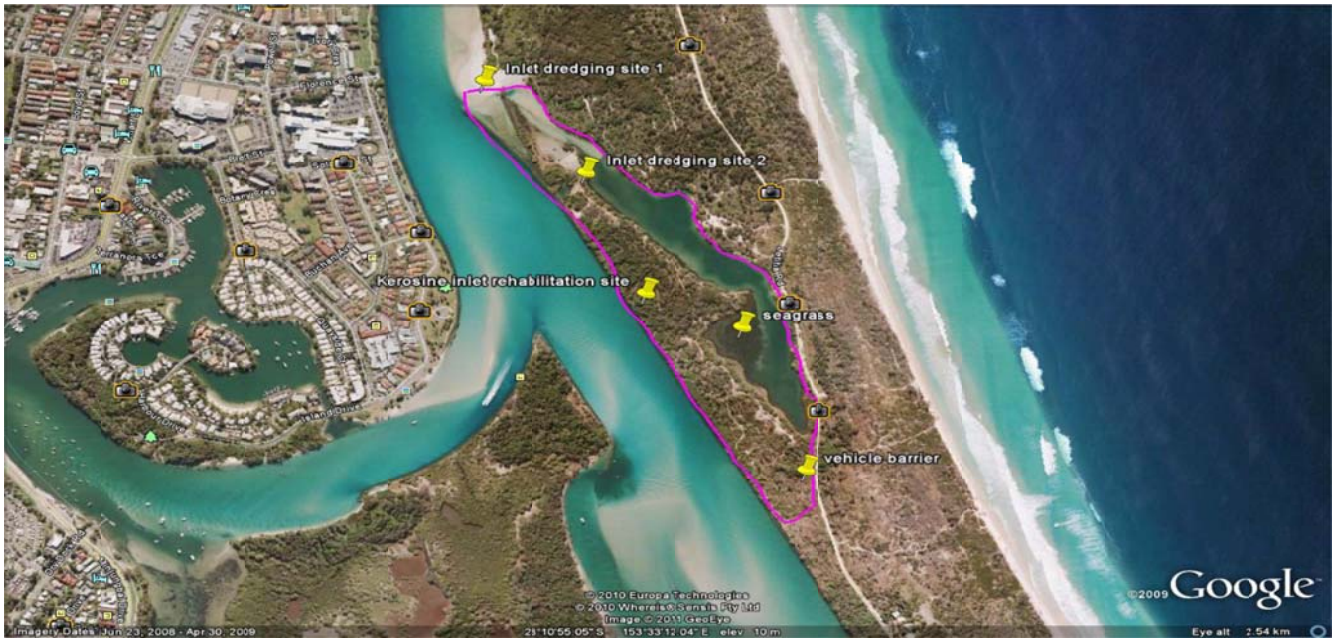

Photo: Tweed Shire Council and NSW Roads and Maritime Services.

Figure 2 - the location of the two dredging sites to improve tidal flushing and promote passive rehabilitation of seagrass in a nearby lagoon, and the location of the vehicle barrier installed to reduce vehicle access through mangrove and saltmarsh areas to allow for their passive rehabilitation.

Authored by NSW Department of Primary Industries (Fisheries NSW)

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Office of Environment and Heritage for the NSW Government
59 Goulburn Street, Sydney NSW 2000 (PO Box A290, Sydney South NSW 1232)
Phone: +61 2 9995 5000 (switchboard); 131 555 (environment information and publications requests); 1300 361 967 (national parks, general environmental enquiries, and publications requests)
Fax: +61 2 9995 5999
TTY users: phone 133 677, then ask for 131 555
Speak and listen users: phone 1300 555 727, then ask for 131 555
Email: info@environment.nsw.gov.au
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