



## NSW Biodiversity Offsets Policy for Major Projects

### Fact sheet: Aquatic biodiversity

#### Introduction

The NSW Biodiversity Offsets Policy for Major Projects (the policy) is being introduced to clarify, standardise and improve biodiversity offsetting for major project approvals under the NSW planning system. The policy applies to all biodiversity in NSW, including aquatic biodiversity<sup>1</sup>.

This fact sheet explains how to undertake aquatic biodiversity offsetting under the new policy.

#### How are biodiversity values maintained?

For aquatic biodiversity under the policy, offsets must have a relationship to the biodiversity values being lost. Offsets can be targeted to a higher conservation priority but must still have a relationship to the biodiversity being lost. Offset sites can include the **same habitat 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 greater flexibility to 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.

Due to the special circumstances that exist for aquatic biodiversity offsets which are largely located on public land, in-perpetuity offsetting mechanisms such as biobanking agreements are not considered necessary in all circumstances. However, 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 are used to provide additional flexibility in fulfilling offset requirements.

For aquatic biodiversity, supplementary measures may include:

- actions outlined in threatened species recovery plans<sup>2</sup>
- 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 calculated so it is approximately 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 will prevent an artificial bias towards supplementary measures over offsets.

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<sup>1</sup> 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.

<sup>2</sup> See Department of Primary Industries website for threatened species recovery plans and threat abatement plans at [www.dpi.nsw.gov.au/fisheries/species-protection/conservation](http://www.dpi.nsw.gov.au/fisheries/species-protection/conservation)

## Environmental assessment to determine aquatic offsets

This fact sheet outlines the steps developers and their ecological consultants will take to assess the impact of a major project on aquatic biodiversity and, where impacts are unavoidable, determine the offsetting requirements.

The process 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.

Please note that riparian vegetation on the banks of streams and rivers in freshwater (non-tidal) areas and freshwater wetlands will be assessed through the Framework for Biodiversity Assessment (visit [www.environment.nsw.gov.au/biodivoffsets/1482fba.htm](http://www.environment.nsw.gov.au/biodivoffsets/1482fba.htm)).

### Step 1: Impact assessment

#### *Impact assessment information*

The developer or ecological consultant should firstly refer to **Chapters 3 and 4** of the *Policy and Guidelines for Fish Habitat Conservation and Management* (Update 2013) (Fisheries NSW policy and guidelines) (Fisheries NSW 2013). The Fisheries NSW policy and guidelines are available at [www.dpi.nsw.gov.au/fisheries/habitat/publications/policies,-guidelines-and-manuals/fish-habitat-conservation](http://www.dpi.nsw.gov.au/fisheries/habitat/publications/policies,-guidelines-and-manuals/fish-habitat-conservation).

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

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

The developer or ecological consultant need to provide this information as part of the environmental assessment of the proposal.

#### *Map aquatic habitat types and waterway classes*

The developer or ecological consultant should then use a GIS, map or aerial photographs to 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. The developer or ecological consultant can use publicly available maps on the Fisheries NSW website at [www.dpi.nsw.gov.au/fisheries/habitat/protecting-habitats/toolkit](http://www.dpi.nsw.gov.au/fisheries/habitat/protecting-habitats/toolkit) if required.

#### *Impacts on key fish habitat and fish passage*

The developer or ecological consultant should then overlay the proposed development footprint over 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 in or adjoining the development site (visit [www.mpa.nsw.gov.au](http://www.mpa.nsw.gov.au)).

Part of this assessment will also determine whether any waterway classes will 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

In this step, the developer or ecological consultant will assess the aquatic biodiversity value of the site in the context of the broader catchment, and consider how the development may change this value. This step includes considering:

- the extent of the key fish habitat types affected in the catchment area
- how well connected the site is 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 at the development site

The developer or ecological consultant will 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 within close proximity, including upstream or downstream, of the development site. This determination should be made using a combination of the map of key fish habitat produced in Step 1, information in Fisheries NSW's Threatened Species Record Viewer (visit [www.dpi.nsw.gov.au/fisheries/species-protection/records](http://www.dpi.nsw.gov.au/fisheries/species-protection/records)), local data, targeted on-ground surveys and commissioned expert reports.

Using this information, the developer or ecological consultant will determine if a site needs to be redefined as a Type 1 Key Fish Habitat or Class 1 waterway as it is the habitat of a listed threatened species, population or ecological community or is declared 'critical habitat' under the *Fisheries Management Act 1994*. 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 Fisheries NSW 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 provides a general summary of 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 the developer or ecological consultant has reviewed these chapters, they can determine how the development can 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 Fisheries NSW policy and guidelines details fish passage requirements.

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

### Step 4: Offset requirements for key fish habitats

Once the above steps are completed, the developer or ecological consultant can determine the final area of each key fish habitat type to be affected.

**Chapter 3** of the Fisheries NSW policy and guidelines outlines the requirements for environmental compensation to ensure there is a 'no net loss' of key fish habitat. It allows for the consideration of both site-based offsets to compensate for the direct loss of each aquatic habitat type or the payment of an amount to compensate for the value of the aquatic habitat being lost. This amount will then be used for supplementary measures (see Appendix 1 of the NSW Biodiversity Offsets Policy for Major Projects at [www.environment.nsw.gov.au/biodivoffsets/1480biofpolmp.htm](http://www.environment.nsw.gov.au/biodivoffsets/1480biofpolmp.htm)).

The Fisheries NSW 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 \$52/m<sup>2</sup> or \$104/m<sup>2</sup> to meet the 2:1 offsetting requirement<sup>3</sup>.

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 for supplementary measures will be deposited into the Fish Conservation Trust Fund established under the *Fisheries Management Act 1994* and quarantined to be used for supplementary measures for aquatic biodiversity, as outlined in Appendix 1 of the NSW Biodiversity Offsets Policy for Major Projects.

### **Aquatic habitat offset site considerations**

If the developer proposes to undertake a site-based offset themselves or through the use of third parties, the Fisheries NSW policy and guidelines require the offset to meet the following requirements:

- the enhancement and/or protection of existing key fish habitats, via avoidance of impacts, is preferred and should always be explored as the first option
- site offsets should be undertaken as close as possible to the impact 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 is required outlining 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, 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 with a relevant public authority, such as Crown Lands, a relevant local council or the Marine Park Authority.

## **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. 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 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

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<sup>3</sup> 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 (visit [www.nature.com/nature/journal/v387/n6630/abs/387253a0](http://www.nature.com/nature/journal/v387/n6630/abs/387253a0)), and is subject to annual inflation from 1 July each financial year. The rate above is for the 2013–14 financial year and will continue to be subject to an annual increase in line with the Consumer Price Index per financial year. Fisheries NSW officers can advise the new rate.

identified Kerosene Inlet (located approximately three kilometres north- east of the upgrade site in the same catchment), owned by the Tweed Byron Local Aboriginal Land Council, as a suitable offset site. The proposed works included:

- widening the existing inlet into the lagoon area and opening a channel between the lagoon and inlet area to improve tidal flushing and to promote the rehabilitation of seagrass in the lagoon
- installing access restrictions to ensure that vehicle traffic was prevented from entering the lagoon and wetland areas to allow mangroves and saltmarsh to passively regenerate.

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

The BPUA chose to implement the works themselves, rather than to pay the offset funds to the Fish Conservation Trust Fund, and developed a plan of management as a requirement of their condition 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 key fish habitats).

The recovery of the site is being monitored for the next three years by the proponent 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 requiring removal as part of the Pacific Highway Upgrade.

Figure 2

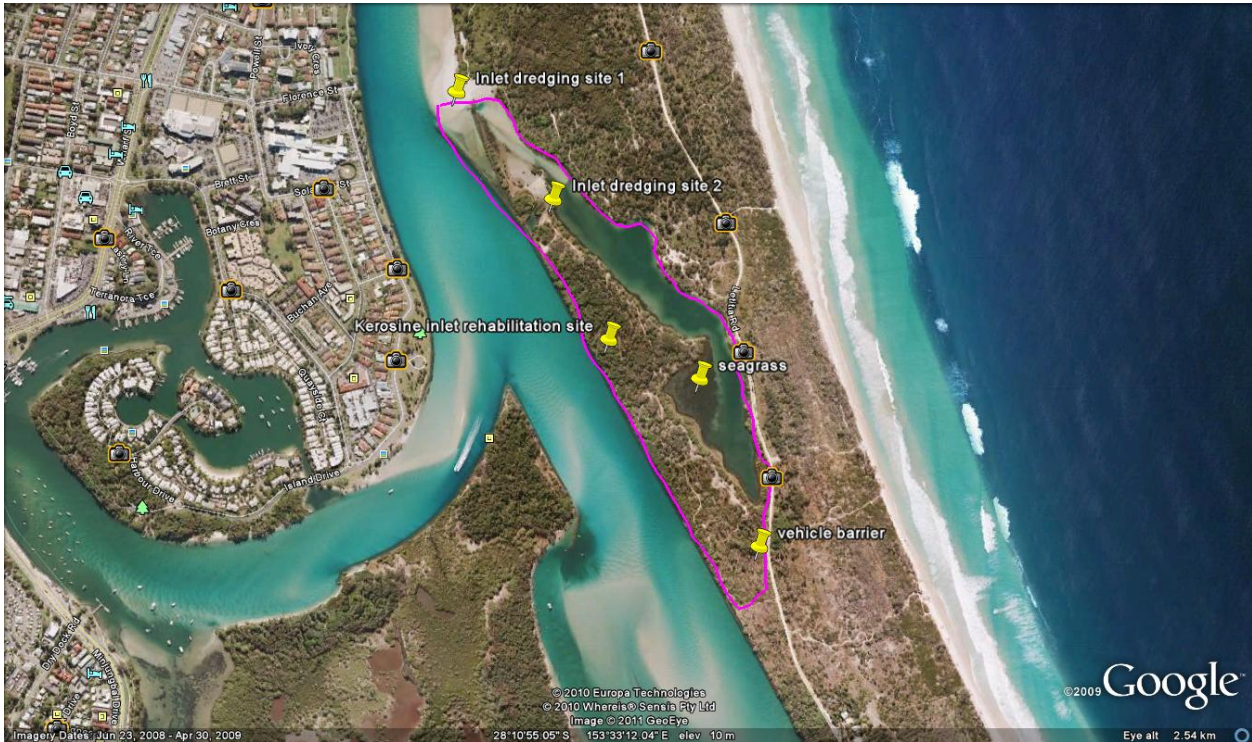


Photo: Tweed Shire Council and NSW Roads and Maritime Services

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

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