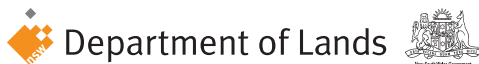


TWEED RIVER DOMESTIC STRUCTURES STRATEGY

September 2008



Tweed River Domestic Structures Strategy

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Acknowledgments: This strategy was prepared by Kersten Tuckey (Department of Lands), Marcus Riches, Patrick Dwyer and Kirby Byrne (Department of Primary Industries-Fisheries) with the assistance of Jane Lofthouse (Tweed Shire Council), Patrick Pahlow (Department of Water and Energy), Jim McDonald, David McPherson and Adrian Harte (Department of Lands).

Cover photo courtesy of Tweed Tourism

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1 Introduction

1.1 The Tweed River Estuary

The Tweed River covers an area of 23 square kilometres and has a catchment area of 1100 square kilometres. The main arm of the river is approximately 60km in length and is tidal to the Bray Park Weir located 4km upstream of Murwillumbah and approximately 30km from the entrance at Tweed Heads. The waterway also includes five large broadwaters (Cobaki, Terranora, Chinderah Bay, Shallow Bay and Cowans) and constructed canal estates (Oxley Cove, West Tweed, Seagulls Estate, Blue Waters / Wyuna Rd, Crystal Waters, Endless Summer and The Anchorage).

The Tweed River is an important natural resource in the far north coast of New South Wales and is home to protected areas of mangroves, seagrass and saltmarsh, which form habitat for commercially important and endangered species. The estuary provides important shorebird habitat for a wide range of species including the threatened Little Tern and Beach Stone Curlew as well as migratory shorebirds protected by international treaties with China and Japan.

In the past extensive areas of foreshore have been reclaimed leading to the destruction of natural aquatic habitats. This destruction along with increasing levels of other human disturbance has led to a steady decline in avifauna in the Tweed River and degraded the habitat of many marine species.

The Tweed Shire has a rapidly expanding population, which at present stands at 79,321 (Census 2006). As a result demands on the river have increased from both a recreational and commercial viewpoint, so careful management of foreshore infrastructure and development needs to be adopted.

1.2 Background

Foreshore infrastructure consists of artificial structures such as jetties, ramps, slipways and pontoons. These structures have been found to affect local flora and fauna in positive and negative ways. They can affect the water flow and current speed in a specific area, which will then affect the rate in which nutrients, organic material, larvae and spores are transported. Riparian and aquatic habitats can be directly impacted upon during construction or use of foreshore infrastructure and ongoing maintenance including dredging for access and egress may also impact on the viability of these habitats.

Foreshore infrastructure can alter rates of sedimentation and erosion due to the impact on water flow and cause obstructions to commercial fisheries. They can also inhibit public use and access to foreshore lands and may impact on the visual amenity of an area.

The approval of domestic foreshore infrastructure requires assessment of the impacts of the proposal and authorisation by a number of government departments including the Department of Lands (DoL), Department of Primary Industries – Fisheries (DPI), NSW Maritime (Maritime), Department of Water and Energy

(DWE) and local Council. In the past domestic foreshore infrastructure has been approved on an individual basis with the merits of each application assessed by each agency. Assessing each application individually and the consequent liaison between departments utilises considerable resources and may raise the expectations of an applicant in receiving approval when there are in fact significant constraints to their proposal.

1.3 Aim

This study aims to consolidate existing development assessment requirements for the various consent agencies to provide a consistent and strategic approach for domestic foreshore infrastructure development. Discussion between the five key agencies (DoL, DPI, Maritime, DWE and local Council) has led to this Strategy which provides a whole of government approach to foreshore infrastructure development.

The development of this Strategy will result in greater security for landholders adjoining the river with an interest in building a domestic foreshore structure. The Strategy will streamline the assessment process for foreshore infrastructure proposals and assist the various agencies in undertaking compliance activities.

The Strategy will assist in the identification of areas where public facilities may be required or where shared facilities are appropriate. It will also identify more opportunities for community use of foreshore public lands which can be lost when adjacent landholders confuse the boundary between private and public space.

This Strategy has been developed to:

- ensure maritime safety by minimising hazards to navigation,
- minimise obstacles to foreshore access in appropriate locations,
- minimise impacts on aquatic vegetation,
- minimise erosion risk,
- ensure appropriate visual outcomes,
- identify areas where there is a demonstrated demand for public structures,
- ensure that new development is appropriate to the landscape setting and does not conflict with other water users,
- ensure development comprises unobtrusive domestic waterside structures of a scale and location that do not dominate the landscape setting to meet casual boating needs, and
- assist in the removal of unauthorised structures.

1.4 Scope of the strategy

This Strategy incorporates waterways, both natural and man made, within the navigable reaches of the Tweed River and its tributaries. Foreshore infrastructure covered by the strategy includes domestic structures in the waterway below mean high water mark (MHWM) as well as works on the riverbank.

The strategy covers private infrastructure such as jetties, pontoons and boat ramps, however, no change is proposed regarding the management of foreshore structures in the existing canal estates where the land tenure is other than Crown

land. The strategy does not apply to marina developments or other commercial infrastructure which would be assessed under a separate process.

2 Existing Policy Framework

2.1 Department of Lands

In the management and administration of Crown lands, the DoL is guided by the principles of Crown land management which are included in the *Crown Lands Act* 1989 (CL Act). These principles generally support the sustainable use of Crown lands and encourage multiple use and public enjoyment of Crown lands where appropriate. Access to and along tidal foreshores is an important consideration in the provision of domestic and public foreshore infrastructure.

The Department grants tenures over Crown lands and before considering the granting of such tenures, the Department is to meet the requirements under Part 3 of the CL Act for land assessment. Land assessment looks at the capability and suitability of the land to support a particular use.

Owners consent from the Department to lodge a development application for a domestic foreshore structure on Crown land is required before development approval can be granted. A licence from the Department is also required prior to construction of any structures on Crown land.

The Department has a Crown Land Foreshore Tenures Policy (Non-Commercial Occupations) (Dept. Conservation and Land Management 1991). Under this policy, where foreshore structures are concerned:

- The development of public foreshore structures and the right of the public to use land in public ownership is supported where appropriate.
- Domestic and commercial structures are not to obstruct, restrict or discourage existing and future public access from the land or from the water to, and along, reclaimed areas and the intertidal zone.
- Domestic use and occupation of Crown owned land adjoining public lands is not supported by the Department.
- The ownership of private land adjoining Crown owned land does not confer any right on the owner for the domestic use and occupation of any structures on the Crown land.
- The continued use of unauthorised structures is not supported.
- The impacts on the natural and cultural environment are considered for all proposals.

As Native title interests may not have been extinguished in many areas within the river system, the DoL is more likely to authorise temporary structures, such as floating pontoons, that are less likely to impinge on any native title interests if they exist.

All new licences, licence renewals and transfers will be subject to the recommendations of this strategy.

2.2 Department of Primary Industries

The Department of Primary Industries (DPI) has management responsibilities in regard to fish and fish habitat because of legislative provisions contained in the *Fisheries Management Act 1994* (FM Act). The DPI has jurisdiction over all fish and marine vegetation in all waters of the state (including private and public waters and all permanent and intermittent waters) extending to 3 nautical miles offshore.

The Department encourages the protection and rehabilitation of fish habitats, promotes responsible commercial fishing, supports aquaculture industries, fosters indigenous community involvement in fishing and aquaculture, provides recreational fishers with quality fishing opportunities and ensures there is sustainable and equitable access to fishery resources.

The Department has developed a Policy and Guidelines for Aquatic Habitat Management and Fish Conservation to ensure that land use planning and development incorporates aquatic habitat protection measures. Guideline includes:

- The consideration of the type, condition and function (e.g. corridor values) of surrounding habitat when assessing foreshore structure proposals.
- Locating of boating infrastructure (jetties, boat ramps, etc) along river foreshores in stable river reaches including:
 - straight reaches where no active bed or bank erosion or sediment build up is occurring,
 - the lowest point along a given riverbank to reduce the likelihood of erosion and bank failure,
 - inside bends of rivers or areas where sand bars do not develop, and
 - outside of known commercial fishing grounds.
- Compensation for the loss of low value habitat by rehabilitation of habitat that reinstates higher value habitat corridors elsewhere within the same Catchment.
- Consideration of the effects of concentrating associated activities (such as boating) at a specific site. For example, the amount of time boats cause shading or the relative amount of traffic generated by the presence of the facility and vessel departure routes.
- Support of shared facilities wherever the associated habitat damage is likely to be less than that which would have been expected from the corresponding set of single facilities.
- The requirement that foreshore works must not contribute to the further degradation of native riparian vegetation (listed as a key threatening process under the FM Act).

The FM act sets out provisions to protect marine vegetation from 'harm'. A permit is required from DPI to harm marine vegetation, including seagrasses, saltmarsh and mangroves, regardless of any other approvals that may have been obtained.

2.3 Department of Water and Energy

The objects of the *Water Management Act 2000* (WM Act) provide for the sustainable and integrated management of the water sources of the State for the benefit of both present and future generations. In some instances the construction of domestic foreshore structures will require controlled activity approval (C.A.A.) under the WM Act. Under the WM Act, a controlled activity means:

- the erection of a building or the carrying out of a work (within the meaning of the *Environmental Planning and Assessment Act 1979*), or
- the removal of material (whether or not extractive material) or vegetation from land, whether by way of excavation or otherwise, or
- the deposition of material (whether or not extractive material) on land, whether by way of landfill operations or otherwise, or
- the carrying out of any other activity that affects the quantity or flow of water in a water source.

The Department of Water and Energy (DWE) provides a number of guidelines to assist in the planning and design of developments and structures that require a controlled activity approval which can be found on the Departments website (www.dwe.nsw.gov.au).

When DWE makes an assessment of an application for a C.A.A. it does so within the context of the water management principles provided in s.5 (7) of the WM Act. These principles state that: (a) the carrying out of controlled activities must avoid or minimise land degradation, including soil erosion, compaction, geomorphic instability, contamination, acidity, waterlogging, decline of native vegetation or, where appropriate, salinity and, where possible, land must be rehabilitated, and (b) the impacts of the carrying out of controlled activities on other water users must be avoided or minimised.

2.4 NSW Maritime

NSW Maritime has responsibilities including marine safety, regulation of commercial and recreational boating for all navigable waters of NSW, the oversight of port operations and the management of Maritime property.

A major responsibility for NSW Maritime is to ensure that boating on NSW waterways is undertaken in a safe and enjoyable manner. NSW Maritime promotes a high level of compliance with relevant legislation including:

- *Navigation Act 1901*,
- *Marine Safety Act 1998*,
- *Maritime Services Act 1935*,
- *Protection of the Environment Operations Act 1997*,
- *Environmental Planning and Assessment Act 1979*, and
- *Marine Pollution Act 1987*.

In line with the objectives of the Intergovernmental Agreement on the Environment (1992), NSW Maritime is committed to promoting the sustainable and equitable use

of NSW waterways for all users. Maritime emphasis in relation to sustainable environmental management is on inter-agency co-operation, sharing responsibilities and developing a consultative approach to sustainable waterway management.

NSW Maritime works with other agencies to develop strategies to ensure the sustainability of our waterways whilst at the same time providing safe waterways for both recreational and commercial boating use. In terms of structures built over the water Maritime considers many factors when assessing proposed developments to ensure that boating activity is not restricted and that navigation is not obstructed.

The Tweed River is an important natural resource and for various reasons presents a complex boating management challenge. Following an extensive consultation process in 2006 NSW Maritime finalised the Tweed Estuary Boating Plan 2006 – 2010.

2.5 Local Government Authority

Marine infrastructure requires development consent from local Council and a development application must be submitted to Council for consideration. The zoning of the land will determine if the proposal is permissible however all development located on unzoned land below MHWL requires Council's consent.

Relevant clauses contained in the Tweed Local Environmental Plan for foreshore infrastructure proposals are as follows:

- Clause 13- Development of uncoloured land on the zone map,
- Clause 31- Development adjoining waterbodies,
- Clause 34- Flooding, and
- Clause 35- Acid sulphate soils.

The North Coast Regional Environmental Plan also contains provisions relating to development control for coastal lands such as clauses 32B and 81. These clauses include the requirement for Council when considering a development application to have regard to, amongst other matters, public access to the foreshore, overshadowing and amenity of the waterway.

Council is required to assess development applications in accordance with Section 79c of the Environmental Planning and Assessment Act 1979 (EP&A Act). This involves assessment of the merits of the proposal against planning legislation and consideration of the impacts of the proposal such as environmental, visual and amenity considerations.

Applications are required to include land owners consent to enable processing and determination. In many instances where domestic foreshore structures are proposed the owner of the land will be the Department of Lands. Foreshore infrastructure applications will be publicly exhibited which will involve notification of adjoining and adjacent landowners and/or public advertising.

Proposals that require multiple approvals listed in Section 91 of the EP&A Act are classified as integrated development and referral of the development application to the relevant State Government Agencies is also required.

State Environmental Planning Policy No. 71 Coastal Protection (SEPP 71) applies to sites within the coastal zone. Development proposed below mean high water mark is required to be referred to the Department of Planning under the provisions of this SEPP.

Once development consent has been granted a Construction Certificate approval from Council is required prior to commencement of any works.

Council has a complimentary policy to the Department of Land's Crown Land Foreshore Tenures Policy (Non-Commercial Occupations) relating to jetties and public foreshores. Under this policy, where foreshore structures are concerned:

- no further domestic jetties or pontoons will be permitted from or on public land, and
- existing structures will be permitted to remain at Council's pleasure while Permissive Occupancies are current or where structures have been otherwise approved by Council.

As part of its normal land use planning responsibilities, Council is responsible for floodplain risk management. In accordance with State Flood Prone Land Policy and the NSW Floodplain Development Manual, Council must ensure that approval of foreshore structures will not have individual or cumulative adverse impacts on floodplain behaviour to the detriment of adjoining land or environments.

Documents prepared by Council that relate to foreshore areas within Tweed Shire include the Tweed River Estuary Management Plans (Lower Estuary (1991), Upper Estuary (1996), Cobaki and Terranora Broadwaters (in Prep)), Draft Tweed River Recreational Boating Strategy (2008) and the Tweed River Estuary Bank Management Plan (1998).

3 Marine Infrastructure Assessment

A number of factors are taken into consideration by various government agencies when considering an application for the construction of domestic foreshore structures. These factors are outlined in detail below.

3.1 Land Tenure

The vast majority of lands which form coastal river systems are Crown lands including submerged and foreshore lands. These lands are managed by the DoL. A number of Council managed public reserves also occur along the foreshore. This public land is used for a range of purposes including recreation, tourism, commercial and environmental uses. The construction of domestic foreshore structures on public foreshore land (i.e. where private title does not extend to the Mean High Water Mark) is not supported by the DoL or Council as it restricts the

public use and enjoyment of these lands and impacts on its environmental and aesthetic values.

3.2 Aquatic and Riparian Habitats

Aquatic habitats are extremely productive systems which provide nursery and spawning grounds for many species of fish, crustaceans and molluscs, and provide habitat for various threatened and migratory species.

Riparian habitats provide important benefits to river ecosystems by protecting against erosion, providing habitat for flora and fauna, filtering runoff from adjoining land and enhancing visual amenity.

Extensive areas of foreshore have been modified in the past, leading to destruction of natural aquatic and riparian habitats and loss of amenity. Foreshore structures such as jetties, pontoons, boat ramps and other types of foreshore development have the potential to significantly affect aquatic and riparian habitat during construction and/or operation and are often built at the expense of mangroves, seagrass and other fringing vegetation. In the past marine infrastructure has generally been approved on an ad hoc basis with very little consideration of their cumulative impacts on aquatic and riparian habitat.

The Tweed River contains large areas of important aquatic and riparian habitat including:

SEPP 14 Coastal Wetlands

SEPP 14 Coastal Wetlands are wetlands that have been identified as being of State significance. The aim of the SEPP 14 Coastal Wetlands policy is to ensure that coastal wetlands are preserved and protected in the environmental and economic interests of the State. The location of domestic foreshore structures in areas of SEPP 14 Coastal Wetland is not considered appropriate. When domestic foreshore infrastructure is proposed to be located adjoining areas of SEPP 14 Coastal Wetlands the potential impact on these wetlands needs to be carefully assessed.

Seagrass

Seagrasses occur in sheltered areas and shallow waters, growing in soft sediments such as sand or mud. Seagrass beds are extremely fragile and can be easily destroyed. Seagrasses provide habitat for fish and other aquatic fauna, they help to reduce erosion, improve water quality and are a source of food for fish and other aquatic fauna. Seagrasses support many coastal fisheries by providing important habitat for juvenile and adult fish.

A permit is required from DPI for developments or activities that may harm marine vegetation, including seagrasses, regardless of any other approvals that may have been obtained.

Mangroves

Mangroves are salt-tolerant trees and shrubs which occur on intertidal mud flats along the shores of estuaries. Mangroves provide habitat for many aquatic animals and are recognised as important nursery grounds for juvenile fish. Commercially important crustaceans such as king prawns also live in mangroves.

Mangroves buffer waterways from the direct effect of run-off waters by filtering pollutants from the land. Mangroves also provide a degree of natural buffering to erosion of river banks by wind and boat waves. This is particularly important in river reaches where agricultural land and infrastructure such as roads are very close to the river. They also act as a visual screen along developed shorelines.

A permit is required from DPI for developments or activities that may harm marine vegetation, including mangroves, regardless of any other approvals that may have been obtained.

Saltmarsh

Saltmarsh consists of a number of low growing plants that can tolerate high soil salinity and occasional inundation by salt water. Saltmarshes have high biodiversity and economic value, supporting threatened and migratory bird species and providing commercially important fish nurseries. Saltmarshes support a range of invertebrate including crabs, prawns, molluscs and insects and are an important source of food for fish and other aquatic fauna.

Saltmarsh is listed as an Endangered Ecological Community under the *NSW Threatened Species Conservation Act 1995*. Saltmarshes are also recognised as being globally threatened. A permit is required from DPI for developments or activities that may harm marine vegetation, including salt marsh, regardless of any other approvals that may have been obtained.

Riparian Vegetation

Riparian vegetation forms an important part of a healthy functioning river and has a number of benefits for native fish. It provides a source of woody debris, an essential habitat component for native fish, it stabilises riverbeds and banks, binds soil and protects against erosion and slumping. Riparian vegetation also acts as a filter for sediments, phosphorous and organic nitrogen, improving the quality of water entering watercourses.

The degradation of native riparian vegetation along NSW watercourses is listed as a Key Threatening Process under the FM Act.

3.3 Navigation

Domestic foreshore structures can significantly impact on navigation on waterways. Factors such as the design of structures and the type of boating activity associated with these structures can impact on existing fairways or channels and public safety.

There are many competing uses of NSW waterways and the impact of particular activities on other waterway users needs to be managed. For example the length of a jetty may impinge on waterskiing in the area if it is significantly longer than existing structures.

When assessing the potential impact domestic foreshore structures on navigable waters NSW Maritime considers the following factors:

- minimising obstructions to navigation,
- the design and dimensions of existing structures in the relevant waterway,
- the type of boating activity that occurs in the relevant waterway,
- existing fairways or channels,
- the depth of water if a berthing area is requested as part of the proposed development,
- the location of moorings,
- other relevant activities, and
- what steps can be taken to minimise the impact to navigation.

3.4 Commercial Fishing

An Estuary General Fishery is operated on the Tweed River which targets fish species such as sea mullet, flathead, luderick and bream, using meshing and hauling nets. Operation of a hauler net can be particularly compromised by foreshore infrastructure such as jetties and pontoons. Hauler nets are typically up to 750 metres in length and are hauled in an arch around schools of milling fish. Hauling is limited by the morphology of the river and its ability to accommodate both the periodic schooling of viable quantities of fish and the effective operation of the hauler.

Prawn haul nets are also a key part of the fishery and can again only be used in locations with appropriate geomorphic configuration. Meshing, using a set mesh net to catch fish, and crabbing are the most versatile method of commercial fishing undertaken in the River.

Commercial fishers are excluded from the Recreational Fishing Haven and other parts of the river due to periodic closures to minimise impacts on other waterway users. It is therefore important that further impediments to accessing important fishing grounds are assessed, reduced and in some cases removed.

A number of oyster producers also operate in the Tweed estuary. Oyster aquaculture in NSW is threatened by declining estuarine water quality, increased usage of waterways and development adjacent to estuaries. State Environmental Planning Policy No. 62 – Sustainable Aquaculture and the NSW Oyster Industry Sustainable Aquaculture Strategy identifies priority oyster aquaculture areas and provides for the protection of these areas from development that may adversely affect the environmental conditions required for a viable oyster aquaculture.

The recognition of commercial fishing interest in waterway areas has now been established, particularly with recent changes to the management of the State's commercial fishing which has seen licensed commercial fishers become share

holders within a fishery rather than just participants. This change has likely increased their standing within the Land and Environment Court in appealing approval decisions that may impact directly or indirectly on commercial fishing activities.

3.5 Commercial Operations

Commercial operations may exist along river and foreshore lands. These may include extractive industries such as sand mining, aquaculture operations such as oyster production, water based tourism and marina developments.

Existing commercial operations may impact on the suitability of an area to accommodate domestic foreshore structures. Conversely the proliferation of domestic foreshore structures may reduce the commercial potential of an area. The impact of domestic foreshore structures on existing and potential commercial operations needs to be considered when assessing the suitability of an area to accommodate domestic foreshore structures.

3.6 Flooding

Domestic foreshore structures have the potential to impact on local flooding behaviour in one or more of the following ways:

- increasing flood levels and flow velocities - due to obstructions to river flow such as piers and footings, and the build-up of debris against structures;
- increasing erosion, scour and bank instability - due to disturbance of foreshore areas, siltation of waterways and reduced flood flow capacity;
- increasing flood damage - debris impact and build-up increases loading on structures making them more likely to fail and require repair or replacement after a flood event; and
- increasing safety risks - fixed structures become submerged and damaged structures can become floating obstacles, increasing risks to rescue craft and downstream structures such as bridges.

Assessment of the impacts of foreshore infrastructure needs to consider the impacts of individual structures as well as the cumulative impacts on local flooding events.

3.7 Bank Stability

Domestic foreshore structures may exacerbate erosion in river reaches susceptible to high levels of natural and unnatural river bank erosion. Domestic foreshore structures can also reduce bank stability by altering water flow along the bank and through the removal of stabilising vegetation required for their construction. The operation of vessels using a jetty or pontoon and the erosive forces inherent in manoeuvring a vessel onto a pontoon can also reduce bank stability.

The Tweed River Estuary Bank Management Plan (Tweed Shire Council, 1998) contains a riverbank assessment for most of the tidal reaches of the Tweed River. This report contains the broad geomorphologic setting, details bank failure

mechanisms and remediation options. Zones of erosion and accretion have been mapped along the estuary.

3.8 Geomorphology

The geomorphology of rivers (fluvial geomorphology) is defined by processes such as sediment transport, bed erosion, bank erosion, flood diversions and channel migration. These processes are influenced by a range of physical aspects including aquatic and riparian vegetation structure, substrate type, woody debris and flow volumes. If these physical aspects are altered then the river system alters to accommodate these changes.

Alteration of the geomorphic condition or stability of a river is defined as an artificial disturbance or intervention that significantly changes the geomorphic processes and hence the fluvial components in or near a river, including the river channel and the floodplain if present. If domestic foreshore structures are inappropriately designed or located they can impact on the geomorphology of a river and can cause significant damage to the land and any nearby structures including roads and buildings.

3.9 Visual Amenity

The construction of domestic foreshore structures can impact on the visual amenity of an area and needs to be considered when assessing the suitability of an area for foreshore infrastructure. Factors that are taken into consideration include the visual sensitivity of the site i.e. is it readily visible to the public; the scenic quality of the site, i.e. is the site natural or otherwise scenic; and the level of visual impact of the proposed structure.

The purpose of quantifying the visual quality of foreshores is to highlight the importance of the visual scene when considering domestic foreshore structures. While it is acknowledged that human reaction and interpretation of visual landscapes vary enormously, perceptions of visual quality are fundamentally connected with aesthetics.

Visual Quality Assessments have been undertaken for Tweed Shire and the lower and upper Tweed River estuary foreshores (NSW Public Works, 1991; NSW Department of Public Works, 1993; and Tweed Shire Council, 1995).

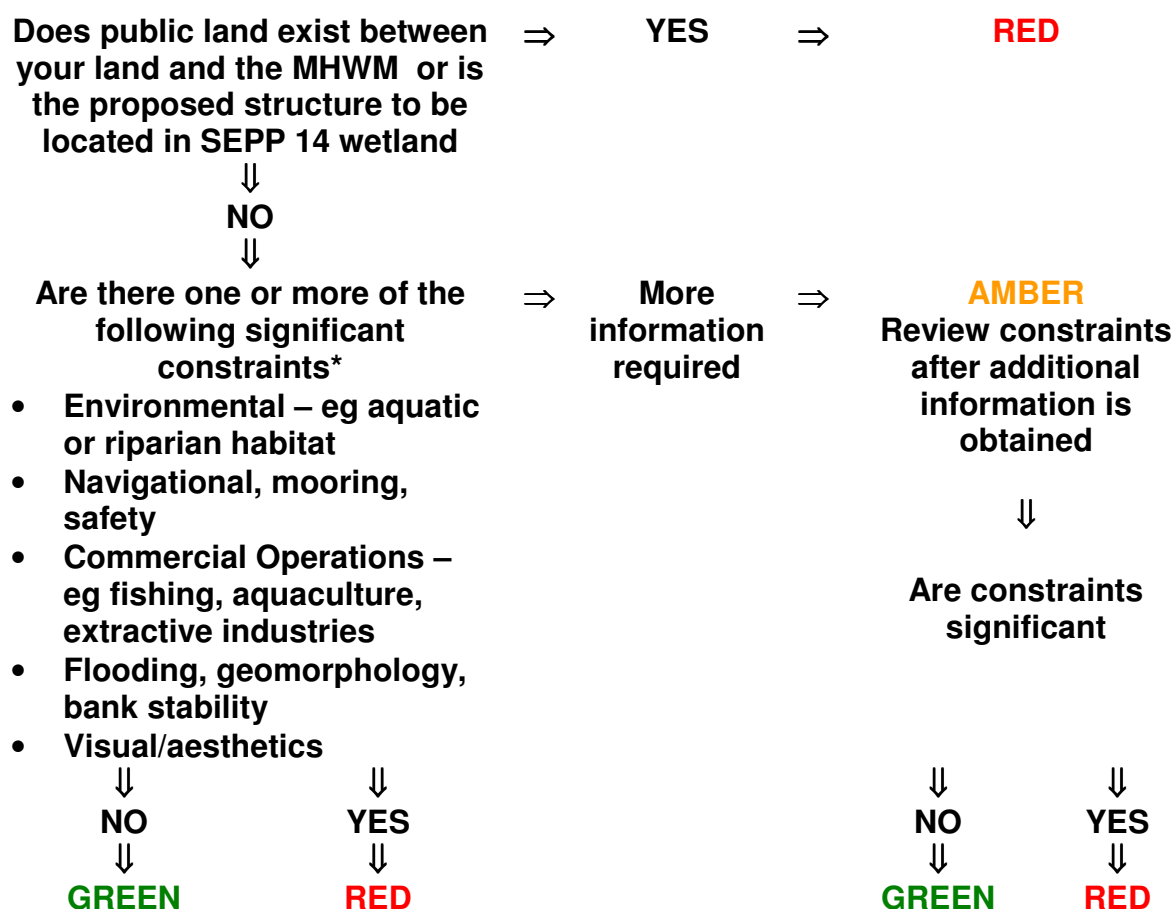
The Tweed River estuary (upper and lower) was assessed as having over 82% of the length of its foreshore in the Highest or High Visual Quality Classes.

4 Decision Model

In undertaking assessment of the capability and suitability of an area to support domestic foreshore structures a number of issues need to be considered by the various consent agencies including legislation and policy, commercial and fishing interests, boating activity and safe navigation, environmental values, flooding and aesthetics.

Based on these factors a Red, Amber and Green decision making tool has been developed and the Tweed River mapped to reflect these outcomes. Red sectors indicate that an area is not suitable for domestic foreshore structures, amber sectors indicate that further individual assessment of the capability and suitability to support domestic foreshore structures needs to be undertaken, and green sectors indicate that the development of certain domestic foreshore structures is suitable in these areas subject to development consent.

Areas which have been identified as red, amber or green may be able to support public facilities if there is suitable location and a demonstrated demand subject to planning approval.



* These constraints are described in detail in Section 3

5 Mapping

The Tweed River and its tributaries which are covered by this Strategy have been divided into thirteen reaches in order to provide maps of a suitable scale to display the red, amber and green sectors along the river system. The location of public boat ramps and wharfs are also included in the maps.

5.1 Tweed Entrance to Ukerebagh Passage including Terranora Inlet and Southern Boat Harbour



Current Situation

The majority of the foreshore along the eastern bank of the Tweed River from the Tweed entrance to just north of Fingal Head is land owned by the Tweed-Byron Local Aboriginal Land Council. There is an easement for public access and maintenance along the foreshore in this area. South of Fingal Head is bordered by Crown land and Crown or Council roads or reserves. Jack Evans Boat Harbour and the Southern Boat Harbour are mostly bordered by Crown land and are valued community facilities. There are limited numbers of private properties immediately adjoining the river in this area.

The Anchorage Canal Estate, constructed on the former Greenbank Island, is located within this reach. There is to be no change to the conditions associated with establishing pontoons in this estate.

There are a number of public wharves and pontoons in this area.

Values and Issues

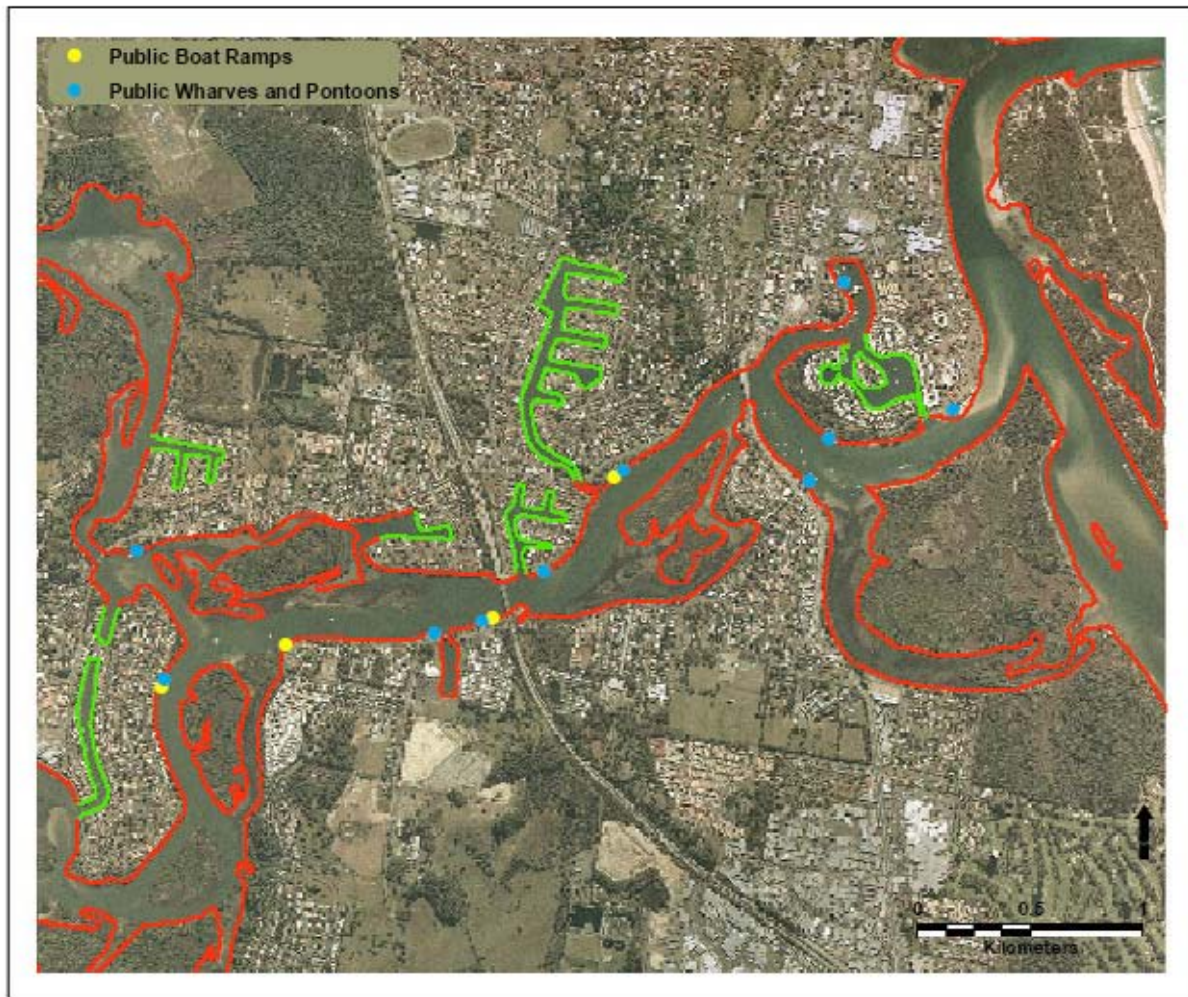
- Seagrass dominates the channels and vulnerable aquatic habitats occur around Sponsors Lagoon, no powered craft are permitted in this area
- Ukerebagh Passage is a highly valuable estuarine habitat with high cultural values and is bordered by Ukerebagh Nature Reserve. The Passage is a no wash zone and power craft are prohibited in this area
- The waters between the Tweed river entrance and the Ukerebagh Passage are within the Tweed Recreational Fishing Haven and
- This area is within the vicinity of Priority Oyster Aquaculture Areas.

Outcome

The “Seascape” property on the south-eastern bank of Jack Evans Boat Harbour has a MHWB boundary. This site is highly unsuitable for any domestic foreshore structures for navigational, environmental and geomorphologic reasons.

Sponsors Lagoon and Ukerebagh Island and Passage are very likely to be impacted upon by the cumulative impacts of increased waterway usage associated with additional domestic foreshore structures development. The whole of the Tweed River entrance to Ukerebagh Passage is identified as unsuitable for domestic foreshore structures.

5.2 Terranora Creek



Current Situation

The foreshore along the southern bank of Terranora Creek is bordered by Crown land or Crown or Council roads or reserves.

The northern foreshore has areas where residential properties have immediate frontage to the waterway behind Caddys Island. Approximately 50 of these lots are located along Kennedy Drive east to Barrett Street. The shape of the privately owned land at the Wyuna Road canal estate with water frontage creates approximately 47 more lots with immediate foreshore access although the shape of some of these lots would not facilitate the construction of domestic foreshore structures.

A further three lots on the north eastern side of Crystal Waters Drive have immediate foreshore access, however the narrow entrance to Endless Summer Canal and classification of the land as Operational precludes any opportunities for domestic foreshore structures.

Constructed canal estates of Seagulls (North and South), Wyuna Rd, Shearwater and Endless Summer are located within this reach. There is to be no change to the conditions associated with establishing pontoons in these estates.

There are several public boat ramps and wharves managed by Tweed Shire Council in this reach.

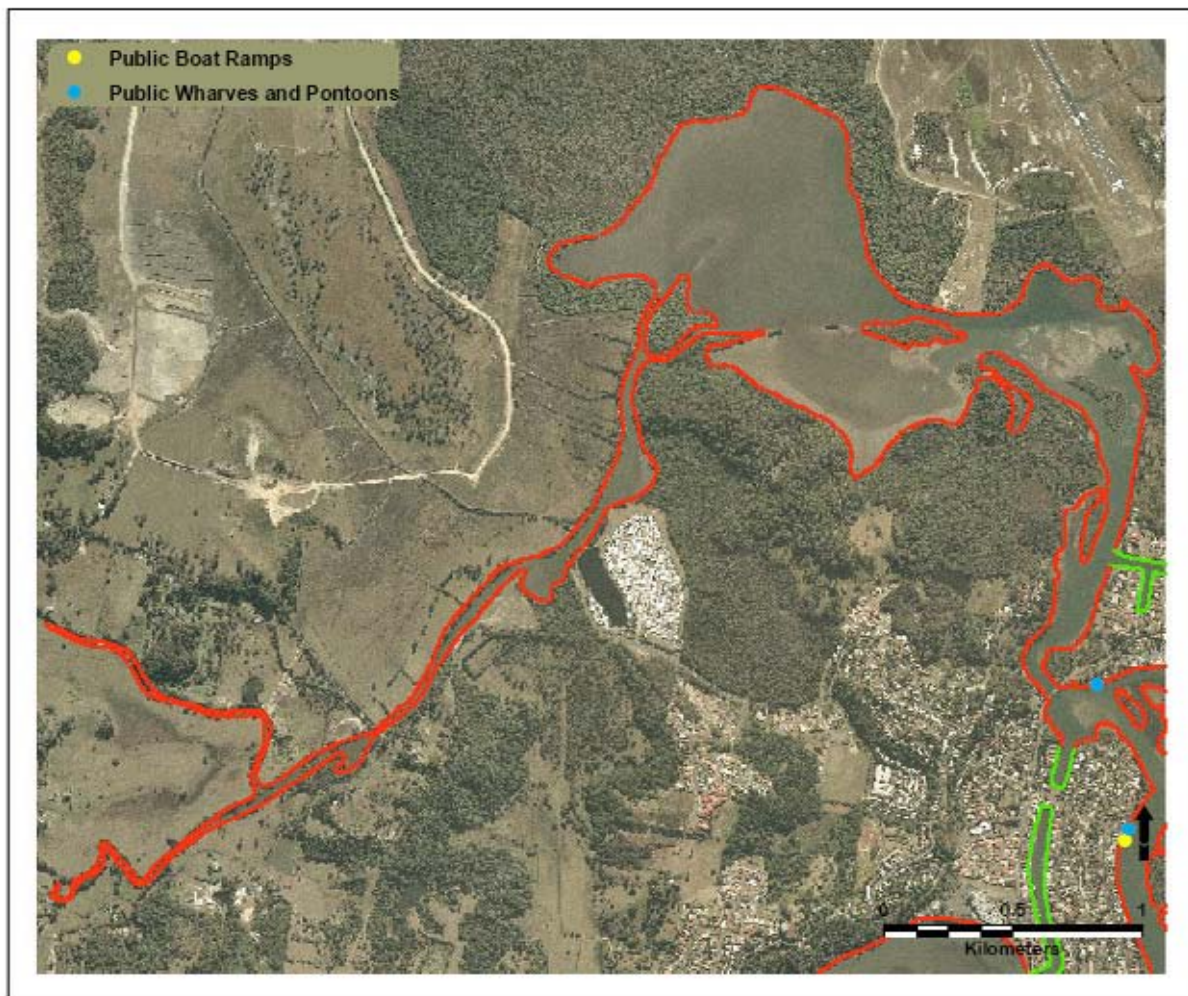
Values and Issues

- Caddys Island is a SEPP14 Wetland and the waterway between Caddys Island and the northern bank of the Terranora Creek has healthy seagrass beds.
- The shallow islands with seagrass which dominate the channels and vulnerable aquatic habitats around Caddys Island are part of the Tweed Estuary Nature Reserve. This area is already identified by Maritime as 4kt, no wash, no skiing, no personal water craft area.
- The area west of Boyds Bay Bridge is regularly used by commercial fishers; the waters east are within the Tweed Recreational Fishing Haven.
- The waters between Terranora Creek to the Tweed River are within the vicinity of Priority Oyster Aquaculture Area.

Outcome

There are likely to be significant cumulative impacts from increased waterway usage on the SEPP14 wetlands and seagrass beds from additional boating activity associated with increased domestic foreshore structure. Several public boat ramps and wharves are provided in this reach. To protect the environmental values of this area Terranora Creek is identified as unsuitable for domestic foreshore structures.

5.3 Cobaki Creek and Broadwater and Piggabeen Creek



Current Situation

With the exception of Commonwealth Coolangatta airport land and a 700 metre area of foreshore immediately west of where Cobaki Creek enters the Broadwater, the foreshore of Cobaki Broadwater to Terranora Creek is bordered by Crown land and Crown or Council roads or reserves.

Cobaki Creek is predominantly bordered by private land with some areas bordered by Crown land and Crown or Council roads or reserves.

The West Tweed Canal Estate is located at the south east entrance to Cobaki Broadwater and North Seagulls Estate is located further south again. There is to be no change to the conditions associated with establishing pontoons in these estates.

Values and Issues

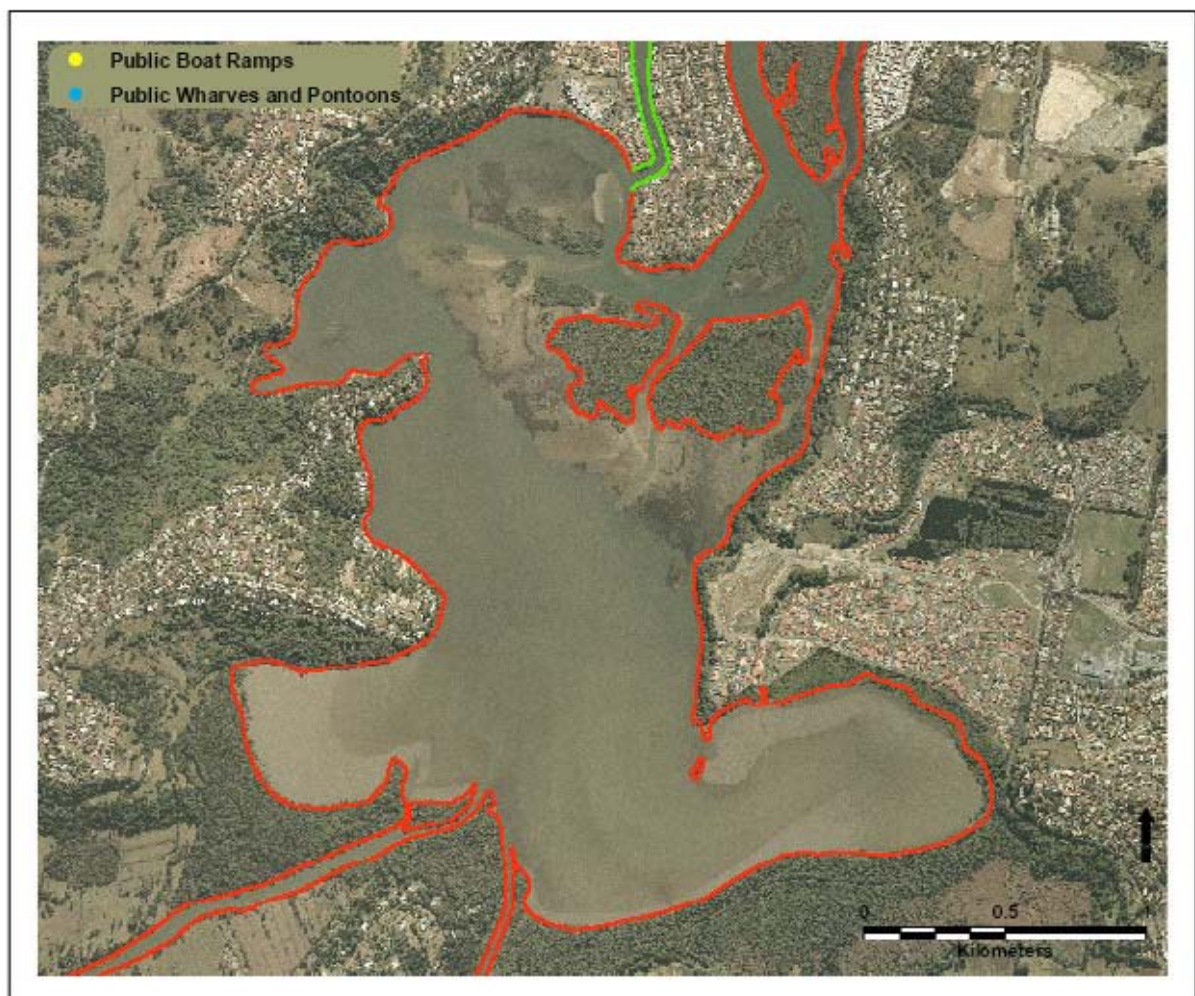
- The foreshore of the Cobaki Broadwater is dominated by mangrove communities including SEPP14 wetlands.

- The Cobaki Broadwater is shallow with seagrass beds and vulnerable aquatic habitats, the areas is already identified by Maritime as a no wash, no skiing, and no personal water craft area.
- The area is regularly used by commercial and recreational fishers.
- The waters are within the vicinity of a Priority Oyster Aquaculture Area.
- There is limited private land adjoining these waters.

Outcome

As no private land outside the West Tweed Canal Estate adjoins the MHWL and as the environmental values of the area are significant the whole of Cobaki and its tributaries have been identified as unsuitable for domestic foreshore structures.

5.4 Terranora Broadwater



Current Situation

With the exception of Seagulls Club, the whole of the foreshore of Terranora Broadwater is bordered by Crown land and Crown or Council roads or reserves. Several Crown leases are held along Birds Bay Drive which are primarily devoted to oyster farming operations. There may be a number of unauthorised structures within the Terranora Broadwater.

Seagulls Canal Estate is located in the northern part of Terranora Broadwater. There is to be no change to the conditions associated with establishing pontoons in these estates.

Values and Issues

- The foreshore of the Terranora Broadwater is dominated by mangroves, particularly in the south.
- The Terranora Broadwater is shallow with seagrass beds and vulnerable aquatic habitats. The area is already identified by Maritime as a no wash, no skiing, and no personal water craft area.
- The Terranora Broadwater is regularly used by commercial fishers.
- This is a Priority Oyster Aquaculture Area in the Tweed estuary.
- Unauthorised structures may occur in this area.

Outcome

As no private land outside the Seagulls Canal Estate adjoins the MHWMM and due to the sensitive nature of the environment and commercial fishing and oyster production values this area is identified as unsuitable for domestic foreshore structures.

5.5 Ukerebagh Passage to Lillies Island



Current Situation

Most of the foreshore of the Tweed River in this reach is bordered by Crown land and Crown or Council roads or reserves. There are several existing Permissive Occupancies and Crown licences on Barellan Drive, Banora Point.

There are a number of property owners along the Chinderah reach that consider the property boundary to be the MHWL, however, this is not the case in all instances and this issue needs to be resolved. The old Banora Point Caravan Park Site (Lot 5 DP 828639) has MHWL boundary to the Tweed River.

A public boat ramp and wharf are located at Fingal Head.

Values and Issues

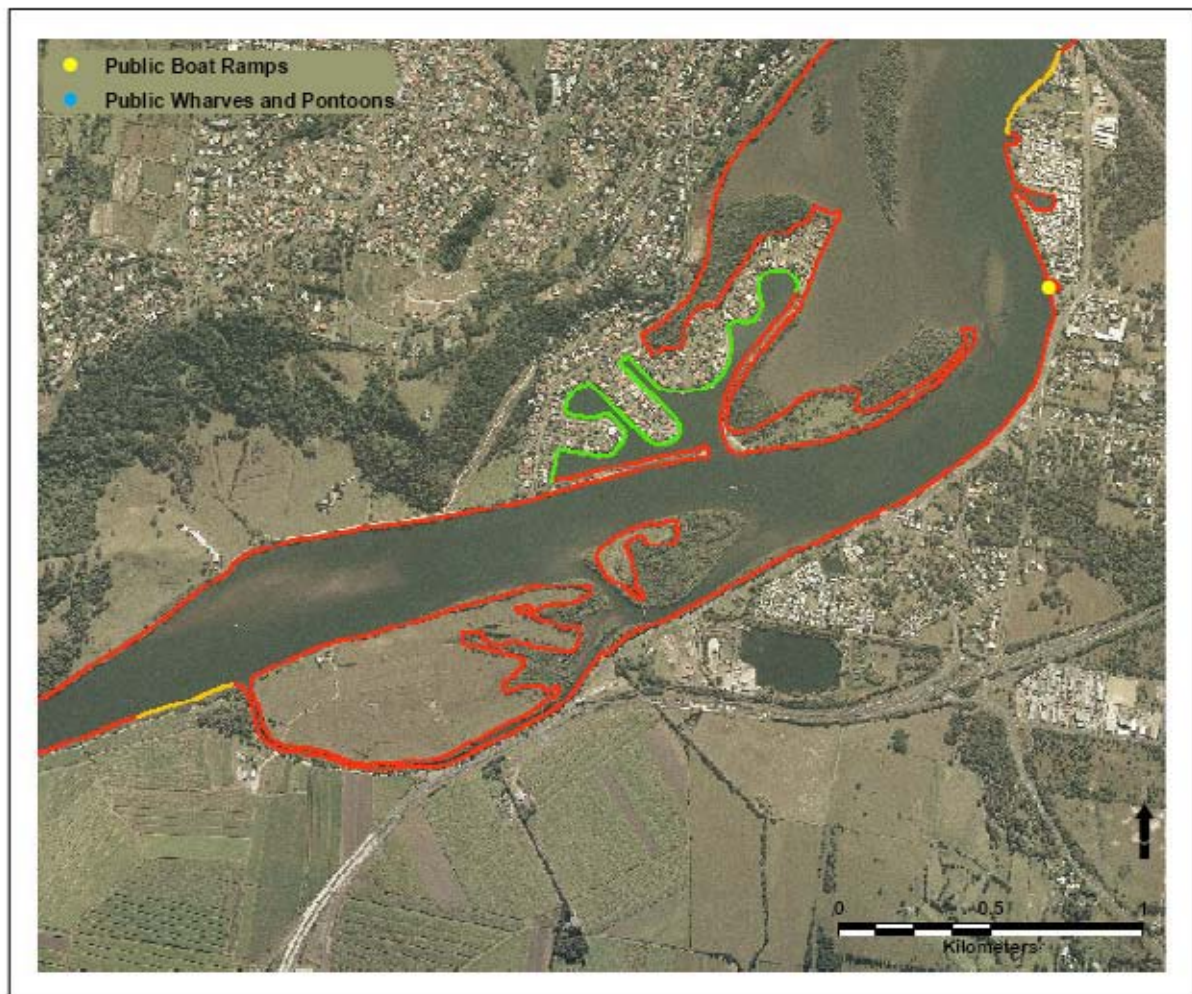
- Vulnerable aquatic habitats exist and shallow seagrass dominate the channels around Wommin Lagoon and Wommin Lake.
- Seagrass beds north of Oxley Cove around Lillies Island are particularly significant.

- Waters downstream of Rocky Point fall within the Tweed Recreational Fishing Haven; consequently the areas upstream of Rocky Point are regularly used by commercial fishers.
- Numerous haul shots occur around Tonys and Tims Island and on both banks immediately downstream of the Barneys Point Pacific Highway bridge. A particularly important haul shot occurs immediately upstream of the bridge on the southern bank. Several other mid river sites are important for hauling or meshing operations depending upon dredging operations.
- The tenure of land to the MHWL along Chinderah Bay Drive needs to be determined.

Outcome

Aquatic habitats and seagrass beds are likely to be impacted on by the cumulative impacts of increased waterway usage from additional domestic foreshore structures. Additional domestic foreshore infrastructure is also likely to impact on significant commercial fishing operations. The Tweed River from Ukerebagh Passage to Lillies Island including Wommin Lake and Wommin Lagoon is mostly unsuitable for domestic foreshore structures. Landholders along Chinderah Bay Drive who wish to submit applications for domestic foreshore structures must first establish that they have tenure to the MHWL.

5.6 Lillies Island to The Piggery



Current Situation

With the exception of a few narrow parcels of land along Chinderah Bay Drive and the foreshore of Dodds and Chinderah Islands the whole of the foreshore of the Tweed River in this reach is bordered by Crown land and Crown or Council roads or reserves. A public boat ramp is located in this reach at Waugh St.

Oxley Cove Canal Estate is located within this reach. There is to be no change to the conditions associated with establishing pontoons in this estate.

Values and Issues

- Seagrass beds located near Lillies Island in the Chinderah Bay Broadwater are particularly significant, this area is already identified by Maritime as 4kt, no wash, no skiing, no personal water craft area.
- This reach has a suite of important commercial fishing haul and meshing areas. Particularly important are shots around Chinderah and adjacent to Dodds Island and several areas downstream of the Islands on the southern bank of the River.

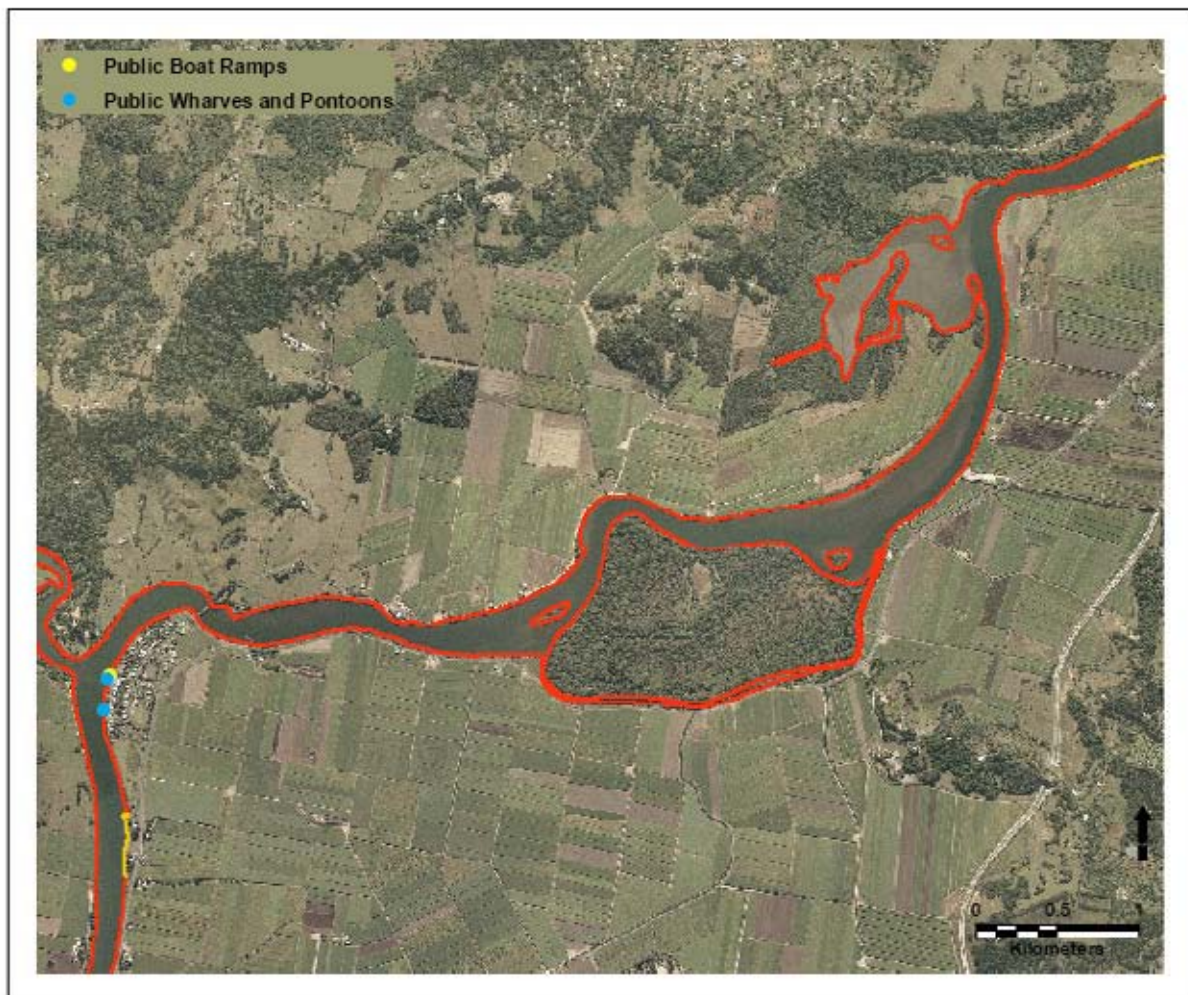
- Dodds and Chinderah Islands are subject to high flood flows and are not considered suitable for further development.
- Dodds and Chinderah Islands are subject to bank erosion due to wave action and unprotected banks.

Outcome

The private lots along Chinderah Bay Drive are too narrow to support residential development and as such are not suitable for domestic foreshore structures. Council is currently considering acquiring these lots for public foreshore lands.

Seagrass beds located near Lillies Island are likely to be impacted by the cumulative impacts of increased waterway usage with additional domestic foreshore structures in this area. Foreshore structures are not considered suitable on Dodds and Chinderah Islands due to impacts on commercial fishing and flooding. There are no areas along the Tweed River from Lillies Island to The Piggery that are identified as suitable for domestic foreshore structures.

5.7 The Piggery to South Tumbulgum



Current Situation

With the exception of a small parcel of land on the southern bank immediately upstream of Dodds Island and a smaller area immediately upstream of Stotts Island, the southern bank in this reach of the River is bordered by Crown land and Crown or Council roads or reserves.

The northern bank, with the exception of the foreshore around and immediately to the south of Cowans Bay (also known as Tweed Broadwater), is principally bordered by Crown land and Crown or Council road or reserves.

A public boat ramp, jetty and floating pontoon is located at Tumbulgum.

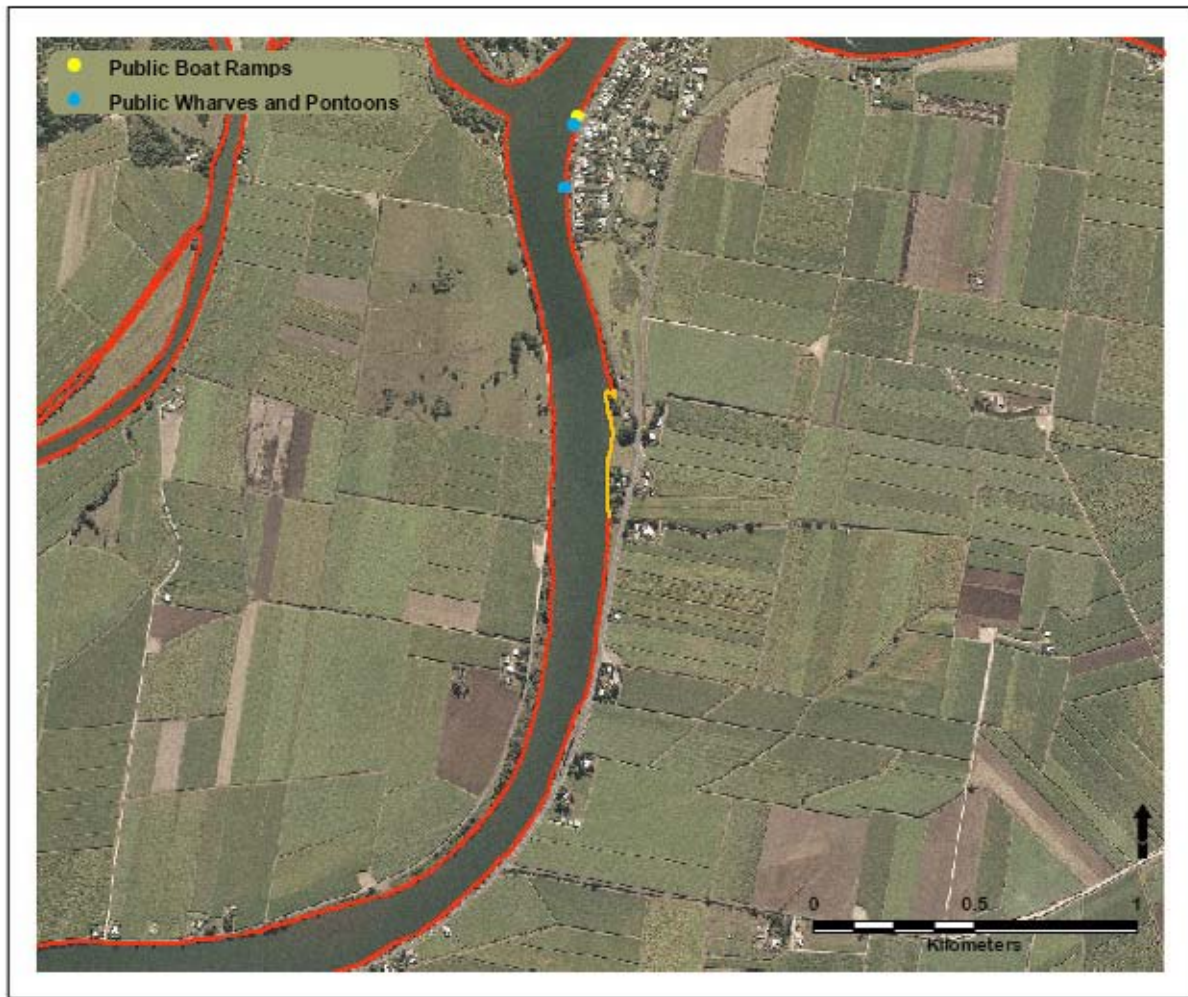
Values and Issues

- Cowans Bay is very shallow and has fringing mangroves.
- Stotts Island Nature Reserve is highly susceptible to erosion and impacts from increased boating activity.
- Shallow islands with seagrass dominate the channels and vulnerable aquatic habitats occur around Caddys Island and are part of the Tweed Estuary Nature Reserve. This area has already been identified by Maritime as a 4kt, no wash, no skiing and no personal water craft area.
- Caddys Island is a SEPP 14 wetland.
- The area west of Boyds Bay Bridge is regularly used by commercial fishers; the waters east are within the Tweed Recreational Fishing Haven.
- The waters are within the vicinity of a Priority Oyster Aquaculture Area.

Outcome

The environmental values of the area are likely to be impacted by cumulative impacts of increased waterway usage with additional domestic foreshore structures. Additional domestic foreshore structures may also impact on commercial fishing operations in this area. Public facilities are already located at Tumbulgum. As such the Tweed River from The Piggery to South Tumbulgum has generally been identified as unsuitable for domestic foreshore structures. Assessment of any domestic waterfront structure application immediately upstream of Dodds Island would need to be based on merit.

5.8 South Tumbulgum



Current Situation

Seven properties in South Tumbulgum have direct foreshore access. Two of these properties either side of Richies Creek have successfully obtained licences for foreshore structures. In both instances licensed estuary general commercial fisheries have expressed strong concern as the area has a long history of use as a commercial hauling shot.

A public boat ramp, jetty and floating pontoon are located further north at Tumbulgum.

The western bank of the river is bounded by a Crown road.

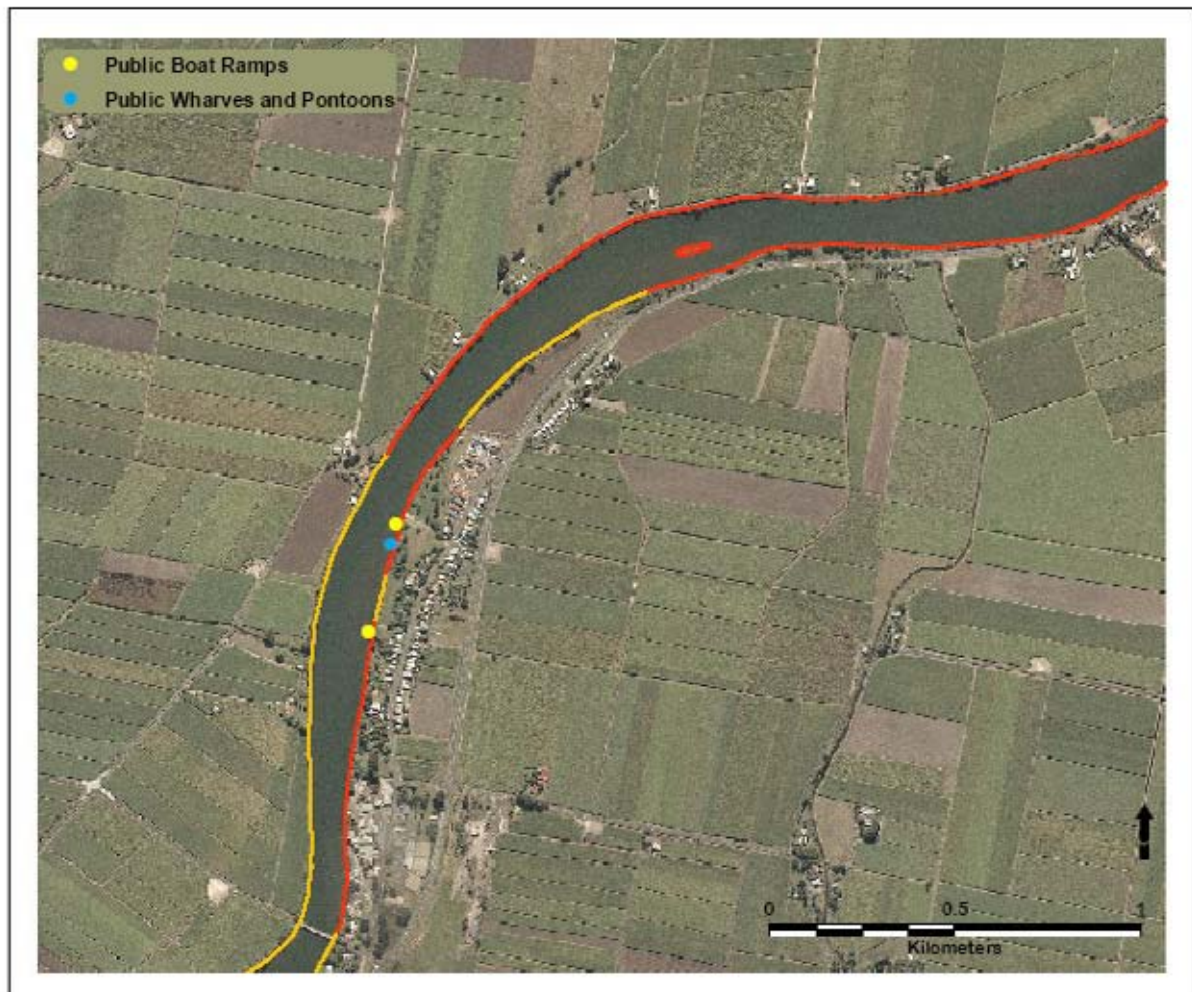
Values and Issues

- South Tumbulgum is regularly used by commercial fishers.
- Existing domestic foreshore structures are already impacting on commercial fishers.
- The western bank of the river is bounded by a Crown road.

Outcome

Due to the impacts on commercial fishing operations this reach of the river is identified as unsuitable for further domestic foreshore structures. However applications for relocated, shared or redesigned structures may be assessed on merit where properties have MHWL access.

5.9 Condong North of Bridge



Current Situation

Within this reach the northern bank of the river has large rural properties with foreshore access to the river, however much of this foreshore is very steep and subject to highly erosive forces.

The southern bank of the river through the town of Condong has a foreshore principally bordered by Crown land and Crown and Council roads or reserves with the exception of the Condong Sugar Mill.

The public foreshore reserves in this reach can be readily accessed by road; however the Crown reserve, because of works undertaken by adjoining residents

appears as private property. There may be unauthorised domestic foreshore structures in this area.

The Sugar Mill has an outfall and a Crown Lands lease to accommodate the siting of those works.

Two public boat ramps and a floating pontoon are located at Condong.

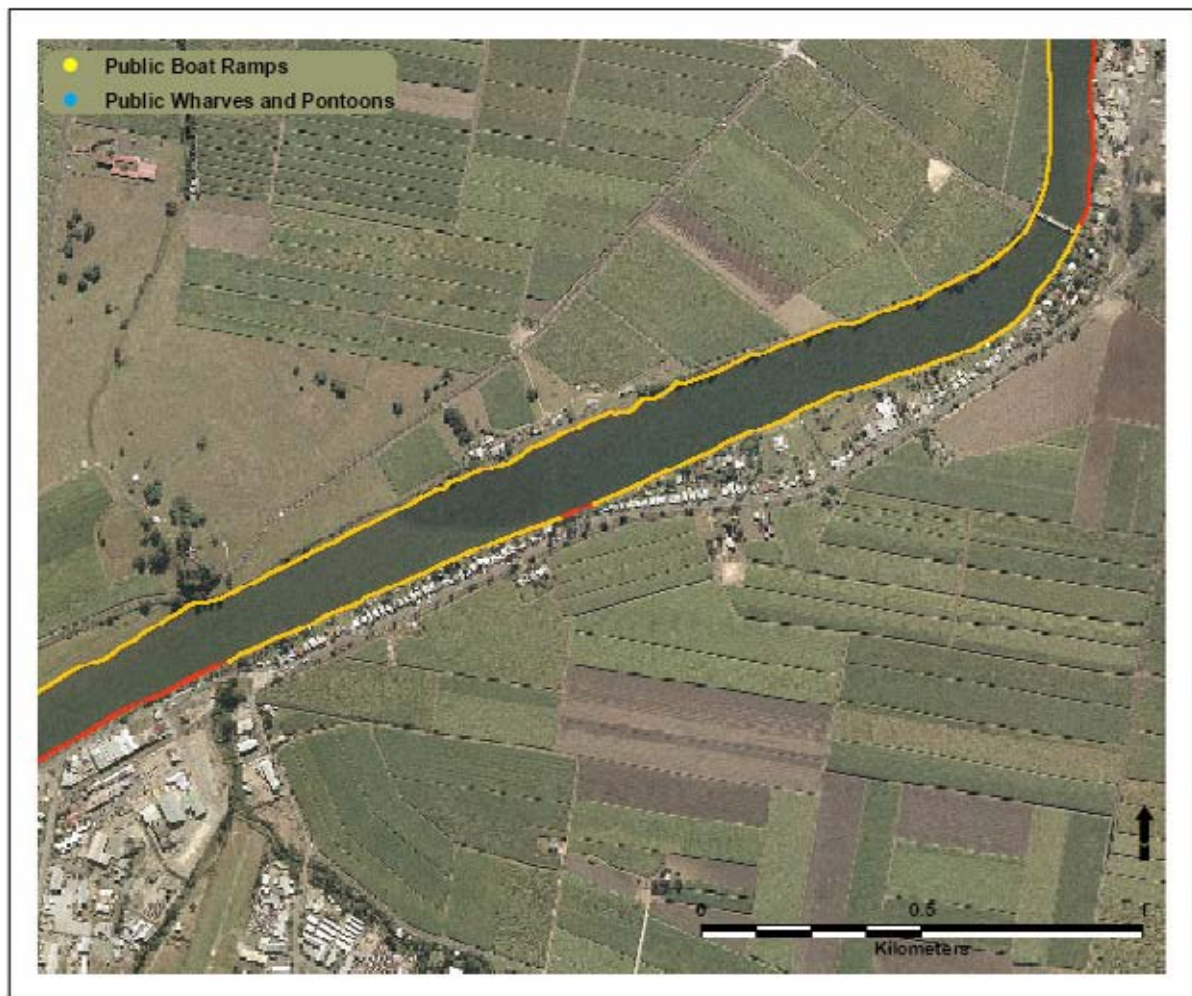
Values and Issues

- This area is an important commercial fishing ground.
- Foreshore structures are limiting accessibility for commercial fishers.
- There may be foreshore structures in this area that are unauthorised.

Outcome

The area is considered not suitable for further development of domestic foreshore structures due to impacts on commercial fishing. Tweed Council has highlighted difficulties with managing the foreshore along this reach and additional infrastructure would exacerbate this difficulty. The whole of the Tweed River around Condong is identified as unsuitable for domestic foreshore structures. However applications for relocated, shared or redesigned structures may be assessed on merit where properties have MHWL access.

5.10 Condong South of Bridge to Condong Creek



Current Situation

The foreshore of the Tweed River upstream from the Condong Bridge to Condong Creek is in private ownership with large rural properties on the northern bank and approximately 80 private residential properties on the southern bank of the river.

Several of the properties on the southern bank have Crown land licences and there is considerable demand for more licences. Most of the properties have narrow frontages limiting suitable siting of pontoons, jetties and boat ramps. Also located in this area is a houseboat business and the ski club facilities, both operated from private property.

Downstream of the bridge, foreshore reserves limit opportunities for foreshore structures under the existing policies.

Values and Issues

- The area is an important area for commercial fisher's prawning, hauling and meshing operations.

- There are several foreshore structures in this area that are likely to be unauthorised.

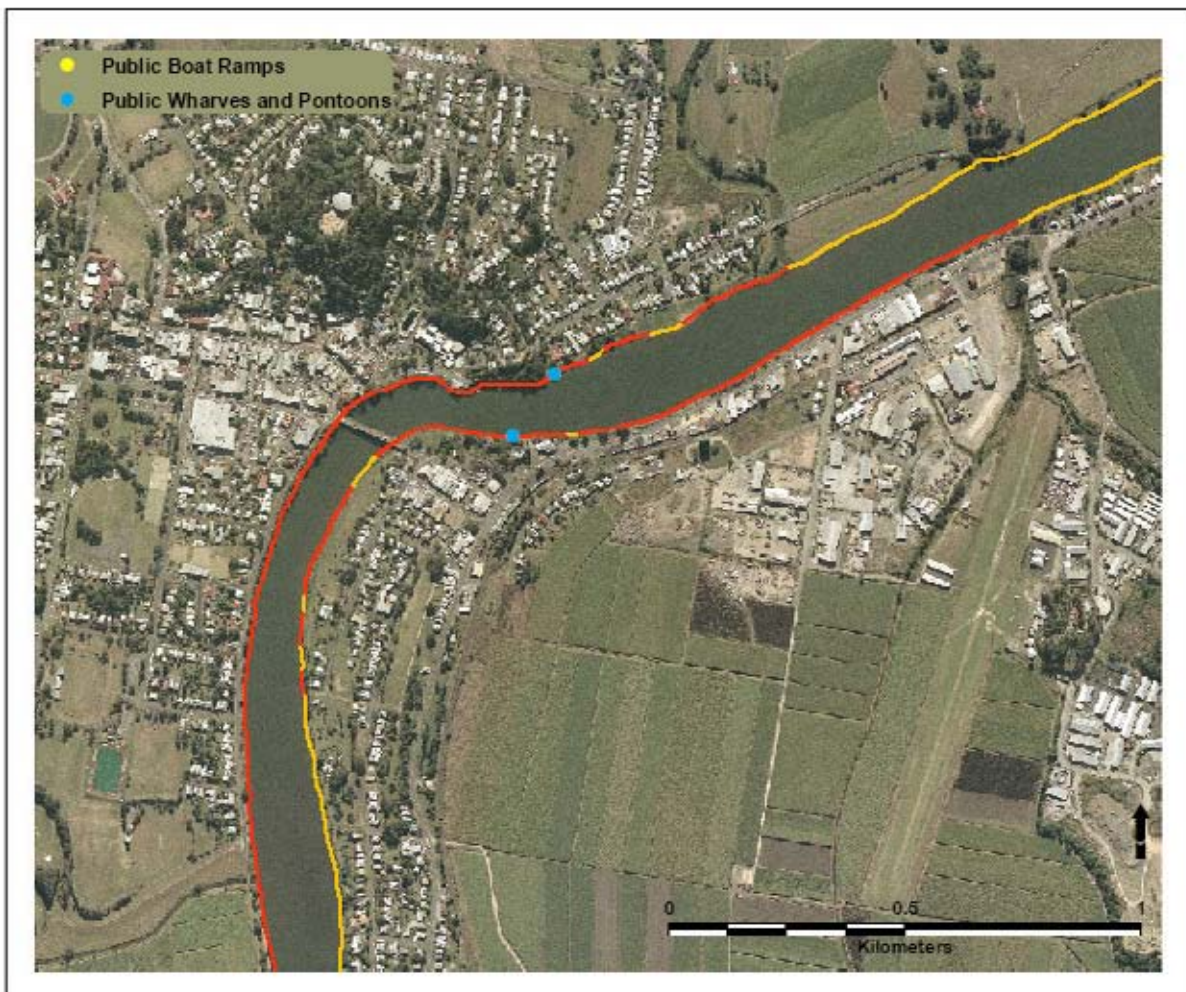
Outcome

Existing and potential impacts on commercial fishing operations and the potential for cumulative impacts on aquatic foreshore habitats from the full potential of eighty structures and associated boat ramps on each of the small lots will require careful management. This whole reach is identified as of low suitability for further domestic foreshore structures. If additional structures are approved this could require sharing of facilities between 2 or more properties.

There is potential for further small public facilities in this area in accordance with the Upper Tweed River Estuary Management Plan.

A review of existing structures should be undertaken and action taken to remove unauthorised structures.

5.11 Condong Creek to South Murwillumbah



Current Situation

Immediately downstream from the Murwillumbah town bridge a Crown reserve lies between residential lots on the southern bank except for one or two properties before the Tweed Valley Way road corridor occupies the foreshore downstream to Condong Creek. Tenure to the MHWL needs to be established in this area.

On the northern bank private ownership of the foreshore is held by a few residential properties upstream of Mayal Creek. Tenure to the MHWL would need to be established prior to allowing domestic foreshore structures in this area. A Council road and Crown land also occupy sections along the foreshore.

The northern bank upstream of the Murwillumbah bridge is within Council road reserve. On the southern bank, with the exception of three areas of foreshore Crown reserve the majority of the foreshore is privately owned. The river banks are steep and form part of the flood protection levy for South Murwillumbah. Structures that would potentially reduce the effectiveness or structural stability of the levy bank would not be permitted.

A public wharf and two floating pontoons are located in this reach.

Values and Issues

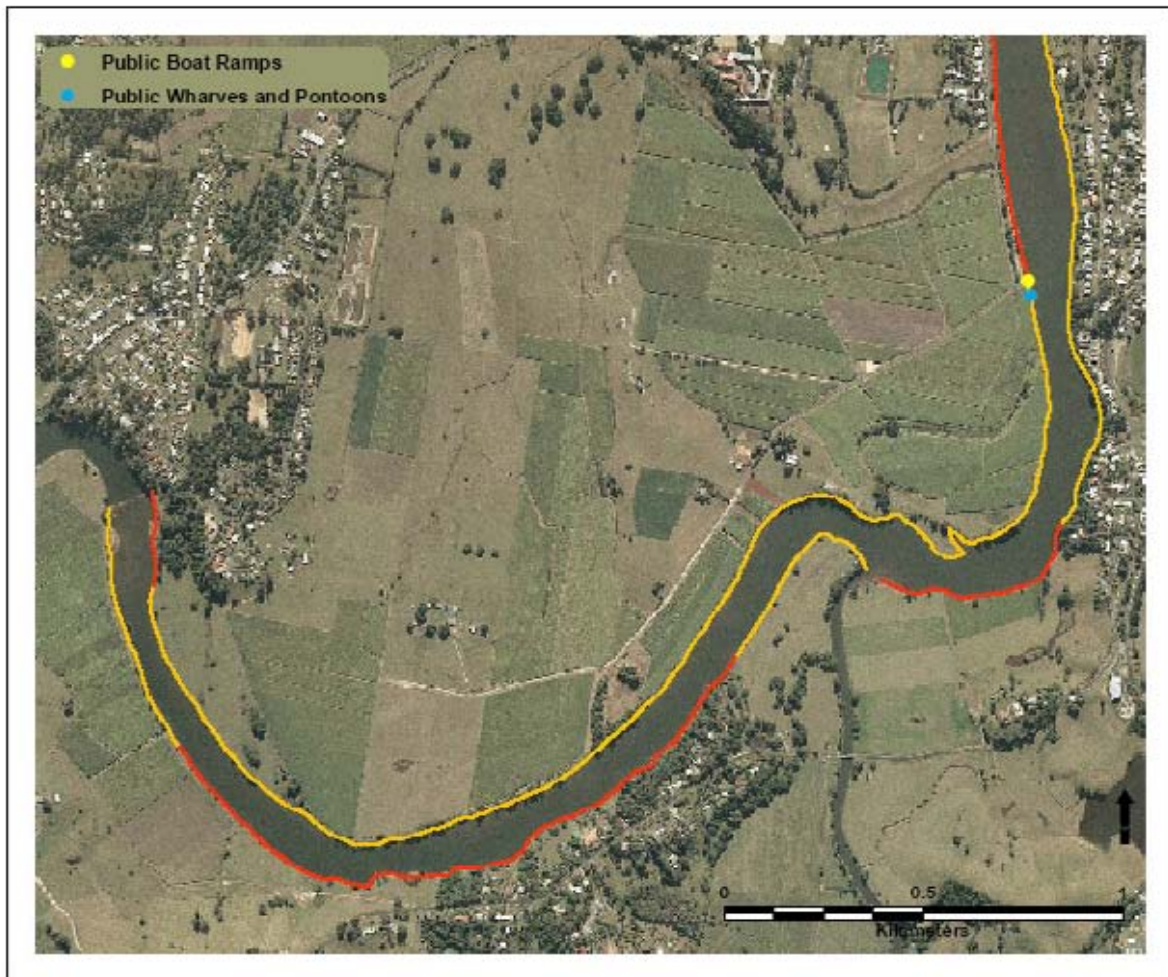
- The area upstream of Mayal Creek to the roadway bridge is an important area for commercial fisher's prawning operations.
- There are several structures that are likely to be unauthorised.
- The eastern bank upstream of bridge is very rocky and shallow, potentially rendering the area unsuitable for foreshore structures due to the length needed and the associated flooding hazard.
- Flood levy needs to remain intact for protection of South Murwillumbah.
- A number of unauthorised structures may be located in this reach.

Outcome

Considering the impact on commercial fishing operations, flooding and cumulative impacts on aquatic habitats from the full potential of domestic foreshore structures in this reach, the reach has been identified as of low suitability for domestic foreshore structures. If additional structures are approved this could require sharing of facilities between 2 or more properties.

A review of existing structures should be undertaken and action taken to remove unauthorised structures.

5.12 South Murwillumbah to Bray Park Weir



Current Situation

The foreshore of the northern bank of the river is held by a number of larger private rural properties with a small Crown reserve opposite the Dunbible Creek entrance and Crown land and a Council reserve downstream of the Bray Park Weir. Tenure to the MHWL would need to be established for the first private holding immediately downstream of the weir.

Upstream of Dunbible Creek on the southern bank of the river to Bray Park Weir are two private rural properties, a road reserve and a public foreshore reserve fronting a new housing estate. There is a Crown road reserve downstream of Dunbible Creek and a number of small private lots north of McMillan St.

A public boat ramp and jetty are located along the western foreshore on Commercial Drive.

Values and Issues

- Prawning and commercial hauling is undertaken in the area from approximately where Commercial Road turns south west away from the

River to the southern end of Hindmarsh Island, above which is closed South Murwillumbah to the junction of the Dunbible Creek is popular for water skiing and fishing. From this point to the limit of navigation at the weir re no skiing and No Wash areas with some fishing activity.

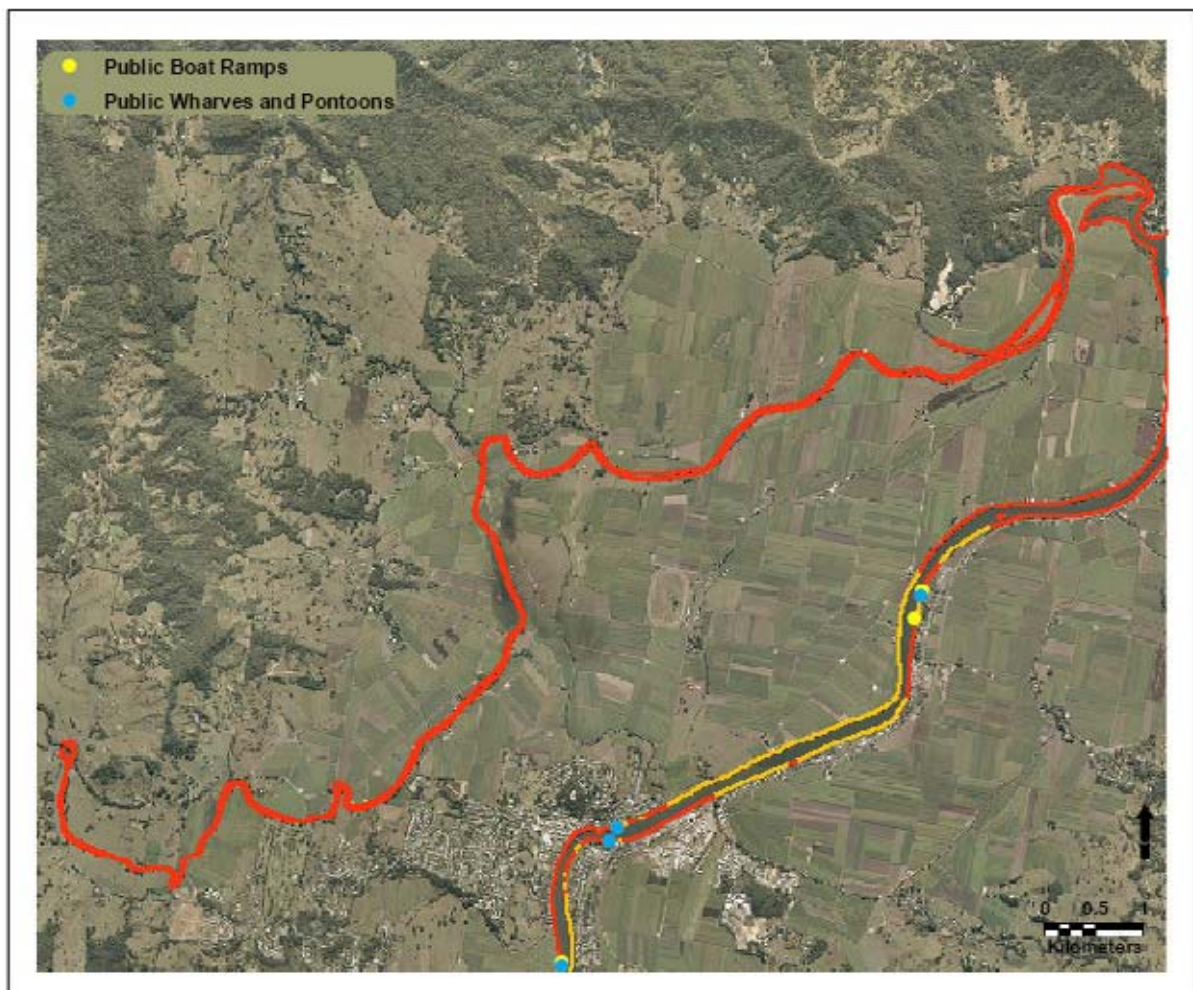
- This reach is coming under more pressure for installation of domestic foreshore infrastructure.

Outcome

Considering the impact on commercial fishing operations and the potential for cumulative impacts on aquatic foreshore habitats from the full potential of structures and associated boat ramps on each of the small lots, this whole reach has been identified as of low suitability for domestic foreshore structures. If additional structures are authorised this could require sharing of facilities between 2 or more properties or the provision of additional public facilities.

A review of existing structures should be undertaken and action taken to remove unauthorised structures.

5.13 Rous River



Current Situation

The banks of the Rous River are bounded by Crown land and Crown or Council roads or reserves as well as a number of larger private rural holdings.

Values and Issues

- The narrow width and winding nature of this reach reduces its suitability for large scale boating and is gazetted as a “no towing” zone.
- The Rous River is subject to high levels of river bank erosion through undercutting of the bank below high tide level due to boat wave action.

Outcome

Considering the high levels of riverbank erosion, including undercutting, and the narrow width of the river, this reach has been identified as unsuitable for domestic foreshore structures.

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