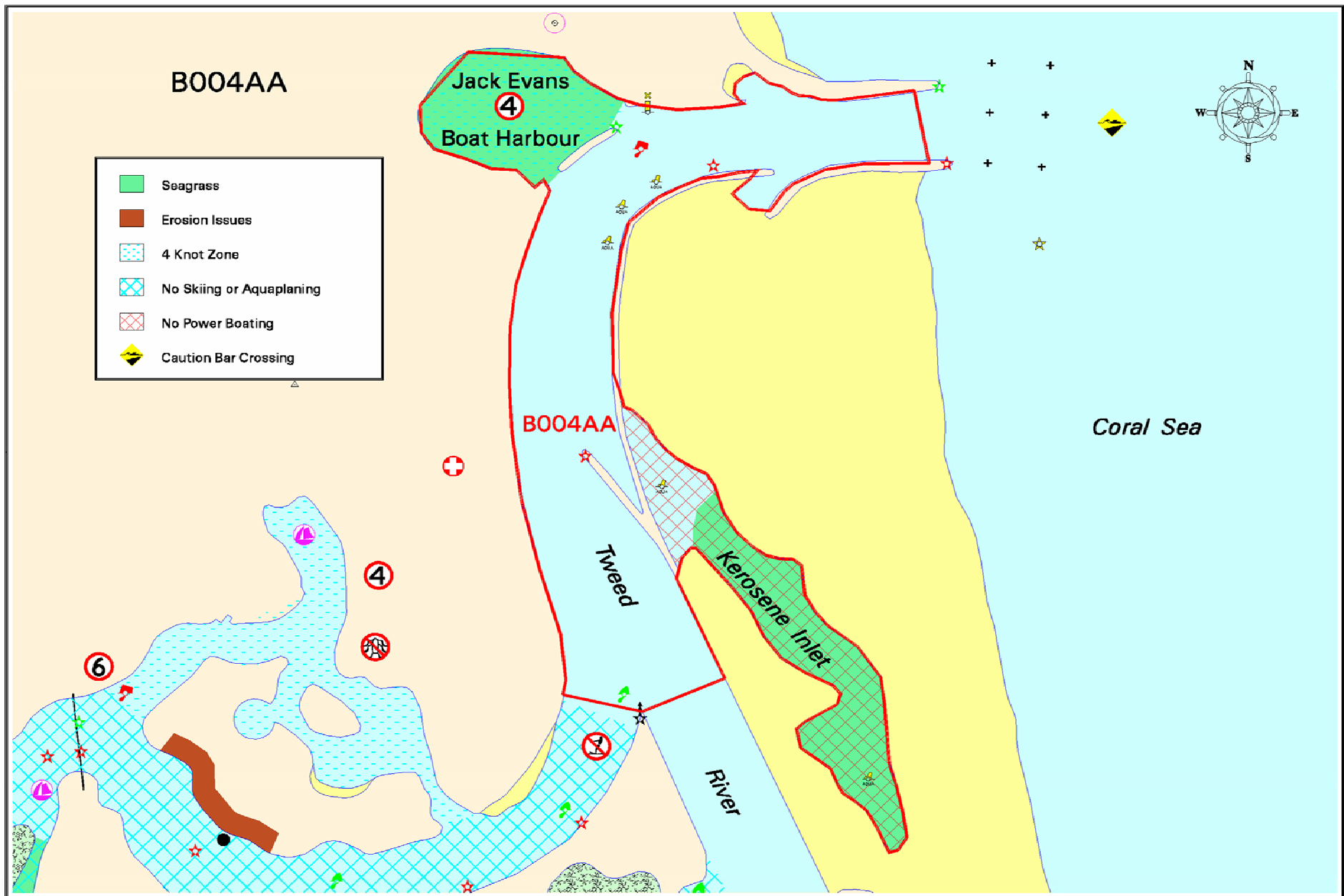


B004AA

ENTRANCE TO TERRANORA INLET



7 RIVER MOUTH TO ENTRANCE TERRANORA INLET (B004AA)

7.1 Description:



This section of the river extends from the river mouth at Point Danger upstream to a line crossing both the Eastern and Western Training Walls immediately north of the entrance to Terranora Inlet. Jack Evans Boat Harbour is located on the western side approximately 750 metres from the mouth, and the environmentally sensitive Kerosene Inlet a further 700 metres upstream on the eastern side of the river.






7.2 Navigational Restrictions Etc

- Navigational aids mark a narrow channel along this section of the river running adjacent to the Western Training Wall enabling vessel access to the ocean.
- Jack Evans Boat Harbour is a gazetted 4 knot zone with associated signage.
- PWC restriction in the Wave zone area between Jack Evans Boat Harbour and the Spur Wall. Signage at present stating "*No Irregular Driving of Personal Watercraft*".
- Natural restrictions caused by shoaling running along the eastern side of the river from the Spur Wall downstream opposite Jack Evans Boat Harbour.

7.3 Navigational Aids

At the time of writing this plan, the existing nav aids consisted of:

Navaid Type	Location	Navaid Type	Location
 Lit Port GRP Buoy	⇒ Channel outside Jack Evans Boat Harbour	 No Personal Watercraft Sign	⇒ Entrance to Jack Evans Boat Harbour

 Lit Starboard Beacon	<p>⇒ North Head</p> <p>⇒ Channel outside Jack Evans Boat Harbour</p>	 Yellow Aqua Buoys	<p>⇒ Eastern entrance of Jack Evans Boat Harbour (2 each)</p> <p>⇒ At each end of Kerosene Inlet denoting "No Power Boating"</p> <p>⇒ Near the wave-zone indicating "No Wave Jumping", "No Irregular Driving" and "No Freestyling"</p>
 Lit Port Beacon	<p>⇒ South Head</p> <p>⇒ Letitia Spit opposite Jack Evans Boat Harbour</p> <p>⇒ Spur Wall</p>	 Four Knot Speed Limit Sign	<p>⇒ Jack Evans Boat Harbour (2 each)</p>
 Special Pile Beacon	<p>⇒ Eastern entrance to Jack Evans Boat Harbour</p>	<p>No Irregular Driving of Personal Watercraft Sign</p>	<p>⇒ Upstream of Jack Evans Boat Harbour</p> <p>⇒ Eastern bank north of Spur Wall</p>
<p>No Overnight Anchoring Sign</p>	<p>Jack Evans Boatharbour</p>		

7.4 Infrastructure

- No operational boat ramps, wharves or jetties located in this area.
- Two inoperable holding jetties located on the western bank of Jack Evans Boat Harbour.

7.5 Compliance History

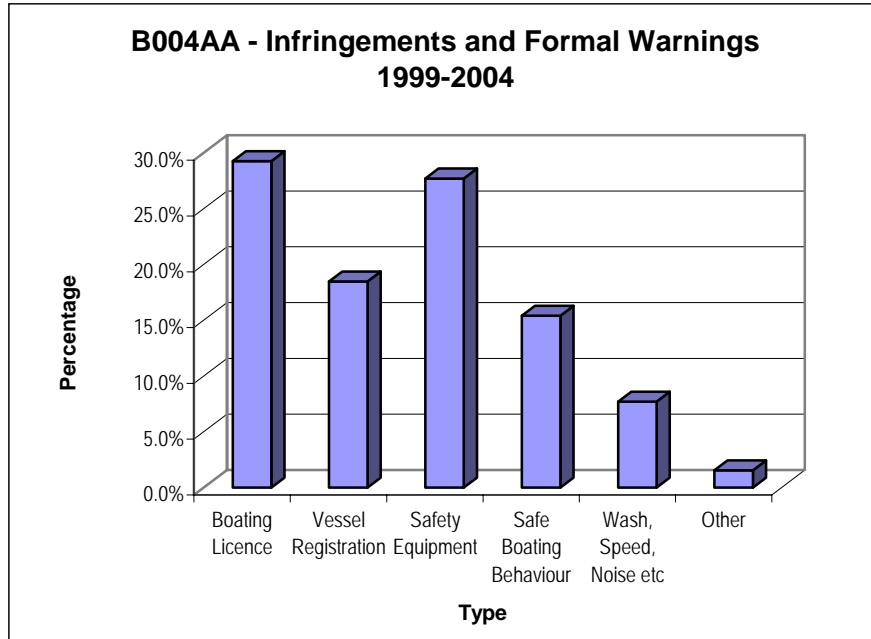


Figure 6

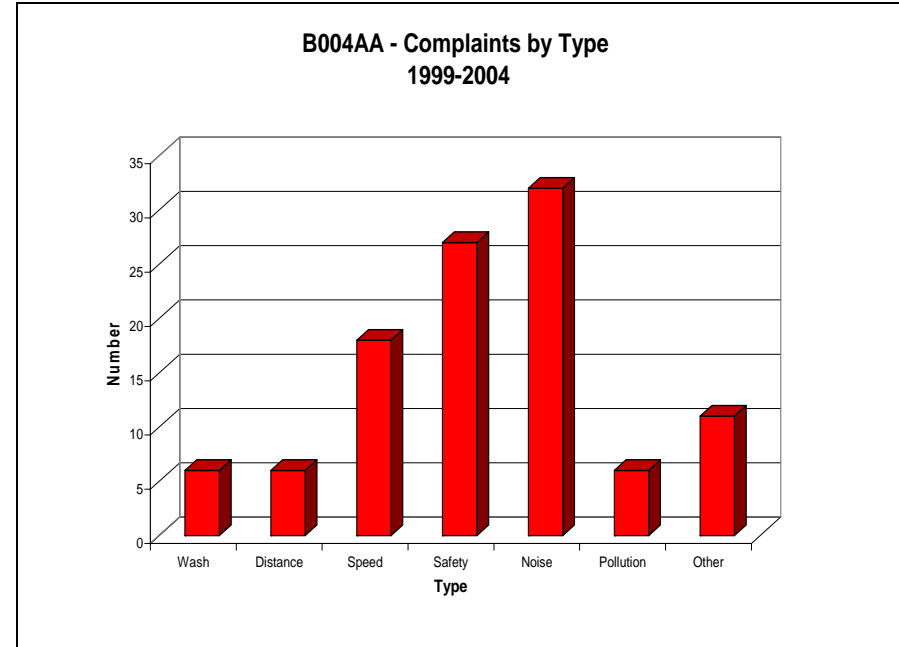


Figure 7

As can be seen in Figure 6 most offences were for unlicensed drivers and unregistered vessels. Nearly a quarter were the result of either missing or inadequate safety equipment. This is of particular concern due to the proximity of the entrance bar and the inherent dangers bars pose for boaters.

One hundred and six complaints for this section of the estuary have been lodged with NSW Maritime over the 1999-2004 period, 30% of these were noise related. Closer analysis revealed that most concerned noise emanating from PWCs operating in the wave-zone on the eastern side of the river between Kerosene Inlet and Jack Evans Boatharbour.

7.6 Values

- ◆ Stakeholders value the Letitia Spit / Kerosene Inlet precinct as a sensitive environmental area and an important habitat for a variety of aquatic, avian and terrestrial species.
- ◆ This section of the estuary is also valued not only as an area within which to pursue recreational activities but also as a safe conduit for vessels entering and leaving the estuary.

7.7 Issues

- ◆ Safety issue of vessels crossing, or operating adjacent to, the bar.
- ◆ The impact human activities such as bait gathering, fishing and boating have on Kerosene Inlet and its surrounds. The area is an important aquatic, avian and terrestrial species habitat that can be accessed from the river at high-tide. (See Stakeholders' Submissions & Response Summary Section 25.)
- ◆ Noise emanating from PWCs and other craft making use of the wave zone on the eastern side of the river opposite residences. As already stated, NSW Maritime's complaint system confirms that the majority of noise complaints in this management section are related to this activity. (See Stakeholders' Submissions & Response Summary Section 26)
- ◆ The continued safe use of the navigation channel running along the western training wall is a concern for the many boaters making their way to and from the ocean. Issues have been raised relating to anchoring, lighting, safe plying limits and general navigation in this channel. (See Stakeholders' Submissions & Response Summary Section 27)
- ◆ Maintaining the excellent conditions and recreational amenity of the Jack Evans Boatharbour is an issue important to a wide range of stakeholders. (See Stakeholders' Submissions & Response Summary Section 23)

NOTE: In NSW the term "IRREGULAR DRIVING" means driving a personal watercraft otherwise than generally in a straight line, and includes:

- Driving in a circle or other pattern, and
- Weaving or diverting, and
- Surfing down, or jumping over or across, any swell, wave or wash,

But does not include making any necessary turn or diversion. QLD use the term "FREESTYLING" to describe this same activity. In deference to the Premier's "Seamless Border" initiative, the Authority will in future use both terms on all signage and during education campaigns in the Tweed/ Brunswick operational area.

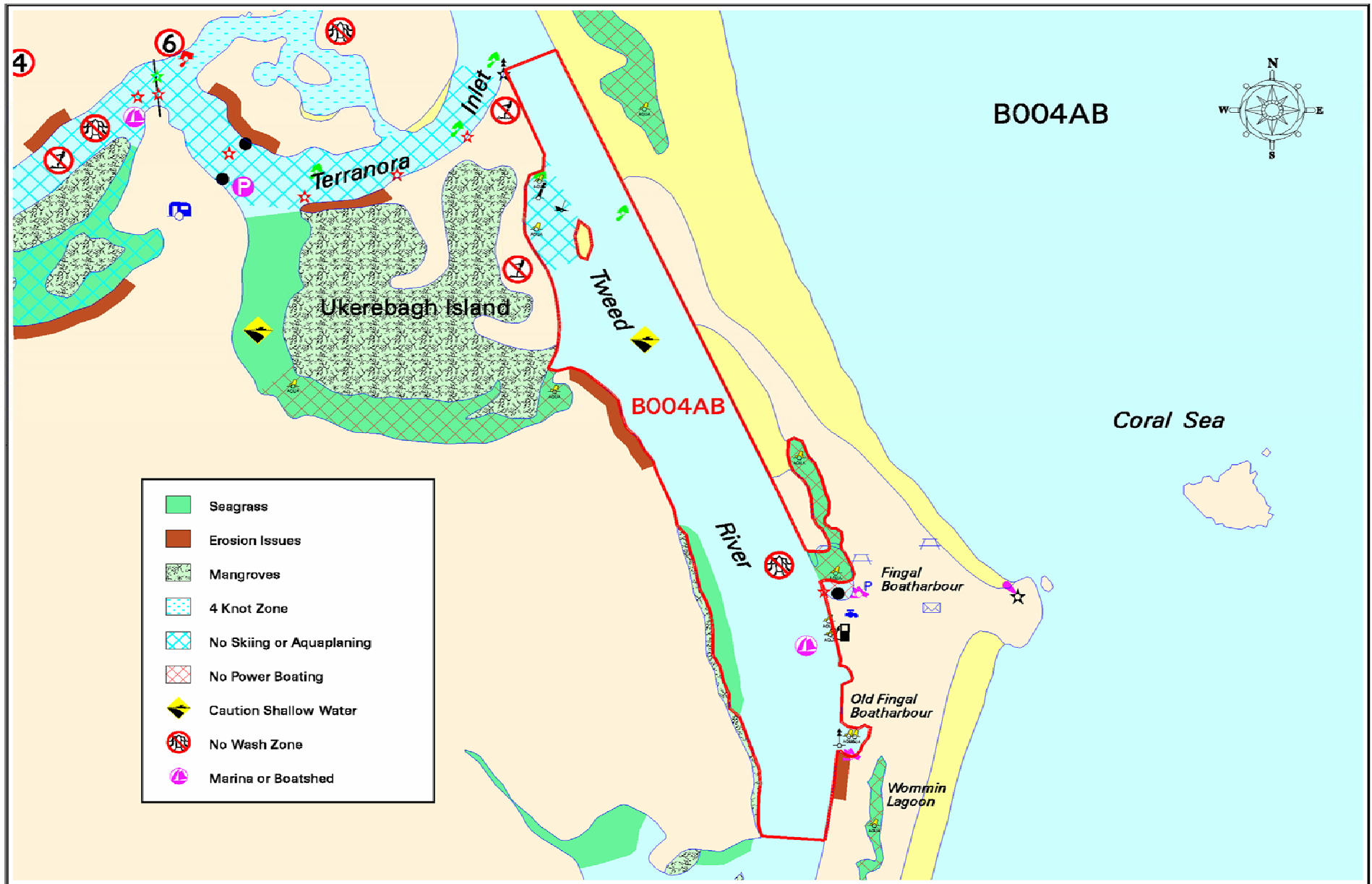
7.8 Management Strategies and Action Plan

Outcome	Strategies	Actions	Timeframe
Reduction of the impact of human activities in Kerosene Inlet and surrounds.	Place a ban on all powered craft in Kerosene Inlet.	<ul style="list-style-type: none"> ▪ Erect "No Power Boat" signage on the spur wall ▪ Place aquamarks indicating "No Power Boating" at both ends of the Inlet. ▪ Monitor compliance 	Short term " Ongoing
Reduction in the level of noise and therefore the number of noise complaints by residents adjacent to the wave-zone.	Increase education and compliance concerning existing PWC driving restrictions.	<ul style="list-style-type: none"> ▪ Improve and relocate existing "No Irregular Driving / No Freestyling" signage on the Western Training Wall. ▪ Install aquamarks near the wave-zone indicating "No Wave Jumping", "No Irregular Driving" and "No Freestyling" ▪ Regular use of a light-board trailer promoting appropriate PWC behaviour. ▪ Monitor compliance 	Short term " " Ongoing
Improved navigation conditions in the main channel, from the entrance of Terranora Inlet to the river mouth.	<p>Reinforce regulations covering no anchoring or blocking of navigable channels.</p> <p>Improve safety by reducing the impact shore-based white light has on night vision for operators of vessels navigating the channel after dark.</p>	<ul style="list-style-type: none"> ▪ Install signage along the Western Training Wall advising "No Anchoring in Channel" and "Vessels fishing are not to impede vessels navigating the channel". ▪ Educating boaters with regular use of a light board trailer. ▪ Liaise with the Tweed Council concerning the shielding of white lights in streets adjoining the Western Training Wall. ▪ Monitor compliance 	Short term Short term Short term Ongoing

Outcome	Strategies	Actions	Timeframe
Ensuring existing navigation restrictions continue to contribute to the amenity of the Jack Evans Boatharbour.	<ul style="list-style-type: none"> ▪ Impose a restriction on the over-night anchoring of vessels within the harbour. 	<ul style="list-style-type: none"> ▪ Installation of "No Over-night Anchoring" signage at the entrance of the harbour. 	Short term
Mitigate risk of incidents occurring on the bar	<ul style="list-style-type: none"> ▪ Continue the Authority's safety education program. 	<ul style="list-style-type: none"> ▪ Review system of bar crossing endorsements for commercial operators. ▪ Compliment existing signage on the bar by trialling a movable electronic signage board displaying safety messages. ▪ Continue highlighting information on crossing bars in the Authority's Safe Boating Handbook, on the internet and at boating seminars. ▪ Introduce specific questions on crossing bars in boat licence examinations. ▪ Continue to promote the brochure on bar crossings through the Authority's Tweed Heads Service Centre. ▪ Expand the delivery of specialised bar crossing seminars on both sides of the border. 	Short term " Ongoing Medium term Short term "

B004AB

UKEREBAGH ISLAND TO ROCKY POINT



8 UKEREBAGH ISLAND TO ROCKY POINT (B004AB)

8.1 Description:



This section of the river extends from an east-west line crossing both the Eastern and Western Training Walls immediately south of the entrance to Terranora Inlet, upstream to a line running east-west from Rocky Point across the river and bisecting Fingal Head Road and Wommin Lagoon. The area includes the eastern shore of Ukerebagh Island, the entrance to Ukerebagh Passage, the eastern shore of the Ukerebagh Nature Reserve, Old and New Fingal Head Boat Harbours and Wommin Lagoon.









8.2 Navigational Restrictions

- No skiing or aquaplaning restrictions are in place in the stretch of water between Ukerebagh and Sandy Islands. This is also the site of a visible wreck just to the north-west of Sandy Island (adjacent to the eastern shore of Ukerebagh Island).
- A large area of shallow water extends along the eastern side of Ukerebagh Island and Ukerebagh Nature Reserve, extending as far as Rocky Point.
- New Fingal Head Boat Harbour has 4 knot and No Wash restrictions.
- No Boating / Swimming Area restrictions in a section of the Old Fingal Head Boat Harbour. Also, No Wash restrictions apply.

8.3 Navigational Aids

At the time of writing this plan, the existing nav aids consisted of:

Navaid Type	Location	Navaid Type	Location
 Lit Port Beacon	New Fingal Head Boat Harbour	 Isolated Danger Pillar GRP Buoy	Channel between Ukerebagh and Sandy Islands

 North Cardinal Pipe Beacon	Old Fingal Head Boat Harbour	 No Skiing or Aquaplaning Signage	Entrance to Terranora Inlet Channel between Ukerebagh and Sandy Islands
 Lit North Cardinal Beacon	North East Point of Ukerebagh Island at Tweed River / Terranora Inlet confluence	 No Wash Zone Signage	Entrance to New Fingal Head Boat Harbour Note: This signage is to be moved to a point nearer the entrance, on the breakwall.
 Yellow Aqua Buoy	Channel between Ukerebagh and Sandy Islands (2 each) Old Fingal Head Boat Harbour (2 each)	 Four Knot Speed Limit Signage	New Fingal Head Boat Harbour
 Lit Starboard GRP Buoy	North East of Ukerebagh Island at Tweed River / Terranora Inlet confluence Eastern Training Wall opposite Sandy Island	 No Boating / Swimming Area Signage	Old Fingal Head Boat Harbour

8.4 Boat Ramps

Fingal Head Boat Ramp - located on Fingal Head Road, this ramp has a good holding jetty with pontoon, parking and toilet facilities. With 64 formal spaces, the ramp has the highest number of car/trailer parking facilities on the estuary. During the January 2004 Australia Day Long Weekend this ramp averaged 54 car/trailers; the spare capacity occurring mainly in the afternoons.

Patterson Britton & Partners Lower Tweed Boating Study (1997) stated that the ramp “is utilised well by those who live close by, but is considered too far or too remote by some survey respondents.” However, by 2004 nearly two-thirds of the trailers parked at the ramp were registered in Queensland. Factors contributing to the change in ramp preference include the completion of the Tweed Heads Traffic Bypass, overcrowding at the Kennedy Drive ramp and the superior facilities found at the Fingal Head Boat Ramp.

The ramp is popular with offshore recreational fishermen due to its close proximity to the river mouth.

8.5 Compliance History

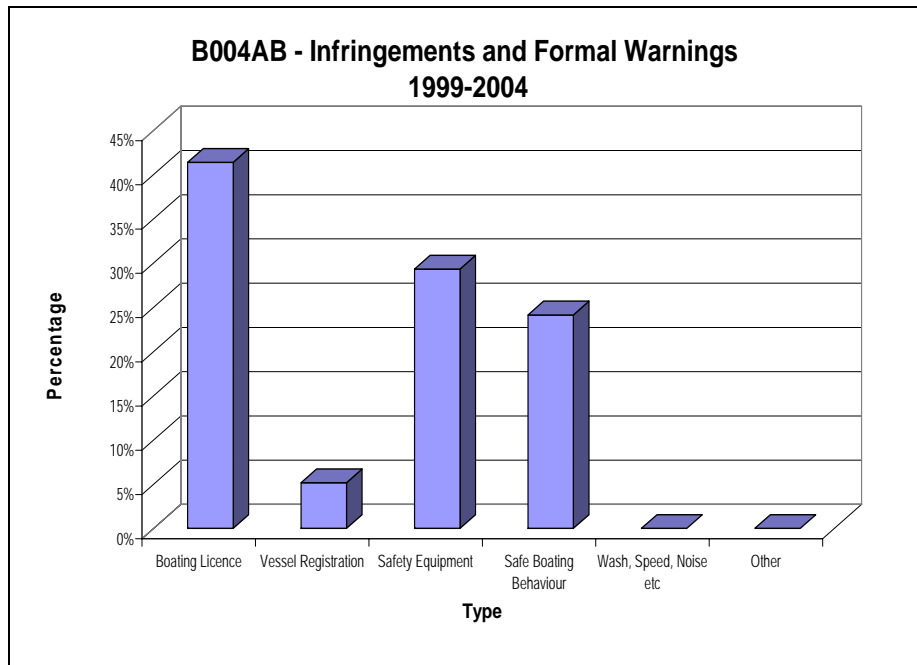


Figure 8

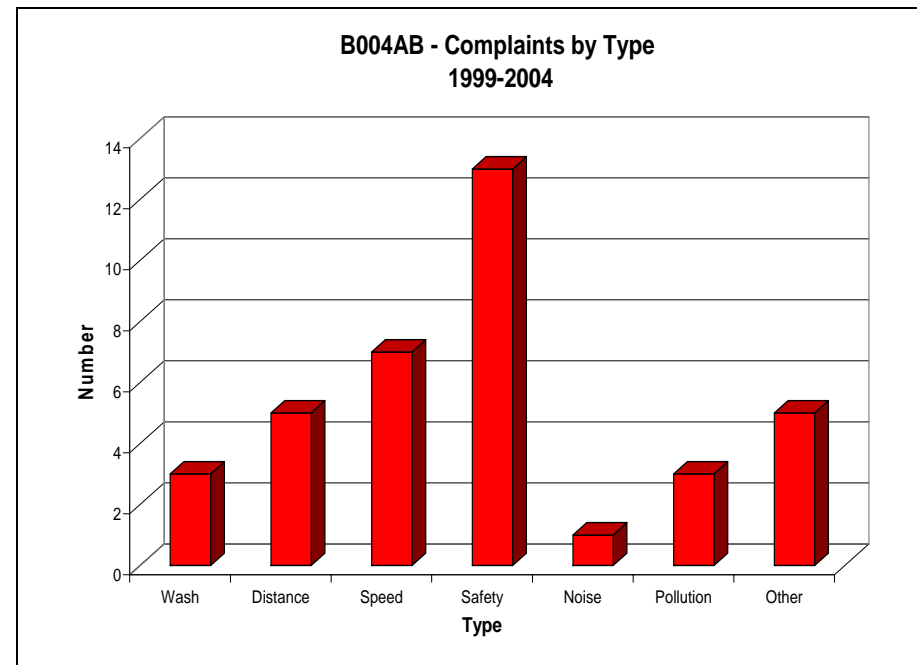


Figure 9

Figures 8 and 9 indicate that safety is an important consideration for this section of river. Further analysis reveals that a large proportion of infractions, formal warnings and complaints relate to activities in the two Fingal Head Boat harbours and surrounding area.

8.6 Values

- ◆ Stakeholders value the environmentally sensitive and important habitat areas of Ukerebagh Island, Ukerebagh Nature Reserve and Wommin Lagoon.
- ◆ The Fingal Head and Old Fingal Head Boat harbours are valued by a wide range of stakeholders for their recreational amenity, facilities and proximity to the river proper.
- ◆ Stakeholders also value the safe and equitable use of this section of the river, especially the safe co-existence of the varying recreational activities carried out in and around the two Boat harbours.

8.7 Issues

- ◆ The effects of vessel wake action on the environmentally sensitive areas of Ukerebagh Island and Ukerebagh Nature Reserve. (See Appendix A - Stakeholders' Submissions & Response Summary Section 18)
- ◆ The effects of powered vessels in the equally sensitive Wommin Lagoon. The lagoon is an important aquatic, avian and terrestrial species habitat that can be accessed by small craft.
- ◆ The Old Fingal Head Boat harbour is a popular area for families participating in a variety of activities. However, apparent conflict between swimmers, personal watercraft operators and power boaters is a concern in light of increased usage. (See Appendix A - Stakeholders' Submissions & Response Summary Section 29.)
- ◆ Safety issues raised include:
 - Safe navigation in a busy section of the river. (See Appendix A - Stakeholders' Submissions & Response Summary Section 29)
 - swimmers diving from the pontoon in the Fingal Head Boat harbour while vessels are present
 - power vessels ignoring "No Wash" signage in both boat harbours

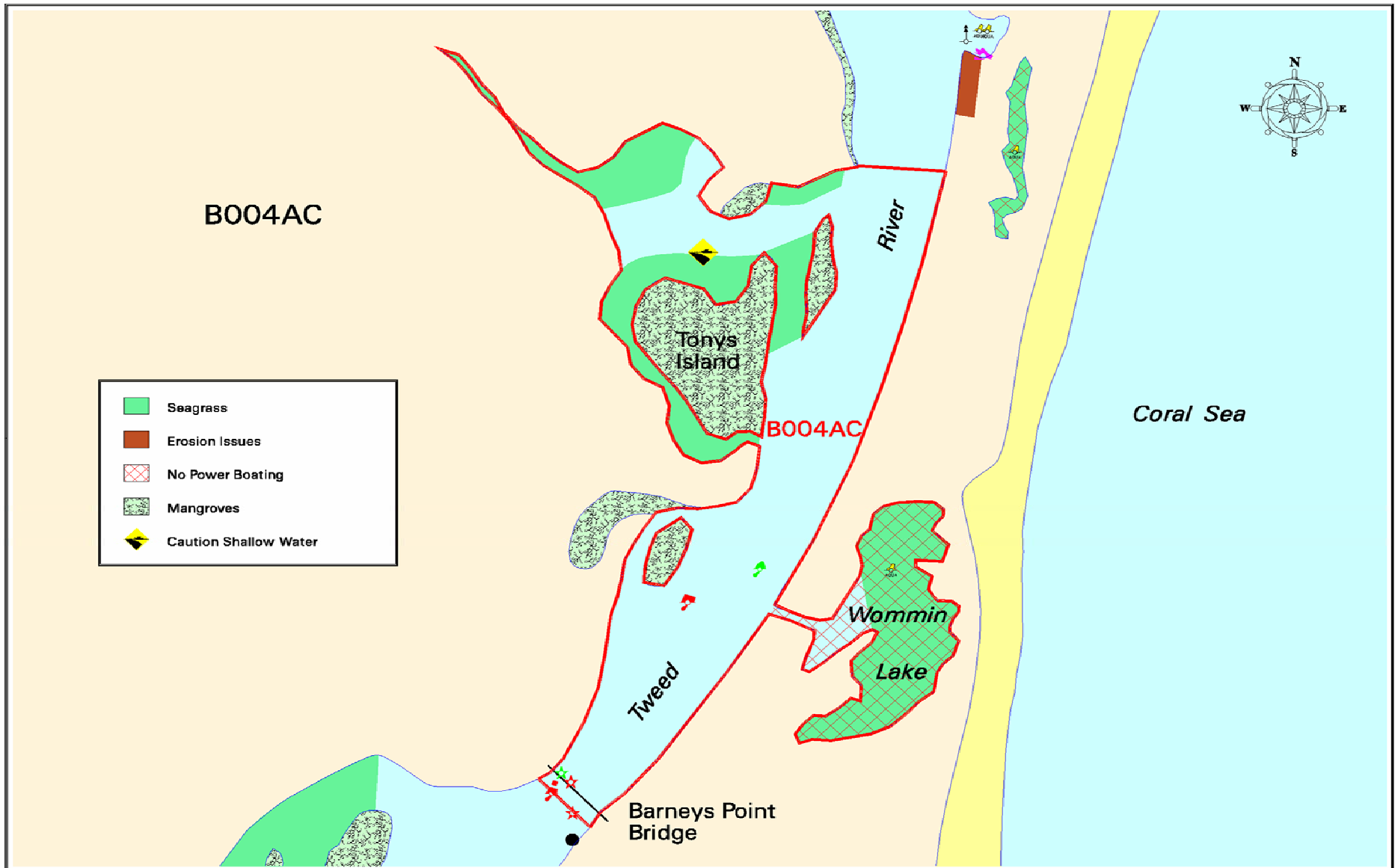
8.8 Management Strategies and Action Plan

Outcome	Strategies	Actions	Timeframe
Minimise the effect of boat wave action on Ukerebagh Island and Nature Reserve	Shallow water adjacent to these areas provides a natural navigation restriction for large wake producing vessels. Most vessel wash originates from the main navigation channel located on the eastern side of the river. Wash dissipates significantly over distance. Most erosion in this area will be due to flood events and wind wave action.	Educate boaters and monitor vessel activity.	Ongoing
Reduction in the level of human activity impacting on Wommin Lagoon.	Place a restriction on all powered craft on Wommin Lagoon.	<ul style="list-style-type: none"> ▪ Erect "No Power Boating" signage on the street accesses to the Lagoon in partnership with Tweed Council. ▪ Place aquamarks indicating "No Power Boating" on the Lagoon. 	Short term "
Improvement in the level of safety for stakeholders participating in varying activities in and around the Fingal Head and Old Fingal Head Boatharbours.	<ul style="list-style-type: none"> ▪ Increase education and compliance strategies for both boatharbours. ▪ Review existing signage configuration on approach and within 	<ul style="list-style-type: none"> ▪ Reinforce current wash and speed restrictions within the two harbours. ▪ Reinforce "No Anchoring in Channel" regulations outside both boatharbours. ▪ Relocate existing "NO Wash" signage to the break wall at the entrance to the harbour. ▪ Liaise with Tweed Council recommending "No Diving" 	Ongoing Short term Short term Short term

	<p>the harbours.</p> <ul style="list-style-type: none"> ▪ Improve vessel landing areas away from “no boating” zones. ▪ Reinforce restrictions imposed on vessels within the Old Fingal Head Boatharbour. 	<p>signage be erected at the pontoon in the Fingal Head Boatharbour.</p> <ul style="list-style-type: none"> ▪ Remove scattered rock and debris inside entrance to the Old Fingal Head Boatharbour thereby expanding the vessel landing area. ▪ Increase compliance. ▪ Recommend to the Tweed Council the installation of bollards where required and planting of shade trees around the boat harbour to discourage the launching of vessels. 	<p>Short term</p> <p>Ongoing</p> <p>Short term</p>
<p>Improved safety of the navigation channel.</p>	<ul style="list-style-type: none"> ▪ Review dredging regime in the channel ▪ Navigation Aids 	<ul style="list-style-type: none"> ▪ Support and encourage dredging of navigational hazards in main channel by Tweed Shire Council, Department of Lands and DIPNR ▪ Install navigational aid marking the rocky shoal just north of Rocky Point. 	<p>Ongoing</p> <p>Short Term</p>

B004AC

ROCKY POINT TO BARNEYS POINT BRIDGE



9 ROCKY POINT TO BARNEYS POINT BRIDGE (B004AC)

9.1 Description:







This section of the river extends from a line running east-west from Rocky Point across the river and bisecting Fingal Head Road and Wommin Lagoon to Barneys Point Bridge. The area includes a large area of shallow water extending into the appropriately named Shallow Bay; a number of mangrove islands with the largest being Tonys and Tims Islands; a major traffic bridge crossing the river at Barneys Point; and Wommin Lake, a large tidal and environmentally sensitive lake.

9.2 Navigational Restrictions

- A large area of shallow water between Rocky Point and Tonys Island extending into Shallow Bay.
- A marked navigable channel east of Tims Island.
- A large traffic bridge at Barneys Point.

9.3 Navigational Aids

At the time of writing this plan, the existing nav aids consisted of:

Navaid Type	Location	Navaid Type	Location
 Lit Port Beacon	Barneys Point Bridge	 Caution Shallow Water Signage	Entrance to Shallow Bay
 Lit Starboard GRP Buoy	Channel marker between Tims Island and Wommin Lake.	 Yellow Aqua mark denoting "No Power Boating"	Wommin Lake
 Lit Port GRP Buoy	Channel marker between Tims Island and Wommin Lake.	 "No Power Boating" Signage	Wommin Lake

9.4 Compliance History

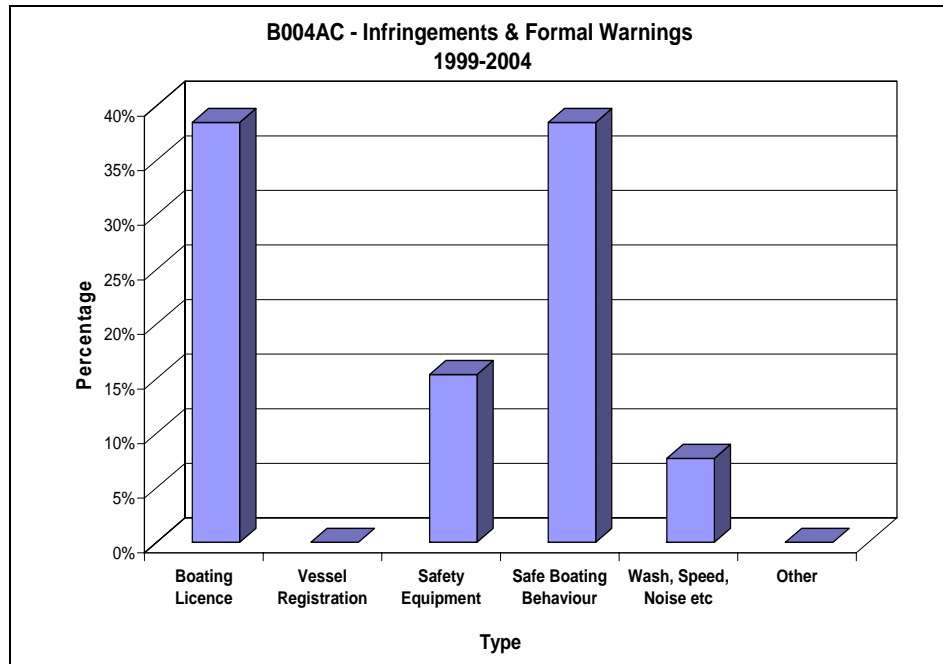


Figure 10

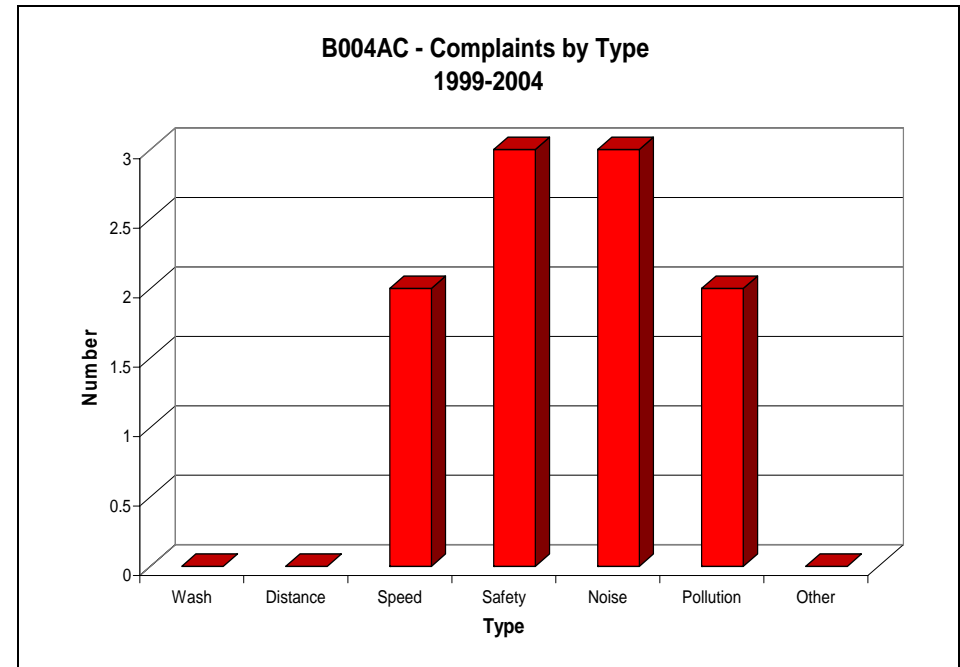


Figure 11

This is a relatively quiet section of the river, with only 10 complaints registered over the 1999-2004 period. Infringements and formal warnings were largely due to boating behaviour incidents occurring under the Barney’s Point Bridge.

9.4 Values

- ◆ Stakeholders value the environmentally sensitive and important habitat area of Wommin Lake.
- ◆ NSW Fisheries and the professional fishing industry value the Tonys Island / Shallow Bay area for its importance in terms of seagrasses and the density and diversity of benthic animals found there.
- ◆ Stakeholders value this reach of the river for the many recreational opportunities it offers to the public.

9.5 Issues

- ◆ The effects of powered vessels in the sensitive Wommin Lake area. The lake is an important aquatic, avian and terrestrial species habitat that can be accessed by small craft. This area is a habitat and nursery for fish and prawn species.
- ◆ Safety concerns stemming from the number of activities eg. towing, fishing, swimming, diving, that occur in the waters under and surrounding the Barney's Point Bridge. (See Stakeholders' Submissions & Response Summary Section 6)

9.6 Management Strategies and Action Plan

Outcome	Strategies	Actions	Timeframe
Reduction in the level of human activity impacting on Wommin Lake.	Place a restriction on all powered craft on Wommin Lake.	<ul style="list-style-type: none"> ▪ Erect "No Power Boating" signage on the street accesses to the Lake ▪ Place aquamarks indicating "No Power Boating" on the Lake. 	Short Term

Outcome	Strategies	Actions	Timeframe
Discourage general access to the important habitat areas of Tonys Island and Shallow Bay.	This area is a natural navigation restriction due to its shallow waters, with low level boating activity. Educate recreational boaters of the effects and potential dangers of boating in shallow waters.	<ul style="list-style-type: none"> ▪ Monitor the extent of the navigation channel. Review in terms of assessing the need for additional channel markers at the extent of the shallow water. ▪ Liaise with NSW Fisheries in educating recreational boaters of the dangers of cruising shallow water and the threat to benthic life. 	Ongoing Ongoing
Mitigate the risk of vessel incidents, accidents and potential serious injury for boaters navigating under the Barney's Point Bridge. (See Stakeholders' Submissions & Response Summary Section 6)	Educate boaters by increasing cruising restrictions. Install navigation lighting and upgrade existing warning signage.	<ul style="list-style-type: none"> ▪ Enforce existing "distance-off" regulations for boaters traversing under the bridge. See Stakeholders' Submissions & Response Summary Section 6. ▪ Install navigation lighting on the bridge. ▪ Identify and mark two spans (one for each way traffic) as the navigation channel. ▪ Install "Slow down under bridge" signage. 	Ongoing } } } Short term } }
Improved safety of the navigation channel. (See Stakeholders' Submissions & Response Summary Section 30)	Review dredging regime in the channel	<ul style="list-style-type: none"> ▪ Support and encourage dredging of navigational hazards in main channel by Tweed Shire Council, Department of Lands and DIPNR 	Ongoing