

NAVIGATION IN PORT HACKING

REPORT OF THE DREDGING SUB-COMMITTEE OF THE PORT HACKING PLANNING
AND ADVISORY COMMITTEE OF THE SUTHERLAND SHIRE COUNCIL

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The following document outlines a plan for the maintenance of navigation channels in Port Hacking. This plan has been widely circulated and discussed, and has been accepted by all known major administrative and community groups with an active involvement in the Port.

The implementation of this plan will provide a long term basis for the maintenance of navigation channels, within a framework of community consensus.

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EXECUTIVE SUMMARY

The Port Hacking Plan of Management was accepted for implementation by Sutherland Shire Council in November 1992. The Port Hacking Planning and Advisory Committee was reconstituted in July 1993, with the following membership:

Sutherland Council
National Parks and Wildlife Services
Fisheries Department
Department of Public Works
Department of Sport Recreation and Tourism

During 1993 the MSB Waterways Authority was invited to participate and subsequently provided a representative.

Navigation dredging of Port Hacking last took place in 1991 funded as a 'one off' measure by the State Government in response to concerns expressed by navigation users of the Port. At that time the State Government indicated that future funding would be dependant upon the equal matching of the State Government contribution, and would be conditional upon the existence of an agreed long term plan.

Since that time sand movement has reduced navigation access. Apart from inconvenience and risk of damage to some vessels, the risk of interference to the public ferry link between Bundeena and Cronulla, is an increasing concern.

The community representatives on the Port Hacking Planning and Advisory Committee, with the support of Sutherland Shire Council staff, developed a draft memorandum intended to address the major issues and concerns of all those with an interest in the Port, whether from a navigation, environmental or user perspective. The document was drafted as a Memorandum of Understanding with the view that an ideal outcome would be the formal consent of all relevant organisations to a common agreement about navigation channel maintenance within the Port.

This draft was circulated to all identified community groups and government departments for a response. A number of separate consultations were conducted by the members of the dredging sub-committee. The major organisations consulted in detail are listed below

- The MSB Waterways Authority of NSW
- The Department of Fisheries
- The Public Works Department
- The Port Hacking Protection Society
- The National Parks Association
- The Department of Conservation and Land Management
- The National Parks and Wildlife Service (Royal National Park)
- Sutherland Shire Environment Centre

The substantial majority of organisations contacted have supported the Plan in principle, though various issues of detail and substance have been raised. Where specific amendments or corrections have been suggested these have been addressed in finalising the attached Plan.

Limitations in planning

This plan has been prepared in the absence of reliable data about the capacity limitations on the Port, and in particular the environmental limits on various forms of usage. Also lacking has been reliable information about the current levels of different types of usage of the Port, including a comprehensive understanding of the patterns and levels of navigation by different classes of vessel.

The need for a comprehensive environmental/user capacity study is substantial, and it is intended that in parallel with the implementation of this dredging plan, rectification of this major information gap will be addressed. It is possible that out of such a study will come recommendations which will alter the future dredging and usage character of Port Hacking. Such alterations would need to be accommodated in future memoranda.

Implementing this Plan

The dredging sub-committee recommend the immediate implementation of this Plan.

Frustration about the lack of action of maintenance of navigation channels has been building within the boating community in particular. This is likely to become more pronounced if no action is apparent by the early part of the 1994/95 boating season. The sub-committee is also

concerned about the risk of injury from boating accidents, and disruption to the Bundeena ferry service, which could arise in the absence of any action on navigation channels.

The steps in implementation which are suggested are as follows

- Step 1 The Memorandum of Understanding and the related Dredging Plan should be officially endorsed by all the major organisations concerned with the management of the Port as a framework for the long term maintenance of navigation channels. This should occur before the end of the 1993/94 financial year.
At the same time, a set of benchmarks for future dredging should be agreed, and a program of ongoing assessment implemented.
- Step 2 Detailed technical and financial planning for both the dredging and the broader management aspects of the Plan should be finalised before the end of June 1994, involving (in particular), Sutherland Shire Council, the MSB Waterways Authority, and the Public Works Department.
- Step 3 A funding plan should then be agreed and appropriate budget allocations made. These allocations should at the minimum provide for the Stage 1 dredging during 1994.
- Step 4 The contracts should be let for the dredging, with the contracts to be let to be reviewed before finalisation, by the Port Hacking Planning and Advisory Committee in association with the responsible management body. After letting of the contract, progress reviews should be provided to the Port Hacking Planning and Advisory Committee.
- Step 5 On completion of the initial dredging there should be a review of the process, and refinement of the ongoing program of review and monitoring identified in Step 1 above.

The steps above may require modification should research on the carrying capacity of the Port require amendment to the dredging plan or other aspects of the management of the usage of the Port.

The Dredging sub-committee has been unable to make a specific recommendation as to the financial responsibility for the dredging program. The sub-committee is sensitive to the concerns of (in particular) the Public Works Department and Sutherland Shire Council. It is also mindful of the fact that the cost of the dredging will in the end result come from the community. Within this context the debate as to who will pay seems to be somewhat less significant than it appears to State and Local Government.

It is anticipated that having arrived at a commonly agreed approach which is supported by all perspectives on the management of the Port, these issues will be resolved by agreement. It is unlikely that the community would see these administrative debates as an adequate justification for inaction.

MEMORANDUM OF UNDERSTANDING**Self regulation and improved boating access within Port Hacking**

Port Hacking is a naturally shoaled waterway. This creates an essentially natural limit on the form and type of boating uses of the Port. The shoals are integral to the ecological and aesthetic qualities of the Port and have acted as a natural barrier to extensive development along the foreshores. However the movement of the shoals has the effect of restricting the navigation channels, and as a result the amenity of the Port for some boating users of the Port has deteriorated.

Within the context of the Port Hacking Plan of Management expenditure of public funds is sought for the purposes of maintaining the waterway. Within that plan is encapsulated the basic values which ought govern any form of development within the Port.

This report (Elliott & Shanahan - "A Study of Resident Attitudes to Port Hacking", October 1987) identified what residents want for the Port in terms of what they don't want, which was: *Anything which is likely to dramatically change the character of the Port and its waterways: - extensive foreshore development. (29).*

When quizzed about possible dredging or other works designed to improve access for deeper draught vessels the vast majority of people in this study were in favour of some form of controlled dredging to alleviate the sand shoaling problems in the major navigational channels and siltation from the heads of bays (p.16). It was felt that there was a need for balance between the desires of the users of the waterways - either active or passive - and maintenance or preservation of the unique charm of the port and the Hacking River (p.59).

The plan of management has as its aims to

1. Preserve the ecological and aesthetic values of Port Hacking and its catchment
2. Provide for maximum opportunities for beneficial recreational and residential use of the Port and its surrounds, within the constraints of sustainable use.
3. Provide a basis for the co-ordinated management of the entire Port and its catchment to achieve these ends."

The key concerns in any dredging program extend beyond the undoubtedly complex issues of technical effectiveness. There is no likelihood of the Port becoming shoaled to such a degree as to prevent the linkage between the Port and the Hacking River. Limited dredging is desirable to maintain tidal flushing of the upper reaches of the Port. The contentious issue is the extent to which public expenditure should be directed to extend this fundamental dredging to facilitate recreational navigation. A related question is "What safeguards should be in place to ensure that other valued elements in the Port are not prejudiced by pressures of increased boating uses of the Port".

Both these beg an answer to the question "What sort of recreational boating uses of Port Hacking should be supported through public expenditure?" The answer to this question is encapsulated in the Port Hacking Management Plan. The community values low impact boating on the Port, and is prepared to facilitate the current level of boating activities, provided that such works do not contribute to any environmental or aesthetic reductions in the values of the Port. The community values the Port as it is, and does not wish it to be substantially changed in character or usage. The members of the Port Hacking Planning and Advisory Committee represent a range of user values. All share the community perception of the need to protect the environmental and social values of the Port as it is. In considering the need for dredging to facilitate recreational boating, the Committee has sought to create an approach which allows the boating users a high level of self regulation and autonomy, but at the same time provides strong safeguards against the loss of any of the values of the Port which are shared by all user groups. This approach is outlined in this Memorandum, to which all the members of the Committee have subscribed. The memorandum has also been discussed with the major regulatory bodies with concern for the Port, and the major identifiable user groups (boating, environmental, fishing).

The dredging plan attached has been agreed and therefore has the support of all the parties subscribing to this memorandum. This high level of agreement is a milestone in the

management of the Port, as it represents the result of substantial discussion leading to a balanced view of the long term future of the Port. It is intended that this shared responsibility for the management of the Port will be carried across into the consideration of other major issues of environmental and social quality of the Port.

Potential consequences of dredging

Any dredging program carries with it consequences for the future use of the waterway and the economic resources of the community. These are outlined below:

Construction impacts and consequent environmental impacts

Dredging has an inevitable impact on the areas being dredged. It will also (by changing the flow of water and the shape of the marine delta) have impacts outside the dredged areas. These impacts are mathematically impossible to precisely model because of the interaction of multiple dynamics (water flows from the Hacking River, the sea tides and waves, wind, sand dynamics and the biological dynamics of the Port).

A further construction impact is created by the placement of the sand removed during dredging, whether within the system or elsewhere. These impacts are more amenable to precise specification.

To these impacts must be added the impacts which are consequent upon the provision of a boating facility for medium sized recreational vessels

- the impacts of foreshore infrastructure development, including the construction and operation of marinas, which will be required by boating users;
- environmental impacts of boating uses, including boat scraping, cleaning, anti-fouling, discharges and human wastes
- irresponsible actions by the few, including direct pollution, causing damage to marine infrastructure such as sea-grass beds and foreshores
- "freezing" of the movement of seagrass beds, which are colonisers of areas of the seabed, continually expanding their coverage of stable sand masses, at the same time as reducing their presence in old areas which become unstable or otherwise unsuitable. In the long term this may mean a reduction of seagrass beds simply because of the limitation in the areas of stable and undisturbed shallow water, even if present beds are protected from damage.

Navigational concerns

What impacts will the dredging and the consequent boating uses of the Port have on other users of the Port into the future? The concerns which are typically expressed are as follow.

- User conflicts are an accompaniment to intense use of multiple use areas. Larger, powered vessels in particular are a source of intimidation and discomfort for less machine intensive users such as swimmers and divers. Smaller powered vessels are a source of disturbance, mainly through irresponsible use such as bothering swimmers or creating noise pollution for residents adjacent to the waterway. Improperly managed dredging may exacerbate user conflicts.
- Pollution impacts are an inevitable consequence of machine intensive uses of the Port. For swimmers, users of non-powered water craft, fishermen, and foreshore users, the impacts of oil slicks, discarded pollutants, and the hidden impacts of pollution on the quality of water and marine life all diminish the quality of their recreational experience, and can lead them to abandon their legitimate recreational pursuits in an area.
- Safety considerations arise where fast powered vessels are in proximity to swimming, diving, and non-powered small vessel use. Whilst such instances are not common, instances of divers or swimmers being struck by propellers are unfortunate consequences of inappropriate behaviour, and the proximity of incompatible uses. Adverse health impacts from poor management of human and chemical wastes are a less apparent but more pervasive safety concern.

Consequential expenditures

What impacts will the dredging and the subsequent boating uses facilitated by that dredging have on future demands for public expenditure?

The increasing population of Sydney and the growing affluence of the community means that there is likely to be an ever increasing demand for all forms of recreational activity, not least of which will be medium scale and large scale vessel usage. Areas which are available for boating usage will be subject to continuous increases in usage demand.

For many recreational uses, the infrastructure costs associated with more intense use are relatively insubstantial. However more "machine intensive" uses call upon substantial infrastructure investment. Increases in these requires substantial public or private sector expenditures. With capital intensive vessel uses these commitments come in the following forms:

- **Control costs**
The management of an area of boating use carries with it substantial though hidden costs. The costs of surveying and monitoring the areas under management, supervision of moorings and infrastructure, management and resolution of conflicts, prosecutions, and the general governance costs of a recreational facility are all likely to increase with the intensity of its use. Control costs include the costs of supervision, such as the MSB Waterways Authority and NSW Water Police patrols or the Environmental Protection Authority management of polluting behaviours, or Council supervision of foreshore activities. These supervisory costs also include licensing controls on mooring, and inspection costs for vessels and boating facilities.
- **Extension of physical facilities**
Facilities are required for boat launching and recovery, cleaning and anti-fouling, mooring, tendering, and communal activities. Navigation aids and beacons, and other safety infrastructures are also required. As society moves to expanded concepts of responsibility, and as the demands on an area increase, the cost of facilities also increases. Pump-out facilities, access roads, tiered boat storage and a host of other facility costs become essential.
- **Rectification costs**
Boating, like any other intensive human activity, causes damage to the environment. Power boat wash erodes river banks in sensitive areas, boat access points deteriorate through use, irresponsible boat users can damage sensitive areas or facilities, long term boat use can create pockets of pollution or environmental damage. The rectification costs for such works will escalate with the intensity of the use of an area.

The shoaling of the Port acts as a regulator of navigation within the Port, discouraging larger vessels and limiting the total tonnage carried. In expending public resources to facilitate navigation, these natural limits will be removed.

At the present time there is not a reliable base of data on either the carrying capacity of the Port within its environmental limitations, nor the full extent of the current usage and its impact on the environment.

It is likely that there will be an ever-increasing demand for more boating facilities, as with all other recreational facilities in society. The extent of adverse consequence is related to the degree to which the maintenance or extension of navigation channels will create ever increasing demands on the system, as more and more boating enthusiasts seek to share in the resources.

Simply dealing with today's perceived "problem" will not create a long term balance in the use of the Port. To preserve the character of the Port and the ecological and social benefits provided by the Port, effective safeguards for these other values must be created at the same time as providing for safe recreational navigation. At the same time it is necessary that decisions made about the management and use of the Port be based on reliable data, rather than guesswork.

The dredging proposed will create facilities which are safe for a limited range and number of vessels. If at the same time as providing for safe access for the present users of the Port a system is set in place which limits the growth in demands on the navigational resources, then the present initiatives can be expected to be cost effective. If the provision of a safe set of navigation channels is not accompanied by some methods of regulating demands on the

resource the inevitable most likely consequence is an escalating demand for facilities, creating greater demands on the public purse, and exacerbation of conflicts between boating and other values of the Port.

It is this latter outcome which is considered to be contrary to the interests of all concerned in the proper management of Port Hacking.

The safeguards required

The safeguards required are in relation to two distinct issues. The first are safeguards against growth in excess of the capacity of the navigational channels. The second are controls against potential abuses of the waterway by the irresponsible few, which will reflect badly on the more responsible majority of boating users of the Port.

Limits to growth

Safeguards are required to control the extent of potential subsequent navigational activities to levels capable of being accommodated by the Port once navigation access is improved. It is neither economically or socially wise to enhance boating facilities, only to see in a few years even greater demands emerge simply because an increasing number of vessels of greater size create even greater pressures for future modification of the Port. The result will be higher levels of dissatisfaction, greater boating safety problems, and increasing levels of capital commitments being required.

The major areas of concern are West of the area bounded by a line between Cabbage Tree Point and Hungry Point. East of this area, no substantial shoaling problems inhibit the boating use of the Port. Limitation to the growth of boating demands beyond the present levels can be achieved by a combination of the following controls.

- a. A limitation to the permissible moorings West of this line. The proposed limitation is for vessels to a maximum draught of 1.8metres. The control mechanism is the mooring licensing system of the MSB Waterways Authority.
- b. Restrictions on the size and number of vessels berthed at or using the marinas West of the line. It is inappropriate to expand marina facilities upstream of Deeban Spit, due to navigation, tidal flushing and facility limitations. Gunamatta Bay represents the most appropriate location for intensive vessel use, but subject to the interests of residents and swimmers, and the need to avoid harmful effects from chemicals used in hull maintenance. Any expansion of boating use of this area would need to be accompanied by improvements in facilities such as boat cleaning, sewerage removal, parking and other infrastructure required to minimise adverse impacts. The control mechanism is the Development Control Plans of Sutherland Council.
- c. A clear agreement between all parties as to the specification of the navigation channels which are to be maintained in the long term. The proposed limitation is as set out in the attached dredging plan.
- d. Communication on an ongoing basis to the boating community, and foreshore owners, of the limits to the growth in boating uses of the Port, such that individuals choosing to purchase vessels at the larger end of the spectrum can be taken to assume the risks themselves of limited access. The proposed mechanism is by continued dissemination of information about these limits, by both Sutherland Council, the MSB Waterways Authority, and the local boating groups.

Controls on abuses

Abuses by the minority create a community relations problem for the majority of vessel users. They can also create long term problems of pollution, damage to infrastructure, and injuries to other users. It is in everyone's interest to have effective controls against abuses which damage the intrinsic environmental and aesthetic qualities of the Port, or which cause interference with the quiet enjoyment of the Port by other users.

The main abuse potentials exist in relation to the following:

Pollution

The maintenance of vessels can be a cause of significant pollution, adding to the pollutants which enter the waterway from other non-boating sources. Scraping of anti-fouling and the spillage of anti foul chemicals into the waterway has an adverse effect on maritime creatures. Metal working activities such as the working of lead or other metals close to the

waterway have the capacity to increase metals contamination. Oil and chemical spills are a common accompaniment of careless maintenance practice, or the breakdown of vessels. The second source of pollutants is irresponsible on-board behaviour, notably the addition of pollutants into the waterway through flushing of bilge water, through the hull toilet practices, and littering.

Environment abuses

Noise pollution from some powered vessels, particularly personal water craft, activities near boat ramps and communal facilities, and loud parties on the waterway is a source of discomfort particularly for foreshore residents and foreshore users.

The use of vessels in sensitive areas such as seagrass beds or shallow spawning areas can create longer term ecological damage.

Damage to facilities through loutish behaviour is another form of potential abuse which can arise from the more extreme irresponsible behaviour.

Safety abuses

The use of high powered vessels in close proximity to swimmers, divers, and small non-powered vessels can create the risk of collision with unseen users of the waterway. Pollution can also pose health risks for other users of the Port.

At the more extreme end of the spectrum of safety concerns, playing "chicken" with other vessels, swimmers or surfers; and the use of vessels whilst under the influence of alcohol or drugs, are both major though infrequent safety abuses.

Conflicts with other users

There is a less tangible conflict which occurs between larger and powered vessels and other users. Less confident swimmers or sailors can readily be intimidated by the presence of larger, potentially dangerous vessels. Picnickers often seek quiet areas away from machine noise. Fishermen also frequently seek such places. Divers seek areas away from boating activity. The presence of substantial boating creates conditions under which other users may feel intimidated or constrained in their use of the waterway.

The limits to regulatory effectiveness

Regulation is effective only under conditions where those being regulated:

1. know of the existence and the meaning of the regulation;
2. perceive that there is a strong likelihood of being caught if they breach the regulation
3. anticipate a substantial penalty being incurred in the event that they are caught breaching the regulations.

There exists a range of regulations which ostensibly control most potential abuses within Port Hacking, but optimal conditions for their effectiveness do not exist. The main agencies concerned are Sutherland Council, The National Parks and Wildlife Service, The Environment Protection Authority, and the MSB Waterways Authority. In all cases their regulatory effectiveness could be improved by better resourcing, leading to more effective communications, a more significant policing presence, and an improvement in the likelihood of substantial penalties being imposed in the event of a breach being detected.

Creating an Effective policing regime

In order to protect the interests of all users in a balanced and safe usage regime for the Port, and to preserve the ecological qualities of the Port, it is necessary for the policing of regulations to be substantially more effective.

At the present time two major factors prevent the effective policing of the existing regulations. The first is the fragmentation of responsibilities between the regulatory authorities. The second is the limitations on the manpower resources available from all sources to ensure effective policing.

The intent is to encourage an enhanced regulating structure for the boating users of the Port, drawing on and supplementing existing regulatory controls with self regulation and enforcement. The collaborative structure is designed to bring the responsible users and the regulatory authorities into a structure which ensures full co-operation, open communication, and collective endeavours to protect the waterway and the users of the waterway from irresponsible behaviours. In this way the boating groups will demonstrate their genuine desire for a long term sustainable and responsible use of the waterway, have active

involvement in the creation and enforcement of the regulations governing their activities, and provide a benefit to all the users of the Port.

The intention is also to forestall more cumbersome control structures which could arise if the community comes to believe that the boating users of the Port are not doing all that is required to minimise any adverse impacts of boating on the environment and on other users.

The key elements in this framework for responsible use of the waterways are as follow:

Sharing of jurisdictions and resources

The government bodies with regulatory control over the use of the waterway and the management of the foreshores are hampered by the limits of jurisdiction under which each operates. A collaborative enforcement approach will be sought involving

National Parks and Wildlife Authority

MSB Waterways Authority

NSW Water Police

Fisheries Department

Sutherland Council

Environment Protection Authority

The early stages of such an approach are in evidence, with an increasing degree of cross deputisation, information sharing and concerted strategy being developed by many of the responsible authorities.

The intention is that an all encompassing collective patrol and enforcement plan will be put in place, with officers from each authority acting as intelligence gatherers for the other authorities and sharing limited resources. The cross deputisation of officers from each authority will be further pursued as a means for further integration of enforcement activities. The intention is to arrive at a seamless and well resourced patrolling and enforcement approach within Port Hacking.

Community involvement

The Royal MYC have moved ahead of legal requirements to ban "through the hull" toilet facilities on members' vessels by 1994. The Australian Volunteer Coast Guard and the Waterway Users Group are both elements in a developing system designed to ensure that the boating community acts as a responsible user group for the Port. The Marine Watch program developed by the NSW Water Police serves a community supervision function for the waterways. A basic structure exists for the creation of a self regulatory structure for boating users and facility providers within the Port. It is proposed that these elements be strengthened in the following manner:

- Reconsideration of the function of the MSB Waterway Users Group

The MSB Waterways Authority Users Group is a forum to advise the MSB Waterways Authority on placement of navigation aids and traffic controls. It also serves as a forum to discuss boating issues. The primary focus to date has been upon the immediate issues of concern to boating users, though an attempt has been made to achieve input from non-boating users. The potential exists for issues to arise and be considered in isolation from non-boating consideration, because of the restricted focus of the Users Group, and because many of the non-vessel users impacted upon by vessels are not represented by collective groups or associations. Consideration will be given by the MSB Waterways Authority to means for expanding the focus of the MSB Waterways Authority Users Group so that non-boating matters are given an appropriate weighting and consideration.

It is anticipated that the MSB Waterways Authority Users Group may achieve this broader consultation through inviting representation from other groups with a different type of interest in the Port, and by strategies which ensure that the broader aspects of vessel and other uses are given due weight in the considerations of the MSB Waterway Users Group

- Boating Code of Practice for Port Hacking

The various user groups have adopted in a piecemeal manner a set of principles and guidelines for responsible use of the Port. An immediate role of the MSB Waterways Authority Users Group will be to develop a Boating Code of Practice for all boating users which will form the guideline of accepted responsible practice within the Port. It will address the main issues of responsibility for boating users, including

- boating safety
- environmental responsibility (including issues of vessel maintenance and usage)
- concerns for other users
- reporting hazards and irresponsible behaviour.

The Code of Practice will be used as a basis for user education and to lead the achievement of a high standard of responsibility by all users, particularly those who are members of user groups.

A community response telephone line "Access Line" has been established by the MSB Waterways Authority where members of the community may report problems or concerns about boating use to the Authority. This line is manned at weekends and peak times to ensure timely response. The existence of the service and the telephone number will be more widely advertised within the Sutherland Shire.

- Performance monitoring

The effectiveness of this self regulatory proposal will be judged by the following criteria:

- a quarterly review by the MSB Waterways Authority Users Group;
- activity measures of the number of incidents attended, reported offences, and problems resolved;
- compliance as measured by MSB Waterways Authority surveys
- reduction in the reported complaints to the regulatory authorities.

Community education

Regulatory controls are ineffective unless those whose behaviours are intended to be impacted by the controls are aware of their existence and implications. The major boating groups on Port Hacking have in the past had a limited and informal involvement in education of boating users on the unique characteristics of Port Hacking, its special values, and the types of behaviours which are consistent with sustainable enjoyment of the Port. As part of the overall plans encompassed within the dredging plan, these groups (with the assistance of Sutherland Shire Council and hopefully the financial support of the MSB Waterways Authority and the Department of Sport and Recreation) will develop and implement a community education program.

The key elements in the program are

- The creation of an education program linked to the Boating Code of Practice. The education program would be targeted at all boating users of the Port, and co-ordinated through the MSB Waterways Authority Users Group. Its focus would be on the unique values of Port Hacking and on the establishment of practices and attitudes of responsible use which will preserve those values and reduce the potential for user conflicts or damage to the ecological values of the Port.
- Direct advising of those identified as causing problems or hazards, generally through the intervention of the Australian Volunteer Coast Guard, or the management of either boating facilities or boating user groups.

- Provision of information to the members of the various groups, or users of boating facilities which will entrench concepts of responsible usage of the Port.

Examining the limits of use

Port Hacking is a well used recreational area. Its nature and its proximity to urbanised areas make it vulnerable to degradation. Many of the characteristics of the Port have been studied, but there is no clear understanding of the level of recreational usage which would have an adverse impact on the Port. There is also no comprehensive data about the current level and mix of usage of the waterway and foreshores.

The implementation of this dredging plan does not replace the need for this vital information. Indeed it probably increases that need.

The Port Hacking Planning and Advisory Committee will pursue a more detailed examination of the limits to the use of Port Hacking and the required safeguards for the Port, as a basis for future decisions on dredging and other use related issues.

A Milestone agreement

This document has been subscribed to by the following organisations, representing a range of interests in the sustainable management of the Port.

Insofar as we can tell this is a milestone in responsible management of coastal recreational areas. In bringing together all the main interest groups into a common understanding, many of the conflict potentials in the management of such areas have been eliminated.

It is intended to strive to maintain the sense of common purpose and commitment to the sustainable use and enjoyment of Port Hacking for both the present users, and future generations.

Signatures /seals of organisations/ departments/authorities to be affixed.

DREDGING PLAN

The following chart outlines the Dredging Plan. It identifies the navigation channels, profiles and sand disposal sites.

Underlying Principles

The underlying principles in the design of this dredging plan are as follows:

- The navigation channels are designed insofar as possible to follow the “natural” channels and flow of water within the Port.
- The plan reflects the philosophy of minimal intervention outlined in the Memorandum of Understanding and the underlying Management Plan.
- The placement of sand removed by dredging is planned so as to remove this sediment from the system. The sand placement is intended to optimise the environmental, social and economic factors through a mix of re-use (to nourish the Cronulla beach system), and relocation to the prograding fronts of deep holes within the Port in a manner that makes the resource available for re-use, and poses no environmental threat.
- The principles of the Plan of Management are fully encapsulated within the dredging plan.

Priorities and timing

The priority in the dredging plan is the maintenance of the Bundeena/Cronulla ferry navigation channel. This priority is reflected in the staging of the implementation. The plan envisages that dredging of the Eastern reaches of the Port will precede dredging of the Western channels.

Options for further examination

During the course of the preparation of the plan, two options for further examination emerged. These are

- a relatively narrow and shallow channel for small vessels, running North/South from the navigation channel off Little Turriel Point into Fishermans Bay
- a second channel in the Western region, running in a roughly North-Northwest/South-Southeast direction between the deeper water in Gannons Bay and the navigation channel off Lilli Pilli Point.

These two options are not mentioned as recommendations, but merely as possibilities which may be worth further consideration.

However the sub-committee emphasises that these options have not been explored either in terms of environmental or community sensitivity. Such exploration would require a detailed and well resourced investigation.

Disposal of sand

The approach recommended is a mixture of removal of sand and its use in replenishment of the Cronulla beach system (for sand from the Eastern channels), and replacement of sand from the Western channels either on the prograding front or in the most conveniently located deep holes.

The reasons for this approach are as follows:

- A careful examination of the sediment characteristics has shown a good match of sediment characteristics of the Cronulla beach system for the sediment from the Eastern channels;
- Re-nourishment of the Cronulla beach system would otherwise require the purchase of sand and its relocation. In this manner, a commercial value can legitimately be attached to the use of the sand removed from Port Hacking;
- Examination of the options for placement of sand within the deep holes has occurred over a number of years, with this option having been preferred by a number of environmental groups as being a relatively benign acceleration of the natural process of movement of sediment within the Port. The Fisheries Department has recently come to the view that the placement within these holes is not only benign, but may have a positive impact in creating peaks of oxygenated water within the oxygen deprived deep hole areas.
- The option of consciously creating such ‘islands’ of richer water within the Deep Holes has not been incorporated within the plan. However, it is

possible that during sand placement on the prograding front, some oxygenation benefits may be achieved as a by-product.

- The planned approach to sand placement has the potential to allow later recovery for economic uses.

Should further investigation demonstrate that the cost/benefit equation for the use of sand to nourish the Cronulla beach system is adverse, it is recommended that the sand not required for this purpose be also placed on the prograding front of the nearest deep hole.

Safeguards

A number of safeguards are recommended.

1. Specific details of proposed procedures and description of the excavation and disposal sites should be agreed before work is commenced, and be reviewed by the Port Hacking Planning and Advisory Committee. It is anticipated that these measures will be further reviewed as part of the consultative process with expert government authorities.
2. Buffer zones of no less than 50 metres should be maintained around seagrass beds, and no less than 30 metres around any saltmarshes and mangrove stands.
3. Special precautions are required for the Shiprock Aquatic Reserve. The safeguards should address not only any direct damage, but also the potential for turbidity generated during the dredging process. They should include a buffer zone of no less than 100 metres from the boundaries of the Reserve.
4. Where there is any danger of turbidity and silt, causing damage to sensitive marine flora and fauna, the use of silt curtains is recommended.
5. Dredging in shallow areas must not exceed 2 metres depth below mean low water mark.
6. The substrate must be even, battered to a slope of 1 in 7 and be free of holes.
7. Existing flora and fauna must be maintained in their natural undisturbed state in areas of the site which are not designated for construction work and in areas adjacent to the site. In particular this relates to vegetated foreshore, saltmarsh, mangrove and seagrass areas.
6. Prior to any dredging, the location of existing seagrass beds should be mapped, and dredging conducted in such a manner as to avoid damage to this resource.
7. The placement of sand on the prograding fronts should be carried out in such a manner as to preserve the natural appearance of the prograding front.
8. Should commercial sand removal be considered, tenders should be called with the full range of constraints and the dredging plan as fixed and non-negotiable. Decisions as to the extent, timing, and the locations of sand removal should be made with regard to the plan, and not modified to facilitate commercial outcomes. Within this rigid framework, commercial sand removal should be considered as a financing option.
9. The navigation access plan should be implemented with full regard to the principles of the Port Hacking Plan of Management.
10. Future dredging decisions should be made in the light of an identified carrying capacity of the Port, determined by objective study of the environmental and usage characteristics of the Port.

Ongoing maintenance

The channel structure outlined in the attached map and dredging plan is intended to be maintained on a permanent basis. Weather patterns and their intersection with tidal conditions, and the mobility of sand, are all involved in the patterns of shoaling in the Port. Whether, when and to what extent further dredging may be required to maintain the channels is dependent on a number of such variables and cannot be reliably predicted. The occurrence of major storms or other natural events could lead to the more rapid than expected deterioration of navigation channels. Experience has shown that dredging is likely to be required every one or two years depending on these factors.

The commitment to ongoing maintenance dredging is seen as a statement of principle rather than as a firm obligation of government or the relevant departments, as a range of political and economic factors are involved in any such funding decisions by government.

Timing

The Port Hacking Planning and Advisory Committee recommends dredging be initiated as soon as possible. The funding decisions will determine the capacity to finance the dredging,

but it is recommended that the preparatory work be carried out pending the resolution of this issue, with a view to commencement as soon as possible.

MAP AND DREDGING PLANS

ATTACHMENTS