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NARRABEEN
NSW 2101

24th May 2005

The Honourable Ian MacDonald, MLA
Minister for Primary Industries
Level 30 Governor Macquarie Tower
1 Farrer Place
Sydney, NSW, 2000

Dear Minister,

With concerns that Narrabeen Lagoon is experiencing sedimentation problems, particularly in what's called the Central Basin, Warringah Council administrator Dick Persson hosted a summit on 13th April 2005 to discuss future plans for Narrabeen Lagoon. With the cause of sedimentation being development in the lagoon's catchment, Environment Minister Bob Debus announced that 450ha of Crown Land at Cromer, Belrose and Oxford Falls will be locked up and permanently protected from development, and a further 170ha could be quarantined if a Lands Dept study recommends it.

The summit also recommended that dredging be considered an option in the management of the lagoon. There has been much recent publicity given to the problems being experienced by a local sailing club with the shallow depth of parts of the Central Basin, the area where they sail. Warringah Council has pursued a proactive management plan for the Lagoon since the 1970's and have advocated for active recreational uses such as sailing and canoeing to be concentrated in the Central Basin. The Council's proposal to dredge the Central Basin in the early to mid 1990's was for the purpose of deepening the Central Basin for recreational purposes. At the time Warringah Council never stated that the purpose of dredging was to address the sedimentation problem of the Central Basin, nor to improve water flow and water quality.

Dredging of estuaries is generally detrimental to estuaries and sea grass beds as it physically removes sea grasses, but increased turbidity and water depth is also detrimental to the environment for sea grasses. This is recognised in the Fisheries Management Act (1994) where Division 3 applies to dredging and reclamation other than for the purposes of mining, restoration or maintenance of a navigation channel, or for the removal of accumulated silt from a stormwater channel. Section 199 requires public authorities to give notice to the Minister of any proposed dredging or

reclamation work in any waters and consider any matters raised by the Minister in relation to such notice.

Many people are aware of the importance of seagrass beds. They represent nursery areas for many species of fish, but they also act as a filtration system absorbing dissolved nutrients and converting them to plant material, greatly expand the base of the food web and act as a binding agent for the mud, silt and sand in which they grow. They can only exist in specific conditions. Of prime importance is the lack of wave action, hence their distribution in sheltered bays and estuaries. The other critical aspects are nutrient supply, turbidity and water depth. A survey conducted by NSW Fisheries in 19983 estimated that approximately 21% of Narrabeen Lagoon had sea grass cover. This figure likely waxes and wanes over time.

At a special information night on 23rd November 1994 on the subject of "Warringah Council's Dredging Proposal for Narrabeen Lagoon - the Implications for Fish Habitat", Rebecca Dixon (then with NSW Fisheries) outlined:

- the importance of estuaries
- Narrabeen Lagoon, an overview
- the significance of sea grasses
- problems in estuaries
- NSW Fisheries views on dredging in estuaries
- NSW Fisheries guidelines for dredging in coastal lagoons
- The Narrabeen Lagoon Dredging Proposal (of 1994)

An edited version of the talks given by the various speakers, including Ms Dixon's, is attached for your information. It is pertinent to repeat Ms Dixon's comments on her last three topics, and they are italicised below:

NSW Fisheries Views on Dredging in Estuaries

Dredging may have a number of adverse effects on estuaries:

- *Productive habitats, such as seagrass, may be destroyed by the removal of underlying sediment or degraded by associated turbidity and sedimentation*
- *Deep holes and channels created by dredging may become stagnant or may adversely affect current patterns*
- *It can detract from the public's enjoyment of the waterway.*

Properly controlled, dredging may benefit the lagoon by increasing the tidal exchange, enhancing water circulation and facilitating navigation. So NSW Fisheries will generally approve dredging in areas of rapid accretion or on barren sand and for essential navigation purposes.

Dredging is not normally permitted in seagrass and mangrove habitats.

Dredging in shallow areas must generally not exceed a depth of 2 metres below the low water mark to facilitate mixing and ensure that the substrate remains in the euphotic zone (i.e., the maximum depth to which light penetrates). The bottom must be an even, battered slope of 1 in 7 and be free of holes (which allow the build-up of stagnant waters). The applicant must provide details of final depth contours and any probable future maintenance dredging activities).

NSW Fisheries Guidelines for Dredging in Coastal Lagoons

- *Seagrass beds must not be dredged or smothered by sediment*
- *A buffer zone at least 50 metres wide must be maintained around isolated seagrass beds if dredging is carried out*
- *Where dredged, the slope must be battered to a slope of approximately 1 in 7 to promote colonisation of shallow water flora and fauna, including mangroves and seagrasses, and to facilitate wind mixing of the lagoon waters*
- *Ideally some shoals should be maintained after dredging to help prevent wave attack on the shoreline*
- *There must be no blind channels and after the dredging the morphology of the lagoon floor must allow free circulation of bottom water*
- *Settlement ponds must be established to prevent entrained silt being returned to the lagoon after dredging.*

The Narrabeen Lagoon Dredging Proposal

The significance of these guidelines in relation to the dredging proposals for Narrabeen lagoon are:

- *The dredging is being proposed over significant seagrass beds*
- *It is not being proposed in an area of rapid accretion, over barren sand or for essential navigation purposes. Recreational sailing is not considered an essential navigation purpose.*
- *NSW Fisheries require a 50 metre buffer zone around the seagrass areas for dredging to be permitted.*

NSW Fisheries advocates that dredging in shallow areas must not exceed a depth of 2 metres below low water mark to facilitate mixing and to ensure that the substrate remains in the euphotic zone.

It is therefore important that this dredging proposal be fully and carefully considered.

The final report by WBM Oceanics Australia titled "Narrabeen Lagoon Estuary Management Study" dated March 2002 was commissioned as part of the State Government's Estuary Management Program. The report recognises that sedimentation in the Lagoon is an issue, as it states (p1-6) "Sediments entering Narrabeen Lagoon from the catchment is slowly filling the Lagoon, particularly the western basin. Comparison of historical hydrosurveys indicates that accretion rates were high during the 1960s and 1970s, however the rates have reduced considerably since that time. Despite this, bed levels in some sections of the western basin have increased by up to 0.2 metres".

The same report also lists widespread dredging of the central and/or western basin as a management option (ranked 23/95), but notes conflicts and impacts (p4-31):

"This option would conflict with several management objectives. Firstly, deepening the Lagoon would reduce the efficiency of tidal flushing and mixing (management objective 2) due to greater low water volume of the Lagoon. Secondly, the dredging could disturb existing seagrass meadows either directly (by physical removal) or

indirectly (by increasing turbidity associated with dredging practices) (Management Objective 14). Thirdly, the area to be dredged provides valuable benthic habitat, which could take many years to re-establish (Management Objective 15). Fourthly, increasing the recreational usage of the central basin and particularly the western basin of the Lagoon may invoke conflicts that are currently not experienced in the Lagoon".

As the issue of the dredging of the Central Basin of Narrabeen Lagoon is being raised again, and NSW DPI (Fisheries) advise you in your capacity as Minister of DPI, it is pertinent to get clarification on several matters:

- Are the current NSW DPI Fisheries views on dredging in estuaries consistent with those outlined by Ms Dixon in 1994? If not, then what are the current views? And why did they change?
- Are the current NSW DPI Fisheries guidelines for dredging in coastal lagoons consistent with those outlined by Ms Dixon in 1994? If not, then what are the current guidelines? What prompted the change in the guidelines?
- Without any knowledge of the proposal specific comments cannot be made, but generalisations are possible. What general guidelines and factors would you, and DPI Fisheries, be looking for prior to making any decision in approving or rejecting any proposal to dredge Narrabeen Lagoon?

It is generally accepted in the literature and by NSW Fisheries that dredging, pollution and sedimentation have destroyed much of the sea grass beds in NSW. This is highlighted by Tanner and Liggins (2000) estimate that in 1999 there was only 21.9km² of sea grass beds remaining in the estuaries and sheltered coastal waters from the Hunter River to the NSW/Queensland border (Tanner, M.; and Liggins, G.W., 2000. *New South Wales Commercial Fisheries Statistics 1998/99*. **NSW Fisheries**, Cronulla. ISSN 1320-337). Any potential loss of sea grass beds in the estuaries of NSW is to be avoided, and any proposed dredging of an estuary should be carefully considered.

Yours Sincerely

Phillip Ingram
President
Anglers Action Group (Sydney Northside) Inc.

