

MUSSEL AQUACULTURE IN TWOFOLD BAY

Stage 1 Review Report and Determination of Progression to Stage 2, prepared in accordance with the Mussel Aquaculture in Twofold Bay Determination dated 1998.

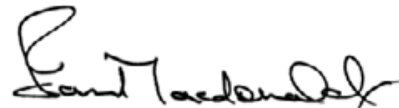
MINISTER FOR PRIMARY INDUSTRIES

22 FEBRUARY 2005

Minister for Primary Industries

Determination of progression to Stage two of MUSSEL AQUACULTURE IN TWOFOLD BAY

In accordance with the *Determination of Mussel Aquaculture in Twofold Bay, 1998* and as a result of an examination and review of the Stage 1 audit report titled 'Proposed Progression to Stage two of Mussel Farming Determination' regarding proposed expansion of the mussel farming development in Twofold Bay to incorporate Stage 2 of the *Determination of Mussel Aquaculture in Twofold Bay, 1998*, and as a result of an examination and consideration of all submissions received concerning the assessment of Stage 1, I, Ian Macdonald, Minister for Primary Industries, hereby determine that Stage 2 should proceed with the modifications and conditions described in this report to reduce any adverse impact on the environment.



Ian Macdonald MLC
MINISTER FOR PRIMARY INDUSTRIES
22 February 2005

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LIST OF ABBREVIATIONS AND ACRONYMS

BVSC	Bega Valley Shire Council
NSWCMGA	NSW Cultured Mussel Growers Association Incorporated
DA	Development Application
DL	Department of Lands
DIPNR	Department of Infrastructure, Planning and Natural Resources
EIS	Environmental Impact Statement
DEC	Department of Environment and Conservation (incorporates Environment Protection Authority & National Parks and Wildlife Service)
NSWDPI	Department of Primary Industries (incorporates former NSW Fisheries)
MA	Maritime Authority (formerly Waterways Authority)
TOC	Total Organic Carbon

EXECUTIVE SUMMARY

Twofold Bay has proven to be a significant area in NSW for the production of blue mussels, *Mytilus edulis*. Investigations into the culture of mussels first commenced in Twofold Bay in the 1970's with an experimental permit being issued to Eden Shellfish Pty Ltd in 1980 permitting it to operate 8 mussel rafts on 7.5 ha of water adjacent to Oman Point in Twofold Bay.

In 1998 the Minister for Fisheries, as the nominated determining authority, made a determination under Part 5 of the *Environment Planning and Assessment Act 1979* for a two staged development of mussel aquaculture in Twofold Bay. The Stage 1 of this development provided the opportunity to evaluate a number of environmental and development issues.

Eden Shellfish Pty Ltd (Eden Shellfish) and the NSW Cultured Mussel Growers Association Incorporated (NSWCMGA) in 2003 notified NSW Fisheries that they had undertaken environmental monitoring as required under Stage 1 of the *Determination of Mussel farming in Twofold Bay 1998* (Determination). An assessment report on Stage 1 of the Determination, titled 'Proposed Progression to Stage two of Mussel Farming Determination', was prepared by both parties for the areas they had occupied as part of Stage 1. This involved 13.5 hectares to Oman Point (Eden Shellfish) and 2 hectares at Torarago Point (NSWCMGA).

The Stage 1 assessment report was placed on public exhibition from 27 November 2003 to the 16 January 2004. NSW Department of Primary Industries (incorporating NSW Fisheries) received 58 submissions with 18 supporting the mussel farming activities, 36 objecting and 4 having concerns for consideration.

In accordance with the Determination a review committee comprising of representatives of Bega Valley Shire Council, Department of Environment and Conservation, NSW Department of Primary Industries, NSW Maritime Authority, Department of Infrastructure Planning and Natural Resources and Department of Lands considered the submissions and reviewed the Stage 1 audit report prior to preparation of a report for the Minister for Primary Industry's consideration.

The Minister for Primary Industries in accordance with the *Determination of Mussel farming in Twofold Bay 1998*, has considered the matters within the Stage 1 report, submissions, audit report and recommendations.

In the opinion of the Minister for Primary Industries, the requirements of Stage 1 of the *Determination of Mussel farming in Twofold Bay 1998*, which included the assessment of environmental, socio-economic, structural durability, commercial viability and sustainability have been adequately addressed

The Minister for Infrastructure Planning and Natural Resources has a concurrence role under the *Coastal Protection Act 1979*. The Department of Infrastructure, Planning and

Natural Resources has advised that once the Minister for Primary Industries has approved progression to Stage 2 then it will be in a position to provide an unconditional concurrence to Stage 2 under the *Coastal Protection Act 1979*.

This report therefore determines that:

1. The approved areas referred to as Stage 1 in the *Determination of Mussel farming in Twofold Bay 1998*, regarding existing 13.5 ha of mussel farming area utilising rafts and longlines in the Oman Point area; and a lease area of 2 Hectares of a prototype longline at the north western end of Torarago Point area will continue operations and leasing by the Minister for Primary Industries under the *Fisheries Management Act 1994*.
2. The Stage 2 areas of the *Determination of Mussel farming in Twofold Bay 1998* comprising of the 4 ha applied for by Eden Shellfish Pty Ltd at Oman Point and the 18 ha on the north western side and 12 ha on the eastern side of Torarago Point applied for by the NSW Cultured Mussel Growers Association Incorporated shall be approved for leasing by the Minister for Primary Industries under the *Fisheries Management Act 1994*.
3. This determination requires that the aquaculture permit holders undertaking mussel farming operations in Twofold Bay are subject to the following conditions:
 - **The buoys required to mark the aquaculture lease extremities shall be in accordance with NSW Maritime Authority navigational requirements.**
 - **A monitoring program, that investigates the issue of biodeposition under the lease areas is to be undertaken by the aquaculture permit holders.**
 - **All aquaculture permit holders are to legibly mark with the owners name and a contact phone number all buoys and rafts,**
 - **All new lease infrastructure ropes are to be uniquely identifiable in a manner approved by NSW Department of Primary Industries,**
 - **Prior to the lease areas in Stage 2 being issued the aquaculture permit holders are to provide NSW Department of Primary Industries with a disposal plan for the sorted waste mussels. This plan is to be endorsed by NSW Department of Primary Industries and Bega Valley Shire Council, and**
 - **Prior to any of the Stage 2 lease areas being developed an entanglement protocol is to be prepared and endorsed by NSW Department of Primary Industries and Department of Environment and Conservation.**

The reasons for imposing these conditions are to:

- (i) minimise any adverse environmental effects of the development;
- (ii) provide for the on-going environmental management of the development; and
- (iii) provide for regular environmental monitoring and reporting on the performance of the development.

Such mechanisms will provide a watching brief to the increased development of mussel farming in Twofold Bay while addressing concerns raised in the Stage 1 review process.

1. INTRODUCTION

Twofold Bay has proven to be a significant area in NSW for the production of the blue mussel, *Mytilus edulis*. Investigations into the culture of mussels first commenced in Twofold Bay in the 1970's when the late Dr John McIntyre of NSW University, established experimental rafts in the bay for catching and growing the blue mussel. In 1980, an experimental permit was issued under the Fisheries and Oyster Farms Act 1935, to Eden Shellfish Pty Ltd, permitting it to operate 8 mussel rafts on 7.5 ha of water adjacent to Oman Point in Twofold Bay.

In 1994, the NSW Minister for Natural Resources and Fisheries upon receipt of a development application for mussel farming in Twofold Bay determined that a Part V Environmental Impact Statement should be prepared (in accordance with the conditions of Clause 84 of the Environmental Planning and Assessment Regulation, 1994) and assessed to determine whether consent for the activity should be granted or rejected.

The EIS was placed on public exhibition from 18 March 1996 to 22 April 1996. The primary reasons for requiring an EIS in relation to the mussel farming development to be prepared, was to clearly identify what the proposal entails; to identify the potential impacts; how the impacts can be mitigated; and to allow the community of Eden an opportunity to comment on the proposal.

The Minister for Fisheries was responsible for preparing the determining Authorities report under Clause 91 of the Environmental Planning and Assessment Regulation 1994. The purpose of the report was to document the Minister for Fisheries examination and consideration of the EIS, to consider representations received in respect to the proposal, to consider the potential impacts the proposal may have on the environment and to evaluate the proposed measures to mitigate any adverse effects on the environment.

In 1998 the Minister for Fisheries as the nominated determining authority made a determination under Part 5 of the *Environment Planning and Assessment Act 1979* for a two staged development of mussel aquaculture in Twofold Bay.

The primary reasons for requiring a staged approach to the mussel farming development was to provide the opportunity to clearly identify any potential impacts; if the impacts can be mitigated; and to allow the community of Eden an opportunity to comment on the further development.

The Minister for Land and Water Conservation as a concurrence authority for the mussel farming development provided a conditional concurrence for Stage 1 pending the Stage 1 review.

Eden Shellfish Pty Ltd (Eden Shellfish) and the NSW Cultured Mussel Growers Association Incorporated (NSWCMGA) in 2003 notified NSW Fisheries that they had completed required environmental monitoring and assessment as required under Stage 1 of the *Determination of Mussel farming in Twofold Bay 1998* (Determination). An audit report on Stage 1 of the determination, titled 'Proposed Progression to Stage two of Mussel Farming Determination', was prepared by both parties for the areas they had occupied as part of Stage 1. This involved 13.5 hectares to Oman Point (Eden Shellfish) and 2 hectares at Torarago Point (NSWCMGA).

NSW Fisheries on behalf of the Minister for Fisheries placed the Stage 1 assessment report on public exhibition from 27 November 2003 to the 16 January 2004. NSW Fisheries recognised that the exhibition period bridged the Christmas and New Year period and therefore the report

was placed on exhibit for a total of 51 days rather than the required 28 days to provide sufficient time for submissions. The notification of the public exhibit period of the Stage 1 audit report appeared in the Eden Imlay Magnet on the 27 November 2003 in the form of a public notice. The Stage 1 audit report was also distributed to offices of the Bega Valley Shire Council and placed on the NSW Fisheries website and at the NSW Fisheries office in Eden for the public to view. NSW Fisheries received 58 submissions with 18 supporting the mussel farming activities, 36 objecting and 4 having concerns for consideration.

In accordance with the Determination a review committee comprising of representatives of Bega Valley Shire Council, Department of Environment and Conservation, NSW Department of Primary Industries, NSW Maritime Authority, Department of Infrastructure Planning and Natural Resources and Department of Lands considered the submissions and the audit report titled 'Proposed Progression to Stage 2 of Mussel Farming Determination' prior to preparation of a report for the Minister for Primary Industry's consideration.

The Minister for Primary Industry in accordance with the *Determination of Mussel farming in Twofold Bay 1998*, has considered the matters within the Stage 1 audit report, submissions, review group report and recommendations. In the opinion of the Minister for Primary Industries, the requirements of Stage 1 of the *Determination of Mussel farming in Twofold Bay 1998*, which included the assessment of environmental, socio economic, structural durability, commercial viability and sustainability have been adequately addressed

The Minister for Infrastructure Planning and Natural Resources has a concurrence role under the *Coastal Protection Act 1979*. The Department of Infrastructure, Planning and Natural Resources has advised that once the Minister for Primary Industries has approved progression to Stage 2 then it will be in a position to provide an unconditional concurrence to Stage 2 under the *Coastal Protection Act 1979*.

2. DETERMINATION OF STAGE 2

2.1 Statement of determination on Stage 2 of Mussel Farming in Twofold Bay

The Minister for Primary Industries determines, in accordance with the *Determination of Mussel farming in Twofold Bay 1998 (Determination)*, that Stage 2 of the mussel farming in Twofold Bay may proceed subject to the amendments, restrictions and conditions outlined in Section 2.2, 'Conditions of Determination'.

2.2 Conditions of determination

The Minister for Primary Industries has imposed the following restrictions and conditions on the proposed progression to Stage 2 of Mussel Farming in Twofold Bay as pursuant to the Determination, so as to eliminate or reduce any detrimental effect of mussel farming on the environment and provide a mechanism for ensuring sustainable mussel aquaculture in Twofold Bay.

2.2.1 Location and scale of lease areas

- I. The approved areas referred to as Stage 1 in the Determination, regarding the existing 13.5 Hectares of mussel farming area utilising rafts and longlines in the Oman Point area; and a lease area of 2 ha of a prototype longline at the north western end of Torarago Point area are confirmed for continued operations and leasing by the Minister for Primary Industries under the *Fisheries Management Act 1994*,
- II. The Stage 2 areas comprising of the 4 ha applied for by Eden Shellfish Pty Ltd at Oman Point and 18 ha on the north western side and 12 ha on the Eastern side of Torarago point applied for by the NSW Cultured Mussel Growers Association Incorporated shall be approved for operation and leasing by the Minister for Primary Industries under the *Fisheries Management Act 1994*.

(Approximate location of the lease areas and delineation of the staging is shown Schematically in Figure 1).

2.2.2 Environmental sampling of Lease areas

Environment sampling program requirements are the responsibility of aquaculture permit holders. The sampling program is to be conducted in the manner described in Section 6. Further detailed consultation with NSW Department of Primary Industries is required regarding the term of sampling, specific parameters and sample regimes.

All mussel farm aquaculture permit holders in Twofold Bay will be required to work cooperatively in the undertaking of the environmental sampling program.

2.2.3 Management of leases

Specific lease management practices as described in the following:

(i) Visual impact of buoys

The buoys required to mark the aquaculture lease extremities shall be in accordance with NSW Maritime Authority navigational requirements.

(ii) Identification of Infrastructure

Aquaculture permit holders are required to legibly mark with the owners name and a contact phone number all buoys and rafts, and all new lease infrastructure ropes and lines are to be uniquely identifiable in a manner approved by NSW Department of Primary Industries.

(iii) Discarded mussels

Prior to the lease areas in Stage 2 being issued the aquaculture permit holders are to provide NSW Department of Primary Industries with a disposal plan for the sorted waste mussels. This plan is to be endorsed by NSW Department of Primary Industries and Bega Valley Shire Council.

(iv) Marine mammal entanglement protocol

Prior to the Stage 2 leases being issued a marine mammal entanglement protocol is to be prepared and endorsed by NSW Department of Primary Industries and Department of Environment and Conservation.

2.2.4 Public Liability insurance

Aquaculture permit holders are required to hold the required public liability insurance to cover any potential public liability claims due to mussel farming operations and to indemnify the State and its agents against any such claims (Section 152e of the *Fisheries Management Act 1994*).

2.2.5 Lease Security/bond arrangements

Mussel farming permit holders are required to submit a security/bond arrangement to NSW Department of Primary Industries in accordance with Clause 15 of the *Fisheries Management (Aquaculture) Regulations 2002* prior to leases being issued.

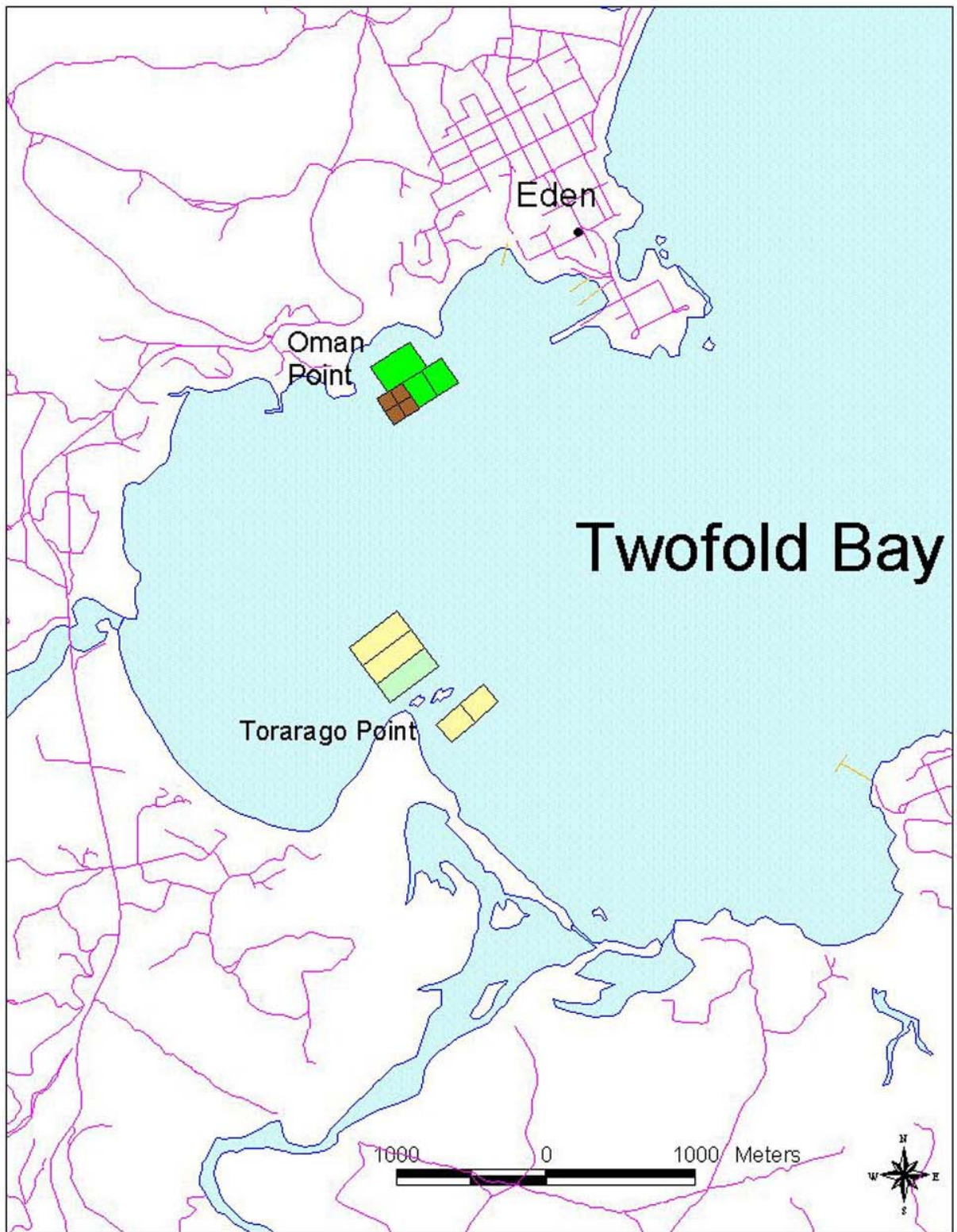
2.2.6 Commercial Farm Development Plan

In accordance with NSW Department of Primary Industries requirements the mussel farmers are required to lodge with NSW Department of Primary Industries a commercial farm development plan for each lease site prior to issuance of a lease area.

2.2.7 Design criteria

A structural design plan for the longline or raft structures including mooring devices to be submitted to NSW Department of Primary Industries for assessment prior to establishment.

Figure 1:- Representation of the lease area locations.



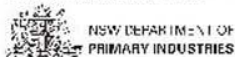
Locations of all sites are representational only

- Edens Shellfish mussel farm area (stage1)
 - Area applied for by Edens Shellfish (stage 2)
 - Cultured Mussel Growers Association farm area (stage 1)
 - Area applied for by Cultured Mussel Growers Association (stage 2)
- Roads
 - Jetties
 - Coastline

Source: 2011 from Department of Local, NSW Heritage
 Authority, and Department of Primary Industries
 Survey, Geographic Information Systems (GIS)
 Data: Mapping Data of Australia (MAGCOM)
 Projected: UTM Zone 56

The State of NSW South West, the Department
 of Primary Industries, its employees, officers, agents
 or contractors are not responsible for the results of any
 activities or the use of any maps, reports, publications
 or illustrations that may occur on this map.

Prepared by GIS and/or, Geographic Information
 Systems, Department of Primary Industries, on 16 November 2011. PD



3. ISSUES RAISED AS A CONSEQUENCE OF PUBLIC EXHIBITION

3.1 Public exhibition of Stage 1 report

The Stage 1 audit report titled 'Proposed Progression to Stage two of Mussel Farming Determination' was placed on public exhibition from the 27 November 2003 to the close of business on the 16 January 2004. NSW Fisheries placed a Public Notice announcing the exhibition period in the Eden Imlay Magnet on the 27 November 2003. An example of the advertisement is depicted in Appendix 1. Copies of the Stage 1 audit report were available for viewing at offices of the Bega Valley Shire Council and on the NSW Fisheries website and at the NSW Fisheries office in Eden. During the exhibition period a number of articles concerning mussel farming in Twofold Bay were placed within the Eden Imlay Magnet by members of the community which provided further opportunities for other community members to be informed of the exhibition period. The public exhibition period was extended from the required 28 days to 51 days to account for the exhibition period being within the Christmas and New Year holiday period.

NSW Fisheries on behalf of the Minister for Fisheries received a total of 58 submissions.

3.2 ISSUE GROUPINGS

Individual issues raised in submissions were grouped for subsequent consideration in section 4. These groupings are listed in Table 1 with the table also indicating the number of submissions in which the issue was raised.

Table 1 SUMMARY OF ISSUES RAISED IN SUBMISSIONS.

No.	ISSUE RAISED	NUMBER OF SUBMISSIONS DEALING WITH ISSUE
1.	Visual Amenity	34
2.	Mussel numbers in Twofold Bay.	11
3.	Navigation	18
4.	Employment opportunities.	6
5.	Long term environmental impacts	5
6.	Debris on nearby beaches	11
7.	Pollution from adjoining land uses impacting on Twofold Bay water quality.	3
8.	Quality product.	12
9.	Economic viability.	6
10.	Durability of farming infrastructure	3
11.	Tourism	17
12.	Disposal of fouling organisms.	6
13.	Sorting of mussels at wharf	5
14.	Relocation of leases	4
15.	Whale interactions.	9
16.	Other users	4
17.	Environmental Bond	1
18.	Wild harvest	2
19.	Non specific submissions.	2
20.	Exhibition Period	4

4 EXAMINATION AND CONSIDERATION OF ISSUES RAISED

Issues raised in submissions received as a result of the public exhibition period are considered in this section of the report. Submissions are not addressed individually but the issues raised are addressed in those categories described in Table 1. It should be noted that this is a review of Stage 1 of the *Determination of Mussel farming in Twofold Bay 1998* (Determination).

In accordance with the Determination, this section comprises of the required review of the audit report and submissions received during the exhibition period by representatives of the Bega Valley Shire Council, Department of Lands, NSW Department of Primary Industries, NSW Maritime Authority, Department of Infrastructure, Planning and Natural Resources and the Department of Environment and Conservation. This review group where appropriate has provided recommendations to the Minister for Primary Industries on the granting of leases in Stage 2 of the Determination.

4.1 VISUAL AMENITY

Proponents position

The proponents outlined that it was in their own interest for the mussel farming infrastructure to have a low profile to reduce the impacts of sea and wind conditions. However, the use of subsurface infrastructure which greatly reduces the visual impact was considered not appropriate as the water depth on the Stage 1 and 2 sites is not adequate to accommodate this form of longline infrastructure.

The proponents stated that there has been substantial improvements in aquaculture infrastructure in the last five years and that they are working with aquaculture product manufacturers to develop infrastructure, in particular buoys that have less above water profile.

The proponents considered that the mussel farming structures have a low impact on the visual amenity of the area in comparison to other infrastructure in Twofold Bay such as the wood chip or naval wharves.

Submissions

The impact of the mussel farming development upon the visual amenity of Twofold Bay attracted concern from members of the public within 34 of the submissions received. They predominantly focused on the Oman Point lease area as it is close to elevated vantage points within Eden. The lease sites off Torarago Point are in excess of two kilometres away from these main vantage points in Eden and therefore are less visible from Eden.

The predominant issue of visual amenity was focused on the appearance, size and number of the buoys utilised to support and maintain the mussel farming infrastructure. Some of the submissions were concerned that the visual impact would be detrimental to tourism.

However, in some of the submissions it was noted that the existing vista of Twofold Bay is not truly “pristine” since there are a number of visually prominent features both on the water and surrounding hinterland that already impact upon the visual amenity and thus no one should be expecting a completely pristine or unaltered landscape. These features include increasing Eden and environs urban area development, fuel storage tanks on Lookout Point, wood chip stockpile, moored boats, mooring buoys for shipping, wharfs (woodchip, Snug Cove, multipurpose), marinas and yachts or other boats using the bay.

Discussion

In March 2004 the Department of Infrastructure, Planning and Natural Resources released the Twofold Bay & Hinterlands Strategy (the Strategy) which outlines a number of strategies for the area. One action under the Strategy “A healthy Environment for all to enjoy” was to assess the visual impact of bay users including aquaculture. The visual assessment conducted for the Stage 1 review may provide a benchmark for future other user visual assessments.

Review group

The review group acknowledged that the expectations and perceptions of a person viewing the mussel farm and other developments within the Twofold Bay area would vary depending on their background. Therefore, to obtain an assessment of the visual impacts, the review group requested that the proponents engage a suitably qualified person to undertake an assessment of the visual impacts of the mussel farming developments and the proposed Stage 2.

The review was undertaken by Mr Terry O’Hanlon, from O’Hanlon Design Pty Ltd and a report provided to the review group. The report outlined that the visual impact of the mussel farming infrastructure varied dependant of the viewers perceptions, the context in which viewed, the vantage point from which viewed and climatic conditions at the time of viewing. In general the Oman Point development had a negligible to low visual impact and the Torarago Point development had a negligible to moderate visual impact with the moderate impact being for a person actual standing on Torarago Point with the remainder being negligible to low.

The review group acknowledged that during the development application process for the development of mussel farming in Twofold Bay, the deeper water sites were rejected with only the shallower sites approved. This has limited the type of growing infrastructure that can be utilised in these sites and has resulted in the supporting buoys being placed on the surface. However, the visual impact can still be minimised by:

- Keeping the buoys largely submerged and adding flotation as required,
- Alignment of the buoys vertically and/or horizontally, and
- Colour and design features of the buoys and culture infrastructure.

NSW DPI representative outlined that worldwide, longline aquaculture is quickly becoming a significant producer of seafood and as it develops so are the technologies associated with the growing infrastructure. It is envisaged that within the next 5 years major advances in shallow water (< 12 m) longline infrastructure will continue to reduce visual impact.

During the Stage 1 review group meeting NSW Maritime Authority expressed concern that if all surface buoys were placed just under the surface that a navigational hazard would be created as the present buoys are excellent markers of the lease infrastructure.

The review group recommendation to the Minister for Primary Industries regarding this issue is that if the Stage 2 was to progress then:

- **The buoys required to mark the aquaculture lease extremities shall be in accordance with NSW Maritime Authority navigational requirements.**

4.2 Mussel Numbers in Twofold Bay

Proponents Position

The proponents engaged The Centre for Research on Ecological Impacts of Coastal Cities, University of Sydney (The Centre) to undertake a number of environmental assessments. The Centre in its report on the Examination of Potential Ecological Effects of Mussel Culture In

Twofold Bay, NSW by A. J. Underwood and M. G. Hoskin dated September 15, 1999, concluded that the examination of the changes in mussel populations in Twofold Bay as a result of the mussel farms was not deemed to be worthwhile scientifically. The Centre stated that the cultured stock would be small compared to the wild population and therefore it would be contributing only a small proportion of the overall numbers of blue mussel larvae to the environment. Also any larvae produced by the cultured mussels are likely to spread over several tens of kilometres of coastline prior to settlement. In consideration of this, the number of mussel larvae settling in Twofold Bay will be variable over time depending on environmental factors such as water temperature and currents.

Submissions

In 11 of the submissions received there were concerns expressed that the increase in mussel farming would translate to an increase in the wild mussel population in Twofold Bay. It had been suggested in the submissions that other marine life may be displaced by mussels in natural reef areas.

Discussion

To place this issue in context it is appropriate to note that the marine environment of Twofold Bay already contains a large wild population of blue mussels. Presently the main limitation for mussel settlement in Twofold Bay is the availability of suitable substrate and not the amount of spawn from the native blue mussel. Blue mussels occur opportunistically on the wharfs (wood chip mill, multipurpose and Snug Cove), shipping/boating buoys and moorings lines, break walls and on natural reef areas. Furthermore, it is estimated that the wood chip mill and multipurpose wharfs combined may carry up to 1,000 tonnes of mussels which is about five times that estimated to be farmed if Stage 2 is approved. Consequently, the contribution of farmed mussels to the spawning population of mussels in Twofold Bay is not considered significant.

In addition, the release of spawn from farmed mussels is further mitigated because they are sold during their peak condition, consequently very few animals are left on the culture lines to spawn as most are harvested prior to major spawning events.

Review group

The review group in consideration of University of Sydney report, the presence of a large population of mussels on natural and artificial structures and the fact that mussels were generally harvested prior to their major spawning has no comment or recommendation on this matter.

4.3 Navigation

Proponents position

The proponents stated that the presence of the mussel lease infrastructure had proven to help with navigation in Twofold Bay due to the increased presence of lighted markers. However, the proponents did acknowledge that just like other structures such as wharves and moorings, the farming infrastructure did limit the navigatable waters of Twofold Bay.

Submissions received

The public in 18 of the submissions received, expressed issues relating to navigation. These issues covered the perception that the mussel farming infrastructure was a hazard to boating, that it restricted yacht racing courses and restricted the safe harbourage areas within Twofold Bay.

Discussion

Should Stage 2 proceed the development will affect about 1% of the total Twofold Bay area and be confined to relatively near-shore areas. It was acknowledged that yachting courses are regularly modified without major inconvenience to yacht club members or race participants to accommodate wind and wave direction and as such the impacts of the Stage 2 leases on yachting should not be significant. Notwithstanding this, yacht skippers and crews will have to exercise care to avoid lease areas in a similar manner to wharves, reefs, moorings and other bay users.

It was noted that a number of formal safe harbourages in Twofold Bay currently exist including Snug Cove and Quarantine Bay with the Stage 2 lease areas not impacting significantly on these facilities.

Review group

The NSW Maritime Authority outlined that it already has specified stringent guidelines for the marking of the lease areas during the day and night which ensure navigational safety and regular sailors quickly become familiar with lease locations. The NSW Maritime Authority require that in order to permit safe nocturnal passage, it is a navigational requirement that the yellow buoys required to mark the edges and corners of the leases are fitted with light emitting devices. Presently the current navigational charts of Twofold Bay are marked with the locations of the Stage 1 lease areas.

The NSW Maritime Authority advised that the location of the Stage 2 lease areas can be easily accommodated onto new charts and through a notice to mariners if approval to Stage 2 is granted. It was also be noted that the sites proposed for Stage 2 at Torarago Point flank a submerged rocky spit and, through their boundary marking requirements, may assist in enhancing the safety of nautical navigation in this part of Twofold Bay.

The review group recommendation to the Minister for Primary Industries regarding this issue is that if the Stage 2 was to progress then:

- **NSW Department of Primary Industries will be required to take steps to ensure that lease locations are marked appropriately upon nautical charts of Twofold Bay and annotated as hazardous navigation areas.**

4.4 Employment opportunities

Proponents Position

The proponents outlined that at the Eden Shellfish site there are currently five full time employees and one casual with the Stage 2 area requiring about another two full time employees. The NSW Cultured Mussel Growers Association is reported as requiring five full time employees for Stage 2 construction and another three full time employees once the mussel farm becomes productive.

The proponents report also outlined a number of alliances with other business in the region which would result in a number of flow on job effects.

Submissions

Within the six submissions received which related to employment the issues related to both positive direct and flow on employment aspects and the potential for a decrease in employment as a result of the visual impact of the lease areas on tourism.

Discussion

Based on current employment on the mussel farms the potential full time employment opportunities of the proposed Stage 2 are estimated at 15 with additional seasonal staff required at peak times. The flow on employment multiplier effect is not so easily defined but in other aquaculture production enterprises the effect can result in an additional 2.5 jobs for every direct job. Therefore, this has the potential to result in 30 to 40 additional jobs in transport, tourism, retail, product suppliers, value adding processors, freight forwarding, etc. In a small regional town such as Eden the progression to Stage 2 has the potential to create significant employment opportunity for the Eden community especially those displaced by a down turn in the commercial fishing and forestry industries.

NSW DPI representative outlined that aquaculture enterprises in Australia are increasing featured as a tourist opportunity for a region and linked with food trails resulting in flow on employment opportunities. An example of this within the Bega Valley Shire is the Wheelers Oysters Farm and Restaurant development between Merimbula and Pambula. The development is linked with oyster farming activities in Merimbula Lake and consists of a processing plant that incorporates retail outlet, café/restaurant and tourist facility selling other local produce. The tourism “oyster farm experience” of this successful development is also complemented by personally guided tours involving bus tour groups and individuals. This development has value added to the oyster industry experience and has provided valuable flow on jobs.

Review group

The review group considered that there was no requirement for comment or recommendations on this matter.

4.5 Long term environmental impacts

Proponents position

The proponents outlined that mussel farming has in part been present in Twofold Bay for over 20 years and in its report on the ‘Experimental Assessment of Potential Ecological Impacts of Longline Mussel Farming In Twofold Bay, Eden’ dated February, 2002, The Centre for Research on Ecological Impacts of Coastal Cities, University of Sydney (the Centre) found that “there was no evidence of any ecological impact on the total number of different animal groups, dominant taxa or the overall structure of the benthic assemblages found below the mussel longlines. Impacts may, nevertheless become apparent after culturing has been done for a longer period or if the area under culture is expanded. We therefore recommend that investigations be continued, but at less frequent intervals.”

Submissions

Concern regarding the long term impacts of the mussel farming enterprises on the environment being a relatively new enterprise for NSW was raised in five of the submissions received. The main long term environmental issue identified related to biodeposition which is referred to as the accumulation of sediments under suspended aquaculture structures.

Discussion

Impacts can occur due to numerous reasons and is highly variable in its composition and accumulation rates. The quantity of biodeposition is influenced by water depth, stocking density and current speeds. If significant biodeposition occurs it may alter the benthic fauna assemblages and total organic carbon (TOC) under the mussel farms. These changes in benthic

fauna and TOC under the farms can be readily monitored as part of the management practices of the aquaculture permit holders.

It is considered that mussel farms are a passive, extensive (no nutrient input) form of aquaculture and have been carried out for many years in other parts of Australia and overseas with no apparent negative impacts in areas with relatively high current flows similar to the Twofold Bay Stage 1 & 2 sites. Notwithstanding this fact, in the unlikely event that monitoring does demonstrate that serious environmental impacts are occurring as a result of the development proceeding, the impacts will be readily reversible by either following an area or cancelling the leases and ceasing operations. This is always an option that the Minister for Primary Industries could undertake at any time providing there was clear evidence to indicate a significant environmental impact.

Review group

The review group considered that in light of the statement by the Centre that impacts may become apparent with the expansion of the lease area or over a longer period of monitoring, it was considered prudent to continue a sampling program for the lease areas.

The review group recommendation to the Minister for Primary Industries regarding this issue is that if the Stage 2 was to progress then:

- **An ongoing sampling program for biodeposition under the lease areas is to be undertaken by the aquaculture permit holders.**

4.6 Debris on nearby beaches

Proponents position

The proponents had not discussed this matter directly but had outlined that some equipment failures had occurred due to gear failure (materials) and not through design parameters. They also stated that waste materials are disposed of in a waste skip at the end of the wharf in Eden.

Submissions

Debris on the foreshores of Twofold Bay was an issue of concern raised in 11 of the submissions and they appeared to indicate that it had allegedly all originated from the mussel farms.

Discussion

Clearly the flotation buoy in pictures provided with some submissions was from a mussel farm. The origin of debris ropes on the Twofold Bay foreshore is unclear. It should be noted that similar ropes are used by a number of other bay users and can also form part of the debris carried and deposited along the coastline by the Eastern Australian Current.

No doubt, mussel farmers will inspect their lease areas as soon as practicable after storm events to check for, or repair any damage and to salvage equipment that may be in danger of breaking free. As a result they will quickly become aware of any losses of materials and can initiate search and recovery operations.

The environmental impacts from the debris will be both minor and short term assuming adequate clean up measures are quickly implemented. Minimising equipment and stock losses is in the interest of any mussel farmer.

Presently, it may be difficult while current infrastructure is being utilised to determine exactly from which lease, debris material has come. Eden Shellfish Pty Ltd and the NSWCMGA must take responsibility for, and co-ordinate clean-up operations in the event of infrastructure loss from the leases in storm events. Eden Shellfish Pty Ltd and the NSWCMGA will require to maintain current vehicular beach access permits with Bega Valley Shire Council to facilitate clean up operations.

Review group

The review group considered that to facilitate the future identification of the source of the debris on the beaches and to facilitate prompt clean up of any debris originating from the mussel farms that:-

- All buoys and rafts are to be legibly marked with the owners name and a contact phone number.
- All new ropes and socking material are to be distinguishable as originating from the mussel farm/s (details to be provided to NSW Department of Primary Industries and BVSC).
- All debris from the farms should be cleaned up within 48 hours of notification.

The review group recommendation to the Minister for Primary Industries regarding this issue is that if the Stage 2 was to progress then:

- **All aquaculture permit holders are to legibly mark with the owners name and a contact phone number all buoys and rafts, and**
- **All new lease infrastructure ropes are to be uniquely identifiable in a manner approved by NSW Department of Primary Industries.**

4.7 Pollution from adjoining land uses impacting on water quality

Proponents position

This matter had not been addressed in the proponents report, as it was not a required component of the Stage 1 review.

Submissions

The issue of adjoining land uses impacting on the mussel farm was raised as a concern in three of the submissions received. This concern appeared to primarily be in response to water pollution issues being raised in the local media.

Discussion

The issue of pollution from land use activities impacting on water quality is not unique to mussel farming in Twofold Bay. In a report by the Healthy Rivers Commission regarding the NSW edible oyster industry it was identified that pollution from land use activities polluting our waterways is a major threat to the oyster industry. However, investigations by the NSW Food Authority have found the waters in and around the mussel farms to be of such a high quality that it permits direct harvest and sale or export of mussels from these farms

The mussel farmers are required by NSW Food Authority to undertake a number of rigorous water and meat sampling regimes under the NSW Shellfish Program to ensure the mussels are fit for human consumption. These strict sampling regimes take into account the pollution events caused by runoff from adjoining land uses. The waters of Twofold Bay are known to be quickly flushed by oceans currents and therefore recover quickly after rain events that may close the farms for harvest under the NSW Shellfish Program.

The regular testing of water and mussel meat could be considered beneficial to the Eden community in maintaining Twofold Bay water quality. The regular testing will quickly identify pollution issues which can then be investigated further. Further to this, it is also acknowledged that the filtering characteristics of mussels can be beneficial in maintaining water quality, by removing nutrients.

The further development of residential lands at Eden and Boydtown may result in water quality changes in Twofold Bay. However, any changes will be identified and monitored under the NSW Shellfish Program to ensure that product from the mussel farms are fit for human consumption.

Within the Twofold Bay & Hinterlands Strategy under the strategy of “Build better community-government partnerships in natural resource management” it outlines an action of promoting awareness and involvement in water quality assessment. The mussel farms and their requirement to undertake regular water quality testing will assist in providing water quality data for the community. The occurrence of shellfish closures due to pollution events will provide a valuable indication of the success of pollution control measures.

Review group

The review group considered that there was no requirement for comment or recommendations on this matter.

4.8 Quality product

Proponents position

Eden Shellfish Pty Ltd has advised that on three occasions it has been a finalist in the Sydney Fish Market Seafood Awards for aquaculture suppliers and has been acknowledged as market leaders. The quality status of the Eden mussels is such that it is a benchmark for quality at the Sydney Fish Market and commands a top price.

The proponents have stated that Eden mussels are sought after in the restaurant trade with production not always capable of meeting demand. Food writers have been reported to recommend Eden mussels rather than mussels in the generic sense.

Submissions

The quality of the mussels from Eden was presented in 12 of the submissions received. Eden mussels have commanded a prominent status in the seafood industry because of their quality and this was restated in a number of submissions.

Discussion

The Twofold Bay & Hinterlands Strategy under the strategy of “Develop partnerships between tourism, industry and government” outlines actions regarding the maximisation of Twofold Bay as a centre of seafood excellence. The Twofold Bay mussels are presently considered to be of an excellent quality and will provide opportunity for meeting other actions in the Strategy such as value adding and linkages with a seafood festival.

Review group

The review group considered that there was no requirement for comment or recommendations on this matter.

4.9 Economic viability

Proponents position

The proponents in the Stage 1 audit report utilised the return on total assets as an indication of profitability (economic viability) of the mussel farm operated by Eden Shellfish Pty Ltd. Eden Shellfish Pty Ltd has calculated its return on investment as being in the order of 17.9%. This was then compared with the risk free 10 year bond rate of 5% which would indicate a return rate of 3.5 times the bond rate by the mussel farm. Therefore, based on this information the mussel farm was considered as an economically viable enterprise.

Submissions

Concern was expressed in six of the submissions regarding the issue of economic viability. The main focus of these concerns was the provision of government grants and economic calculations within the report.

Discussion

The Department of State and Regional Development had advised that through its regional business and industry programs it did provide some initial funds to assist in the environmental studies only. The federal government agencies of Department of Primary Industries and Energy, Coasts & Clean Seas, and Department of Employment, Workplace Relations and Small Business also provided initial funds to assist in the preparation of the EIS, benthic monitoring and business plan.

Detailed financial figures and calculations were not considered appropriate for inclusion in the Stage 1 report, as these figures are commercial in confidence.

Dr John McIntyre of NSW University, considered that the natural environmental factors of Twofold Bay has resulted in the bay being the most reliable and significant location on the eastern coast of Australia for the natural settlement of blue mussels. This further enhances the commercial viability of the mussel farms.

Review group

The review group considered that there was no requirement for comment or recommendations on this matter.

4.10 Durability of farming infrastructure

Proponents position

The proponents outlined that some of the original moorings for the mussel farming infrastructure at Oman Point have been in place since the 1980s with many of the raft systems now approaching 20 years in use. They also stated that the continued advances in engineering solutions and products along with regular inspections and maintenance have ensured the Oman Point mussel farm is able to withstand the environment of Twofold Bay without excessive problems.

The proponents farming at Torarago Point during Stage 1 have made appropriate modifications to the mussel farming infrastructure to withstand the different wave climate to that of Oman Point. In the Stage 1 audit report it is stated that the few lease infrastructure failures experienced were mainly due to equipment quality issues rather than storm events. The experiences gained in Stage 1 will ensure the occurrence of equipment failures should decrease.

The issue of debris from the leases as a result of equipment failures has been discussed in section 4.6.

Submissions

The durability of farming infrastructure especially during storm events was questioned in three of the submissions.

Discussion

It is acknowledged that storm wave damage is to be expected and has occurred to the mussel farms and other maritime infrastructure within Twofold Bay in the past. Infrequent damage to longline aquaculture systems sited in high wave energy sites risk periodic damage with associated environmental impacts, or reduced productivity as a result of mussels being stripped from the growing lines.

Infrequent damage can probably be tolerated and accommodated, but if it becomes a regular occurrence the viability of the operation would be placed in jeopardy. It is in the interests of the mussel farmers to minimise these scenarios. These risks can be minimised or avoided by adequate design, regularly checking and maintaining equipment and being able to respond quickly during the onset or following storms.

It should be noted that under the *Fisheries Management Act 1994*, the mussel farmers are obliged to keep the leases in a neat and tidy condition. They could be liable to compliance action if debris was not duly removed from adjacent areas to the lease areas after a storm event or other misadventure. Also the *Fisheries Management Act 1994* requires that all permit holders are required to enter into a security/bond arrangement for the amount of \$1000 per hectare of lease area. These monies can, if required, be utilised to cover costs incurred to clean up any derelict farming infrastructure.

Review Group

The review group considered that there was no requirement for comment or recommendations on this matter.

4.11 Tourism

Proponents position

The proponents outlined that they are presently supplying 26 seafood outlets and/or restaurants in the local area along with four regional markets. The availability of fresh locally grown mussels within local restaurants and food establishments could be seen as enhancing the tourist's local experience.

The proponents outlined they have been providing both bait and burley to recreational fishers and the mussel farming infrastructure also provides fish habitat thus providing a recreational fishing opportunity.

Submissions

Tourism is an expanding sector of many coastal economies and 17 of the submissions received suggested that the mussel farms had both a detrimental or favourable impact on the local tourist trade.

The potential impact of the mussel farms upon tourism was a cause for concern for a number of respondents. The main impacts are likely to arise from a perceived degradation of the landscape

value of the bay which may lead to reduction in tourists and employment in tourism. However, it is very difficult to quantify the nature and extent of the overall impacts. The visual impact and employment matters have been discussed in section 4.1 & 4.4 respectively.

Discussion

Notwithstanding the above issues, the mussel farming enterprise could become a significant tourist attraction in its own right, and one submission highlighted the possibility of promoting the farms as a tourism feature similar to that done for finfish aquaculture enterprises in Tasmania. An example of this within the Bega Valley Shire is the Wheelers Oysters Farm and Restaurant development between Merimbula and Pambula as discussed in section 4.4. The mussel farming activities has the potential to develop a tourism experience in the same manner.

Twofold Bay is a commercial fishing port and tourists often walk the commercial wharf at Snug Cove to view the commercial fishing vessels as part of their local tourism experience. Tourism opportunities in mussel aquaculture in Twofold Bay have not been developed but as demonstrated by the Merimbula oyster growers and other aquaculture elsewhere the mussel farms provide an opportunity to build on the Eden tourism experience. Eden Shellfish Pty Ltd work vessel often ties up to the Snug Cove wharf to sort its mussels and sell produce which informally adds value to the tourism experience of the wharf area.

Fishing is also a well developed local recreational activity undertaken by tourists in Twofold Bay. Evidence is that the mussel farms are likely to provide additional high quality habitat for a number of recreational important fish species. In return the recreational fishing activity in the vicinity of the leases may assist in reducing predation upon juvenile mussels. It would appear likely that fishing opportunities for tourists in Twofold Bay will be enhanced as a result of the development for the Stage 2 lease areas.

Review group

The review group considered that there was no requirement for comment or recommendations on this matter.

4.12 Disposal of fouling organisms.

Proponents position

The proponents had outlined that fouling organisms and marine plants removed from the farming infrastructure was either provided to amateur fishers for bait and burley or returned to the sea about 600 metres offshore.

Submissions

Concern was expressed in six submissions relating to the disposal of naturally occurring fouling material during the management and harvesting of the mussels. The main concerns were that it may impact on the marine environment and that the proponents should dispose of wastes in a different manner to that mentioned.

Discussion

The majority of the waste products produced from the mussel farms consist of silt deposited on ropes, fouling organisms such as sponges and seaweeds and mussels broken or damaged in the harvesting process.

The process of cleaning the settled silt and accumulated fouling organisms is a standard farming practise on shellfish leases to ensure maximum growth of the farmed mussels. This material forms a relatively small proportion of the by-products of mussel farming and are readily assimilated into the natural ecology of the Twofold Bay environment. Further to this, the environmental monitoring undertaken as part of Stage 1 by the Centre for Research on Ecological Impacts of Coastal Cities, University of Sydney found no significant impact from the mussel farming activities which would have included the disposal of fouling organisms cleaned from the growing infrastructure. However, in light of the statement by the Centre that impacts may with the expansion of the lease area or over a longer period of monitoring become evident, it is considered prudent to continue a monitoring program for the lease areas. This matter is discussed further in section 4.5.

Review group

It has been identified by the review group that the damaged or poor quality mussels sorted at the wharf are less likely to be fully utilised in the marine environment and therefore should be disposed of through an appropriate disposal system.

The review group recommendation to the Minister for Primary Industries regarding this issue is that if the Stage 2 was to progress then:

- **prior to the lease areas in Stage 2 being issued the aquaculture permit holders are to provide NSW Department of Primary Industries with a disposal plan for the sorted waste mussels. This plan is to be endorsed by NSW Department of Primary Industries and Bega Valley Shire Council.**

4.13 Sorting of mussels at Wharf

Proponents position

The proponents mention in their report that they undertake a number of activities including sorting and clean of the harvested mussels on their vessel but do not specifically focus on the sorting activity at the Eden wharf.

Submissions

Sorting of mussels at the wharf was mentioned as an issue of concern in five of the submissions with the appropriateness of this activity being questioned.

Discussion

The sorting activity on the mussel farmers vessel at the wharf is undertaken to sort the marketable mussels from those that are undersized or damaged. The sorting at the wharf ensures a quality product is provided to consumers of the mussels. The sorting activity does not include the actual processing of the mussels, ie. Removal of meat from the shells. This is a similar process to commercial fishermen sorting their catch or oyster farmers grading edible oysters.

The NSW Food Authority considers that the sorting process and sale of the unprocessed mussels at the wharf as an activity that poses no significant health risk provided water used to clean the product is of a suitable quality and safe product handling procedures are abided by.

The fisheries activities occurring on the commercial wharf at Snug Cove is considered to enhance the experience of tourists visiting the port area of Eden to view the fishing industry vessels and their activities. The sorting of mussels on the Eden Shellfish vessel also provides an opportunity for the tourist to purchase fresh mussels straight from the boat adding another dimension to the wharf area tourism experience.

Review group

The sorting of the mussels on the mussel farmer's vessel at the Snug Cove wharf has been considered by the review group as consistent with the nature of activities on the wharf and provides an added value to the tourism experience of the wharf area.

As discussed in section 4.12 all sorted waste mussels are to be disposed of in accordance with an approved waste disposal plan.

4.14 Relocation of leases

Proponents position

The relocation of lease areas was not within the required Stage 1 review components and therefore the proponents have not discussed this matter.

Submissions

The relocation of leases due to perceived navigation issues or to allow subsurface long line culture was raised as issues of concern in four of the submissions.

Discussion

It should be acknowledged that during the original development application process for the development of mussel aquaculture in Twofold Bay a sieving process for identifying potentially suitable sites was utilised. There are environmental features of value in Twofold Bay that constrain where development can take place such as seagrass beds and likely whale resting areas. Also only parts of Twofold Bay exhibit the desirable physical features required for successful and viable mussel aquaculture such as suitable wave climate, water quality and depth. It should be noted that Twofold Bay is also a commercial port and as such, much of the waters greater than 10 metres could not be utilised. Similarly there were many existing uses of the bay which impact where mussel farming development could take place. These include commercial fishing operations, shipping lanes and berthing areas, and recreational yacht racing courses. Therefore at the end of the development application process the siting of Stage 1 & 2 lease sites had been designed to minimise serious conflict to the greatest extent possible.

The investigation of other areas suitable for aquaculture within Twofold Bay is not within the scope of the Stage 1 report and therefore has not been considered further in this report. If future changes in technology or uses of Twofold Bay occur and other areas are identified as potentially suitable for mussel aquaculture then they will require detailed investigation and the lodgement of a development application for the selected areas.

Review group

The review group considered that there was no requirement for comment or recommendations on this matter.

4.15 Whale interactions.

Proponents position

The proponents in the Stage 1 review report outlined that marine mammals such as whales, dolphins and seals are frequent visitors to Twofold Bay and the areas containing mussel farming infrastructure.

The proponents outlined that most of the whale activity is within the outer part of Twofold Bay and that in the 20 years of operation in Twofold Bay no entanglement events have occurred.

Seals have been observed utilising the raft structures as haul out sites and dolphins have been sighted feeding or travelling around the lease areas.

Submissions

There were nine submissions received that included the issues of whale interactions with them primarily focussing on the lack of detailed sighting information within the Stage 1 audit report. In some submissions concern was expressed that whale may become entangled in the farming infrastructure.

Discussion

Southern Right Whales (SRW), Humpback Whales (HBW), Blue Whales and Killer Whales have all been reported as visitors to Twofold Bay in the submissions. The submissions stated that a number of whales had been sighted in close proximity to the leases and appeared to have negotiated the leases without any issues arising.

Following investigations by NSW Department of Primary Industries it was found that in Australia there is approximately 88,000 hectares of longline aquaculture occurring in location such as

- North of Cape Leveque, WA which is an important area for calving and breeding of HBW,
- Albany which is part of the area utilized by SRW during their breeding season, and
- Great Oyster Bay & Mercury Passage which is in the migration paths of HBW and SRW.

Whale entanglement has not been considered as a significant issue in the above mollusc culture operations. This is predominantly due to the ropes contained within the farms being maintained in a taut state and the nature of the infrastructure.

In consideration of the above matters it may be concluded that the longline systems pose no significant threat to whales in Twofold Bay provided the following measures are undertaken:

- mooring ropes to be kept taut,
- prohibition on use of any netting,
- restriction on speeds at which boats can travel in proximity to lease areas, and
- adoption of contingency plans to address any issues that may arise.

Review Group

The review group considered that although the risk to whales from the mussel farming infrastructure may not be significant the aquaculture permit holders should still be required to develop a marine mammal entanglement protocol to further reduce any risk to whales in the event of entanglement.

Department of Environment and Conservation (DEC) representative expressed some concern regarding the incremental loss of inshore habitat for Southern Right Whales as a result of developments such as the mussel farm and recent multi purpose wharf in Twofold Bay. It should be noted that the mussel farms will occupy about 8% of the area which has been dramatically reduced from the original proposal which would have occupied about 20% of the habitat area. The potential impacts on whales in Twofold Bay are not easily quantifiable and there appears to be a lack of scientific literature dealing with the matter of aquaculture impacts

on inshore whale habitat. The DEC concerns were noted and it was considered that at the time of developing the marine mammal entanglement protocol a green offset program should be investigated.

The review group recommendation to the Minister for Primary Industries regarding this issue is that if the Stage 2 was to progress then:

- **prior to any of the Stage 2 lease areas being developed a marine mammal entanglement protocol is to be prepared and endorsed by NSW Department of Primary Industries and Department of Environment and Conservation.**

4.16 Other users

Proponents position

The proponents stated that the mussel farming development has both a negative and positive impact on water users. The positive impact being the fact that the mussel farming infrastructure acts as a fish aggregating device (FAD) which will enhance fishing and the farms act a navigational aid (see also section 4.3). The negative aspects have been discussed in section 4.3.

Submissions

There were a number of submissions that related to other users and many of these related to navigation issues which has been previously discussed in section 4.3. There were four submissions that raised concerns regarding recreational fishing, impeding access to a yet to be developed marina at Boydtown and recreational and commercial fishing use.

The concerns regarding recreational fishing referred to the fact that the mussel farms act as a fish attraction device (FAD) and that fishers may find it easier to catch fish and this would impact on the local fish populations. However, other submissions considered that the mussel farms would encroach on the recreational fishing opportunity in Twofold Bay.

Discussion

The mussel farms will restrict drift fishing in a small part of the bay (about 1%) however the infrastructure will provide suitable habitat for prized recreational fish species such as snapper and bream. It is envisaged that the mussel farms will not have a significant impact on the recreational fishing opportunities in Twofold Bay or fish populations. NSW Department of Primary Industries installs and maintains fifteen FADs along the NSW Coastline to enhance the recreational fishery opportunities.

NSW Department of Primary Industries has advised that the commercial fishing uses in Twofold Bay were considered in the development application and EIS process and the mussel farms are sited to have no significant impact on these uses.

The Department of Infrastructure, Planning and Natural resources advised that the development of a 400 vessel marina at Boydtown near the Torarago Point lease area was approved several years ago and is yet to be built. It is the opinion of the NSW Waterway Authority that the location of the leases at Torarago Point should not significantly impact on access to the proposed marina.

Review group

The review group considered that there was no requirement for further comment or recommendations on this matter.

4.17 Environmental Bonds.

Proponents position

The proponents provided no information regarding this matter. This could be due to the fact that environmental bonds are a legislative requirement under the *Fisheries Management Act 1994*.

Submissions

Concern was expressed in one of the submissions that if the mussel farms became derelict then who would clean them up and what bonds would be in place to facilitate removal of infrastructure.

Discussion

NSW Department of Primary Industries advised that it is a requirement under the *Fisheries Management Act 1994* that aquaculture leases are to be maintained in a neat and tidy condition and infrastructure is to remain within the lease area. Also, in accordance with Clause 15 of the *Fisheries Management (Aquaculture) Regulations 2002*, a Class A permit holder is required to enter into a security/bond arrangement of \$1,000 per ha or part thereof for an aquaculture farm lease area. The security/bond arrangements can be as either:

- Cash deposit with NSW Department of Primary Industries, or
- A guarantee issued by a bank, building society or credit union or a corporation authorised to carry on insurance business in Australia, guaranteeing to indemnify NSW Department of Primary Industries to the required amount of \$1,000 per hectare.

The security/bond arrangement provides NSW Department of Primary Industries with the ability to recover costs to clean up a lease area in the event of a lease area becoming derelict.

Review Group

The review group considered that there was no requirement for comment or recommendations on this matter as it is a legislative requirement under Clause 15 of the *Fisheries Management (Aquaculture) Regulations 2002* that the proponents enter into an environmental bond arrangement.

4.18 Harvest of wild mussel

Proponents position

The proponents provided no information regarding this matter as the Stage 1 review and progression to the Stage 2 development deals only with mussel farming lease areas and not wild harvest of mussels.

Submissions

Two of the submissions received acknowledged that there already exists a large wild population of blue mussels in Twofold Bay and questioned why this resource is not being utilised.

Discussion

The harvesting of wild blue mussels from Twofold Bay is considered as a commercial fishing activity and therefore this matter has not been considered under the scope of the Mussel Aquaculture in Twofold Bay Stage 1 audit report process. However, NSW Department of Primary Industries acknowledges that the wild blue mussel do offer an opportunity and will further investigate the viability of this fishery as a commercial fishing activity, noting the adherence of requirements of the NSW Food Authority in respect to a recognised shellfish food safety program.

Review Group

The review group considered that there was no requirement for comment or recommendations on this matter as it is an issue separate to the matters under consideration for the Stage 1 review.

4.19 Non specific submissions

Submissions

The two submissions included under this grouping are of an indiscriminate nature and are therefore not discussed further.

4.20 Exhibition Period

Submissions

In four of the submissions, concern was expressed regarding the exhibition period for the Stage 1 audit report.

Discussion

The *Determination of Mussel farming in Twofold Bay 1998*, required that the audit report was to be placed on exhibition for 28 days. NSW Fisheries acknowledged that the exhibition period was close to the Christmas and New Year holiday period and therefore it extended the exhibition period to 51 days. The extended exhibition period also permitted visitors or tourists visiting Eden over this popular holiday period to become aware of the Stage 1 audit report and provide comments if they deemed it appropriate.

Review Group

The review group considered that there was no requirement for comment or recommendations on this matter as it is an issue separate to the matters under consideration for the Stage 1 review.

5. CONSIDERATION OF ALL MATTERS

The Stage 1 audit report for the mussel farms in Twofold Bay represents a first for investigating extensive deep water (>6m) longline shellfish farming in NSW. The Stage 1 audit report and associated environmental studies complemented by the former EIS process provided a comprehensive and detailed outline of the potential impacts of the Stage 2 of mussel farming operation for Twofold Bay. These documents provided sufficient information to reasonably conclude that the progression to Stage 2 of the *Determination of Mussel farming in Twofold Bay 1998*, is both ecologically sustainable and economically viable. The fact that the Stage 1 and the previous trial mussel farming operations have been conducted successfully at Twofold Bay, and large scale commercial farming at many other sites both within Australia and overseas have operated sustainably also indicates the venture is viable and environmentally sustainable. It is clear that the mussel farming techniques and processes have been developed to an adequate level of efficiency to ensure success of the mussel farming enterprises. With respect of the environmental investigations undertaken into the Twofold Bay mussel farming activities it appears that there are no significant potential environmental impacts that have been identified in either the Stage 1 audit report or the previous EIS process.

In consideration of the granting of leases for Stage 2 it is noted that:

1. Eden Shellfish Pty Ltd has been operating the Stage 1 lease area of 13.5 ha at Oman Point for about the last six years and prior to that operated on the site in an experimental capacity for about 15 years. It has established infrastructure, employees, farming knowledge and expertise that is unique in terms of Twofold Bay. It has also established itself as a supplier of quality mussels both within the region, state and interstate with demand often outstripping supply. The existence of rafts and longlines with stock at the Oman Point site and the fact that the Stage 2 longline culture will be adjoining that area will complement the existing infrastructure and business operations while ensuring utilisation of the existing expertise.
2. The NSW Cultured Mussel Growers Association Incorporated (NSWCMGA) established 2 ha of longline mussel farming infrastructure at Torarago Point in Twofold Bay. Torarago Point presents a wave climate that may at times be more severe than that experienced at Oman Point and Stage 1 provided an opportunity to test prototype longlines in that vicinity. During the Stage 1 period the longline infrastructure has been modified to cope with the wave climate and this expertise gained during Stage 1 can be utilised in the development of the Stage 2 lease areas. The demand for mussels from Twofold Bay has also resulted in the NSWCMGA obtaining premium prices for the product it has produced.

It is likely that mussel farming in Twofold Bay will over the longer term generate a significant level of employment. Importantly, the economic and employment generating capacity will also be year round rather than seasonal, and has the potential to expand through the usual flow-on employment multiplier effects in the community.

The economic activity generated as a result of undertaking Stage 2 should be particularly significant for the local region and will help to diversify its economic foundation including tourism.

It is the opinion of the Minister for Primary Industries, that the requirements of Stage 1 of the *Determination of Mussel farming in Twofold Bay 1998*, which included the assessment of environmental, socio-economic, structural durability, commercial viability and sustainability have been adequately addressed.

The Minister for Primary Industries recognises that being the first of this type of development in NSW that there remains some uncertainty with respect to the long term environmental impacts of a commercial aquaculture venture of this scale in Twofold Bay. This uncertainty primarily relates to the impacts upon marine benthic fauna and flora in Twofold Bay. However, it is the Minister's opinion that on the balance of probabilities these impacts are not likely to be significant and can be readily reversible. These impacts can be managed by the adoption of best management practice for daily operations and the preparation and implementation of a detailed monitoring plan to provide feedback and allow management strategies to be modified where necessary.

It is determined that Stage 2 as outlined in the Mussel Aquaculture in Twofold Bay determination dated 1998 and subject to the following modifications and/or conditions can proceed.

- 1. The approved areas referred to as Stage 1 in the *Determination of Mussel farming in Twofold Bay 1998*, regarding existing 13.5 ha of mussel farming area utilising rafts and longlines in the Oman Point area; and a lease area of 2 Hectares of a prototype longline at the north western end of Torarago Point area is confirmed for continued operations and leasing by the Minister for Primary Industries under the *Fisheries Management Act 1994*.**
- 2. The Stage 2 areas of the *Determination of Mussel farming in Twofold Bay 1998* comprising of the 4 ha applied for by Eden Shellfish Pty Ltd at Oman Point and the 18 ha on the north western side and 12 ha on the eastern side of Torarago Point applied for by the NSW Cultured Mussel Growers Association Incorporated shall be approved for leasing by the Minister for Primary Industries under the *Fisheries Management Act 1994*.**
- 3. This determination requires that the aquaculture permit holders undertaking mussel farming operations in Twofold Bay are subject to the following conditions:**
 - The buoys required to mark the aquaculture lease extremities shall be in accordance with NSW Maritime Authority navigational requirements,**
 - A sampling program approved by NSW Department of Primary Industries, that monitors biodeposition under the lease areas is to be undertaken by the aquaculture permit holders,**
 - all aquaculture permit holders are to legibly mark with the owners name and a contact phone number all buoys and rafts,**
 - all new lease infrastructure ropes are to be uniquely identifiable in a manner approved by NSW Department of Primary Industries,**
 - prior to the lease areas in Stage 2 being issued the aquaculture permit holders are to provide NSW Department of Primary Industries with a disposal plan for the sorted waste mussels. This plan is to be endorsed by NSW Department of Primary Industries and Bega Valley Shire Council, and**
 - prior to any of the Stage 2 lease areas being developed a marine mammal entanglement protocol is to be prepared and endorsed by NSW Department of Primary Industries and Department of Environment and Conservation.**

6 ONGOING ENVIRONMENTAL MONITORING

In the preparation of this determination for the progression to Stage 2 of mussel farming in Twofold Bay, elements of principal environmental concern that have arisen from the activity have been identified as:

- a) Potential for biodeposition on the seabed due to increased size of the mussel lease areas impacting on surrounding marine benthic fauna and flora.

In addressing the issue of biodeposition and potential impacts on surrounding benthic fauna and flora, it is proposed that a suitable sampling and monitoring programme is to be undertaken incorporating the following:

- I. Annual sampling for both total organic carbon (TOC) and marine benthic fauna assemblages within the lease areas and at two control sites for each of these lease areas in accordance with a monitoring program approved by NSW DPI.
- II. Sampling will be required prior to establishment of infrastructure on the lease areas and on an annual basis thereafter.
- III. A report on the monitoring program will be required to be submitted biannually to NSW Department of Primary Industries for review unless significant impacts are identified during yearly monitoring.

The above sampling and monitoring program is to be developed in consultation with NSW Department of Primary Industries and scientists with the relevant skills and experience in sampling and experimental design and supervised by appropriately qualified research scientists. The monitoring program is to be approved by NSW Department of Primary Industries.

7 CONCLUSION

The Minister for Primary Industries has concluded that the Stage 2 should proceed as outlined in the *Determination of Mussel farming in Twofold Bay 1998* with the conditions and modifications identified in this Stage 2 determination in order to reduce the potential for any adverse environmental impact of the activity.

Appendix 1 **Public Notice**



**NOTICE OF INTENT TO PROGRESS TO STAGE TWO OF THE
MINISTER FOR FISHERIES, DETERMINATION OF PROPOSED
MUSSEL AQUACULTURE IN TWOFOLD BAY, 1998**

NSW Fisheries has been advised by Eden Shellfish Pty Ltd (Eden Shellfish) and the NSW Cultured Mussel Growers Association Incorporated (CMGA) that they wish to progress to Stage two of the Development Application for Mussel Aquaculture in Twofold Bay (DA).

In accordance with the above DA and the *Minister for Fisheries, Determination of proposed Mussel Aquaculture in Twofold Bay, 1998 (Determination)*, Eden Shellfish and CMGA were required to investigate the environmental, socio economic, structural and commercial viability issues relating to Stage 1 of mussel farming in Twofold Bay. The determination also required that the results of this investigation be detailed in a report and placed on public exhibition for a period of 28 days to provide the community with the opportunity to comment.

Following the public exhibition period, a review of the assessment report and submissions will be undertaken by the Department of Lands, NSW Fisheries, NSW Waterways Authority, Bega Valley Shire and Department of Environment and Conservation.

The Minister for Fisheries will then make a determination on Stage 2 based on the review of the assessment report and submissions.

If you wish to review the report, copies may be viewed at the Bega Valley Shire Council Office in Eden, Merimbula and Bega NSW Fisheries Office in Eden or viewed at the NSW Fisheries internet website location: www.fisheries.nsw.gov.au .

Any person may make a written submission on the report. These submissions should be forward to:

Dr Nick Rayns,
A/Executive Director of Aquaculture and Sustainable Fisheries
NSW Fisheries
Private Bag 1
NELSON BAY NSW 2315

Submission must be received by **16 January 2004**. For further information, please call Mr Graeme Bowley, NSW Fisheries, phone. 02 4982 1232.