Yellowfin tuna aquaculture trial, Zeewijk Channel, Abrolhos Islands

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Latitude Fisheries Pty Ltd
and
W.T.N. Nominees Pty Ltd ATF the Newbold Family Trust

Report and recommendations
of the Environmental Protection Authority

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Contents

1. Introduction and background

This report provides the advice and recommendations of the Environmental Protection Authority (EPA) to the Minister for the Environment on the environmental factors relevant to the proposal by Latitude Fisheries Pty Ltd and W.T.N. Nominees Pty Ltd ATF the Newbold Family Trust (the proponents) to undertake a one-year trial aquaculture project to farm yellowfin tuna in Zeewijk Channel, Abrolhos Islands.

The Abrolhos Islands and the waters which surround them are of distinct environmental and historical significance. Accordingly, the development of a new industry in such an environment needs to be carefully considered. The proposal being considered in this report is a trial which will enable the collection of baseline information to gain an understanding of environmental impacts of this type of operation in the Abrolhos Islands. While the EPA recognises that it is the intent of the proponents to develop a future commercial scale finfish aquaculture operation, there are a number of uncertainties associated with commercial finfish aquaculture in the Abrolhos Islands. As such, there are benefits in obtaining site specific information on potential environmental impacts. However, this trial proposal provides no precedent in relation to potential for approval of any future larger scale proposal.

Based on the information provided in the referral document, the EPA considered that, while the proposal has the potential to affect the environment, it could be readily managed to meet the EPA's environmental objectives. Consequently, it was notified in the *West Australian* newspaper on 1 September 2003 that the EPA intended to assess the proposal at the level of Assessment on Referral Information.

The proponents have submitted a referral document (Diver and Prince 2003) setting out the details of the proposal, potential environmental impacts and appropriate commitments to manage those impacts. The EPA considers that the proposal as described can be managed in an acceptable manner, subject to these commitments and the EPA's recommended conditions being made legally binding.

The EPA has therefore determined under Section 40(1) of the *Environmental Protection Act 1986* that the level of assessment for the proposal is Assessment on Referral Information, and this report provides the EPA advice and recommendations in accordance with Section 44(1).

2. The proposal

The proposal is a one-year trial to culture yellowfin tuna (*Thunnus albacares*) in sea-cages in the Zeewijk Channel in the Abrolhos Islands (Figure 1). Yellowfin tuna are to be captured (by purse seine) in waters between Geraldton and Exmouth, under approvals from the Australian Fisheries Management Authority. The tuna would then be towed (in designated towing pens) to sea-cages moored in the Zeewijk Channel to the north of the Pelsaert Group in the Abrolhos Islands. The trial is proposed to capture an initial biomass of up to 200 tonne of tuna. The tuna are to be held in eight 40 metre diameter sea-cages for up to 7 months, and provided with supplementary feed to increase their biomass.

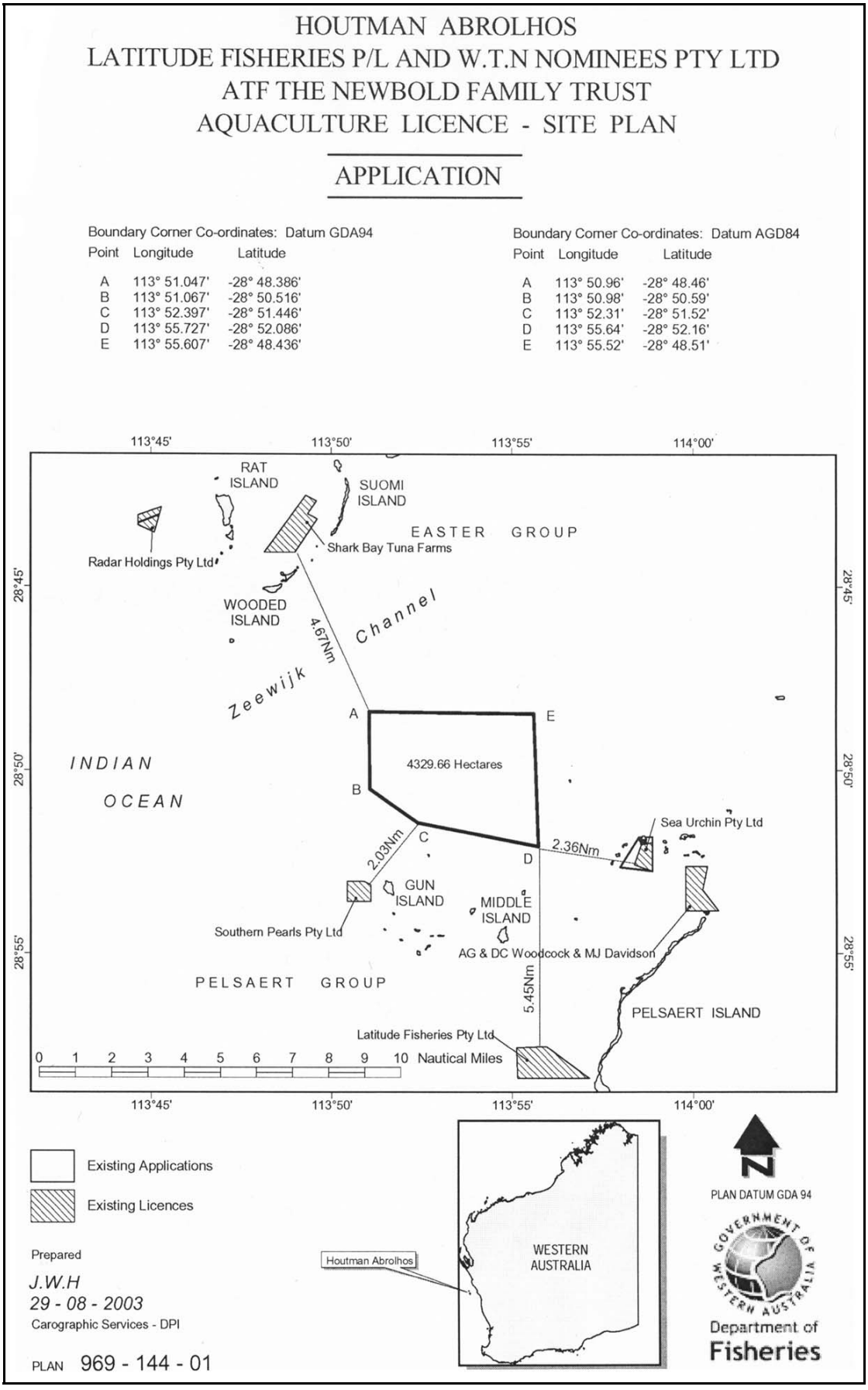

Figure 1: ***Map of the location of the sea-cage culture site in the Zeewijk Channel, Abrolhos Islands.***

The operation of the trial proposal will be limited to a thirty hectare area within the area to be licensed by the Department of Fisheries (Figure 1). Figure 2 is an example of the type of sea-cages to be used in this proposal, which are currently used in the bluefin tuna aquaculture industry in South Australia.

The main characteristics of the proposal are summarised in the table below. The proposal is described further in Section 3 of the referral (Diver and Prince 2003).

Table 1: Summary of key proposal characteristics

Element	Description
Period of operation	One-year trial Cages stocked for up to 7 months Tuna to be captured in approximately December and harvested in approximately the following July
Species to be cultured	Yellowfin tuna (*Thunnus albacares*)
Locality	Zeewijk Channel, Abrolhos Islands
Coordinates of location/ locality (area of interest)	The Area of interest is bounded by the coordinates: N/W corner 28° 48.46'S and 113 ° 50.96'E South to 28 ° 50.59'S and 113 ° 50.98'E S/East to 28 ° 51.52'S and 113 ° 52.31'E East to 28 ° 52.16'S and 113 ° 55.64'E North to 28 ° 48.51'S and 113 ° 55.52'E, Then West to join with the first point
Area of location/ locality	Approximately 7.3 kilometres by 3.6 kilometres
Area of sea-cage placement	Approximately 3 kilometres by 1 kilometre
Number of sea-cages	7 – 8
Size of sea-cages	40 metres diameter
Drop of net	Approximately 12 metres
Capture biomass of tuna	Up to 200 tonne
Predicted end of trial biomass of tuna	Approximately 260 tonne
Feed sources	Bait fish, squid, processed pellets
On-site staff	Approximately 5, housed at existing infrastructure on Basile Island
Processing	Tuna processed aboard dedicated vessel designed for zero discharge Waste returned to mainland for disposal
Predator control	Stanchion and netting above the waterline maintained at 2 metres high

Figure 2: An example sea-cage, as used in the bluefin tuna aquaculture industry in Port Lincoln, South Australia.

3. Consultation

The proponents have advised that a substantial consultation program has been undertaken. Consultation has included both individual and group meetings with representatives of a number of community groups, commercial and recreational fishing organisations and Government agencies. The proponents also convened a "scientific working group" to have technical input into the design of the monitoring program for the trial. This group, comprising community, conservation, University and Government representatives met in May 2003. Section 8 of the referral document (Diver and Prince 2003) describes the consultation undertaken by the proponents.

Given the uncertainties associated with a proposal of this nature in this location, a number of stakeholders agreed that it would be beneficial for the proponents to undertake a short term trial to attempt to gain information on the key issues.

Consultation identified the following key issues:

- the potential for impact on the Abrolhos Island bird populations;
- the potential for impact on benthic habitat and water quality; and
- the potential for disease to be introduced through feeding with bait fish.

While a number of other matters were raised during consultation, it is considered that those matters of an environmental nature are adequately addressed in Sections 8 and 9 of the referral document (Diver and Prince 2003).

One of the outcomes of consultation was the identification of a divergence of opinion on the key issue of significance. Views were expressed that the potential for impact on both the bird populations of the Abrolhos Islands and the benthic habitat and water quality were significant.

It is unlikely that a trial would provide sufficient information to address both of these matters in detail, such that the information could be used in assessing the potential environmental impacts of a future commercial proposal. As such, the proponents modified their initial proposal (altering the configuration of the sea-cages) to enable more information to be gathered on the potential for impact on Abrolhos Island bird populations. This change was primarily due to advice provided by conservation groups and members of the scientific working group. Consultation has also resulted in the scope and frequency of the proposed monitoring for the trial being substantially increased.

4. Relevant environmental factors

Section 44 of the *Environmental Protection Act 1986* requires the EPA to report to the Minister for the Environment on the environmental factors relevant to the proposal and the conditions and procedures, if any, to which the proposal should be subject. In addition, the EPA may make recommendations as it sees fit.

It is the EPA's opinion that the following environmental factors relevant to the proposal require evaluation in this report:

(a) Abrolhos Island bird populations;

(b) benthic habitat and water quality; and

(c) disease related issues.

Details on the relevant environmental factors and their assessment are contained in Sections 4.1 - 4.3. The description of each factor shows why it is relevant to the proposal and how it will be affected by the proposal. The assessment of each factor is where the EPA decides whether or not a proposal meets the environmental objective set for that factor.

4.1 Abrolhos Island bird populations

Description

The Abrolhos Islands are regarded as one of the most significant seabird breeding grounds in Australian territorial waters (Surman 2003). The Islands support the largest breeding seabird colonies in Western Australia of a number of significant migratory species (FWA 2000), with 12 seabird species having 81.9% of their breeding population nesting within the Pelsaert Group (Surman 2003).

There is potential for the trial proposal to have some impact on the bird populations in the Abrolhos Islands. Potential impacts on bird populations include:

- displacement from usual foraging behaviour by the presence and activity of the caged tuna and through the activities and structures associated with operation of the proposal;
- an increase in the population of the Silver Gull and Pacific Gull through increased levels of available food, and potential flow on affects to other seabirds predated by gulls;
- potential for depletion of local stocks of baitfish as feed for caged tuna; and
- potential for direct entanglement of diving birds.

Assessment

The EPA's environmental objective for this factor is to:

- maintain the abundance, diversity, geographic distribution and productivity of the Abrolhos Island birds at species and ecosystem levels, through the avoidance or management of adverse impacts and improvement in knowledge.

The proponents commissioned a study on the assessment of impacts of the trial proposal on seabirds (Surman 2003). This study is included as Appendix 5 of the referral document (Diver and Prince 2003). This study recommended monitoring to

be undertaken to identify the potential for impact of the proposal on Abrolhos Island birds.

The sea-cage configuration was designed to provide the most relevant and statistically significant information on the potential for the proposal to impact on Abrolhos Island birds. The design involves the cages being spaced a kilometre apart to enable each cage to act as a (pseudo) replicate.

The primary management available to minimise birds' access to tuna feed involves regulating the feeding methods to be used during the trial. At the southern bluefin tuna aquaculture sites in Port Lincoln, South Australia, the manner in which tuna are fed appears to impact on the number of birds congregating at cages during feeding. The act of feeding tuna thawed bait by hand shoveling appears to attract the greatest numbers of birds (based on anecdotal evidence from southern bluefin tuna operations in Port Lincoln, South Australia). Feeding manufactured pellets through a hopper and air blower system or feeding frozen blocks of bait appears to limit bird numbers. While it is noted that different feeding methods are proposed at different cages, the number of cages fed by shoveling thawed bait should be minimised.

The proponents have advised that it is unlikely that baitfish to be sourced as feed for the trial would be sourced from Abrolhos Islands local stocks. As such there are not likely to be any impacts on Abrolhos Island bird populations through depletion of local baitfish stocks.

The EPA notes that the proponents consider the risk of seabird entanglement in the sea-cages to be low. The South Australian Research and Development Institute has reported that there have been no bird entanglements observed in the ten years of operation of their research farm at Port Lincoln, South Australia. Any entanglements or other physical seabird interactions resulting at the Abrolhos Islands site will be documented through the seabird monitoring program.

The monitoring program proposed is designed to identify changes in significant interactions of the seabird populations or their predators. Noting that this trial is of a finite and short term nature, were the monitoring to determine that there is an identifiable impact on foraging behaviour or predation by gulls on resident populations, that impact is unlikely to be irreversible or of an ongoing consequence to the resident populations.

Summary

Having particular regard to the:

(a) proponents' commitment to prepare and implement a Seabird Monitoring Program (Commitment 5 and 6); and

(b) potential to minimise the use of feeding methods that are likely to attract birds to the tuna sea-cages,

it is the EPA's opinion that the proposal can be managed to meet the EPA's environmental objective for this factor.

4.2 Benthic habitat and water quality

Description

One of the primary impacts of sea-cage aquaculture is often an increase in nutrients and organic material in the sediments and water column in vicinity of the cages. The direct loss of uneaten food or excreted waste falling from the cages may directly impact the seafloor, with potential for changes in composition, diversity and abundance of epibenthic and infaunal communities. Aquaculture activities may increase the amount of available nutrients in the water column, which may increase phytoplankton growth, which may in turn reduce light attenuation. There is also potential for direct physical damage to the seabed from the deployment of the sea anchors for each of the cages.

Assessment

The EPA's environmental objectives for this factor are to:

- maintain the integrity, ecological function and environmental values of the Abrolhos Island marine environment; and
- ensure that emissions (including nutrients in waste) do not adversely affect environmental values or the health, welfare and amenity of people and land uses by meeting statutory requirements and acceptable standards.

The benthic habitat at the site is principally unconsolidated sand interspersed with rhodolith communities overlying coral sands. The closest coral bommies are at the northern edge of the Pelsaert Group, several kilometres south of the proposed site. Two coral lumps, Gee Bank and Fantome Shoal, are 4-6 km to the east. Patchy *Halophila* seagrass beds occur approximately 1 km to the south of the site.

The depth of water at the site allows approximately 20 to 28 metres clearance between the base of the cage and the seafloor. This depth and the active current flow through the site is likely to greatly reduce the potential for the proposal to impact on the benthic habitat. The cage spacing for the proposal, allows a kilometre between each of the cages (resulting in a 3 km by 1 km arrangement). This spacing is likely to increase the dispersal of material through the site and decrease the likelihood of cumulative impacts occurring or being detectable.

It should be noted, that while this cage configuration greatly reduces the potential for this trial to significantly impact on benthic habitat and water quality, it may not allow for the pollution signature to be identified and accordingly it may be more difficult for the potential cumulative impacts for a commercial scale operation to be extrapolated.

The site is within an area that is trawled for scallops through the Abrolhos Islands and Midwest Trawl Managed Fishery. Data from the Department of Fisheries indicates that trawling for scallops has occurred within the proposed site each season from 1999 until 2003. As such, the benthic habitat at the site is likely to be substantially modified, with reduced structure present.

The site is also located some distance from the important environmental features of the area. In both a local and regional context, there is limited potential for impact on sensitive benthic habitat.

In addition to the management to be provided through the implementation of the conditions and commitments, the proposal will be a prescribed premise under the *Environmental Protection Regulations 1987* and as such will require a licence from the Department of Environmental Protection to operate. The licence will establish limits for water and benthic quality parameters and formalise the reporting of results.

Summary

Having particular regard to the:

(a) selected site having a substantially modified benthic habitat and being a substantial distance from important features such as corals and seagrass;

(b) proponents' commitment to prepare and implement a water quality/ benthic habitat management program (Commitment 3 and 4); and

(c) the setting of licence limits for the monitoring of water quality parameters under Part V of the *Environmental Protection Act 1986*,

it is the EPA's opinion that the proposal can be managed to meet the EPA's environmental objectives for this factor.

4.3 Disease risks

Description

This proposal poses two potential sources of disease risk, through the use of imported fish as bait and the potential for a disease or parasite existing on the wild caught fish to be exacerbated through the increased density of fish within the cages.

Assessment

The EPA's environmental objective for this factor is to:

- ensure that the risk of introduction of disease through the use of baitfish is as low as reasonably achievable and complies with acceptable standards and EPA criteria.

To minimise the potential risk of introduction of disease through importation of bait, the proponents have introduced a geographic hierarchy for the source of bait, being (in decreasing order of preference): domestic (i.e. within Australia); New Zealand; then southern hemisphere. The proponents have committed to maintaining documentation on the source of bait at all times throughout the trial.

The stocking density for commercial southern bluefin tuna operations in Port Lincoln is in the vicinity of 3 - 4 kg/m^3. This stocking density is one of the lowest for intensively cultured fish (e.g. generic stocking density for atlantic salmon is 10 - 30 kg/m^3). Tuna are, therefore, less likely to encounter the problems associated with high stocking density, particularly increased stress, which may lead to problems with sea lice and disease.

The Department of Fisheries has advised the EPA that the Department's Fish Health Section is satisfied with the proponents' documentation on disease management. Matters associated with the use of bait and potential disease related issues can be incorporated into the aquaculture licence, to be issued by the Department of Fisheries in accordance with the *Fish Resources Management Act 1994*.

Imports into Australia are managed through the Department of Agriculture, Fisheries and Forestry – Australia. The EPA notes that the primary purpose of biosecurity is to protect Australia from the entry, establishment or spread of unwanted pests and diseases that may cause social, economic or environmental damage, while minimizing the restrictions on the entry of commodities.

Yellowfin tuna occur naturally in the Abrolhos Islands area (Kailola et al. 1993) and while there is only limited data, it is suspected that the Indian Ocean stocks are all one stock (AFMA 2003). As such, it is unlikely that there will be any translocation issues associated with the movement of the fish to the sea-cage site.

Summary

Having particular regard to the:

(a) proponents' commitment to prepare and implement management protocols for the sourcing of baitfish (Commitment 9 and 10) in excess of current regulations; and

(b) general controls for importation of baitfish through the Department of Agriculture, Fisheries and Forestry – Australia,

it is the EPA's opinion that the proposal can be managed to meet the EPA's environmental objective for this factor.

5. Conditions and Commitments

Section 44 of the *Environmental Protection Act 1986* requires the EPA to report to the Minister for the Environment on the environmental factors relevant to the proposal and on the conditions and procedures to which the proposal should be subject, if implemented. In addition, the EPA may make recommendations as it sees fit.

In developing recommended conditions for each project, the EPA's preferred course of action is to have the proponents provide an array of commitments to ameliorate the impacts of the proposal on the environment. The commitments are considered by the EPA as part of its assessment of the proposal and, following discussion with the proponents, the EPA may seek additional commitments.

The EPA recognises that not all of the commitments are written in a form which makes them readily enforceable, but they do provide a clear statement of the action to be taken as part of the proponents' responsibility for, and commitment to, continuous improvement in environmental performance. The commitments, modified if necessary to ensure enforceability, then form part of the conditions to which the proposal should be subject, if it is to be implemented.

5.1 Proponents' commitments

The proponents' commitments as set out in the referral document (Diver and Prince 2003) and subsequently modified, as shown in Appendix 2, should be made enforceable.

6. Other Advice

6.1 Future commercial scale operation

The EPA considered that the design of the trial is appropriate for commercial feasibility experiments, but is unlikely to be adequate to provide information on the environmental impacts of a commercial operation. While it is noted that the wide spacing of the cage configuration are designed to aid in the experimental design of the bird study, it is unlikely to allow for the identification of cumulative impacts. Cumulative impacts on water and benthic habitat, in particular, would be more likely to occur or be detected were the cages more closely spaced.

To address this issue, the proponents have indicated that it may be necessary for an additional trial to generate adequate and appropriate data to demonstrate the environmental acceptability of a full-scale commercial operation. It is the EPA's view that there would need to be a lengthy staging process, to allow information from this trial to be considered before additional or expanded trials could be assessed in this important area. This information would be necessary to generate confidence that extrapolated data from the trials could reasonably predict the environmental impacts of a large-scale ongoing commercial production. As indicated, this trial should not be seen as setting a precedent for the consideration of future similar proposals.

In addition, the EPA considers that the proponents should not under-estimate the significance of the area for migratory birds. However, the efforts being undertaken in this trial to gain information on the potential for impact on the Abrolhos Islands bird populations are noted.

6.2 Commonwealth assessment

The EPA notes that the proponents referred the proposal to the Commonwealth Department of the Environment and Heritage under the *Environmental Protection and Biodiversity Conservation Act 1999* due to the potential for the proposal to impact on matters of national environmental significance. In August 2003, the Department of Environment and Heritage advised the proponents that the one-year trial is not a "controlled action".

7. Conclusions

The EPA has considered the proposal by Latitude Fisheries Pty Ltd and W.T.N. Nominees Pty Ltd ATF the Newbold Family Trust to undertake a one-year trial aquaculture project to farm yellowfin tuna in Zeewijk Channel, Abrolhos Islands.

The EPA notes that the proposal being considered is a one-year trial only, of the scale and nature indicated in the proponents' scoping document (Diver and Prince 2003).

The level of consultation that has been undertaken by the proponents is commendable, and has allowed a number of issues to be addressed in the development of the referral documentation (Diver and Prince 2003).

It should be noted that any proposal for an expanded or full scale operation would be considered as a separate proposal. In order for the EPA to consider a commercial

scale project, more information would be required on the risks and potential environmental impacts.

The EPA has concluded that the proposal is capable of being managed in an environmentally acceptable manner such that it is unlikely that the EPA's objectives would be compromised, provided there is satisfactory implementation of the recommended conditions and proponents' commitments set out in Section 5.

8. Recommendations

The EPA submits the following recommendations to the Minister for the Environment:

1. That the Minister notes that the proposal being assessed is for a one-year trial to culture yellowfin tuna in sea-cages in the Zeewijk Channel, Abrolhos Islands.
2. That the Minister considers the report on the relevant environmental factors as set out in Section 4.
3. That the Minister notes that the EPA has concluded that it is unlikely that the EPA's objectives would be compromised, provided there is satisfactory implementation by the proponents of the recommended conditions set out in Appendix 2, including the proponents' commitments.
4. That the Minister imposes the conditions and procedures recommended in Appendix 2 of this report.

Appendix 1

References

Australian Fisheries Management Authority (2003) *Draft Assessment Report – Southern and Western Tuna and Billfish Fishery*, Report to Environment Australia, July 2003.

Diver, G. and Prince, J. (2003) *Proposal for an aquaculture project to: Farm Yellowfin Tuna in the Zeewijk Channel, Abrolhos Islands, WA*. Environmental Scoping Document, prepared on behalf of Latitude Fisheries ,July 2003.

Fisheries Western Australia (2000) *Aquaculture Plan for the Houtman Abrolhos Islands*, Fisheries Management Paper Number 137, May 2000.

Kailola, P.J., Williams, M.J., Stewart, P.C., Reichelt, R.E., McNee, A., and Grieve, C. (1993) *Australian Fisheries Resources*, Bureau of Resource Sciences and the Fisheries Research and Development Corporation, Canberra.

Surman, C. (2003) *A proposal for the cage culture of Yellow-fin tuna at the Abrolhos Islands, Western Australia: Assessment of impacts on seabirds*. Surman Natural History, Perth.

Appendix 2

Recommended Environmental Conditions and Proponent's Consolidated Commitments

Statement No.

RECOMMENDED CONDITIONS AND PROCEDURES

STATEMENT THAT A PROPOSAL MAY BE IMPLEMENTED (PURSUANT TO THE PROVISIONS OF THE ENVIRONMENTAL PROTECTION ACT 1986)

YELLOWFIN TUNA AQUACULTURE TRIAL,
ZEEWIJK CHANNEL, ABROLHOS ISLANDS

Proposal: The implementation of a one-year, pilot scale yellowfin tuna seacage aquaculture trial in the Zeewijk Channel, Abrolhos Islands, as documented in schedule 1 of this statement.

Proponent: Latitude Fisheries Pty Ltd, and
W. T. N. Nominees Pty. Ltd. AFT the Newbold Family Trust

Proponent Address: Latitude Fisheries Pty Ltd
PO Box 77
GERALDTON WA 6530

W. T. N. Nominees Pty. Ltd. AFT the Newbold Family Trust
PO Box 1419
GERALDTON WA 6531

Assessment Number: 1485

Report of the Environmental Protection Authority: Bulletin 1109

The proposal referred to above may be implemented by the proponent subject to the following conditions and procedures:

Procedural conditions

1 Implementation and Changes

1-1 The proponent shall implement the proposal as documented in schedule 1 of this statement subject to the conditions of this statement.

1-2 Where the proponent seeks to change any aspect of the proposal as documented in schedule 1 of this statement in any way that the Minister for the Environment determines, on advice of the Environmental Protection Authority, is substantial, the proponent shall refer the matter to the Environmental Protection Authority.

1-3 Where the proponent seeks to change any aspect of the proposal as documented in schedule 1 of this statement in any way that the Minister for the Environment determines, on advice of the Environmental Protection Authority, is not substantial, the proponent may implement those changes upon receipt of written advice.

2 Proponent Commitments

2-1 The proponent shall implement the environmental management commitments documented in schedule 2 of this statement.

2-2 The proponent shall implement subsequent environmental management commitments which the proponent makes as part of the fulfilment of the conditions in this statement.

2-3 The proponent shall make the Environmental Management Plans committed to and included in schedule 2 publicly available, to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority.

3 Proponent Nomination and Contact Details

3-1 The proponent for the time being nominated by the Minister for the Environment under section 38(6) or (7) of the *Environmental Protection Act 1986* is responsible for the implementation of the proposal until such time as the Minister for the Environment has exercised the Minister's power under section 38(7) of the Act to revoke the nomination of that proponent and nominate another person as the proponent for the proposal.

3-2 If the proponent wishes to relinquish the nomination, the proponent shall apply for the transfer of proponent and provide a letter with a copy of this statement endorsed by the proposed replacement proponent that the proposal will be carried out in accordance with this statement. Contact details and appropriate documentation on the capability of the proposed replacement proponent to carry out the proposal shall also be provided.

3-3 The nominated proponent shall notify the Department of Environmental Protection of any change of contact name and address within 60 days of such change.

4 Commencement and Time Limit of Approval

4-1 The proponent shall provide evidence to the Minister for the Environment within five years of the date of this statement that the proposal has been substantially commenced or the approval granted in this statement shall lapse and be void.

Note: The Minister for the Environment will determine any dispute as to whether the proposal has been substantially commenced.

4-2 The proponent shall make application for any extension of approval for the substantial commencement of the proposal beyond five years from the date of this statement to the Minister for the Environment, prior to the expiration of the five-year period referred to in condition 4-1.

The application shall demonstrate that:

1. the environmental factors of the proposal have not changed significantly;

2. new, significant, environmental issues have not arisen; and

3. all relevant government authorities have been consulted.

Note: The Minister for the Environment may consider the grant of an extension of the time limit of approval not exceeding five years for the substantial commencement of the proposal.

Environmental conditions

5 Compliance Audit and Performance Review

5-1 The proponent shall prepare an audit program and submit compliance reports to the Department of Environmental Protection which address:

1. the implementation of the proposal as defined in schedule 1 of this statement;

2. evidence of compliance with the conditions and commitments; and

3. the performance of the environmental management plans and programs.

Note: Under Sections 48(1) and 47(2) of the *Environmental Protection Act 1986*, the Chief Executive Officer of the Department of Environmental Protection is empowered to audit the compliance of the proponent with the statement and should directly receive the compliance documentation, including environmental management plans, related to the conditions, procedures and commitments contained in this statement.

5-2 The proponent shall submit a performance review report at the completion of the one-year trial, to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority. The performance review report shall include a summary statement of the monitoring and management results and shall address:

1. the environmental issues associated with the project; the targets for those issues; the methodologies used to achieve these; and the key indicators of environmental performance measured against those targets;

2. the level of progress in the achievement of sound environmental performance, including industry benchmarking, and the use of best available technology where practicable;

3. stakeholder and community consultation about environmental performance and the outcomes of that consultation, including a report of any on-going concerns being expressed; and

4. how the information gained through the operation of the one-year trial would be applied in the development of a future, related proposal.

Note: Under Section 38(1) of the *Environmental Protection Act 1986*, a future proposal that appears likely, if implemented, to have a significant effect on the environment shall be referred in writing to the Environmental Protection Authority.

6 Decommissioning Plan

6-1 Prior to installation of the seacages, the proponent shall prepare a Decommissioning Plan, designed to ensure that the site is left in an environmentally acceptable condition to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority. The Decommissioning Plan shall address the removal or, if appropriate, retention of infrastructure in consultation with relevant stakeholders.

6-2 The proponent shall implement the Decommissioning Plan required by condition 6-1 within five years of the commencement of the trial.

6-3 The proponent shall make the Decommissioning Plan required by condition 6-1 publicly available, to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority.

Note: In a case where a future proposal is approved in this location, this Decommissioning Plan shall be amended accordingly.

Procedures

1 Where a condition states "to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority", the Chief Executive Officer of the Department of Environmental Protection will obtain that advice for the preparation of written advice to the proponent.

2 The Environmental Protection Authority may seek advice from other agencies, as required, in order to provide its advice to the Chief Executive Officer of the Department of Environmental Protection.

Notes

1 The Minister for the Environment will determine any dispute between the proponent and the Environmental Protection Authority or the Department of Environmental Protection over the fulfilment of the requirements of the conditions.

2 The proponent is required to apply for a Licence for this project under the provisions of Part V of the *Environmental Protection Act 1986*.

Schedule 1

The Proposal (Assessment No. 1485)

The proposal is for the implementation of a one-year yellowfin tuna (*Thunnus albacares*) seacage aquaculture trial in the Zeewijk Channel, Abrolhos Islands. The trial involves capture of up to 200 tonne of yellowfin tuna, supplementary feeding of the tuna in seacages for up to seven months, and harvesting and processing of the tuna.

The key characteristics of the proposal are summarised in Table 1 below.

Table 1: Key Characteristics Table

Element	Quantities/Description
Period of operation	One-year Seacages stocked for up to 7 months Tuna to be captured in approximately December of one year and harvested in approximately July of the following year
Species farmed	Yellowfin tuna (*Thunnus albacares*)
Locality	Zeewijk Channel, Abrolhos Islands
Coordinates of location/ locality (area of interest)	The area of interest is bounded by the coordinates: N/W corner 28° 48.46'S and 113° 50.96'E South to 28° 50.59'S and 113° 50.98'E S/East to 28° 51.52'S and 113° 52.31'E East to 28° 52.16'S and 113° 55.64'E North to 28° 48.51'S and 113° 55.52'E, Then West to join with the first point (see figure 1)
Area of location/ locality	Approximately 7.3 kilometres by 3.6 kilometres (being 4329.66 hectares)
Area of seacage placement	Approximately 3 kilometres by 1 kilometre (being 30 hectares)
Number of seacage	7 – 8
Size of seacages	40 metres diameter
Drop of net	Approximately 12 metres
Biomass capacity of seacages	Approximately 30 tonne per seacage
Capture biomass of yellowfin tuna	Up to 200 tonne
Expected end-of-trial biomass of yellowfin tuna	Approximately 260 tonne
Feed sources	Bait fish, squid, processed pellets
On-site staff	5, housed at existing infrastructure on Basile Island
Processing	Yellowfin tuna processed aboard dedicated vessel designed for zero discharge Waste returned to mainland for disposal
Predator control	Stanchion and netting above the waterline will be maintained at 2 metres high

Figure (attached)

HOUTMAN ABROLHOS
LATITUDE FISHERIES P/L AND W.T.N NOMINEES PTY LTD
ATF THE NEWBOLD FAMILY TRUST
AQUACULTURE LICENCE - SITE PLAN

APPLICATION

Boundary Corner Co-ordinates: Datum GDA94

Point	Longitude	Latitude
A	113° 51.047'	-28° 48.386'
B	113° 51.067'	-28° 50.516'
C	113° 52.397'	-28° 51.446'
D	113° 55.727'	-28° 52.086'
E	113° 55.607'	-28° 48.436'

Boundary Corner Co-ordinates: Datum AGD84

Point	Longitude	Latitude
A	113° 50.96'	-28° 48.46'
B	113° 50.98'	-28° 50.59'
C	113° 52.31'	-28° 51.52'
D	113° 55.64'	-28° 52.16'
E	113° 55.52'	-28° 48.51'

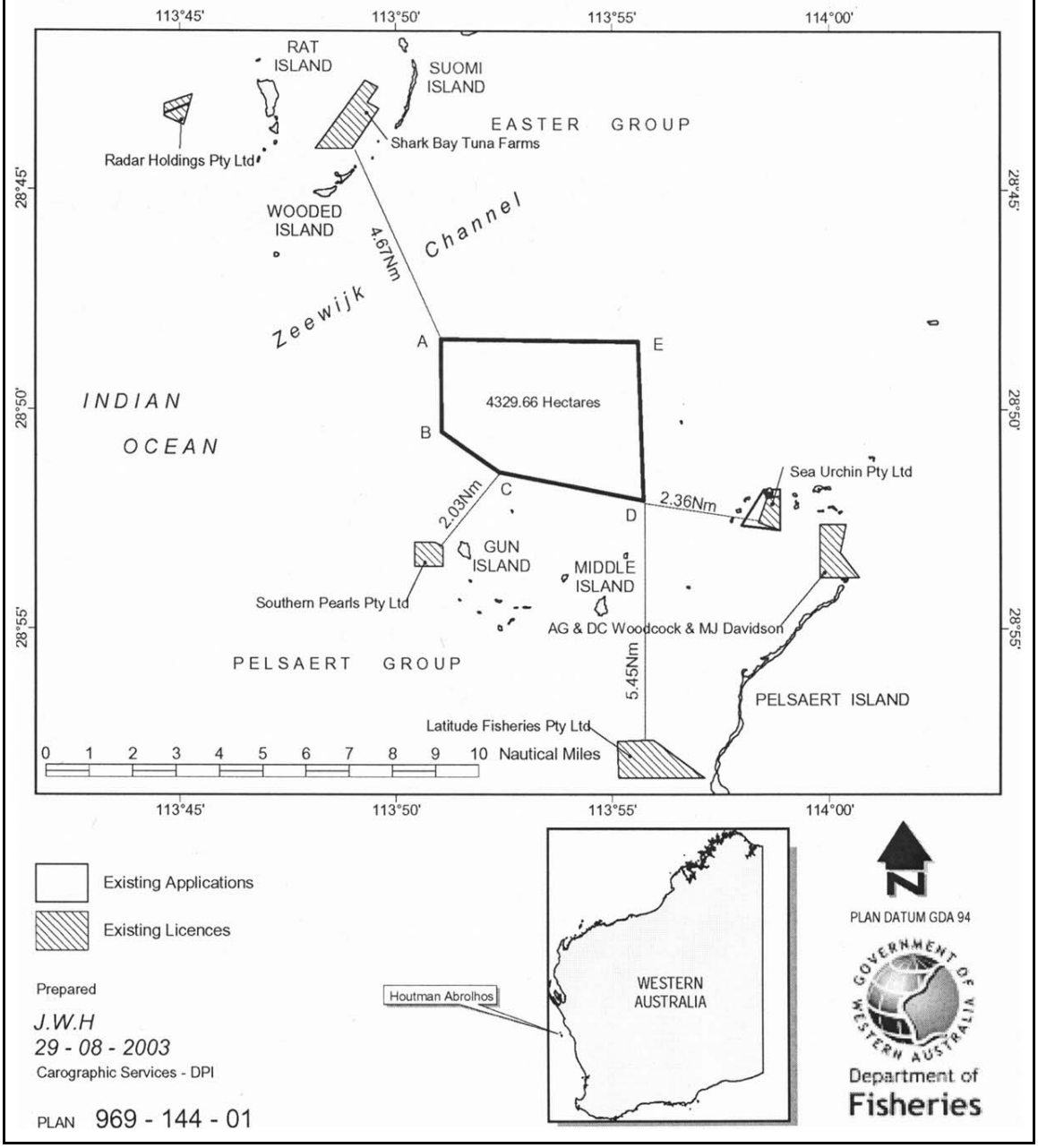

Figure 1: Map of area of location/ locality

Schedule 2

Proponent's Environmental Management Commitments

August 2003

Yellowfin Tuna Aquaculture Trial,
Zeewijk Channel, Abrolhos Islands
(Assessment No. 1485)

Latitude Fisheries Pty Ltd
and
W.T.N. Nominees Pty Ltd AFT the Newbold Family Trust

Proponent's Environmental Management Commitments

Yellowfin Tuna Aquaculture Trial, Zeewijk Channel, Abrolhos Islands (Assessment No. 1485), August 2003

Note: The term "commitment" as used in this schedule includes the entire row of the table and its six separate parts as follows:

- a commitment number;
- a commitment topic;
- the objective of the commitment;
- the 'action' to be undertaken by the proponent;
- the timing requirements of the commitment; and
- the body/agency to provide technical advice to the Department of Environmental Protection.

No	Topic	Objective/s	Action	Timing	Advice
1	General Environmental Management	Manage environmental effects of the proposal.	Develop an Environmental Management Program (EMP) that addresses specific management procedures identified in consultation with concerned community stakeholders, other users of the resource and relevant government agencies. This will include: 1. A series of monitoring programs addressing the following: (i) Water quality/benthic impact (ii) Seabird interactions (iii) Wildlife (non-seabird) interactions 2. A waste management plan for management of all wastes (commercial, domestic, incidental yellow fin tuna (YFT) mortality) generated by the project at the site, and at the Abrolhos Islands; and 3. Induction training for staff and contactors to ensure adherence to environmental requirements identified in the scoping document.	Pre-operation	DoF DCLM
2	General Environmental Management	Achieve the objectives of commitment 1.	Implement the Environmental Management Program referred to in Commitment 1.	During operation	As for Commitment 1

No	Topic	Objective/s	Action	Timing	Advice
3	Water quality/benthic impact	Carry out an objective evaluation of the impact of the proposal on the water quality and benthic impact at, and adjacent to the site of operation with a view to devising management measures to minimise any such impacts	Prepare water quality/benthic impact program that objectively monitors: 1. sediment loading and changes in benthic productivity; 2. changes in abundance or scarcity within epibenthic communities; 3. changes in nutrient levels; 4. changes in chlorophyll; 5. changes in algal cover on adjacent corals; and 6. longer term changes in coral productivity. Note: specific limits will be set by DEP through a licence issued under Part V of the *Environmental Protection Act 1986*.	Pre-operation	SARDI
4	Water quality/benthic impact	Achieve the objectives of commitment 3.	Implement the water quality/benthic impact program referred to in Commitment 3.	During operation	As for Commitment 3
5	Seabirds	Carry out an objective evaluation of the impact of the proposal on seabird behaviour and populations with a view to devising management measures to minimise any impacts, and to quantifying any impacts likely from a larger scale operation.	Prepare a Seabird Monitoring Program that addresses seacage configuration to maximise the statistical power obtainable from data collected, and collects data on: 1. seabird behaviour before the seacages arrive at the site; 2. seabird behaviour after the seacages have been positioned but before the pens are stocked with YFT; 3. while the seacages are stocked with YFT; 4. while harvesting takes place; 5. silver gull population size.	Pre-operation	DCLM CCWA Dr. Chris Surman
6	Seabirds	Achieve the objectives of commitment 5.	Implement the Seabird Monitoring Program referred to in Commitment 5.	During operation	As for Commitment 5
7	Other (non-seabird) wildlife observations	Carry out an objective monitoring program to log all non-seabird wildlife interactions, including sightings within a 300 metre radius of seacages.	Prepare a Wildlife Monitoring Program including: 1. logbooks/data sheets for the structured collection and archiving of data; 2. species identification guides for animals likely to be sighted at the operation; 3. carcass retrieval and forwarding protocols for wildlife mortalities; 4. reporting requirements for wildlife mortalities; 5. induction training for site staff and contractors on both the documentation, and species identification.	Pre-operation	Diversity P/L DCLM

No	Topic	Objective/s	Action	Timing	Advice
8	Other (non-seabird) wildlife observations	Achieve the objectives of commitment 7.	Implement the Wildlife Monitoring Program referred to in Commitment 7.	During operation	As for Commitment 7
9	Imported disease	Minimise risk of disease being introduced to the Abrolhos Islands through the importation of bait.	Develop management protocols to source bait in a manner which minimises the risk of imported pathogens, including: 1. source domestic product where there are supplies of foreign and domestic bait with similar characteristics and cost; 2. source New Zealand product where no domestic options exist but there are supplies of foreign bait from New Zealand or from other countries both with similar characteristics and cost; 3. source southern hemisphere product where no domestic options exists but there are supplies of foreign bait from the southern or northern hemisphere both with similar characteristics and cost; 4. regardless of the source of the bait, implement a formal documentation trail to verify that all bait imported has been used in a manner consistent with undertakings in the scoping document, or disposed of at a registered waste disposal site.	Pre-operation	DoF
10	Imported disease	Achieve the objectives of commitment 9.	Implement the bait sourcing management protocols referred to in Commitment 9.	During operation	As for Commitment 9
11	By-catch	Document the by-catch during purse seine operations	Have an observer aboard the purse seine vessel to document the by-catch of the purse seine operation if all "take" occurs in one trip, or have an observer aboard the catching vessel for a representative sample of trips if multiple trips are needed.	During purse seine operations	AFMA
12	Decommissioning	To consolidate the seacages within the AOI	Remove nets from the seacages and consolidate the seacages within the area of interest.	Post - harvest	DoF

Abbreviations:

AFMA: Australian Fisheries Management Authority
AOI: Area of Interest
CCWA: Sustainable Fisheries Liaison Office, Conservation Council of WA
DCLM: Department of Conservation and Land Management
DEP: Department of Environmental Protection
DoA: Department of Agriculture
DoF: Department of Fisheries
EMP: Environmental Management Program
SARDI: South Australian Research and Development Institute
YFT: yellowfin tuna