



Australian Government

Department of the Environment and Heritage

Assessment of the
Tasmanian Native Oyster Fishery

April 2004

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This document is an assessment carried out by the Department of Environment and Heritage of a commercial fishery against the Australian Government Guidelines for the Ecologically Sustainable Management of Fisheries. It forms part of the advice provided to the Minister for the Environment and Heritage on the fishery in relation to decisions under Parts 13 and 13A of the Environment Protection and Biodiversity Conservation Act 1999. The views expressed do not necessarily reflect those of the Minister for the Environment and Heritage or the Australian Government.

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**Assessment of the ecological sustainability of management arrangements for the
Tasmanian Native Oyster Fishery**

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EXECUTIVE SUMMARY

Background

The Tasmanian Department of Primary Industries, Water and Environment (DPIWE) has submitted a document for assessment under Part 13A of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The draft document “Application for Declaration as an Approved Wildlife Trade Operation under the *Environment Protection and Biodiversity Conservation Act 1999* – Export of Native Oysters (*Ostrea angasi*) from Tasmanian waters” (the submission) was received by the Department of the Environment and Heritage (DEH) in September 2003, after a period of discussion between DPIWE and DEH during which preliminary drafts were refined. The submission was released for a twenty-eight day public comment period that expired on 20 October 2003. One public comment was received and DPIWE provided a response to the issues raised and amended the submission where necessary.

The submission reports on the Tasmanian Native Oyster Fishery (TNOF) against the Australian Government *Guidelines for the Ecologically Sustainable Management of Fisheries*. The DEH assessment considers the submission and associated documents, public comment and DPIWE’s response to the comments.

Summary of the Tasmanian Native Oyster Fishery

Area	Georges Bay, north east Tasmania
Fishery status	Developing. The species was overfished in the past and has not since recovered to original levels. Current catch levels are unlikely to have an effect on further recovery of stocks.
Target Species	Native ‘flat’ oyster (<i>Ostrea angasi</i>)
Byproduct Species	Not permitted
Gear	Hand collection
Season	Harvest is primarily from July to November, but not limited.
Commercial harvest 2002	5215 dozen oysters
Recreational and indigenous harvest	Recreational and Aboriginal take is believed to be negligible. Bag limit of 50 oysters per person per day. Special permits for Aboriginal cultural events can be obtained on application
Commercial licences issued	2 permit holders
Management arrangements	Limited entry, hand harvest, limited catch, permitted species, 70 mm size limit and spatial closures. Permit holders must also assist in husbandry of the resource
Bycatch	Negligible
Interaction with Threatened Species	Negligible

The TNOF exists on a number of oyster beds located in the sub tidal depths of Georges Bay in the north east of Tasmania. The fishery is entirely within State waters and is managed by DPIWE. Fishing for *Ostrea Angasi* in Georges Bay has occurred sporadically over the last 15 years at a relatively low level. Two divers are currently permitted to harvest *O. angasi* from Georges Bay by hand.

The native 'flat' oyster, *O. angasi*, is found in the subtidal zone from about 2 to 20 metres depth from Southern New South Wales to Western Australia, including Tasmania. The species is closely related to the European 'Belon' oyster which attracts a premium price from gourmets and connoisseurs. *O. angasi* are a large, slow-growing oyster species that prefer sheltered silt or sand habitats, and in Georges Bay are found clumped in close proximity to other shellfish beds. *O. angasi* are found throughout Tasmanian waters, particularly on the east coast and in the D'Entrecasteaux Channel.

The native oyster was harvested extensively during the late 19th century by dredge in the south and south east of Tasmania. Overexploitation of the species led to a rapid deterioration in abundance from which stocks have never fully recovered. While there have been numerous attempts at culturing the native oyster, they have been largely unsuccessful and have not been practiced seriously since the Pacific oyster was introduced in the 1950s.

The Georges Bay population of native oyster is the largest documented surviving native oyster bed, and has been subject to a number of small harvesting regimes over the past 10-15 years. A number of one-off harvests under exploratory permits were conducted in 1992, 1994 and 1997. The sale of oysters did not meet marketing expectations which resulted in a smaller than expected number of oysters harvested. In August 2000, a small number of past participants in the fishery were issued exploratory permits and have continued their involvement in the fishery since this time.

Native oysters in Georges Bay are collected by hand with the majority of collection occurring between July and November when the oysters are in good condition and there is a downturn in other dive fisheries. The fishery is considered to be developing and DPIWE is exploring longer term management based on catch data, and survey and marketing information being gathered from permit holders and processors. Current management arrangements include limited entry, size limits, and closed areas.

Due to the targeted harvesting techniques employed in the fishery there are no byproduct species, minimal levels of bycatch, negligible impacts on protected species and the broader marine environment, and no interactions with threatened ecological communities.

There is no significant take of *O. angasi* by the indigenous and recreational sectors in Tasmania. Bag limits apply to recreational take and special permits can be issued for Aboriginal cultural events.

The TNOF is managed by issue of permit under the Tasmanian *Living Marine Resources Management Act 1995*, under the guidance of a set of policy objectives and management strategies formulated by DPIWE. The permits, fishery management objectives and strategies to obtain the objectives have been considered during the DEH assessment.

Overall assessment

The material submitted by DPIWE demonstrates that the management arrangements for the TNOF meet most of the requirements of the Australian Government *Guidelines for the Ecologically Sustainable Management of Fisheries*.

While the fishery is relatively well managed, DEH has identified a number of risks that must be managed to ensure that their impacts are minimised:

- Limited substantial beds of the species in Tasmanian waters;
- Vulnerability of the species to overexploitation; and

- Potential for the fishery to expand if market demand increases.

Recommendations to address these issues have been developed to ensure that the risk of impact is minimised in the longer term. Through the implementation of the recommendations and the continuation of a responsible attitude to the management of the fishery, management arrangements are likely to be sufficiently precautionary and capable of controlling, monitoring and enforcing the level of take from the fishery while ensuring the stocks are fished sustainably.

The TNOF has been in a developmental stage and has made considerable progress in developing sound management arrangements. The management regime aims to ensure that fishing is conducted in a manner that does not lead to over-fishing and for fishing operations to be managed to minimise their impact on the structure, productivity, function and biological diversity of the ecosystem. On balance, the fishery is being managed in an ecologically sustainable manner and is working to minimise environmental risks.

The operation of the fishery is consistent with the objects of Part 13A of the EPBC Act. Given the precautionary nature of management arrangements and the limited participation in the fishery, DEH considers that the fishery will not be detrimental to the survival or conservation status of the taxon to which it relates in the short term. Similarly, it is not likely to threaten any relevant ecosystem in the short term. Due to the developmental nature of the fishery and its potential to expand in the next three years, DEH recommends that the fishery be declared an approved Wildlife Trade Operation (WTO) with the actions specified in the recommendations to be undertaken by DPIWE to contain the environmental risks in the long term. DEH considers that the fishery, as managed in accordance with the management regime is not likely to cause serious or irreversible ecological damage over the period of the export decision. Specifically, the WTO declaration would allow the export of product from the fishery for a period of 3 years. The WTO declaration will require annual reporting on the progress of implementing the recommendations of this report and other managerial commitments. The implementation of the recommendations and will be monitored and reviewed as part of the next DEH review of the fishery in 3 years time.

Recommendations

1. DPIWE to inform DEH of any changes to the management arrangements that may impact on the sustainability of the Native Oyster Fishery.
2. DPIWE to develop and implement a precautionary reference point and corresponding management response, sufficient to trigger a response to major changes in harvest of the target species.
3. DPIWE to conduct a re-survey of the stock structure and density of native oysters on the main beds in Georges Bay every two years.

PART I - MANAGEMENT ARRANGEMENTS

The Tasmanian Native Oyster Fishery (TNOF) is managed by the Tasmanian Department of Primary Industries, Water and Environment (DPIWE).

Fishing permits are issued under the Tasmanian *Living Marine Resources Management Act 1995* (the LMRM Act). These permits are publicly available documents that can be viewed on request from DPIWE and information on the fishery is available on the developmental fishery site within the DPIWE website (www.dpiwe.tas.gov.au).

The policy objectives for the TNOF, and strategies to attain these objectives, are complementary to the stated management and planning objectives described in Schedule 1 of the LMRM Act. The management objectives for the TNOF are:

- Maintaining fish biomass and recruitment;
- Managing environmental interactions;
- Sustaining yield and reducing incidental fishing mortality;
- Access to native oyster resources by non-commercial and non-extractive users;
- Enforcement and monitoring;
- Cost-recovery and socio-economic return to the community; and
- Marketing/processing sector.

Strategies to achieve each objective have been identified by DPIWE and are detailed in the submission. These strategies are policy rather than operational in nature, but they guide management of the fishery at this time.

DEH considers it important that management arrangements remain flexible to ensure timely and appropriate managerial decisions. Due to the importance of the documents discussed above to DEH's assessment of the fishery, an amendment could change the outcomes of our assessment and decisions stemming from it.

Recommendation 1: *DPIWE to inform DEH of any changes to the management arrangements that may impact on the sustainability of the Native Oyster Fishery.*

The LMRM Act outlines the consultative process required if the Minister intends to issue a permit for the development of a fishery, including consultation with the relevant fishing body. The Tasmanian Fishing Industry Council and the Tasmanian Aquaculture Council have been consulted prior to the commencement of any significant wild harvest, including the current permitted harvest. Divers and processors of the resource have been involved in the development of management arrangements, such as management objectives for the fishery. Changes to permits are also discussed with permit holders prior to implementation.

A fishery management regime should be developed through a consultative process providing opportunity to all interested and affected parties. Currently, Aboriginal groups are not consulted in relation to management of the TNOF. Public comment from the Office of Aboriginal Affairs showed that the resource is of interest and cultural value to the Aboriginal community. Recently the Tasmanian Government announced its intention of developing a Cultural Practices Strategy in conjunction with the current review of the LMRM Act and other relevant legislation. DPIWE has advised DEH that this will be a comprehensive process addressing indigenous fishing issues and the Tasmanian Government considers it the appropriate forum to discuss and develop consultation arrangements.

The Tasmanian Aquaculture and Fisheries Institute provides scientific advice on oyster survey design, and population assessment and dynamics. The Marine police are also consulted about reporting and enforcement provisions of management.

DEH considers that consultation is important in the development of this fishery. DEH encourages DPIWE to maintain its communication with industry and other Government agencies, welcomes the development of a Cultural Practices Strategy and expects that, should expansion of the fishery occur, consultation will expand to include Aboriginal groups, non-government organisations and other community groups.

Management controls are implemented via permit conditions. Permits are issued for a period of three months and specify conditions including:

- Only 1200 native oysters may be collected;
- Native oysters collected must be above 70 mm shell length;
- Fishers must not collect any marine shellfish species other than *O. angasi*;
- Locations of harvest and landing activities;
- Requirements for counting and reporting catch, including completion and submission of the logbook to DPIWE within 24 hours of landing; and
- Fishers must assist with husbandry of the species by distributing culch and relocating juveniles.

There are currently two harvest permits issued in the fishery and current Ministerial policy states that no other permits will be issued for Georges Bay. At present, no permits have been issued for the harvest of native oysters in other areas of the State. An assessment of the effectiveness of these management arrangements is included in Part 2 of this report.

The provision of permits for a three month period allows for the frequent review of management arrangements. The submission states that a review of catch levels and available market and pricing information in the TNOF is conducted upon the expiry of each permit. An extensive appraisal undertaken annually includes examination of stock levels, impact on fish stocks and the environment, a review of management, research and compliance costs, market infiltration and success and an overall evaluation of whether the fishery is likely to be commercially viable and suitable for further development. In the future, DPIWE also intends to re-survey the main oyster beds every second year.

The frequent review of progress in this fishery has played a significant role in this assessment. DEH commends the proactive approach that DPIWE is taking to reviewing the many aspects of the fishery. The review of progress in the fishery could be further improved through the introduction of criteria against which the management arrangements can be measured. Currently, there are no performance indicators in the fishery against which to monitor progress. DEH considers that the major risk to this fishery is overfishing. While changes in the fishery may be monitored, there is no trigger point at which management is required to review, and if necessary to respond to, the cause of a change in the harvest of the target species.

Recommendation 2: *DPIWE to develop and implement a precautionary reference point and corresponding management response, sufficient to trigger a response to major changes in harvest of the target species.*

Enforcement of management arrangements is undertaken by the Tasmania Police Marine and Rescue Division. Checks are carried out during fishing, at the depuration site and the processing facility. Completed daily native oyster fishery logbooks are required to be forwarded to the

fishery manager within 24 hours of landing, while diver and processor logbooks are to be forwarded within one month of the expiry of the permit. To date, there have been no recorded offences in the fishery and DPIWE considers penalties for breaching a permit condition by not completing logbook information to be a significant deterrent to overfishing or under-declaring catch. DEH considers that these compliance measures contain the means of enforcing critical aspects of the management arrangements.

Fishery dependent and independent information relating to the target species is collected on a regular basis in the fishery. Fishery dependent data is obtained through compulsory daily logbooks as well as monthly processor and diver logbooks. Additionally DPIWE has conducted independent surveys on distribution, abundance and length frequency in the main beds of Georges Bay. These information collection systems are discussed under Part Two of this report.

An analysis of management's capacity to assess, monitor and avoid, remedy or mitigate any adverse impacts on the wider marine ecosystem in which the target species lives and the fishery operates is contained under Principle Two of this report.

DEH considers that the current management arrangements comply with all relevant threat abatement plans, recovery plans, the National Policy on Fisheries Bycatch, and bycatch action strategies developed under that policy. The incorporation of future plans or policies in the management arrangements of the TNOF is possible through the frequent review of permit conditions. With the potential growth and development of this fishery it is important that mechanisms that enable the incorporation of new information, Government plans and policies within the management arrangements are maintained.

Schedule 1 of the LMRM Act addresses the principles of ESD and as the TNOF is still classified as a developing fishery the Minister responsible for the management of fisheries takes account of the precautionary principle in the development of this fishery.

No regional or international management regimes, to which Australia is a party, are of direct relevance to the fishery. The prime international regime affecting the fishery is the United Nations Convention on the Law of the Sea (UNCLOS). The management regime essentially complies with this. Other international regimes are applicable to fisheries management but do not explicitly involve this fishery, for example the 1992 Convention on Biological Diversity and in particular the 1995 Jakarta Mandate requiring that, in relation to the sustainable use of marine and coastal biological diversity, the precautionary principle should apply in efforts to address threats to biodiversity. While these agreements are not specifically addressed in the Submission, the fishery's compliance with their requirements can be assessed by examination of Part Two of this report.

DEH considers it is incumbent on all authorities to develop a thorough understanding of the framework of national, regional and international agreements and their applicability to export-based fisheries for which they are responsible.

Conclusion

DEH considers that the TNOF management regime is documented, publicly available and transparent, and is developed through a consultative process. The management arrangements are adaptable and underpinned by appropriate objectives, however will further benefit from the development of a reference point and corresponding management response for the target species. The management arrangements are capable of controlling the harvest through a combination of

input and output controls appropriate, to the size of the fishery. Periodic review of the fishery is provided for, as are the means of enforcing critical aspects of the management arrangements.

The management regime takes into account arrangements in other jurisdictions, and adheres to arrangements established under Australian laws and international agreements.

DEH considers that there is scope to further refine the management arrangements and has provided a number of recommendations for improvements in the longer term.

PART II – GUIDELINES FOR THE ECOLOGICALLY SUSTAINABLE MANAGEMENT OF FISHERIES

Stock Status and Recovery

Principle 1: *‘A fishery must be conducted in a manner that does not lead to over-fishing, or for those stocks that are over-fished, the fishery must be conducted such that there is a high degree of probability the stock(s) will recover’*

Maintain ecologically viable stocks

Objective 1: *‘The fishery shall be conducted at catch levels that maintain ecologically viable stock levels at an agreed point or range, with acceptable levels of probability’*

Information requirements

Fishery dependent data from the TNOF is obtained through compulsory daily logbooks that are required to be completed and forwarded to the fishery manager within 24 hours of landing. The daily logbooks contain information on diver hours, area fished, processing facility and amount of oysters landed. Completed diver and processor logbooks are to be forwarded to DPIWE within one month of the expiry of the permit. These logbooks are not validated against each other.

In addition to the collection of fishery dependent data, a number of fishery independent data collection projects have been conducted over the last 20 years. The most recent survey collected length frequency data on the main fishing oyster beds in Georges Bay in April 2003. Distribution and abundance data has also been collected in the fishery, and some information on post larval settlement has been recorded during surveys. Stock assessments of the Georges Bay population have been undertaken on a couple of occasions over the last 15 years. In the current permitted fishery DPIWE intends to re-survey the main oyster beds every second year, and to conduct one-off surveys of new areas.

Research on the species has occurred sporadically during the last 15 years, providing some data on growth rates, larval growth and basic biology of *O. angasi*. The allocation of resources for research is restricted due to the developing nature, low economic value and small number of participants in the fishery. However, if potential for a substantial industry were demonstrated, the allocation of further resources for scientific research may be justifiable.

Overall, given the range of fishery dependent and independent data gathered by DPIWE and the mechanisms for regularly reviewing the data, DEH considers that there is a reliable information collection system in place appropriate to the scale of the fishery. Continuation of existing data collections and research programs, combined with an increase in data collection in the event of expansion in the fishery will be important for the future management of the fishery.

Assessment

The beds of native oysters in Georges Bay cover both the intertidal regions and the deeper channels. Beds in deep waters are known to exist in other areas in the State, however surveys failed to find any other areas with beds of comparable size to those in Georges Bay. As a result fishing for native oysters is restricted to the shallow coastal and estuarine regions of Georges Bay, and is managed as one stock.

Previous permit holders have reported native oyster beds existing in deeper waters around the State. DPIWE does not envisage stocks in other areas being considered for commercial harvesting without considerable surveys being undertaken first. An expansion of the fishery into other areas would represent a considerable change to management. Such an expansion is not considered in this assessment of the fishery, therefore DEH should be advised of such a change as specified in Recommendation 1.

A survey of the three major native oyster beds in Georges Bay was conducted in April 2003. The population was estimated to be approximately 900,000 dozen oysters greater than 40 mm shell length. From this figure it was estimated that 150,000 dozen oysters would be available for harvest, taking into account estimated mortality rates for the species. However for precautionary reasons, and in line with historical catches, an annual catch level of 5,000 dozen per fisher will apply from March 2004 and will be reviewed annually. The current limits on commercial permits, and recreational and Aboriginal take will remain after March 2004.

Catch per unit effort in the fishery is monitored via catch returns, however due to the clumping nature of the species and the pattern of fishing, it is used only as a general indication of fishing effort as it cannot be relied upon as an accurate indicator of stock abundance. Monitoring of area catch and effort information has not yet shown any evidence of local depletions. DEH encourages DPIWE to continue monitoring catch and effort by area to ensure that any localised depletion is detected, and appropriately responded to. Feedback from fishers should also be obtained to assist with the detection of localised depletion.

A recent survey of density and length frequency on the main bed of Georges Bay provides reliable information on the current stock structure in the TNOF. The submission states that in the future DPIWE intends to re-survey the main oyster beds every two years. Considering the developmental nature of the fishery, DEH agrees that regular review of the main beds is important in ensuring maintenance of an ecologically viable stock.

Recommendation 3: *DPIWE to conduct a re-survey of the stock structure and density of native oysters on the main beds in Georges Bay every two years.*

The continued collection of data, both independently and dependently, will also ensure a greater, more reliable data set on which to base management decisions in the fishery. To ensure detection of short-term changes in stock structure and density, regular communication with permit holders should be maintained. DEH considers the ongoing collection of data an important component in providing confidence in the recently established catch levels and to enable changes in the fishery to be detected.

Recreational and Aboriginal fishing for native oysters in Tasmania is considered to be negligible and occurs in shallower beds than those fished by the commercial permit holders. Illegal harvest of native oysters is also considered negligible. The frequent monitoring of harvest in the fishery through the return of daily logbooks, provides a sound estimate of removals from the fishery due to the minimal recreational and Aboriginal take.

The potential to overfish *O. angasi* was clearly demonstrated by the extensive dredging of Tasmanian native oysters during the late 19th century and the subsequent depletion in stocks around the State. While the current fishery is operating on a considerably smaller scale, the lack of recovery of the species over the last century suggests that great precaution must be taken to

ensure further depletion of the remaining stocks does not occur. Continued monitoring of the fishery should be maintained and any changes in stock should be responded to promptly.

Management response

The current TNOF management arrangements aim to maintain ecologically viable stock levels through a range of input and output controls. These measures were outlined in Part I of this report. DEH considers that the combination of controls should ensure adequate protection of the target stocks.

The most recent review of the fishery, in May 2003, concluded that the fishery may have the potential to move beyond developmental status to commercial, however this is subject to further evaluation. The main factor limiting harvest is the current market demand, therefore if there is an increase in demand, harvest levels in the fishery are likely to increase.

While the management regime for the TNOF includes objectives, and strategies to achieve these objectives, there are no performance indicators against which the success of these strategies can be measured. Additionally there are no triggers in place which would alert management to the failure of the management objectives and strategies. While the fishery is only small at this stage, previous collapses in stocks indicate that the species is vulnerable to overfishing and precaution should therefore be taken. Performance indicators and appropriate triggers should be developed and implemented in the fishery at this early stage to ensure that in the event of expansion of the fishery, stocks are maintained at ecologically viable levels. Refer to Recommendation 2.

Management responses available for implementation in the event that a change in the fishery is detected include:

- Set an appropriate commercial catch level following resurvey of fishing area;
- Introduce or change the size limits on a regional basis;
- Introduce area or seasonal closures; and
- Other appropriate management measures.

If serious or high level change is detected in the fishery and immediate action is required, the Minister can respond by making emergency changes under the provisions of the LMRM Act.

Native oysters are collected in Georges Bay by hand and therefore no byproduct is taken in the fishery. *O. angasi* are the only species of marine shellfish that permit holders are permitted to take.

Conclusion

DEH considers that the management regime in the TNOF is appropriately precautionary and provides for the fishery to be conducted in a manner that does not lead to over-fishing. DEH considers that the information collection system and stock assessment and management arrangements generally are sufficient to ensure that the fishery is conducted at catch levels that maintain ecologically viable stock levels with acceptable levels of probability.

DEH considers that there is scope to further refine some of the existing information collection, assessment and management responses and has provided a recommendation for improvements in the longer term.

Promote recovery to ecologically viable stock levels

Objective 2: *‘Where the fished stock(s) are below a defined reference point, the fishery will be managed to promote recovery to ecologically viable stock levels within nominated timeframes’*

DEH concurs with DPIWE that this objective is not applicable to the fishery at present as the fishery is not considered overfished. If the fishery were considered below ecologically viable stock levels, the LMRM Act provides powers to revoke permits or to take emergency action to rectify threatening situations.

Native oyster stocks in Tasmania were overfished in the late 19th century and species distribution and stocks have not since recovered to original levels. Due to the limited area and harvest of the current fishery, it is unlikely that it will have a significant effect on any further recovery of stocks throughout Tasmanian waters.

DEH considers that the native oyster stock is not below a defined reference point but should that occur in the future, the fishery is conducted such that there is a high degree of probability the stock would recover to ecologically viable stock levels within nominated timeframes.

Ecosystem impacts

Principle 2: *'Fishing operations should be managed to minimise their impact on the structure, productivity, function and biological diversity of the ecosystem'*

Bycatch protection

Objective 1: *'The fishery is conducted in a manner that does not threaten bycatch species'*

Information requirements

Due to the highly selective nature of the fishing activities, bycatch in the fishery is considered to be negligible. While there is no structured bycatch information collection system in place, incidental observations by research staff and fishers indicate that minute quantities of invertebrates such as sponges, weeds and worms attached to the oyster shell are collected.

Assessment

Catch in the TNOF is sorted at sea and any larger bycatch or undersized oysters are returned to the water where possible. A risk assessment of bycatch vulnerability on the TNOF has not been conducted, however it is unlikely that the invertebrates that are incidentally taken would be at risk from fishery activities, due to the minimal amount taken and the extensive area of similar coastal regions throughout Tasmania where bycatch species also occur.

Management response

Permit conditions in the TNOF specify oysters must be collected by hand. Due to the minimal amount of bycatch incidentally taken, monitoring is not considered appropriate. While the risk to bycatch species appears negligible, DEH encourages the ongoing collection of information through observations and anecdotal information in order to inform future management of the fishery and validate previous assumptions.

Conclusion

DEH considers that there is a high likelihood the fishery is conducted in a manner that does not threaten bycatch species. Should this situation change, DEH expects that DPIWE would undertake appropriate actions to ensure that bycatch species are not threatened by this fishery.

Protected species and threatened ecological community protection

Objective 2: *'The fishery is conducted in a manner that avoids mortality of, or injuries to, endangered, threatened or protected species and avoids or minimises impacts on threatened ecological communities'*

DPIWE states that there is no interaction between the fishery and any known endangered, threatened or protected species at this stage. DEH concurs that the harvesting activities in this fishery are unlikely to have a significant impact in any protected species.

There are no threatened ecological communities associated with the TNOF and therefore these provisions in the *Guidelines for the Ecologically Sustainable Management of Fisheries* are not applicable.

Conclusion

DEH notes that there are minimal interactions with protected species in this fishery and considers that the fishery is conducted in a manner that avoids mortality of, or injuries to, endangered, threatened or protected species and avoids or minimises impacts on threatened ecological communities. Should this situation change, or a risk assessment process indicate otherwise, DEH suggests that appropriate actions be undertaken to ensure the fishery avoids mortality, injury to these species and avoids or minimises impacts on threatened ecological communities.

Minimising ecological impacts of fishing operations

Objective 3: *'The fishery is conducted, in a manner that minimises the impact of fishing operations on the ecosystem generally'*

Information requirements

The submission states that the impact on the ecosystem from the TNOF is negligible. Information collection is therefore limited to observations during research surveys and anecdotal information provided by fishers.

Historical information on the distribution of oysters in Georges Bay is available and changes are being monitored over time. In addition, research staff at the Tasmanian Aquaculture and Fisheries Institute have conducted habitat mapping in Georges Bay, providing baseline reference data for this area.

DEH notes the lack of information collection and research covering the fishery's impact on the ecosystem and environment generally. However, DEH understands that this lack of information is the case across a range of Australian and International fisheries and until appropriate research techniques and programs are developed and implemented this will continue to be the case. DEH strongly supports research in this area.

Assessment

As in most hand harvest fisheries, the potential of the TNOF to impact unacceptably and unsustainably on the environment generally is considered to be low. Consequently, DPIWE has not conducted a risk assessment of these issues in this fishery. The fishery is not regarded as posing a significant risk to the physical environment.

No information on the role of native oysters in the ecosystem is available at this time, and therefore the impact of removal is not known.

Management response

DPIWE have implemented a range of management measures that minimise the risk of significant impact of fishing on the ecosystem. Management strategies in place to minimise the risk of localised depletion of native oysters on the main beds in the fishery should minimise the risk of substantially altering the ecosystem in which the fishery operates.

Permit holders are required to purge oysters in a registered and approved depuration site under restrictions imposed by the Director of Environmental and Public Health.

Conclusion

DEH considers that the fishery is conducted in a manner that minimises the impact of fishing operations on the ecosystem generally. DEH encourages DPIWE to monitor any changes in the fishery and consider the potential impact on the ecosystem. In the event of expansion of the fishery, DPIWE should ensure that the risk of significant impact by the fishery on the marine environment is minimised.

LIST OF ACRONYMS

DEH	Department of the Environment and Heritage
DPIWE	Tasmanian Department of Primary Industries, Water and Environment
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
ESD	Ecologically Sustainable Development
LMRM Act	<i>Living Marine Resources Management Act 1995</i>
TNOF	Tasmanian Native Oyster Fishery