



DEPARTMENT *of*
PRIMARY INDUSTRIES,
WATER *and* ENVIRONMENT

Tasmania

Living Marine Resources Management Act 1995

***POLICY DOCUMENT FOR THE TASMANIAN
COMMERCIAL DIVE FISHERY***



December 2005

Table Of Contents

SECTION ONE –THE POLICY DOCUMENT

1. Summary of the Commercial Dive Policy Document	4
2. Management of Tasmania's Marine Resources	6
3.1 Purpose of the Policy Document	8
3.2 Objectives of Resource Management	8
3.3 Statutory Basis for the Policy Document	8
3.4 Scope and Area for the Plan	9
3.5 Implementation of the Plan	9
3.6 Review of the Plan	10
3.7 Changes and Emergency Amendments to the Plan	10
3.8 Revocation of the Plan	11
4. A Description of the Commercial Dive Fishery	11
4.1 Sea Urchins	11
4.2 Other Commercially Targeted Species	12
4.3 Fishing Methods	12
4.4 Diver Sector	12
4.5 Processing Sector	13
4.6 Markets	13
5. Economic Data	13
6. The Need to Develop Sustainable Industries	15
7. Strategies to Manage a Sustainable Tasmanian Commercial Dive Industry	15
7.1 Licences	15
7.1.1 Transferability	15
7.1.2 Owner Operated Licences	15
7.2 Zones and Total Allowable Catch for Sea Urchins	16
7.2.1 Zones	16
7.2.2 Total Allowable Catch (Sea Urchins)	17
7.3 Area Closures for Sea Urchins	18
7.4 Size Limit for Sea Urchins	19
7.5 Closures and Restrictions for Other Species	19
7.6 Periwinkles	19
7.6.1 Size Limit for Periwinkles	20

7.7 Undaria	19
7.8 Other Species	21
7.9 Permits	21
7.10 Performance Indicators	21
7.11 Trigger Points for Management Review	22
7.12 Management Action Upon Reaching Trigger Points	22
7.13 Equipment	23
8. Reporting Requirements	23
8.1 Commercial Diver's Docket	23
8.2 Processor Returns	23
9. Research Priorities	23
10. Industry Support	24
11. Summary of New Management Arrangements	24
12. Alternative Options	25
13. Policy Objectives & Management Strategies for the Commercial Dive Fishery	26
13.1 Summary of Objectives and Solutions	27
14. Management Benefit Cost Analysis	29
15. The Rules	31
15.1 Purpose of the Rules	31
15.2 Statutory Basis for the Rules	31
15.3 Explanation of the Rules	32
16. Compliance	32
APPENDIX 1: Map Indicating Zones.	32
APPENDIX 2: Commercial Diver's Docket	34
Receipt Docket	35
Processors' Reporting Form	36

Part One - The Policy Document

1. Summary of the Commercial Dive Policy Document

The Tasmanian commercial dive fishery began in the 1980's and since those early days of the fishery, there have been large fluctuations in catch and levels of activity in the fishery. The most valuable species harvested by commercial divers in Tasmanian waters is the sea urchin *Heliocidaris erythrogramma*. Sea urchins are harvested for their roe which is a highly valued product in Asia and Europe. Other species harvested by commercial divers include periwinkles, whelks and the introduced Japanese seaweed *Undaria pinnatifida*. There are also a number of species harvested by commercial divers under permit including clams, native flat oysters and wild pacific oysters.

The objective of this management plan and policy document is to introduce a management regime for the commercial dive fishery that will facilitate the sustainable management of fish species currently targeted by commercial divers and to assist the further development of the commercial dive fishery in Tasmania. The document also supports the assessment of the sea urchin fishery under Part 13A (export) of the EPBC Act.

Previously all holders of a fishing licence (commercial dive) have had unlimited access to the main commercial dive species (urchins, periwinkles and whelks). The only regulations in the fishery have been the imposition of a moratorium on the issue of new licences in 1994 and more recently (1999) the refusal to grant a replacement licence after it had been allowed to lapse.

Concerns over latent effort and over exploitation of some stocks have led to proposals to limit access to the fishery. Latent effort can be described as the potential within the industry for inactive licences to be utilised with a subsequent increase on the impact on the resource.

This management plan introduces a number of management strategies to allow the commercial dive fishery to develop to its full potential while adhering to ecologically sustainable principles. These include limiting the size of the fishery, establishing zones for specific species to allow greater management precision, zone closures over critical periods and the introduction of Total Allowable Catch (TAC) principles to overcome concerns relating to latent effort and to ensure sustainable stocks are maintained.

Another important aspect promoted by this policy document is the concept of co-management. This is largely achieved by initialising all licence holders on equal terms at the outset of the new management arrangements. All licenses will be transferable and have access to the same resource base making it in the best interests of all stakeholders to ensure the industry is run in a healthy and sustainable manner.

Resource sustainability will be further enhanced by initiatives in the plan to include restrictions on equipment types, and minimum size limits. While initially the TAC and to some extent size limits of sea urchins and periwinkles will be conservatively based on historical records, provisions have been made within the plan to change these parameters as the data from planned research and new fishery dependent historical records becomes available.

Despite the restructuring of the commercial dive industry, it should be recognised that no person holding a commercial dive licence in 2004/2005 will be asked to surrender his or her licence. There has however been a considerable reduction in the number of licence holders over past years through natural attrition. Since the inception of the fishery, the number of licence holders has dropped from 127 in 1993 to 55 in 2005. This alone has significantly diminished the threat posed by latent effort to a sustainable commercial dive industry. The management strategies introduced in this plan, such as closure by public notice, minimum size limits, performance indicators, trigger points and particularly the introduction of TACs go even further in mitigating the threat from latent effort.

However, it is important to recognise that a degree of industry self-regulation and cooperation must be developed before the commercial dive fishery can achieve the potential returns that have been anticipated since the first days of the fishery in the late 1980's.

2. Management of Tasmania's Marine Resources

The need for Government involvement in marine resource management stems primarily from the common property nature of living marine resources. It is the responsibility of Governments to manage and protect marine resources, and to ensure that use of the resources is in the best interests of the community as a whole.

The role of Governments, as custodians of the resources on behalf of the community, is to ensure that marine resources are used in an efficient and ecologically sustainable manner. This approach ensures that the benefits of the living marine resources are maximised for both the environment and the community.

Experience world-wide has shown that where there is "open access" to marine resources, there is little incentive for individuals harvesting those resources to conserve fish stocks so that competition amongst fishers can lead to irrevocable depletion of the resource.

Left unmanaged, the increase in fishing effort that results from competition is reflected in lower individual catches in the recreational fishing sector, and over-capitalisation and reduced financial returns in the commercial fishing industry.

In carrying out their management of natural resources, Governments have the responsibility of ensuring that the basis for the sharing of the resource among all users is clearly understood and accepted as equitable, and that the allocation of fisheries resources and their level of utilisation are consistent with the needs of present and future generations.

3.1 Purpose of the Policy Document

Sustainable management of marine resources is the responsibility of the Department of Primary Industries, Water and Environment Tasmania under the *Living Marine Resources Management Act 1995*. The objectives of the resource management and planning system of Tasmania as described in *Schedule 7* of the *Living Marine Resources Management Act 1995* are shown below.

3.2 Objectives of Resource Management

- (1) The purpose of the Act is to achieve sustainable development of living marine resources having regard for the need to –
 - (a) increase the community's understanding of the integrity of the ecosystem upon which fisheries depend; and
 - (b) provide and maintain sustainability of living marine resources; and
 - (ba) take account of a corresponding law; and
 - (c) take account of the community's needs in respect of living marine resources; and
 - (d) take account of the community's interests in living marine resources.
- (2) A person must perform any function or exercise any power under this Act in a manner which furthers the objective of resource management.

This policy document provides a statement of the policy, which is used to manage the operations of the commercial dive fishery in accordance with these objectives. The document is important in that it provides direction to the formulation of rules contained in the Commercial Dive Fishery Management Plan.

As far as is possible, the policy document has been written in a way that helps the reader to understand the direction and basis for all fisheries management controls that apply to the commercial dive fishery.

The policy document contains a description of the objectives of fisheries management, along with information about the fishery, and about the management strategies used to develop the statutory rules.

Attached to this policy document are the rules for the commercial dive fishery. These rules give legal effect to the measures described in the policy document.

3.3 Statutory Basis for the Policy Document

The policy document does not form part of the *Fisheries (Commercial Dive) Rules 2005*, and it has no statutory basis.

3.4 Scope and Area of the Plan

The Commercial Dive Fishery Management Plan applies to those species described in the *Fisheries Rules (Commercial Dive) 2005*. The planning area to which the Commercial Dive Fishery Management Plan applies is all those State waters (Fig 1) defined in the Offshore Constitutional Settlement Agreement of 1996, for invertebrates (see Commonwealth Gazette 31/12/1996 No.S531 for full details).

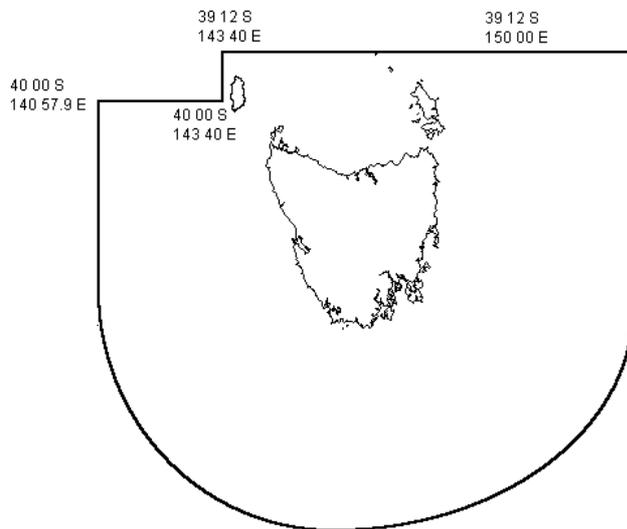


Figure 1 State Waters for the Tasmanian Commercial Dive Fishery under the Offshore Constitutional Settlement of 1996 for Invertebrates.

For the purposes of the commercial dive fishery “**State waters**” means all waters, other than inland waters, to which the legislative powers of Tasmania extend (see Figure 1). This arrangement applies to the area of water bounded by the line:-

- (a) commencing at the point of Latitude 40° South, Longitude 140° 57.9' East;
- (b) running thence south along the meridian of Longitude 140° 57.9' East to its intersection with the outer limit of the Australian fishing zone;
- (c) thence generally southerly, easterly and northerly along that outer limit to its intersection with the parallel of Latitude 39° 12' South;
- (d) thence west along that parallel to its intersection with the meridian of Longitude 143° 40' East;
- (e) thence south along that meridian to its intersection with the parallel of Latitude 40° South; and
- (f) thence west along that parallel to the point of commencement.

3.5 Implementation of the Plan

The process of preparing and implementing the Commercial Dive Fishery Management Plan begins with the Minister for Primary Industry, Water and Environment declaring his intent to produce a management plan for this particular fishery. The process then takes the following steps:

The Departmental Secretary, having consulted with those interested in the commercial dive fishery, directs that a draft plan be produced by officials of the Department.

Once the draft Commercial Dive Fishery Management Plan is complete, the public is notified of this and the plan is made available for public comment for a minimum period of 60 days. During this time, those interested may make representations to the Secretary on any matter contained in the plan. The Secretary considers representations made and may then amend the draft plan.

The draft Commercial Dive Fishery Management Plan is then forwarded to the Minister together with a summary report on the public representations received on the plan. This summary report is available to the public. If satisfied that the draft plan meets the objectives of the Act, and that the Secretary has taken appropriate action in relation to representations, the Minister may then approve the plan.

The fact that the plan has received Ministerial approval is then publicised, along with the date that the commercial dive fishery rules come into effect and their duration.

The commercial dive fishery rules are in force on the date specified in the rules. The rules continue in force for the period specified unless amended under Part 3 of the *Living Marine Resources Management Act 1995* prior to that date.

In addition to the rules described in the management plan for the commercial dive fishery, there are additional general regulations relating to overall management of fisheries. These general regulations are not contained in the Commercial Dive Fishery Management Plan, but they still apply to all fishers operating in State waters. Where there is any conflict between rules contained in the Commercial Dive Fishery Management Plan and the general regulations, the rules prevail.

3.6 Review of the Plan

The Minister may, during the period that the Commercial Dive Fishery Management Plan is in force, ask the Secretary to review the management plan. Before initiating a review, the Minister must be satisfied that a review is necessary as a result of new information relating to the management plan becoming available, or that circumstances have changed to such an extent that the effect or efficiency of the plan has been significantly reduced.

The legislative process to be followed during the review of the Commercial Dive Fishery Management Plan is set out in Part 3 of the *Living Marine Resources Management Act 1995*.

3.7 Changes and Emergency Amendments to the Plan

Emergency changes may be made to the Commercial Dive Fishery Management Plan when the Minister considers that an emergency has arisen, or is likely to arise, making it necessary or advisable to make changes to the provisions of the plan.

The legislative process to be followed during the review of the Commercial Dive Fishery Management Plan is set out in Part 3 of the *Living Marine Resources Management Act 1995*.

3.8 Revocation of the Plan

The Minister may, by order, revoke a management plan if the Minister, after receiving advice from the Secretary, considers that it is necessary or desirable to do so because ecological, economic or other factors have emerged that make it impossible, difficult or unsafe for any reason, for fishing to be conducted in accordance with the Commercial Dive Fishery Management Plan.

The legislative process to be followed during the revocation of management plans is set out in Part 3 of the *Living Marine Resources Management Act 1995*.

4. A Description of the Commercial Dive Fishery

4.1 Sea Urchins

Sea urchins are the principal target species in the Tasmanian commercial dive fishery. For centuries sea urchins have been harvested for their roe in several South American, European and Asian countries. However, it is only in recent years that they have been commercially harvested in Australia. Sea urchins are widespread throughout Tasmania, generally occurring in sheltered to moderately exposed waters off the south-east, east and northern coasts.

Sea urchins are harvested for their gonads and are normally only taken from areas where the roe is produced in sufficient volumes and of a high quality. The amount of roe per individual urchin can vary both temporally and spatially and generally divers will not continue fishing when recovery percentages fall below 2% - 3% of whole weight.

Studies of Tasmania's commercial species of sea urchin (*Heliocidaris erythrogramma*) were first carried out in the 1970s and showed potential for a specialised small fishery. Since that time, the fishery has experienced substantial growth. A period of rapid development was experienced during the 1980s, reaching a peak in 1988 with reported landings of 358,633 kg live weight of sea urchin. Records since that time show an initial trend of decline in catch which has plateaued in recent years to catch figures in the vicinity of 100 tonnes annually.

Divers have provided detailed catch records since 1987 as a means of monitoring fishing catch and effort. While these records provide a good guide to the level of activity in the fishery and the number of urchin caught, they are far from a perfect data set. For example, records for between 10% and 15% of the reported catch lack detail on roe weight and thus recovery rates for this portion of the catch can only be estimated by extrapolation from existing data.

Another species of sea urchin, *Centrostephanus rogersii*, has been observed in increasing numbers on the East Coast and Bass Strait over the last few years. If markets can be established for *Centrostephanus* roe then it has the potential to substantially increase the volume of sea urchin roe exported from Tasmania. Holders of a commercial dive fishing licence have the authority to take *Centrostephanus* for which no TAC has been applied.

4.2 Other commercial dive targeted species

A number of other species are also harvested by commercial divers but catches of these species remain at relatively low volumes while market development takes place and resource availability is being assessed. These species include periwinkles, whelks and other mainly shallow water invertebrate species. Markets for these alternative resources lie mainly in SE Asia and Asian restaurants in Melbourne and Sydney. An additional source of income for some divers is harvesting *Undaria pinnatifida* (Wakame), a developing industry based on an exotic (introduced) edible seaweed.

There are also a number of shellfish species harvested by commercial divers under permit; these include wild pacific oysters, native oysters and clams or cockles. In recent years the harvesting of these “permit species” has provided a supplementary, in some cases principle, source of income for commercial divers particularly during periods of poor sea urchin roe quality and low recovery rates.

4.2 Fishing Methods

Sea urchins and most other target species are harvested by divers using surface supply compressed air hookah gear operated mainly out of small boats (<10m in length). Sea urchins are generally collected by tongs or a single pronged hook, placed in a catch bag and then emptied into bins on board the fishing vessel for transport to the processing factory.

The lack of any management controls for methods of harvesting, numbers taken, or size limits to date, has led to the development of poor and wasteful practices in some sectors of the sea urchin industry. It is highly likely these practices are contributing to the reported declining stocks from traditionally high yielding fishing grounds on the east coast. It is also likely that the use of rakes may be impacting on the sea urchin habitat.

4.3 Diver Sector

Harvesting of wild fish for commercial purposes by diving may only be done by the holder of a Fishing Licence (Commercial Dive), (FLCD). Prior to the imposition of a moratorium on the issue of new commercial diving licences in January 1994, Tasmania's commercial dive fishery was effectively an open access fishery with limited restrictions on fishing effort. In June 1995 the Minister for Primary Industry and Fisheries reviewed the policy regarding the renewal of commercial dive licences. It was then introduced that only those fishers who held a licence during 1994 could renew their licence for 1995. Prior to this amendment any one who had held a commercial dive licence could renew it even if they had allowed the licence to lapse in earlier years. This policy was further refined in 1999 so only those fishers who held a licence in the previous licensing period were eligible to renew their licences for the next licensing period.

When the moratorium was imposed, 127 people were registered as holding a Fishing Licence (Commercial Dive). Of those 127 licensed divers, less than 30 were making regular catches. While licence numbers have declined since then, it is clear there was and still is a great deal of latent effort in the fishery.

This is largely due to the fact that profitability of diving for sea urchins is marginal at present. While the costs of catching, processing, packing and exporting by air are all

relatively fixed, profit margins (which are often low) are heavily dependent on the market price in Japan. Few Tasmanian based sea urchin divers derive their income solely from sea urchin catches. The majority of divers have additional employment in other areas of the fishing industry or elsewhere. The sea urchin fishery may therefore be viewed as providing only a supplemental income for many of the currently licensed divers. As of April 2005, there were 55 FLCD's issued. An examination of divers' monthly returns for the past five years showed that of these, only about 50% recorded catch of any type in a given year. This clearly indicates that latent effort within the industry is still a significant problem that needs to be addressed to help ensure a sustainable fishery.

4.4 Processing Sector

Thirty-five operators are currently licensed to process sea urchins and periwinkles along with some other commercial dive species. However, over the past decade only two establishments have processed the vast majority of sea urchins which is the most valuable sector of the commercial dive industry.

Sea urchins are processed all year round but fishing activity is greatest in December just prior to their spawning when roe quantity and quality is at its peak. Processing then drops off around the end of January following urchin spawning and processors often stop buying in February when recovery is under way and quality of roe is at its lowest.

Sea urchins are delivered to factories in crates where samples are cracked open to assess whether the roe recovery rate is high enough to justify the cost of processing. Crates with low yielding sea urchins are generally discarded. Processing is generally done by hand where it is graded and packed in wooden display racks ready for export.

4.5 Markets

Sea urchin roe is considered a delicacy in many Asian and some European countries. At present, most roe is chilled and exported fresh to Japan. There is also a small domestic market for sales to Japanese restaurants in Sydney, Melbourne and Brisbane. In addition to the fresh chilled roe market, some research has been conducted into the use of lower grade roe for paté and other processed specialty foods.

Various other species of gastropods taken by commercial divers are usually sold live in-shell, although periwinkles have been cooked and packed with sauces for direct sale to the restaurant trade in the past. There has also been some commercial investigation into the drying and exporting of sea cucumbers. However, there is a great deal of uncertainty over the sustainability of sea cucumber stocks. A lack of research data and concern over the sustainability of sea cucumbers has resulted in the proposal to remove these species from the commercial dive fishery and over the past few years there has been minimal involvement by Tasmanian commercial divers in the sea cucumber industry.

5. Economic Data

By far, the most valuable species harvested under the commercial dive licence is the sea urchin with periwinkles running a distant second. The market price for fresh, chilled sea urchin roe varies considerably depending on colour and texture. The Japanese market is the

principal destination for exports where prices for roe vary between \$40 and \$500 per kilogram, depending on quality and supply from other sea urchin fisheries.

In 2000, processors paid divers an average of \$42.45 per kilogram for sea urchin roe. At this average price, the industry is estimated to have been worth in the vicinity of \$369,824 to divers in 2000. Since that time, market forces have seen a substantial decline in urchins harvested from Tasmanian waters with the Chilean urchin industry supplying much of the world's demand. Although the local urchin harvest was only around 63 tonnes in 2004, there may soon be an increase in demand as other world suppliers fail to maintain production.

It is important to recognise that compared to sea urchin live weight, the recovery rate of adequate quality roe is low. In 1993 the average recovery rate was reported as only 3.02% of the total live weight of the urchins. This is only marginally over the recovery rate of 2.5% to 3.0% divers claim is required for them to break even. Over recent years there has been a significant increase in the percentage of roe recovered peaking at around 7.7% in 2002 however, 2004 returned only an average of 3.6%. There is clearly a need for further research into what influences the roe quality and quantity. Investigating the changes in roe recovery as the result of management practices, such as rotational harvesting, or reviewing the relationship between water temperature and feed availability with roe development may prove to be very beneficial.

Most costs associated with sea urchin diving are fixed costs, so any increase in roe recovery per kilogram of live weight may result in substantial increases in profits to both the divers and processors. At present, sea urchins are only processed when it is determined that the roe is of sufficient quality to be air freighted to the high value export markets. Markets for the lower quality product are currently being explored with little success to date but new avenues need to be developed to allow the industry to move to its full potential.

The table below demonstrates the recent trends in sea urchin supply and value.

Table 1: Reported landings for Tasmanian Sea Urchins 2000-2004

YEAR	Landed Weight (Kg)	Estimated Roe Weight (Kg)	Average Recovery %	Average Price/kg \$	Estimated Value \$
2000	143,061.90	8,712	6.09	42.45	369,824
2001	101,985.41	5,579	5.47	41.21	229,911
2002	110,476.70	8,508	7.70	29.13	247,838
2003	95,363.30	5,130	5.38	34.35	176,215
2004	63,425.90	2,283	3.60	29.16	66,582

Periwinkles are currently the second most valuable commodity in the commercial dive industry. The figures in Table 2 provide an indication of the value of the industry over the past five years. Even though the quality of the product is much more consistent than for the sea urchin, prices attained are still affected significantly by market forces and other suppliers.

Table 2: Value of the periwinkle industry over recent years.

Year	Landed Weight (t)	Average Price \$/kg	Value \$
2000	30.1	2.01	60,501
2001	25.1	2.23	56,029
2002	19.8	1.42	28,092
2003	24.9	1.90	47,306
2004	17.6	2.92	51,540

6. The need to develop sustainable industry

The need to develop and maintain sustainable commercial dive fisheries is to the benefit of the environment, licence holders, processors and the Tasmanian community. The fact that the species targeted by the fishery, are in the main, reliant on export markets, underlines another important reason for the development of sustainable industries. Permits are required to export any Australian wildlife under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). All industries involved in the export of native Australian fish species must be assessed by the Commonwealth Department of Environment and Heritage (DEH), for ecological sustainability.

7. Strategies to Manage a Sustainable Tasmanian Commercial Dive Industry

7.1 Licences

The size of the fishery is capped. No new licences will be issued for the Commercial Dive Fishery. A licence will only be issued to an operator who holds a commercial dive licence when this plan takes effect or by purchase of a licence from an existing licence holder after this plan takes effect. All owners of a commercial dive fishing licence have equal access to sea urchins, periwinkles and whelks subject to the conditions imposed by the Minister. To gain access to other species harvested under a commercial dive licence, a fisher must either be working under a permit approved by the Department of Primary Industries, Water and Environment, have been granted a supplementary licence for the specific species or have had their commercial dive licence endorsed with specific conditions which allow the taking of another species in a sustainable manner, as determined by the Department.

7.1.1 Transferability

All licences are transferable and of equal standing entitling all licence holders equal access to sea urchin, periwinkles and whelks in Tasmanian state waters. The single licence type will provide an even playing field from the outset of the newly developed management strategies, affording everyone equal opportunity. The concept of a single tiered and transferable licence type also presents all licence holders with equal ownership over the industry, providing further incentive for stakeholders to safeguard and value a sustainable industry which would be reflected in future licence prices.

7.1.2 Owner / operated and supervised licences

Under this plan, the holder of the commercial dive licence is to be the sole operator except under exceptional circumstances. It is hoped that one class of diver with security of ownership will encourage all divers to take a greater degree of care toward the environment with a view to future stock preservation and provide all licence holders with the same opportunities in the co-management of the industry. This plan therefore discourages the

concept of leasing licences to other divers. The owner/operator concept also makes the ownership of more than one commercial dive licence by any one person superfluous restricting over capitalisation by companies or individuals. Divers operating under special circumstances such as supervised divers will be given a period of grace to organise the purchase of a licence. This period will extend until the end of the current licensing period 31-August 2001, after which time Rule 11 of the *Fisheries (Commercial Dive) Rules 2005* will come into effect.

There will however be provision made for licence holders to temporarily nominate another person to supervise under some exceptional circumstances. In the event that a licence holder is unable to dive due to temporary injury or illness, the diver may put forward a request in writing to the Minister asking for approval to allow a second party to assume the rights granted under their licence for up to three months. Only one such award can be made under each licence at any one time and while these arrangements are in place, the original licence holder forfeits all rights to take fish for commercial purposes by, diving or swimming underwater.

7.2 Zones and Total Allowable Catch for Sea Urchins (*Heliocidaris erythrogramma*) and Periwinkles

7.2.1 Zones

Management for the sea urchin (*Heliocidaris erythro*) and the periwinkles component of the commercial dive industry will be largely based on the establishment of three separate zones and a specific Total Allowable Catch (TAC) for each species in each of the three zones. The three zones are classified as:

“Central Eastern Zone” that area of State waters on the East Coast of Tasmania bounded on the north by the line of Latitude 42⁰ 00’00” S and on the south by the line of Longitude 148⁰ 00’00”E; (From in the vicinity of Friendly Point, to the southern tip of Tasman Island. This includes all waters on the east coast of the Tasman and Forrester Peninsulas and Blackman Bay).

“South Eastern Zone” that area of State waters on the East Coast of Tasmania bounded on the north by the line of Longitude 148⁰ 00’00”E and on the south by the line of Longitude 146⁰ 89’00”E (From the southern tip of Tasman Island to Whale Head. This includes Maingon and Norfolk Bays).

“Undeveloped Zone” that area of State waters bounded by the line of Longitude 146⁰ 89’00”E in the south and extending in a clockwise direction to the line of Latitude 42⁰ 00’00” S (from Whale Head, up the west and along the north coasts and down to the northern border of Central Eastern Zone around Friendly Point).

All the above coordinates are specified in AGD66.

See map at Appendix 1.

The zones have been developed to allow greater precision in the management of the stock and to encourage further exploration of largely undeveloped areas, which will not only help

the industry to develop to its full potential but also disperse fishing pressure over a greater area. Two of the zones (Central Eastern and South Eastern Zones) are centred on areas already producing good returns for commercial divers, while the third, which is largely unexplored, covers approximately 75% of state waters.

*7.2.2 Total allowable Catch (sea urchins - *Heliocidaris erythrogramma*)*

At present, there is a degree of uncertainty in the actual potential of the Tasmanian sea urchin industry, with much of the State's waters still to be investigated. Catch in recent years has been reasonably stable but the introduction of Total Allowable Catch (TAC) will help minimise the threat from latent effort which will help the industry remain sustainable.

For the initial phase of the management plan, the precautionary principle dictates that the total catch allowed must be conservative, but it should still allow for a viable and efficient industry. The effectiveness of the TAC as a management strategy can further be increased by applying specific and separate annual catch limits to each of the three zones based on past catch history. This will help negate the threat from serial depletion where large areas can be targeted to unsustainable levels by fishers before they move into more fertile grounds. This plan will therefore introduce a system of three annual zonal TACs for sea urchins (*Heliocidaris erythrogramma*).

The two developed zones will have TACs based on 75% of the average annual catch taken in each of the zones over the four years from 2000-2003. These years are considered to be the most appropriate as prior to 2000 the catch history loses relevance to the current resource situation and in 2004, the catch was drastically influenced by external market forces. The demand for Tasmanian urchins was directly affected by the supply of Chilean urchins to some of the more traditional Tasmanian markets. This resulted in only 63 tonnes of urchins being required by local processors for that year. It should be noted that the Catch Per Unit Effort (CPUE) actually increased in 2004 even though total tonnage was reduced. At no time has the catch effort indicated any threat to existing stock levels so that safety precautions established as trigger points, as outlined in Section 7.11, have not been approached to date.

The undeveloped zone, which encompasses around three quarters of state waters, will be allocated a similar catch weight to the developed zones to encourage further exploration and to disperse fishing effort. This will allow the industry to function at a precautionary level which will promote a sustainable industry, while still providing incentives to allow it to develop to its full potential.

Over the course of this plan, it is intended that the TAC will be further refined by research into growth rates, size at first maturity, roe condition and a more detailed stock assessment. However, for the interim, the TACs will be based on 75% of the catch from 2000 to 2003.

Notification of TAC

The three TACs for urchins (*Heliocidaris erythrogramma*), will be placed in the Public Notices at the beginning of each licencing year (1 September – 31 August). Licence holders will also be notified by Public Notice when or if the catch limit is reached for a particular zone. No further fishing for sea urchins (*Heliocidaris erythrogramma*) will then be permitted in that zone for the remainder of the licence year. It is anticipated that this plan will take effect in December 2005 which is towards the beginning of the licence year allowing the full TAC as outlined in Table 3 to apply for the inaugural year.

Additional TAC Benefits

The setting of a TAC will provide another benefit for the environment. The TAC limits the liveweight of urchins that can be taken during the year. This weight is determined when divers transfer bins to processors where they are weighed and the contents deducted from the TAC to give a running record of urchin weight that may still be caught for the year. The weighing occurs prior to sorting or identification of roe grade so any rubble or poor quality urchin which are of no value to the divers or processors are included as part of the TAC total. Divers are therefore far more likely to take greater care with what is loaded into the bins minimising indiscriminate damage to the environment. Divers are also far more likely to leave what they consider to be younger or poor quality fish undisturbed giving them the opportunity to gain condition and possibly to spawn adding further benefits to the fishery.

Although poor quality roe is usually discarded, the live weight will still be detracted from the TAC which will be a waste of both natural and industry resources. This is likely to sway processors to look more favourably on purchasing product from divers who are more discerning with their catch.

The TACs proposed for the current year are shown in Table 3.

Table 3: Proposed 2005/2006 TAC for sea urchins (*Heliocidaris erythrogramma*) based on 75% of average catch over 4 years.

Year	Cent Eastern Zone Live weight (t)	South Eastern Zone Live weight (t)	Undeveloped Zone Live weight (t)	Total Live weight (t)	Catch Per unit effort kg/hr
2000	70.94	69.62	NA	143.06	84.667
2001	34.13	67.11	NA	101.99	67.353
2002	62.13	47.69	NA	110.48	67.765
2003	43.99	50.24	NA	95.4	85.199
Total	211.19	234.66	NA	450.93	
Average	52.80	58.66	NA	112.73	
TAC (75% x avg.)	39.0	44.0	83.0	166	

7.3 Area Closures

Another management strategy to be introduced for sea urchins is the closure of the two developed sea urchin zones (Central Eastern Zone and South Eastern Zone) for a three or four month period following spawning. This would provide a number of advantages for the industry and the environment.

Firstly, the condition and grade of the roe following spawning is of poor quality and of little value. Leaving the urchins unharvested provides the stock with the opportunity to regain condition promising far better return when harvesting recommences after zones re-open.

Secondly, the closure of the developed zones will encourage the exploration of the undeveloped zone. This would again help to disperse the fishing pressure. The undeveloped zone, which has a separate TAC, will remain open throughout the year or until the TAC is reached and should be able to satisfy processor requirements over the closure period. The

incentive to explore the untapped resource comprising some 75% of Tasmanian State waters will enable the urchin industry to develop in a controlled and sustainable manner.

It is anticipated that the closure of the two developed zones will generally occur from around the end of January through to the end of May. However, there may be differences in spawning times from year to year and even from one developed zone to the next as conditions vary. The Minister will therefore consult with industry and announce by Public Notice the closing and opening time of the two developed zones each year.

7.4 Size limit for sea urchins (*Heliocidaris erythrogramma*)

No sea urchins of the Genus *Heliocidaris* with a maximum test diameter (inside spines) of less than 60mm may be removed from any State waters for commercial purposes. The Minister does however have the right under Rule 14 of the *Fisheries (Commercial Dive) Rules*, to adjust the size limitations placed on sea urchins by public notice following consultation with the industry.

7.5 Closures and restrictions for other species

Under this management plan, the Minister also has the power to close specific areas within zones for specific species. This may occur after discussions with industry or following the activation of a trigger point as discussed below. Under these circumstances the Minister will advise the industry through Public Notice of the designated area closed to fishing and which species are affected.

Once the area can again support sustainable fishing, the Minister will advise the industry via Public Notice of the re-opening but may include restrictions including but not limited to: size limits, species that may be caught, the application of a specific TAC for the designated area and the duration of the season. Additional monitoring and research programs may also be initiated to gauge progress of areas.

7.6 Periwinkles

Periwinkles will be managed in a similar manner to the sea urchins by adopting the same zones, the Central Eastern, South Eastern and Undeveloped Zones. However, the smaller nature of the periwinkle fishery makes it more appropriate to allocate a single TAC across the two developed zones (The Central and South Eastern Zones) with a separate TAC for the undeveloped zone introduced to encourage further exploration and development in the industry. In addition, the three zone strategy applied to periwinkles will maintain consistency within the commercial dive industry and provide for more precise management as the fishery moves toward its full potential.

As for the urchins, the periwinkle TAC in the undeveloped zone will be equivalent to that in the developed areas even though it encompasses some 75% of Tasmanian state waters. This means three quarters of the state waters will have a conservative TAC set at 17.6 tons to ensure the industry is run sustainably while more key data is gathered.

The annual TACs for periwinkles will contribute significantly to ensuring the industry is run in an ecologically sustainable manner with the TAC for the combined developed areas

being calculated in a similar manner to the sea urchins so initially, it will be conservatively set at 75% of the average catch over the past five years.

The annual periwinkle TACs will be advised through Public Notice and once a limit is reached within a zone, divers will be advised through Public Notice that the zone is closed, after which time the taking of periwinkles from that area will be illegal under a commercial dive licence for the remainder of the year. The annual zone closures for the urchins (February), will not apply to the periwinkles.

Table 4 : TAC for periwinkles based on 75% of average catch over past 5 years.

Year	Perwinkles Developed Zones <i>Live weight (t)</i>	Periwinkles Undeveloped Zone	Total Live weight (t)	Catch Per Unit Effort <i>kg/hr</i>
2000	30.1	NA	30.1	65.864
2001	25.1	NA	25.1	73.572
2002	19.8	NA	19.8	70.856
2003	24.9	NA	24.9	73.709
2004	17.6	NA	17.6	75.299
Total	117.5	NA	117.5	
Average	23.50	NA	23.50	
TAC (75% x avg.)	17.6 t	17.6t	35.2t	

7.6.1 Size Limit for Periwinkles

No molluscs of the Genus *Turbo* with a maximum shell width of less than 30mm may be removed from any State waters for commercial purposes. The Minister may adjust the size limitations placed on periwinkles through the means of a Public Notice at any time. This would only be done following consultation with industry as described under Section 27 of the *Living Marine Resources Management Act 1995*.

7.7 *Undaria (Undaria pinnatifida)*

Undaria pinnatifida also known as Wakame is a brown macroalgae used as a food source, particularly in Asian soups and more recently as a vitamin supplement. It was originally endemic to Japan and is believed to have been inadvertently introduced into Tasmanian waters via ballast water. *Undaria* is an annual seaweed which can grow very quickly at up to 1cm per day, matures after 40-60 days and can produce millions of spores which may pose a serious threat to endemic weed species. *Undaria* is prescribed as a noxious fish under S.27 of the *Living Marine Resources Management Act 1995*, so while it can provide some supplemental income for divers, its management must be carefully administered.

To prevent its spread, the weed may only be gathered in the area where it is already fully established and as a licence condition, divers must ensure all their diving equipment has been thoroughly decontaminated before diving outside this area.

The holder of a fishing licence (commercial dive) must be acting under the authority of the holder of a fishing licence (*undaria*) to harvest *undaria pinnatifida*. Only when acting under the authority of both these licence types may a person harvest *undaria* by diving.

7.8 Other species

While sea urchins, periwinkles and whelks are accessible to all holders of a commercial dive licence, there are other species that may be of value to the industry in the long term if managed correctly. Other potential commercial dive species such as off-shore clams and native oysters are yet to be substantially targeted, but a close check needs to be kept on these species so that timely management measures may be implemented to ensure that any harvest is sustainable.

7.9 Permits

Should new species be identified as being potentially viable for commercial divers, Section 12 of the *Living Marine Resources Management Act 1995* allows for permits to be issued for the development of the fishery. Permits provide a mechanism to allow initial access to the resource in a highly controlled manner. Conditions can be stipulated which will ensure safe and sustainable progression for the industry. Specific restrictions may be imposed through the permit, including limiting the number of permits, areas designated for take, size limits, seasonal access, size and quota limits. Strict monitoring and reporting requirements associated with the permits ensure the species and habitat is protected throughout the process. Any negative effects can be quickly negated with immediate alterations to the permit conditions.

Such a permit system requires a rigorous and explicit research data collection program to be undertaken by the diver which must then be made available to the Department to help guide informed decisions on the future direction of the proposed fishery.

If a commercial diver operating under permit has demonstrated that the fishery can be run in a sustainable manner, the data gathered over the course of the trial program can be put to practical use by contributing towards sound decisions for management controls which may include appropriate TACs, size limits, area and seasonal restrictions. Once satisfied that the species can be harvested in an ecologically sustainable manner, the Department may allow a number of commercial dive licence holders access to the fishery by means of a supplementary licence or other such process to be determined.. These supplementary licences may include conditions under which the species may be taken and management strategies for the species may be incorporated into subsequent reviews of the management plan.

It should be noted that permits may be issued to other persons if, following consultation with industry and the representative fishing body, the commercial dive industry demonstrates clearly that it has not or will not pursue a particular development opportunity.

7.10 Performance Indicators – Monitoring and Safeguards

The management plan also introduces a number of other safeguards to ensure the industry is conducted in an ecologically sustainable manner. The performance of the Commercial Dive Fishery Management Plan in meeting the objectives of maintaining biomass and recruitment will be measured and reviewed through a combination of performance indicators relating to the sustainability of the major species in the fishery.

This plan aims to maintain the major species in the commercial dive fishery in Tasmanian waters such that the following performance indicators remain at or above average levels as assessed for the period 2000-2004 inclusive. For those species or areas where time series data do not exist, they will be developed over the life of the plan. The performance indicators are:

1. Catch per unit effort (CPUE); and
2. Relative abundance of cohorts in samples of commercial catches.

7.11 Trigger Points for Management Review

Trigger points are levels, or rates of change in performance indicators that are considered to be indicative of changes outside the normal variation of the stocks and the fishery. When one or more of the following trigger points have been met, the Minister will review the management of the commercial dive fishery. These trigger points may be reached by themselves or in combination. There may also be additional factors, such as those relating to the environment or market, or requests from sectors of the fishery that could lead to a review of the management of the commercial dive fishery.

1. Changes in the catch rates for sea urchin or other commercial dive species (CPUE), where there is a decline of;
 - (a) 20% in each of two consecutive years; or
 - (b) 35% in a year.

(Note: The measure of variation in CPUE from past data has been used in the determination of the CPUE trigger);

2. Where quantifiable, an undesirable change in size or age composition of the catch.

Similar criteria will be used to determine whether a change in size limits and catch limits for other commercial dive species is required. It must be recognised however, that in the case of newly developing fisheries there may be substantial changes in catch and catch rate which may not necessarily warrant a change to management arrangements. These cases will be carefully monitored under the permit requirements. It should be noted that CPUE trigger levels may be adjusted to adapt to changes in the fishery following consultation between the Minister and industry.

7.12 Management Action Upon Reaching Trigger Points

When one or more of the fishery performance indicators has been reached or exceeded their respective trigger point, the Secretary will consult with industry as required and initiate actions to best address the issue.

Some of the management options that are available and may be applied either on a State-wide or regional basis are listed below:

1. Introduce or change size limits;
2. Introduce or change seasonal closures; or
3. Introduce area closures; or
4. Introduce period catch limits (eg. daily or weekly bag limits).
5. Introduce total allowable catches (TACs) for any species, on either State-wide or regional, competitive or allocated basis;

Under the *Living Marine Resources Management Act 1995*, the Department may also review the management plan, undertake emergency changes to the management plan, or revoke the management plan and introduce an interim plan.

7.13 Equipment

A person who holds a fishing licence (commercial dive) must only use tongs, a single pronged hook, or a gloved hand to harvest sea urchins.

8. Reporting Requirements

8.1 Commercial Diver's Docket

The holder of a commercial dive licence must fill in Section A of the Commercial Diver's Docket on the day of the fishing trip and prior to the catch being passed on to the processor. Each entry will comprise of three sheets. The white sheet remains with the diver, the yellow sheet is to be given to the processor and the pink sheet must be sent to the Department of Primary Industries, Water and Environment within 48 hours of completion. These records of fishing operations must be completed subject to the provisions of Part 6 (Division 2) of the *Living Marine Resources Management Act 1995*.

If direct sales occur, the diver must complete both Part A and the appropriate section of Part B of the Commercial Diver's Docket and forward both the pink and yellow sheets to the Department within 48 hours. In the case of direct sales, a receipt must also be issued to the purchaser from the supplied receipt book (see Appendix 2) and a copy of that receipt is to be held by the diver for at least 5 years in accordance with rules 17 and 18 of the *Fisheries Rules 1999*.

8.2 Processor Returns

Processors will be required to provide the Department with information relating to landed weight, and in the case of sea urchins, the roe grade and recovery, in the form of a Processor's Return (Appendix 2) at the end of each month.

The processor must also complete the appropriate section of Part B of the Commercial Diver's Docket immediately after taking possession of fish from the holder of a fishing licence (commercial dive). The processor or processor's representative is then to be given the yellow sheet of the docket which must be retained by the processor for a minimum of five years.

These records must be completed subject to the provisions of Section 145 of the *Living Marine Resources Management Act 1995*.

9. Research Priorities

Research plays a major role in developing fisheries to their full potential and as major beneficiaries of an industry's development it is important that licence holders make some contribution towards studies which will advance their interests. As part of the principle of cost recovery and in line with the concept of co-management, a research levy will be included as part of the annual licence fees. The levy, which will be in the vicinity of \$100

will be set aside in a specific trust fund for use in research projects to improve the commercial dive fishery. The establishment of a trust fund will ensure the funds are invested in areas that licence holders consider to be high priority. These funds also have the opportunity to be heavily subsidised by other research interests which may include universities, Government initiatives or the Fisheries Research Development Corporation (FRDC).

The main focus for research in the commercial dive fishery at present is the study into refining sustainable TACs for sea urchins and periwinkles. This will encompass mapping of available stocks, biological triggers, growth rates and age of maturity studies.

Another important consideration that needs to be investigated is the sampling processes for sea urchin roe. Processors generally classify roe as A or B grade. B grade roe gains very little return for the fishers and is generally considered to be a waste of the resource and fishers' investment in time and money. Unfortunately, at present it is not possible for divers to know the quantity or quality of roe in an urchin without killing the fish. The problem is accentuated by the high level of variability in roe over short intervals both temporarily and spatially. This has led to sampling techniques being largely ineffective resulting in considerable waste of the resource.

The fishery would benefit significantly by a sampling or harvesting technique being devised that would allow fishers to collect only specimens that would provide a worthwhile return. Those with sub standard roe could be left unharvested until their condition improves or may even be relocated to areas that would encourage better results.

A recent survey sent out to current commercial dive licence holders also showed some other strong trends in their research priorities. Over half the respondents commented on the need to find new markets. While it is not the role of Department of Primary Industries, Water and Environment to identify and develop new markets, the response identifies a need for research that could vastly improve the value of the commercial dive industry.

10. Industry Support

The responses to an issues paper recently distributed to the current commercial dive licence holders clearly indicated stakeholders' commitment to managing the industry in a sustainable manner. The main strategies proposed in this plan were strongly supported by respondents with overwhelming support for the introduction of a TAC. Seventy eight percent of respondents favoured the single licence type while 90% were in favour of seasonal closures. The attitude of the licence holders demonstrated a long term commitment that will allow an excellent co-management relationship to maintain the industry.

11. Summary of New Management Arrangements

The commercial dive fishery around Tasmania has had a relatively short history. Initial expectations for substantial economic returns have not eventuated and the fishery has yet to realise its full potential. Principal among the requirements for realising the potential of the fishery are:-

- (a) minimise the threat from latent effort in the fishery;
- (b) provision to protect stocks to support an ecologically sustainable industry;
- (c) mechanisms to allow seasonal harvesting of high quality sea urchin beds and

(d) the development of roe enhancement techniques for sea urchins.

As previously mentioned, in 1994 access was limited to 127 divers and the policy of only renewing licences active in the previous year reduced licence numbers in the fishery by 57%, bringing the current level of licences to 55. Despite this limited access, it remains clear that the number of divers who regularly land sea urchins is still less than the number of licensed divers. However, with the introduction of a TAC the threat posed by latent effort is greatly reduced as accessible stock is limited regardless of the number of fishers. It is hoped a TAC will also ensure divers are more selective in the material they present to processors for weigh in, further protecting the environment, minimising by-catch, and safeguarding less productive smaller stock.

The TAC also places a cap on the stock available for harvest and ensures enough wild stock remain to support a viable population. This is backed up by the trigger point system that will allow immediate management response to any concerns in population structures revealed through catch trends and monitoring.

In addition, the single licence type was proposed to promote an even playing field and a sense of equal ownership within the industry. All fishers therefore will treat their licence as a true asset which will greatly benefit the industry with all operators conducting business in a more sustainable manner.

The introduction of area closures for sea urchins will also make the best use of the resources. Urchins in developed areas which are harbouring poor quality roe following a recent spawning, will be protected until the quality and quantity improves. This strategy also encourages fishers to explore new regions in the undeveloped area dispersing fishing effort.

Further benefits for the industry and general community are also gained through the reporting requirements. In addition to the return divers must submit to the Department declaring their catch, processors will also be required to complete a processors return (Appendix 2). This return provides a summary of information on whole weights, roe weights and roe grade as well as an average price paid for the roe. This information will be processed by the statistics unit and may be used to cross reference information which will be highly beneficial in providing reliable information for the assessment of stocks and catch trends.

Combined with this, the introduction of minimum legal size limits and gear restrictions the plan provides for an industry that can be run in an ecologically sustainable manner that should allow the fishery to develop to its full potential.

12. Alternative Options.

An evaluation of the proposed management plan for the commercial dive fishery should include a discussion of the implications associated with a number of management options.

a) *Status Quo - Do nothing.*

Since the imposition of a moratorium on the issue of new licences, the commercial dive fishery has had no additional management measures other than a requirement for licence holders to maintain the continuity of their licences. The current number of licences in the fishery is 55.

Whilst the cost of management under the current arrangement is below that of the proposed regime there are some apparent negative implications. The possible activation of the substantial latent effort within this fishery could possibly lead to the collapse of the Tasmanian commercial sea urchin fishery on the East Coast. There would be no public benefit from such an outcome. Further to this, the lack of any controls on the fishery would not satisfy the requirements of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) or the *Living Marine Resources Management Act 1995*, which would in turn prevent any species harvested in the fishery from being exported.

Left unmanaged, the increase in fishing effort that results from competition is reflected in lower individual catches in the recreational fishing sector, and over-capitalisation and reduced financial returns in the commercial fishing industry.

b) Introduce an Individual Transferable Quota System (ITQ)

The cost of implementation and compliance of a quota system would be several magnitudes of scale greater than the arrangements proposed in the draft management plan. Given the marginal profitability that currently exists in the fishery, divers would not be able to justify the increased cost of operating in the fishery and would be forced to exit the industry.

There is also the issue of determining the quota that should be allocated to each licence. There is considerable debate amongst fishers about the level of historical catch that may be attributed to individuals.

c) Non transferable licences

The introduction of a separate class of non-transferable licences may well create resentment in the industry and give those without a tangible asset little incentive to maintain a viable industry by adopting a long-term approach to sustainability or industry development.

d) Conclusion toward alternatives

The history of commercial dive fisheries around the world would suggest that if left unmanaged, there is a strong likelihood of the resource being over exploited. The proposed management arrangements address the serious threats to the industry such as latent effort and over exploitation and introduce a degree of flexibility that will allow controls to be initiated as changes dictate. When considering the alternative options proposed, the benefits to both industry and the community would be greatly diminished if the initiatives proposed in this draft plan were not introduced.

13. Policy Objectives and Management Strategies for the Commercial Dive Fishery

This section sets out each objective of fisheries management for the commercial dive fishery and the primary management strategies to attain those objectives. The objectives are complementary to the stated resource management and planning objectives described in Schedule 1 of the *Living Marine Resources Management Act 1995*.

13.1 Summary of Objectives and Solutions

- ***Maintaining Biomass and Fish Recruitment***
To maintain sea urchin and other commercial dive species populations at levels which are able to generate acceptable recruitment.

Strategies

1. To restrict access to the commercial dive fishery by restricting the number of licences.
 2. To introduce Total Allowable Catch limits for sea urchins and periwinkles as well as for other species as relevant data becomes available.
 3. The establishment of zones to disperse fishing pressure on sea urchins and periwinkles.
 4. To provide access to species other than sea urchins (eg. periwinkles) to commercial divers.
 5. To monitor catches of all species taken by commercial divers and develop performance indicators for managing the fishery.
 6. To amend the rules governing the harvesting of species as necessary in response to increases in landings or new information.
 7. To introduce a minimum legal size limit for sea urchins of the genus *Heliocidaris* and Periwinkles (*Turbo*).
- ***Sustaining Yield and Economic Returns***

To optimise the yield able to be gained from the fishery by requiring or encouraging appropriate fishing practices.

Strategies

 1. To promote research into enhancing the roe recovery rates of sea urchin beds.
 2. To initiate closures in the developed zones over periods when roe recovery is poor.
 3. To encourage the development of an industry code of practice.
 4. To encourage expansion of the sea urchin and periwinkle fisheries into other regions of the State such as the Bass Strait Islands and the North-East and North-West coasts.
 5. To provide ecologically safe harvest practices to allow access to exotic marine plants for commercial divers that will encourage the development of a marine plant industry.
 6. To encourage cooperation within the industry to developing sea urchin aquaculture and mariculture.
 7. Identifying the most appropriate TACs and size limits which will benefit both the industry and the environment.
 - ***Commercial Fishing Interactions***

To mitigate any conflict that results from competition between different fishing methods for access to shared fish stocks and/or fishing grounds.

Strategies

 1. To introduce a system that allows holders of a commercial dive licence equal rights and opportunities to benefit from the fishery in a sustainable manner.
 2. To allow commercial divers access to other species having development potential under permits.
 3. To allow commercial divers to harvest *Undaria* under the authority of the holder of a fishing licence (Undaria).
 4. To enable commercial divers to harvest scallops, but only in conjunction with a licensed scallop fishing vessel.
 5. To introduce a licensing system that promotes licence owner operator principles encouraging an even power base throughout the industry.
 - ***Access to Fish Stocks by Recreational Fishers***

To maintain or provide reasonable access to commercial dive species for recreational divers.

Strategy

1. To continue to allow recreational divers access to species such as sea urchins, periwinkles, mussels and clams traditionally taken for non-commercial purposes.

- **Marine Farming Interactions**

To provide for areas within which marine farming can develop.

Strategies

1. To prohibit or restrict commercial diving in those waters that are occupied by marine farms.
2. To protect established fishing grounds from any detrimental impact by marine farms or marine farming activities.

- **Environmental Interactions**

To minimise activity which is detrimental to the marine environment, particularly in areas of special ecological significance.

Strategies

1. To promote ongoing research into the sea urchins, periwinkles and other species associated with the commercial dive fishery.
2. To introduce rules or regulations which promote minimal impact harvesting techniques.
3. To introduce a TAC to discourage indiscriminate fishing techniques.
4. To restrict the design of equipment for harvesting sea urchins and promote minimal impact harvesting techniques.
5. To prohibit the taking of endangered rare or sensitive species.
6. To promote a code of practice within the industry.

- **Recovery of Management and Research Costs**

To recover revenue from licensed commercial divers to contribute to the costs of management and the research needs of the fishery.

Strategies

1. Determine the costs of management and necessary research for the commercial dive fishery.
2. Equitably pass on management and research costs to participants in the commercial dive fishery sufficient to achieve cost recovery over time.

- **Quality Assurance**

To promote the world's best practice in the transport, handling and processing of Tasmanian marine resources for human consumption.

Strategy

1. To promote high standard practices for carrying, handling and storing fish aboard fishing vessels and by fish processors.
2. The use of accountable records to be submitted by divers and processors.

14. Management Benefit Cost Analysis.

Government policy is to move towards cost recovery from fisheries management in Tasmania. Under the principle of cost recovery, the participants in the fishery should carry

the cost of management, research, administration and enforcement but the size of the fishery will be taken into consideration when assessing an appropriate recovery rate. Currently, the revenue received from licensing fees is \$18,810 per annum. These monies go towards meeting the cost of administering the licensing system.

At present, the direct costs to the Department of Primary Industries, Water and Environment include salaries and on costs, material and travel costs associated with management. Table 5 gives a more detailed benefit cost analysis based on the figures currently available.

Table 5: Benefit-cost analysis for initial set up and implementation of commercial dive management plan.

ITEM	COSTS (\$)	INCOME (\$)
Salaries	41,889	
Operating Costs	5,560	
Parliamentary Counsel	4,000	
Printing	2,000	
Licence Revenue		18,810
TOTAL	53,449	18,810

Cost Recovery 35.2%

Table 6: Ongoing cost following implementation of management plan.

ITEM	COSTS (\$)
Salaries	34,192
Operating Costs	2,572
Compliance & Enforcement	5,000
Research	Variable
TOTAL	41,764 + Research

As can be seen in Table 5, the initial costs of implementation of the management plan results in only around 35% cost recovery for the Department. It should be noted however, that under the proposed management plan the costs of management will be significantly lower than the initial start up costs. There is no intention to recover full costs from the initial start up phase. Tables 6 & 7 outline the predicted ongoing costs of management for the commercial dive fishery and the extent to which costs will be recovered from industry over the life of the management plan.

The mechanism used for recovering management costs from the commercial dive fishery will be through licence fees and charges. The research component will vary from year to year depending on projects undertaken and as discussed earlier, money placed in the commercial dive research trust fund will generally be well subsidised from other sources including the various levels of government and private industry, so will not be included in the percentage recovery calculations.

It should be noted that in Table 7, fee units as prescribed in *the Fisheries (General and Fees) Rules 1996* are substituted for actual dollar figures for licence costs over the second to fifth years of the plan. The first year will have charges equivalent to the pre plan prices. Fee units are indexed to the CPI each year. For 2005/2006 a unit was equivalent to \$1.17. This is the figure that is applied to units over all years in the table as the management costs are also provided in 2005/2006 prices. The Research Levy is in actual dollars and can be set by the Minister following consultation with industry.

Table 7: Fee Structure Management Costs and Cost Recovery for Set up and First Five Years of the Commercial Dive Fishery Management Plan

Licence Fees	Pre Man Plan 2004/2005	1st Year of Man Plan 2005/2006	2nd Year of Man Plan 2006/2007	3rd Year of Man Plan 2007/2008	4th Year of Man Plan 2008/2009	5th Year of Man Plan 2009/2010
FLCD	\$342	\$342	400 units + research levy \$100 = \$568			
Total Revenue Excludes Research Levy	\$18,810	\$18,810	\$25,740	\$25,740	\$25,740	\$25,740
Manage Cost	Set Up \$53,449	Ongoing \$41,764	Ongoing \$41,764	Ongoing \$41,764	Ongoing \$41,764	Ongoing \$41,764
% of Cost Recovery	35 %	45%	62%	62%	62%	62%
Trans Fees	NA	Transfer \$250 Variation \$200	Transfer 250 units Variation 200 units			

15. The Rules

15.1 Purpose of Rules

The purpose of the attached rules is to provide a comprehensive consolidation of the controls and measures that relate specifically to the commercial dive fishery.

15.2 Statutory Basis for the Rules

The powers contained in Part 3 of the *Living Marine Resources Management Act 1995* provide the legal basis for the preparation and implementation of the commercial dive fishery rules. In particular, the Act sets out the purpose of management plans and rules and outlines the procedure for their development. The Act stipulates that the public is to be consulted before, during, and after the determination of management objectives, strategies and controls relating to the fishery.

The Act assigns responsibility for fisheries management and for preparation of the management plans to the Department of Primary Industries, Water and Environment.

15.3 Explanation of the Rules

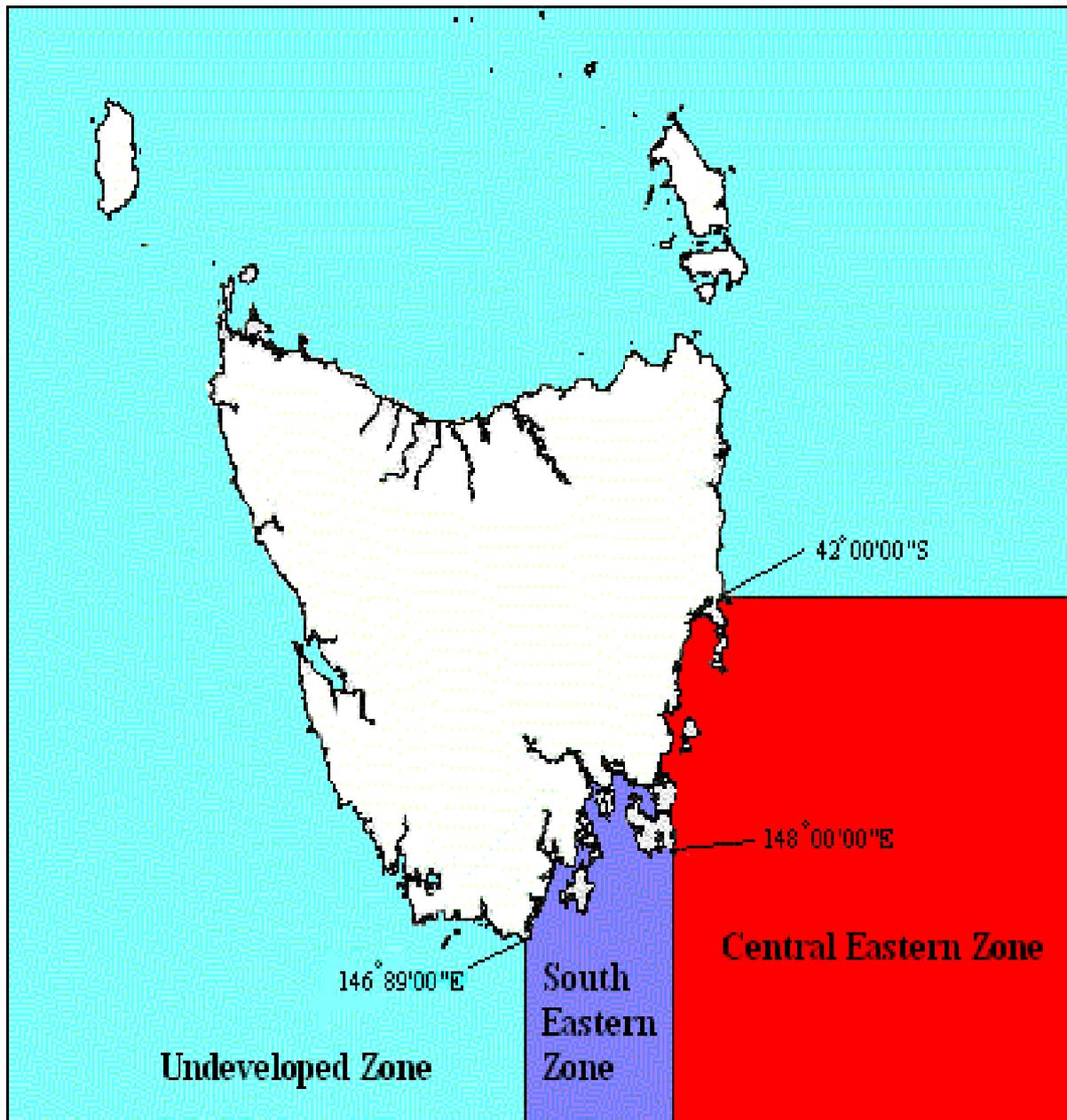
This section contains a general explanation of the commercial dive fishery rules, but should not be read in isolation of other rules or regulations in determining what a person can or cannot do in this fishery. Statutory requirements regarding licensing, licence fees and penalties for breaches of the fishery rules can be found in the *Fisheries (General and Fees) Regulations 1996*, *Fisheries (Penalty) Regulations 1996* and *Fisheries Rules 1999*.

The processes covering the application and issue of fishing licences is provided for in Part 4 of the *Living Marine Resources Management Act 1995*. Licence fees are specified in the *Fisheries (General and Fees) Regulations 1996*.

16. Compliance

All policies and rules presented in this document will be monitored and enforced by the Department of Primary Industries, Water and Environment and Tasmanian Marine Police.

APPENDIX 1: Map Indicating Zones for Sea Urchins (*heliocidaris*) and Periwinkles.



Central Eastern Zone: that area of State waters on the East Coast of Tasmania bounded on the north by the line of Latitude 42° 00' 00" S and on the south by the line of Longitude 148° 00' 00" E; (From in the vicinity of Friendly Point, to the southern tip of Tasman Island. This includes all waters on the east coast of the Tasman and Forrester Peninsulas and Blackmans Bay).

South Eastern Zone: that area of State waters on the East Coast of Tasmania bounded on the north by the line of Longitude 148° 00' 00" E and on the south by the line of Longitude 146° 89' 00" E (From the southern tip of Tasman Island to Whale Head. This includes Maingon and Norfolk Bays).

Undeveloped Zone: that area of State waters bounded by the line of Longitude 146° 89' 00" E in the south and extending in a clockwise direction to the line of Latitude 42° 00' 00" S (from Whale Head, up the west and along the north coasts and down to the northern border of Central Eastern Zone around Friendly Point).

All the above coordinates are specified in AGD66.

APPENDIX 2 (a)

Commercial Diver's Docket

The Secretary, Department of Primary Industries, Water and Environment
Living Marine Resources Management Act 1995

Docket No. xxx

**PART A - DETAILS OF FISH LANDED UNDER FISHING LICENCE (COMMERCIAL DIVE)
TO BE COMPLETED BY DIVER (LICENCE HOLDER) ON THE DAY OF FISHING TRIP**

Entitlement Number _____

Date of Fishing Trip / /

Species Code	Zone	Block	Area Name	Hours Diving	Depth	Weight/ Dozens

I declare that :

- all details recorded in Part A of this docket were filled out by me and are accurate and complete; and
- I have not made a false or misleading statement or made a misleading omission on this docket.

Diver's Name (Printed)

Diver's Signature

PART B - (PURCHASER DETAILS)

Part B (1). SALE TO PROCESSOR - TO BE COMPLETED BY PROCESSOR OR THEIR AGENT

Name of Company _____

Date of Receipt / /

Place of Receipt _____

Time of Receipt : am/pm

Species Code	Weight (Total / kg)

I declare that:

- I have personally weighed and received the species recorded in Part B (1) of this docket;
- all details recorded in Part B (1) of this docket were filled out by me and are accurate and complete in every respect and
- I have not received any product from this diver at this unloading which is not recorded on this or other docket received from this diver at this landing; and
- I have not made a false or misleading statement or made a misleading omission on this docket.

Processor/Agent's Name (Printed)

Processor/Agent's Signature

Part B (2). DIRECT SALES

**TO BE COMPLETED BY THE DIVER IN THE EVENT OF SALES BEING MADE TO OTHER
THAN A LICENCED PROCESSOR.**

Species Code	Weight (Total - kg)	Value - \$

I declare that:

- I have personally weighed the species recorded in Part B (2) of this docket;
- all details recorded in Part B (2) of this docket were filled out by me and are accurate and complete in every respect and
- I have not made a false or misleading statement or made a misleading omission on this docket.
- I have issued a receipt to each purchaser as required under the commercial dive rules.

Diver's Name (Printed)

Diver's Signature

APPENDIX 2 (b)

This receipt is to be filled in by the diver in the event that sales are made to any person other than a licenced processor. The original of the receipt must be given to the customer while the copy must be held by the diver for a minimum of 5 years.

Commercial Dive Sales Receipt

The Secretary, Department of Primary Industries, Water and Environment
Living Marine Resources Management Act 1995

Receipt No. xxx

Name of Diver _____

Entitlement Number _____

Name Of Purchaser _____

Address of Purchaser _____

Species Code	Weight Sold (Kg)	Total Price \$

Time of Sale: _____ am/pm Date of Sale: _____

Diver's Signature: _____

APPENDIX 2 (c) : Proposed Form for Processors' Returns

 DEPARTMENT of PRIMARY INDUSTRIES, WATER and ENVIRONMENT Tasmania	<p>COMMERCIAL DIVE MONTHLY PROCESSOR RETURN</p> <p>—</p> <p>(Section 145 Living Marine Resources Management Act 1995)</p> <p>The Secretary, Department of Primary Industries, Water and Environment <i>Living Marine Resources Management Act 1995</i></p>
--	---

This form must be completed by all processors and the form or forms or a facsimile must be forwarded as the monthly processor return to the following address.

**Reply Paid 256
 FMQAU
 Department of Primary Industries, Water and
 Environment
 GPO Box 44
 HOBART TAS 7001
 or Fax 6233 3198**

Name of Processor.....Return for:.....
Month Year

Address

Contact Numbers (phone).....(Fax).....

Declaration that all of the supplied information is accurate and complete.

Signed:.....Date.....

Printed Name:.....

Inquiries to: Fisheries Monitoring Office, on (03) 6233 6536

All Species (including sea urchins)				Sea Urchins Only			
Diver's Docket Number	Species code	Whole Weight Landed (kg)	Total Value \$	A Grade Roe (kg)	B Grade Roe (kg)	Avg. \$/kg A Grade Roe	Avg. \$/kg B Grade Roe
