



South Australian Fisheries Management Series

Ecological Assessment of the South Australian Sea Urchin Fishery

Reassessment Report

Prepared for the Department of Sustainability, Environment,
Water, Population and Communities

For the purposes of Part 13 and 13(A) of the Environment Protection and
Biodiversity Conservation Act 1999

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Purpose

This report has been prepared by the Fisheries and Aquaculture Division of the Department of Primary Industries and Resources South Australia (PIRSA).

The purpose of this report is to provide a revised assessment of the management arrangements in place for the South Australian Sea Urchin fishery to the Department of Environment, Water, Sustainability, Population and Communities (DSEWPAC). This report updates the information provided to the Department of Environment, Water, Heritage and the Arts (DEWHA), in 2008 for assessment against the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The report has been prepared in accordance with the *'Guidelines for the Ecologically Sustainable Management of Fisheries'* (*the guidelines*), 2nd Edition, and particularly addresses the level of change that occurred in the fishery since the 2008 assessment.

1. Background

In South Australia one species of Sea Urchin is currently commercially exploited; *Helicodaris erythrogramma*. Throughout the remainder of this document, Sea Urchin refers to this species.

This species is endemic to Australia and inhabits intertidal rocky reefs down to depths of 35 meters along the southern Australian coasts. In South Australia, they are commonly found amongst rocks, boulders or crevices of shallow sub-tidal limestone and granite reefs. *H. erythrogramma* are usually 60 to 90 mm in diameter, but have been known to reach 125 mm.

Formal fishery management arrangements have not been developed for the Sea Urchin fishery (hereafter referred to as 'the fishery', unless specified otherwise). The regulations that govern the management of the fishery are established in the *Fisheries Management Act 2007*, *Fisheries Management (Miscellaneous Fishery) Regulations 2000* and through licence conditions.

Licence holders within the Miscellaneous Fishery target specific species and collect these by hand whilst diving. There is no by-catch; however, some of the licence holders that have access to Sea Urchin also have access to Scallop.

There are no interactions with threatened, endangered and protected species (TEPS). Recreational take is considered negligible.

2. Level of Assessment

The fishery was assessed and approved for Wildlife Trade Operation in 2008. Since the last assessment there have not been significant changes in areas of interest or particular issues as outlined in page 5 of *the guidelines*.

Table 1: Level of assessment required for the fishery

Issue	Area of Interest	Yes	No
Fishery	Has there been any change to management arrangements, and/ or fishing practice?		X
External Influences	Has there been any change to an environmental issue/influence outside of the fishery management agencies control?		X
Interaction with protected species	Has there been any change in the nature, scale, intensity of impact, and/or subsequent management response?		X
Ecosystem impact	Has there been any change in the nature, scale, intensity of impact, and/or management response?		X
Target Stock Status	Has there been any change in the target stock status?		X
By-product/ by-catch status.	Has there been any change in the by-product and/or by-catch stock status?		X

Considering the above, the level of submission required for the fishery is a 'standard level of information'. There have been no major changes in the management or environmental impact of the fishery.

3. Management of the Fishery

General

PIRSA has adopted a precautionary approach to the management of the Sea Urchin fishery. In the absence of scientific data and to prevent any possibility of over-harvesting only a very limited number of licences and entitlements to take Sea Urchin have been issued.

Sea Urchins are harvested by both the recreational and commercial fishers, however recreational take is considered negligible.

Since the last assessment in 2008, there have been no significant changes to the management arrangements of the fishery.

Commercial fishing sector

Since the assessment of the fishery in 2005 the management arrangements have changed from an administrative perspective. Access to Sea Urchin is no longer granted by way of a Ministerial Exemption under the Act, but by a formal fishery licence. This has not changed how the fishery is managed from an access and harvest point of view.

Due to the low harvest levels and small scale of the fishery, there are limited resources available to manage and develop the fishery. Limited resources also mean that a formal fishery management plan has not been developed. PIRSA has continued to manage the fishery as a limited entry fishery, with non-transferable licences.

Harvesting of Sea Urchin continues to be relatively small with only one dedicated Sea Urchin fisher, and five Scallop fishers with access to Sea Urchin.

Each fisher is restricted to operating with one vessel and a maximum of two agents engaging in fishing activities from the registered vessel at any one time being any combination of either the licence holder, a registered master other than the licence holder, and an agent of the licence holder.

Harvesting occurs from small vessels, and Sea Urchin are harvested by hand by divers operating on compressed air. Whole Sea Urchin are transported live to Adelaide and processed. Harvesters remove on average 40% of Sea Urchin from an area at any given time, and only harvest when yield is a minimum of 6.5-7%. Monthly catch and effort data is supplied to the South Australian Research and Development Institute (SARDI).

Currently, some Sea Urchin licence holders export to Hong Kong.

Table 2: Summary of current management arrangements in the Sea Urchin fishery

Species harvested	<i>Heliocidaris erythrogramma</i>
Area	Areas surrounding Streaky Bay and Coffin Bay are the main harvesting locations.
Fishery status	Unknown
Gear	Harvested by divers using compressed air, by hand.
Number of licences	One specific to Sea Urchin. Five Scallop divers with a provision to take Sea Urchins.
Input controls	<ul style="list-style-type: none"> ▪ Limited entry ▪ Limited effort 1 boat per licence, agents per boat ▪ Gear restrictions (hand harvest only)
Reporting	Monthly log sheets submitted, detailing catch, effort, and location (Marine Scalefish fishing areas).
TEPS Interactions	None
By catch	None

Recreational fishing sector

The only current data available regarding the recreational harvest of Sea Urchin was collected as part of the National Recreational and Indigenous Fishing Survey in 2000/2001. This survey indicated that recreational take of Sea Urchin is extremely small.

There are currently no recreational size, bag or boat limit restrictions in place for recreational fishers.

4. External Influences

There are no known changes to environmental issues, or influences outside of PIRSA's control.

5. Interaction with Protected Species

Interactions with protected species in this fishery are negligible.

All commercial fishers are required to report any interactions with TEPS to PIRSA and DSEWPAC. To assist fishers in this task, PIRSA and SARDI have developed a Wildlife Interaction Logbook and identification guide.

6. Target Stock Status

The size and magnitude of the fishery is thought to be not large enough to impact negatively on the stock. Catch increased significantly from 2004 to 2008, but suffered a significant decrease in 2009 as effort was also substantially reduced (Figure 1, Table 2).

NOTE: For confidentiality reasons, catch and effort data has been removed as it relates to less than five commercial fishers.

A new Service Level Agreement (SLA) has been signed by PIRSA and SARDI to provide fisheries catch and effort data and basic biological parameters for the species that form the Miscellaneous Fishery, including Sea Urchin. The report is due in October 2011. The report will help to inform further management arrangements for Sea Urchin and other species contained in the Miscellaneous Fishery.

7. By-product and by-catch stock status

Each licence contains specific regulations outlining the methods of harvesting allowed, including the type and number of items of diving apparatus allowed, as well as exclusion zones. The fishery is target specific, with negligible by-catch and therefore believed to not be a threat to any stocks of species inhabiting the same area.

8. Conditions and Recommendations by DSEWPAC

Condition 1:

Operation of the fishery will be carried out in accordance with the South Australian SUF management arrangements made under the Fisheries Management Act 2007 (South Australia), and consistent with the Fisheries Management (Miscellaneous Fishery) Regulations 2000.

Progress

Operation of the fishery continues to be managed in accordance with this legislation.

Condition 2:

The Department of Primary Industries and Resources, South Australia (PIRSA) will advise the Department of the Environment, Water, Heritage and the Arts (DEWHA) of any material change to the fishery's management arrangements that could affect the assessment against the criteria on which Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) decisions are based.

Progress

PIRSA has maintained communication with DSEWPAC through annual reports and has communicated management changes to DSEWPAC as they have arisen. PIRSA will continue to communicate management changes to DSEWPAC in the future.

There have been no management changes in the fishery since the last assessment.

Condition 3:

PIRSA to produce and present reports to DEWHA annually as per Appendix B to the Guidelines for the Ecologically Sustainable Management of Fisheries 2nd Edition.

Progress

Ongoing.

Annual reporting arrangements have been agreed upon by PIRSA and DSEWPAC.

Condition 4:

PIRSA to finalise the development of formal management arrangements for the SUF.

Progress

PIRSA has committed to develop a policy document for the dive fisheries appropriate to the size and harvest quantities of the dive fisheries. This policy document will include the ongoing management arrangements, and management objectives for the dive fisheries, including Sea Urchin, Turbo Shells and Scallop.

Recommendation 1:

In developing the management arrangements, PIRSA to undertake an Ecological Risk Assessment, and to initiate appropriate management responses based on the outcomes of that process.

Progress

The SLA between PIRSA and SARDI will help to address knowledge gaps in the fishery and will inform the risk assessment process. PIRSA will conduct a risk assessment and develop appropriate strategies to deal with any risks identified in that process.

Recommendation 2:

Develop and implement research strategies to address key gaps in the knowledge of Sea Urchin biology and ecology appropriate to the scale of the fishery. In the absence of scientific data, a precautionary approach should continue to be applied.

Progress

The SLA will directly address this recommendation by addressing key knowledge gaps in the fishery. The SLA will provide fisheries catch and effort data and basic biological parameters for the species that form the Miscellaneous Fishery (with the exception of Giant Crab). In 2011-12, logbook information from the Miscellaneous Fishery will be used to provide catch and effort data. A literature review on biological information will also be conducted. Due to the limited funds available to spend on the miscellaneous fisheries in South Australia, the precautionary principle will continue to be applied in their management arrangements.

Recommendation 3:

PIRSA to collaborate with other jurisdictions where appropriate and actively pursue consistent and complementary research needs and management arrangements for the target species.

Progress

PIRSA will contribute to the discussion between jurisdictions by producing research into the Sea Urchin fishery as outlined above in the SLA agreement. PIRSA will collaborate with other jurisdictions as appropriate.

Recommendation 4:

PIRSA to develop and implement finer scale data collection, reporting and management measures appropriate to the scale of the fishery in order to mitigate the risk of localised and serial depletion of Sea Urchin in the fishery.

Progress

There are five licence holders who have access to the species.

PIRSA does not consider this level of catch to be a sustainability risk for the fishery. For this reason, PIRSA considers that no further management action is required.

PIRSA also collects information on the fishing area in which Sea Urchin are harvested. The following graphs show the catch from 2006 to 2010 in tonnes, according to fishing block. An examination of the graphs details the spread of fishing effort across fishing blocks in the fishery and suggests that the risk of localised depletion is low.

NOTE: For confidentiality reasons, catch and effort data has been removed as it relates to less than five commercial fishers.

As stated above, the SLA will address key knowledge gaps in the catch and effort data, as well as biological parameters for the fishery. PIRSA does not consider the current level of harvest to constitute a sustainability risk, and will continue to monitor catch and effort information to address risks in the fishery if they arise.