

One of the ways that the FM Act (Part 7A) aims to conserve biological diversity is by listing threatened species, populations and ecological communities and their habitats. While most listings are freshwater species, populations and communities, the following saltwater fish species are listed as threatened in the following categories:

Endangered Species

Green sawfish	<i>Pristis zijsron</i>
Grey nurse shark	<i>Carcharius taurus</i>

Vulnerable Species

Black rock cod	<i>Epinephelus daemeli</i>
Great white shark	<i>Carcharodon carcharias</i>

The only protected or threatened species which has been identified in any of the trap lifts observed during the observer survey conducted for the Lobster Fishery in the years 1999-00 to 2001-02 is blue groper with an estimated 429 kg caught (and released) by the fishery each year (Liggins *et al.*, in prep.).

A range of threatened species, other than fish, are protected by other legislation including the NSW *Threatened Species Conservation Act 1995*, the NSW *National Parks and Wildlife Act 1974*, and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*. Threatened species that could be encountered by the Lobster Fishery will be discussed in detail in the risk assessment in section B2 of this EIS.

B1.3 Methods of Harvest

Lobsters may only be taken in the Lobster Fishery by hand picking or by use of a commercial lobster trap. In NSW commercial and recreational fishers are prohibited from using SCUBA or hookah apparatus to take lobsters. Diving for lobsters is only permitted without use of underwater breathing apparatus. Relatively few endorsement holders take lobsters by diving; however, in recent years it has become more viable (in the south of the state) for some inshore fishers to take lobsters by this method and, therefore, the number of fishers diving for lobster has increased. Table B1.7 demonstrates that the proportion of lobster catch taken by diving over recent years is low but has increased.

Table B1.7 Percentage (calculated by weight) of annual commercial catch of rock lobsters taken by diving.

(Source: NSW Department of Primary Industries Fish Catch Records, 2003)

Year	Portion of lobster catch taken by diving
1998-99	0.8%
1999-00	0.9%
2000-01	1.4%
2001-02	1.6%
2002-03	1.4%

B1.3.1 Permitted fishing gear

In waters 10 m or less a lobster trap must consist of a rectangular base or floor not exceeding 1.2 m by 1.2 m (or a circular base not exceeding 1.2 m in diameter). There are currently no restrictions on the height or mesh size of traps used in these waters. In waters more than 10 m depth a lobster trap

must not exceed 2 m in length, 2 m in width and 2 m in height and must consist of mesh having a measurement from one plain wire to the opposite plain wire of at least 50 mm.

The internal structure of all traps must not contain any compartments or be obstructed by any material that would prevent the free movement of lobsters within the trap. Lobster traps in NSW are not required to have escape panels. Lobster traps include one or more funnels designed to allow entry of lobsters and reduce the likelihood of subsequent escape. Lobster traps also include doors (except in the case of beehive traps commonly used in inshore waters) in order to remove captured lobsters. Figures B1.4 and B1.5 illustrate some examples of lobster traps that may be used in the commercial fishery.

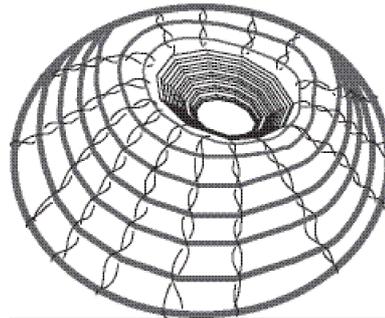


Figure B1.4 Lobster trap commonly referred to as a beehive pot often used in the inshore area of the Lobster Fishery.

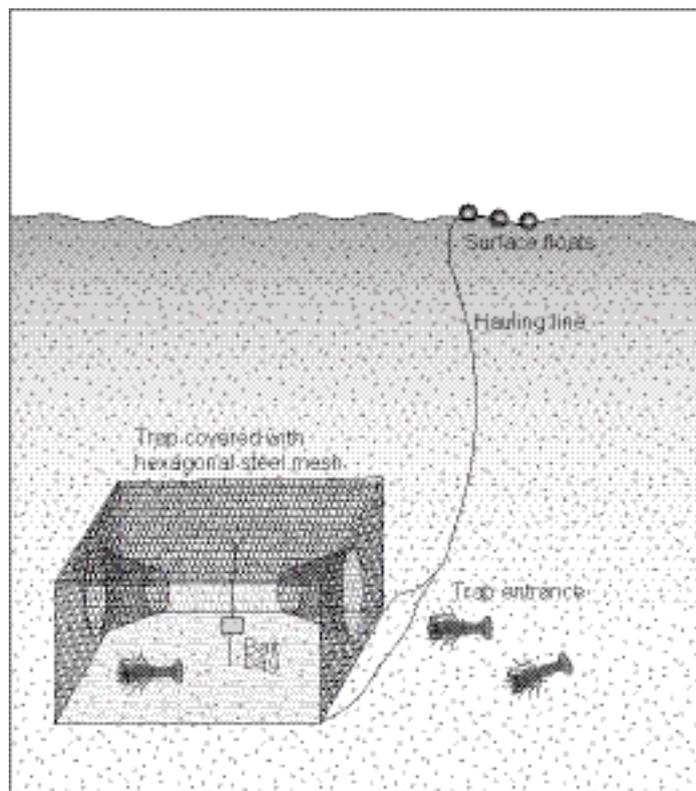


Figure B1.5 Lobster trap commonly used in the offshore area of the Lobster Fishery.

B1.3.2 Operation of fishing gear

Lobster traps may be set and retrieved by a lobster fisher from a licensed commercial fishing boat. The traps may also be grappled from the shore. Each lobster trap set in waters up to 10 m in

depth must be marked by a buoy that is positioned above the trap, or a plastic tag or concrete block of an approved size and type. For traps marked with a buoy, a weight of not less than 50 g must be suspended not less than 1.5 m under the float so that excess rope is not floating on the surface of the water. The buoy must have a diameter above the water of at least 100 mm.

All buoys, tags and concrete blocks used to identify lobster traps, must be marked with the number allocated to the endorsement holder by NSW Department of Primary Industries for use on the trap. These markings must be in clearly visible figures not less than 50 mm in height and in a colour that contrasts with that of the buoy. In certain inshore waters lobster fishers are required to mark the position of the trap using either a plastic tag or concrete block rather than a float for safety reasons. Rope and floats attached to traps set in ocean waters greater than 10 m in depth may be totally submerged if the trap is set using a time-release mechanism.

The inshore component of the fishery utilises small beehive traps (in waters to 10 m depth) or square traps (made out of wood or metal) in waters to about 30 m in depth (see Figure B1.4 for an example of a beehive trap). Lobster fishers generally check these traps on a daily basis to every few days, weather permitting, and some operate in these shallower waters throughout the year. In contrast, the offshore component of the fishery is characterised by large traps deployed out to the edge of the continental shelf for up to two weeks or more (see Figure B1.5 for an example). Retrieval of traps from offshore waters can be difficult due to strong currents which submerge marker floats. These strong currents, in addition to the migratory behaviour of lobsters, can make offshore trapping a seasonal operation. There are currently no restrictions on the length of time that a lobster trap is set (i.e. soak time) in the fishery.

Weights are generally attached to the lobster traps to prevent currents from moving them once they are set. A number of materials may be used to weight traps, including concrete blocks, steel bars, bricks etc. Lobster fishers are not permitted to set lobster traps once their allocated quota of eastern rock lobster has been taken.

B1.3.3 Boats used in the fishery

The inshore component of the fishery utilises predominantly small, 4-6 m boats. These vessels are usually aluminium runabouts with outboard motors. The offshore fishery is dominated by larger trap and line vessels, typically greater than 8 m in length. Boats used in the Lobster Fishery must be licensed fishing boats clearly displaying the letters "RL" immediately before the letters "LFB" on the hull and upper deck to identify them as commercial lobster fishing boats.

B1.3.4 Maintenance of fishing gear

Maintaining a supply of lobster traps is labour and capital intensive. Inshore traps, used in waters up to 10m in depth, are made of metal or timber frames and wire with entrance funnels and cost around \$15-30 per trap including rope and float, but excluding labour costs. Larger traps for offshore lobster fishing include more materials such as metal or timber frames, wire with entrance funnels, longer rope, more floats and a time release mechanism, costing approximately \$180 per trap, excluding labour costs. Many trap components corrode or rot in the ocean and therefore need to be replaced seasonally. To extend the life of steel lobster traps and reduce the corrosion rate, sacrificial anodes are often attached to traps. They are generally made from zinc and tied with wire to the traps. Anodes cost around \$5.00 each. Some fishers include up to 3-5 anodes in some of the larger traps to extend the life of the trap.

Lobster traps may also be lost due to ocean currents or interference by other vessels. Because of their value, particularly when they contain lobsters, traps are sometimes stolen. These factors in addition to wear and tear result in significant replacement costs for lobster traps.

B1.3.5 Bait used in the fishery

The Lobster Fishery utilises a variety of products to bait traps. Mullet and luderick taken in other NSW commercial fisheries are primarily used as bait in inshore lobster traps and may be used fresh, salted or dried. Other fish species are also used. Some offshore lobster fishers use meat products (eg. bones) in their traps, as they take longer to break down. Others use fish frames, particularly tuna, which in some cases are sourced from other states. Bait used in offshore traps may be fresh, salted dried or a mixture of these. Bait is generally purchased in bulk and costs from \$1.00 per kg. Bait is attached inside the lobster trap by either: tying it to the pot with wire; or twine or placing it inside a bait holder, which can be made from either wire, plastic or synthetic netting.

B1.3.6 Storage of live rock lobsters

Lobster fishers may store live rock lobsters in clearly identifiable holding pens which are sealed (do not allow lobsters in or out) and do not exceed the dimensions of a commercial lobster trap which is permitted in those waters. The location of the holding pen must be recorded on the fisher's daily log sheet each time lobsters are stored in the pen. The location of any other storage facility for live rock lobsters must also be recorded on a fisher's daily log sheet. A Fisheries Officer may inspect any lobster storage facility.

B1.4 Catch and Value Information

While catch records for the Lobster Fishery can be tracked back to the late 1800s, the integrity of the records over the years is questionable. The records are based upon:

- i) quantities of individual species sold through the major market centres each year until 1939-40 (does not take account of fish sold outside major markets)
- ii) the catch of lobsters reported on monthly catch returns up to 1993-94
- iii) the catch reported through a daily logbook system since 1994-95.

Annual landings peaked around 1910-11, 1930-31, 1948-49, 1971-72 and 1982-83, whilst troughs occurred around 1920-21, 1931-32, 1944-45 and 1978-79 (see Figure B1.6). Annual landings fell in most years since the peak around 1982-83 until the introduction of restrictive management in 1993. Between 1970 and the introduction of restrictive management in 1993, unreported commercial catch (i.e. black marketed catch) has been estimated at high levels based on telephone surveys (see Montgomery *et al.*, 1997) and in some years more than the reported commercial catch. Recreational (non-commercial) catch estimates in Figure B1.6 are also based on telephone surveys.

In July 1994 the first Total Allowable Commercial Catch (TACC) was set for the Lobster Fishery. Table B1.8 includes the TACC set for each year since 1994, the portion of the TACC that was caught and the estimated value of the catch.

The annual reported commercial catch gradually increased as the TACC increased since its introduction in 1994-95 until 1999-00. In 2000-01 and 2001-02 the TACC set peaked at 150 tonnes and the portion of the TACC caught dropped considerably, to below 70% (see Table B1.8). The