



Australian Government

Department of the Environment and Heritage

Assessment of the
Harvest of Cast Bull Kelp

February 2005

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

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**Assessment of the ecological sustainability of management arrangements for the harvest of
Cast Bull Kelp on King Island**

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EXECUTIVE SUMMARY

Background

Kelp Industries Pty Ltd (the proponent) has submitted a document for assessment under Part 13A of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The draft document "Proposal for the Harvest and Export of Native Flora" (the submission) was received by the Department of the Environment and Heritage (DEH) in September 2004. The submission was released for a twenty-eight day public comment period that expired on 20 October 2004. Three comments were received and the Tasmanian Department of Primary Industries, Water and Environment (DPIWE) provided a response to the issues raised where appropriate.

The submission reports on the harvest of cast bull kelp (*Durvillaea potatorum*) against the objects of Part 13A of the EPBC Act for consideration as a Wildlife Trade Operation (WTO), under s. 303FN. The DEH assessment considers the proponent's submission and associated documents, public comment and the responses to the comments.

Currently native seaweeds in Tasmania are not directly harvested due to their ecological importance to marine ecosystems and fisheries resources. Harvesting of seaweed in Tasmania is presently confined to 3 activities:

1. the collection of beach cast bull kelp¹ (*Durvillaea potatorum*) on King Island and the northern west coast;
2. harvesting of the introduced Japanese Sea Kelp (*Undaria pinnatifida*) on the east coast; and
3. the localised collection of beach cast seaweeds and seagrasses.

DPIWE recognizes that bull kelp harvesting is a major industry in Tasmania supplying about 5% of the world production of alginates² and generating about \$2 million dollars of income for King Island. In contrast, small-scale licensed operations collect cast weed from several locations around Tasmania where large volumes of seaweed and seagrasses are washed ashore. The bulk of this cast weed is bagged and sold in garden shops as garden mulch.

Area	King Island, Tasmania
Fishery status	Small scale and ongoing. Harvest by Kelp Industries has been conducted since 1975
Target Species	Cast ³ bull kelp (<i>Durvillaea potatorum</i>)
Byproduct Species	Not permitted
Gear	Hand collection assisted by winches and mechanical grabs
Season	Harvest is year round but dependent on prevailing weather conditions
Commercial harvest 2002 and 2003	1530.7 and 1365.4 tonnes (dry weight) respectively
Recreational and indigenous harvest	There is no significant take by any other group.
Commercial licences issued	1 licensed processor and collection conducted by 100 registered collectors (4 are full-time collectors, ~ 40 part time and the remainder inactive).
Management arrangements	Annual licences to processor and collectors
Bycatch	Nil, apart from dead/dying marine organisms associated with

¹ Bull Kelp (*Durvillaea potatorum*) is not a 'true' kelp (ie. a member of the Laminariales), but rather is a member of the Order Fucales.

² Alginates - the salts and derivatives of Alginic Acid are used for thickening liquid in detergents and shampoos, grouting, improvement of flow properties of welding electrode fluxes and for medical purposes. Alginates are also be used as the stabilising agent in foodstuffs such as ice cream, salad dressings and imitation cream.

³ Cast kelp refers to plants that have been detached from their substrate and carried shoreward. As the plants cannot reattach once they are cast onto the shore they die.

	each rack of kelp and some terrestrial organisms using the kelp as a food source, shelter etc.
Interaction with Threatened Species	Possible interaction with some migratory bird species

Table 1: Summary of the King Island Cast Bull Kelp harvest

Bull kelp, is a large brown algae endemic to the exposed rocky coastlines of south eastern Australia where it extends as far north as Bermagui on the New South Wales coast and west to Robe in South Australia. It is found along the entire western and southern coasts of Tasmania, as far north as Bicheno on the east coast, and around the west islands of Bass Strait. It is reportedly the dominant member of the macroalgal communities in this area. Macroalgal communities are a distinctive feature of subtidal rocky reefs and rocky coastal margins of southern Australia. The plant is anchored to rock by a cone-like holdfast. The species has separate male and female plants and the reproductive structures are found scattered over the fronds of mature plants. Plants reach maturity at 2.5 – 3 years of age and thereafter reproduce annually during the months from June to October. Typical biomass figures for the species are in the order of 20-22 kgm⁻², which is in the range of biomass found for other species of the larger marine brown algae. The proponent reports that the bull kelp population of King Island represents approximately 9% of the total distribution of this species in south eastern Australia.

Bull kelp is detached from the substrate in rough weather and is driven or cast onto shore or into gutters along the shoreline. As the detached plants cannot reattach they die and are then available to collection. Collection is by hand using a vehicle-powered winch to haul the kelp from the beach onto trailers parked on formed tracks beyond the shoreline. In some instances, a mechanical harvester with a mechanical grab attachment is used to collect kelp in nearshore gutters and holes. Collected kelp is taken to the single processing factory on the island where is dried (to 10% moisture content) using a combination of air-drying racks and high temperature wood fired ovens. Only fresh specimens are suitable for processing, limiting the available kelp on beaches.

The harvesting of cast bull kelp by the proponent is restricted to a number of beaches (mainly rocky beaches on the western and northern areas) of King Island in Bass Strait. The collection occurs entirely onshore and accordingly is entirely within State jurisdiction. The harvesting is managed by fishery licences issued by DPIWE. The proponent is the only licensed processor of bull kelp and the operation is serviced by approximately 4 active licensed collectors and approximately 40 part-time collectors.

Harvesting of cast kelp has occurred since 1976 and the annual harvest is depicted in the following figure (Figure 1). Harvest is variable depending on, among other things, the amount of kelp washed ashore because of prevailing weather conditions. The average annual tonnage processed has been 2624 tonnes.

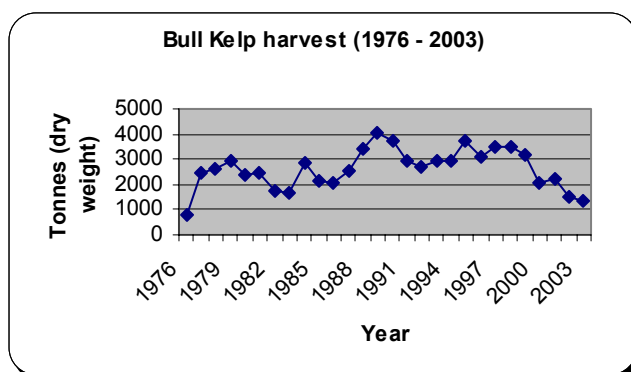


Figure 1: Bull Kelp Harvest

The level of harvesting occurring should not have any impact on the distribution or standing biomass species. The harvest operations have little or no direct impact on live bull kelp, with only plants detached by natural events harvested. Harvesting as proposed by Kelp Industries is unlikely to pose a risk to survival of the species, which is distributed across southern Australia, or to the conservation status of the species.

Due to the targeted harvesting techniques employed there are no byproduct species, effectively no bycatch, no known impacts on marine protected species and the broader marine environment, and no interactions with threatened ecological communities. There has been concern over the collateral impact of the harvesting operations on protected migratory sea birds reliant on the foreshore (eg nesting sites for the hooded plover, *Thinornis rubricollis*). Conditions will need to be placed on collectors to restrict their access to beach areas and control the harvesting and transporting of kelp and/or equipment during breeding periods to mitigate such potential impacts.

There is no significant take of bull kelp by either the indigenous or ‘recreational’ sectors (for home use as garden fertilizer) in Tasmania.

The harvest of bull kelp by Kelp Industries is managed by issue of licences under the Tasmanian *Living Marine Resources Management Act 1995*, (the LMRM Act) to achieve the objectives of that Act administered by DPIWE. This Act is publicly available. Access to beach areas is controlled by land owners and all harvesters have to negotiate access and operations within these areas with the Tasmanian Parks and Wildlife Service for Crown Land and private land owners (approximately 40) for other areas. Tasmanian Crown Land Services and Kelp Industries are in the process of finalising a contract to formalise access to collection sites on King Island.

The industry has also formulated a code of conduct (the Kelp Collector’s “Code of Conduct”) by which the collectors must abide.

Concerns over the possible decline of bull kelp off King Island cannot be attributed to the harvest of cast bull kelp by Kelp Industries on King island and so is outside the scope of this assessment. However, DEH considers that this reported decline should be investigated and addressed as appropriate.

Bull kelp harvesting is monitored by officers from the DPIWE and Tasmanian Parks and Wildlife Rangers. While there is no formal management plan for the harvest of marine plants in Tasmania, DEH considers that the licences and their conditions, management objectives (as outlined in the management options paper⁴ prepared by DPIWE), monitoring, the proponents past performance, access controls and the code of practice provide for the ecologically sustainable management of the operation.

Overall assessment

The material submitted by the proponent and confirmed with the DPIWE demonstrates that the harvesting arrangements for the collection of cast bull kelp are sufficiently precautionary and capable of controlling, monitoring and enforcing the level of harvesting of the beach cast kelp.

⁴ Management Options for the King Island Cast Bull Kelp Fishery, Department of Primary Industries, Water and Environment, Tasmania, September 2000.

The management regime aims to ensure that harvesting is conducted in a manner that minimises any impact on the structure, productivity, function and biological diversity of the marine ecosystem, noting that the harvest is taking cast specimens only. On balance, the harvest is being managed in an ecologically sustainable manner and is working to minimise environmental risks.

The operation is consistent with the objects of Part 13A of the EPBC Act. Given the precautionary nature of management arrangements and the limited number of operators, DEH considers that the harvesting of bull kelp from King Island will not be detrimental to the survival or conservation status of the taxon. Similarly, it is not likely to threaten any relevant ecosystem in the short term.

DEH has identified a number of issues that DPIWE must continue to manage as specific conditions on the harvesting and export of bull kelp to ensure that the longer term risk of any impact is minimised:

- Restriction of operations to nominated beaches;
- Restriction to 50% of available beach cast material; and
- Protection of protected migratory seabird species potentially impacted by the harvesting of beach cast bull kelp by restricting the periods of harvesting arrangements to avoid disturbance in breeding seasons.

DEH recommends that the operation be declared an approved WTO, subject to the above conditions that will minimise the potential impacts on protected migratory seabirds, and subject to recommendations made in this report to minimise risks in the longer term.

DEH considers that the harvest, as managed in accordance with the management regime in place, is not likely to cause serious or irreversible ecological damage over the period of the export decision. Specifically, the WTO declaration would allow the export of product from the fishery for a period of 3 years. The WTO declaration will require annual reporting on the progress of implementing the recommendations of this report and other managerial commitments. The implementation of the recommendations will be monitored and reviewed as part of the next DEH review of the fishery in 3 years time.

Recommendations

Recommendation 1:

DPIWE to pursue a strategic approach to management of marine plants in Tasmania and, in particular, management of the harvest of beach cast bull kelp on King Island.

Recommendation 2:

DPIWE to inform DEH of any changes to the management arrangements for the harvest of bull kelp on King Island that may impact on the ecological sustainability of the operation.

Recommendation 3:

DPIWE to develop formal liaison arrangements with Tasmanian Parks and Wildlife to monitor the impacts of the harvesting of cast bull kelp on protected bird species.

MANAGEMENT ARRANGEMENTS

The harvest of bull kelp on King Island is managed by DPIWE by licences issued to collectors and a single processor under the LMRM Act. These licences are publicly available documents that can be viewed on request from DPIWE. A single processor licence (fish processing licence) has been issued and approximately 100 fishing licences to collect cast bull kelp have been issued. Each licence is issued annually and is subject to a Ministerial Guideline⁵, as set out in Section 75 – Ministerial Guideline of the LMRM Act. The licences issued to harvest cast kelp and process cast bull kelp do not impart any rights of access to the foreshore, but it is a condition on these licences that the licence holder is required to obtain permission for access from the land owner (normally Crown Land Services within DPIWE or the Tasmanian Parks and Wildlife Service).

Some information on the fishery and its management is available on the DPIWE website www.dpiwe.tas.gov.au or at <http://www.kelpwatch.tas.gov.au/harvesting.html>

In 2000 DPIWE drafted a discussion paper titled “Management Options for the King Island Cast Bull Kelp Fishery” which set out policy objectives and management strategies as well as options for future management. This paper is publicly available. Finalisation of the management of the harvest is dependent on formal processes set out within the LMRM Act.

The objectives, strategies identified and their status are summarised in Table 2.

Objective	Strategy proposed in discussion paper	Status
1. Maximise amount of kelp harvested within environmental constraints	<p>Strategy: Maintain kelp harvesting at sustainable levels by controlling the use of harvest equipment.</p> <p>Strategy: Ban the use of mechanical arms where bull kelp beds are within reach and allow the use of cables or winches.</p>	<p>Strategy is being applied through restriction to using only shore based equipment.</p> <p>[DPIWE to advise on status of second strategy]</p>
2. Maintain stocks of source plants	<p>Strategy: Maintenance of the natural population of bull kelp off King Island by not allowing the harvesting of any attached bull kelp plant</p>	Strategy is being applied
3. Maximising socio-economic benefits to the community	<p>Strategy: Fee structure in accordance with the requirements of industry, the community and Government.</p>	not relevant to assessment
4. Minimise impact of kelp harvesting on the environment	<p>Strategy: Cast bull kelp only to be harvested.</p> <p>Strategy: Cast plants may be taken from deep holes or gutters, provided the equipment is shore based.</p> <p>Strategy: Specify areas where harvesting is not to occur with the aim of closing parts of specific beaches, eg. Parts of Arrow Beach, Unlucky Bay, Sandfly Beach, Badger Box, Dripping Well, Seal Rocks, 2nd Bay at Fitzmaurice Point (south to Surprise Point), Christmas and New Years Islands.</p> <p>Strategy: Prohibit the harvesting and transport of bull kelp across sandy beaches from September to March inclusive, except those beaches verified by relevant Authorities not to be Hooded Plover habitat.</p>	<p>Strategy is being applied</p> <p>Strategy is being applied, but equipment is not currently in use</p> <p>Strategy is being applied through WTO condition specifying beaches/areas where collection can occur.</p> <p>Strategy will be applied through WTO condition.</p>

⁵ Titled: “Granting Fishing Licence (Marine Plant) for the collection of cast bull kelp on King Island”

5. Who should be allowed to harvest?	<p>Strategy: Only the holders of relevant licences or their nominated employees can harvest bull kelp commercially.</p> <p>Strategy: Limit opportunities for unlicensed harvesters to operate. A licence holder shall only operate one harvesting team at any one time.</p> <p>Strategy: A licence holder or nominated supervisor must be in the immediate vicinity during the harvesting operation.</p>	<p>Strategy is being applied</p> <p>Strategy being achieved through harvester numbers limited by single processor</p> <p>Status not known</p>
6. Provide for needs of recreational and other users of the resource	<p>Strategy: Access to the resource should be maintained for small-scale users including 'recreational' use as a soil conditioner for household gardens.</p> <p>Strategy: To allow for a small harvest of bull kelp by commercial craft operator.</p>	<p>Status not known.</p> <p>Strategy not being employed.</p>
7. Proper records to be kept	<p>Strategy: Licence holders (processor and harvesters) must keep records of all kelp harvested as prescribed by DPIF (now DPIWE) in accordance with specific logbooks.</p>	<p>Strategy is being applied</p>
8. Control harvesting in controlled harbour approaches	<p>Strategy: No harvesting to occur in the ports of Currie and Grassy.</p>	<p>Strategy is being applied</p>

Table 2: Summary of policy objectives and strategies for King Island bull kelp harvest

In 1991 Dr A Cheshire drafted a paper titled “Proposal to the Australian National Parks and Wildlife Service for the Management of Durvillaea potatorum (La Billardiere) Areschoug in Tasmania”. This report has been relied upon by the proponent and DPIWE as background for the biological implications of management of cast bull kelp. This report concludes that the harvest of cast bull kelp has not resulted in any harm to near-shore/coastal ecology of King Island. While DEH welcomes the transparency of the basis for management of the harvest of beach cast bull kelp, it considers that the information contained in the Cheshire paper should be periodically reviewed and updated.

Conditions on the licences issued to the processor and collectors limit the harvest of kelp. Specifically, the collectors may supply product only to the holder of the single fish processing licence endorsed for cast bull kelp harvested on King Island and collectors must obtain the prior approval of managers or owners of property before entering public or private land. Since a significant area of the island is Crown Land or land administered by the Tasmanian Parks and Wildlife Service, the requirement for approval from these agencies to access the areas effectively ensures any collateral impacts on migratory seabird species is managed.

DEH notes that formalisation of the management arrangements for the harvest of bull kelp on King Island and, more generally, the harvest of marine plants in Tasmania is a low priority for DPIWE. DPIWE has advised that discussions and negotiations are ongoing between DPIWE, Kelp Industries, Tasmanian Crown Land Services and Parks and Wildlife over future management arrangements, particularly access to beaches for harvesting, regulation and compliance and impact minimisation on wildlife, native vegetation and indigenous cultural sites.

DEH considers that it would be beneficial to resource security and overall sustainability throughout the State for DPIWE to adopt a more strategic approach to the management of marine plant harvesting in Tasmania, through appropriate consultation processes.

DEH commends the proponent for their involvement in the development of several comprehensive studies on the sustainability of kelp harvesting on King Island and management options for the fishery

Recommendation 1: DPIWE to pursue a strategic approach to management of marine plants in Tasmania and, in particular, management of the harvest of beach cast bull kelp on King Island.

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

Recommendation 2: DPIWE to inform DEH of any changes to the management arrangements relevant to the harvest of bull kelp on King Island that may impact on the sustainability of bull kelp.

The harvesting of cast bull kelp by the proponent is restricted to a number of beaches (mainly rocky beaches on the western and northern areas) of King Island in Bass Strait:

- between Cape Wickham and approximately 5 kilometres south of Ettrick Beach;
- between Surprise Bay to the east of Stokes Point; and
- three areas around the south east coast of King Island (Red Hut Point, Grassy Harbour and City of Melbourne Bay).

DEH is aware that a Code of Conduct (Kelp Collectors Code of Conduct) has been developed and implemented by the industry. DEH commends this approach but notes that compliance with the Codes needs to be monitored and, where there is significant non-compliance (particularly item 7, salvaged kelp must be pulled up past high water mark and item 8, coastal flora and fauna must not be disturbed at any time), consideration should be given to the implementation of mandatory controls.

INTERNATIONAL MOVEMENT OF WILDLIFE SPECIMENS

Product from the bull kelp harvesting operations is exported and hence is subject to the export provisions of Part 13A of the EPBC Act, in particular the legislative requirements set out for the declaration of a WTO.

The harvest of cast bull kelp complies with Australia's obligations under Convention on International Trade in Endangered Species (CITES) and the Biodiversity Convention. Bull kelp is not included in any Appendix to CITES and the harvest of cast bull kelp is not considered to have any implication under the Biodiversity Convention.

The following assessment against the requirements of s.303FN of the EPBC Act indicates that the proposed operation is consistent with the objectives of Part 13A of the EPBC Act.

Kelp Industries proposes to the harvest of beach cast bull kelp ie. large, freshly detached plants, removed from their substrate by rough weather and cast onto the shore or into deep holes or gutters along the shore. The company has advised that harvesting occurs along rocky shores and along sandy beaches, with approximately 90% harvested from the rocky shores, as these areas are easier to work and the kelp is a cleaner product relative to the sandy beach areas. These detached plants cannot re-attach and once cast on the beach are dead or will die in the immediate future.

The harvest operations have little or no direct impact on live bull kelp, with harvesting only of plants detached by natural events. Harvesting as proposed by Kelp Industries is unlikely to pose a risk to survival of the species, which is distributed across southern Australia, or to the conservation status of the species.

DEH therefore considers that the harvesting operations will not be detrimental to the survival or conservation status of the taxon to which the operation relates. The current management arrangements for the operation (including monitoring) are effective but management would benefit from a more strategic approach.

Under conditions on previous declarations, operations were restricted to a maximum harvest of 50% of available beach washed material, and to designated coastal areas of King Island. DEH considers that this level of protection should be maintained as necessary conditions on a WTO, to ensure that any future disturbance to the local habitats and related biodiversity is minimised. Studies by Monash University, conducted in 1995 on behalf of Kelp Industries for the Tasmanian National Parks and Wildlife Service, indicated that only 10% of kelp cast from the beds is actually shore cast, mainly due to wave action and negative buoyancy. DPIWE has advised that only 30% of the total of cast weed is harvested. The proponent considers that the harvested is likely to be an even smaller percentage than this, ie. approximately 5%, given that kelp that is cast on sandy beaches is not collected nor is every rocky cove accessible.

Kelp Industries has harvested the approximate quantities as shown in Figure 1. The ratio of wet to dry weight is approximately 6:1.

Kelp Industries collect the kelp by hand from the beaches. Kelp is then hauled onto trailers or trucks by a winch. In areas of high yield kelp is collected from deep gutters and holes by large excavators with a grab attachment. The machine is able to lift the detached plants from the water and place them directly into the trucks for transport to drying areas.

A licence from DPIWE is required to harvest beach-washed kelp and there are approximately 100 licensed harvesters, but only a small number can be considered full-time. The DPIWE licence specifies specific locations where the harvester can harvest. Licensed harvesters are required to sell their product to a licensed processor. Kelp Industries is the only licensed processor of kelp on King Island.

Given the relatively small proportion of detached bull kelp that becomes beach-cast, selective harvesting of that species only and the constraints on harvesting to less than 50% of wrack, the operations are unlikely to threaten the littoral system in which operations are conducted.

Protected Bird Interaction

The hooded plover is listed as a migratory species under the EPBC Act. It occurs in southern Australia, and is an endemic wader species primarily living on sandy beaches, having a close association with wrack accumulations on beaches. It is found in highest densities where there are large amounts of beach cast seaweed. Both its range and populations are declining, and this trend in the population decrease may very well continue unless human disturbance is reduced during the nesting season (September - March). Hooded plovers nest on the upper most sections of beaches or in primary sand dunes. Any activities that result in increases in vehicle traffic, like harvesting of beach cast seaweed adjacent to these areas, should be carefully managed, especially during the hooded plover breeding season.

As stated in the DPIWE King Island cast bull kelp discussion paper, kelp plants reach maturity at 2.5 to 3 years of age and thereafter reproduce annually during the months of June to October. Kelp availability is normally lowest during the summer months, when the weather is milder, and therefore the period of relatively low harvesting pressure correlates with the breeding season of the hooded plover.

A number of listed migratory waterbird species have been identified as possibly present on King Island, which has been identified as an internationally important site for 2 migratory shorebird species, the ruddy turnstone and the double banded plover. These birds generally arrive in Australia in September-October and over winter here until March-April. The main concern regarding the harvest of cast bull kelp is the disturbance that such harvest activities may have on these shorebirds at roosting sites (particularly during high tide). DEH understands that research has been done and is being done on the disturbance of shorebirds and the detrimental effects it has on the birds ability to acquire enough food and rest to undertake their annual migration.

To prevent unnecessary interaction between kelp harvesters and shorebirds, the DPIWE discussion paper raised the option of disallowing harvesting during the hooded plover breeding season as a condition to the harvesting licence. DEH considers that such protection is a necessary condition on a WTO. The condition should maintain previous protection measures that required that the transporting of kelp and/or equipment is prohibited during the nesting season of the shorebirds, particularly the hooded plover, the ruddy turnstone (*Arenaria interpres*) and the double banded plover (*Charadrius bicinctus*). This should apply from September to March inclusive on sandy beaches, except the north-end of British Admiral Beach and any other sandy beach for which a representative from DPIWE has verified in writing that harvesting would not be detrimental to these birds.

With this condition in place, DEH considers that the harvest of cast bull kelp will not have, or is unlikely to have a significant impact on a migratory species. To ensure that future impacts of harvesting operations are minimised, DEH considers that the relevant Tasmanian Government Agencies need to review their migratory seabird monitoring requirements and implement more

structured monitoring arrangements. Monitoring options include surveying areas of shore where harvesting is allowed to assess the extent of use of these areas by shorebirds. Surveys to be conducted during the summer months when resident species are breeding and when migrating species are at their most abundant. The effects of harvesting on the birds' food supplies, and the effects of disturbance caused by harvesting on their feeding and breeding behaviour should also be considered. Management options include setting aside areas as "control" sites and reserve areas for dependent organisms.

Recommendation 3:

DPIWE to develop formal liaison arrangements with Tasmanian Parks and Wildlife to monitor the impacts of the harvesting operations on protected migratory seabird species

DEH notes the progress in the management of formal access to collection sites on Crown Land through the development of a contract between Tasmanian Crown Land Services and Kelp Industries.

Kelp Industries harvest of beach-washed bull kelp is restricted and the distribution of the species and the precautionary approaches towards harvesting in potential shorebird nesting areas are such that the proposed operations, acting in accordance with the designated management arrangements, would not be expected to have a significant impact on a listed threatened species or listed migratory species protected by the EPBC Act.

DEH therefore considers that the proposed harvesting operations, under existing management arrangements in combination with controls under State legislation, conditions in the proposed WTO conditions and actions specified in the recommendations in this report, are not likely to threaten any relevant ecosystem.

Since May 1996, in Tasmania, bull kelp, *D. potatorum* has been subject to control under the Tasmanian LMRM Act with administrative responsibility undertaken by the DPIWE. In addition to obtaining a permit from DPIWE, the harvesters must obtain permission from the landholders to harvest from their property. Access to Crown lands requires a permit issued by DPIWE. *D. potatorum* is also protected in marine reserves under the Tasmanian *National Parks and Wildlife Act 1970*.

DEH considers that legislation relating to the protection, conservation or management of bull kelp is in force in Tasmania and that this legislation is effective.

Conclusion

The proposed harvesting of beach-cast bull kelp meets the requirements of the relevant provisions of the EPBC Act. In particular:

- There is legislation in force in Tasmania that applies to the protection, conservation and management of *D. potatorum*; it applies throughout the State and provides an effective basis for management;
- The harvest and export of beach-cast *D. potatorum* is not likely to have a significant impact on the status of the species overall. While removals of wrack will have some impact on the littoral systems, the proposed management arrangements are considered to

be sufficiently precautionary, with specific measures to be implemented to minimise impacts on listed migratory species;

- The proposed harvesting, under a State licencing regime, is based on collection of a proportion of beach-cast specimens of bull kelp detached by natural processes from living intertidal and sub-tidal stands. Large, freshly detached plants are collected preferentially. Current estimates are that only small proportions of individual plants that become detached are beach-cast, the majority becoming fragmented and dispersed subtidally. Under the proposed harvest regime, no attached plants can be harvested and so direct impact on live stands and on the species overall is negligible;
- Onshore, removal of the beach-cast bull kelp will have a direct impact on detrital feeders and other decomposers in the littoral fringe. The proposed management conditions constrain collection to a maximum of an estimated 50% of the beach-cast kelp in a harvest site, with the remainder left in situ. Other beach cast algae are not harvested so that the total removals of wrack proposed under the arrangements are considered unlikely to have a significant longer-term impact on the littoral system; and
- Access of personnel and harvesting vehicles to harvest sites requires transit under permission through private and Crown land on established tracks. Under the proposed management conditions, including restricted access to known nesting beaches, the activities are considered unlikely to pose a threat to the shorebirds listed as a migratory species under the EPBC Act.

LIST OF ACRONYMS

CITES	Convention on International Trade in Endangered Species
DEH	Department of the Environment and Heritage
DPIWE	Tasmanian Department of Primary Industries, Water and Environment
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
LMRM Act	<i>Living Marine Resources Management Act 1995</i>
WTO	Wildlife Trade Operation under s 303FN of the EPBC Act