

AUSTRALIAN COMMUNICATIONS AND MEDIA AUTHORITY

**SUBMARINE CABLE (NORTHERN
SYDNEY PROTECTION ZONE)
DECLARATION 2007**

EXPLANATORY STATEMENT

1. LEGISLATIVE BASIS

The *Submarine Cable (Northern Sydney Protection Zone) Declaration 2007* (Declaration) is made under sub-clause 4(1) of Schedule 3A to the *Telecommunications Act 1997* (Act).

2. OUTLINE

In 1999, the National Bandwidth Inquiry examined Australia's regulatory framework for submarine telecommunications cables and recommended:

- a stronger planning and protection regime for cables;
- explicit authority to install submarine cables; and
- increased penalties for damaging cables to create an effective deterrent to unnecessary disruption of communications.

In response, Parliament passed the *Telecommunications and Other Legislation Amendment (Protection of Submarine Cables and Other Measures) Act 2005* (Amending Act), which commenced on 20 September 2005. It inserted a new Schedule to the *Telecommunications Act 1997* (Schedule 3A), which sets out a regime for protecting submarine cables and issuing permits for the installation of all new submarine cables.

Part 2 of Schedule 3A enables the Australian Communications and Media Authority (ACMA) to declare protection zones in relation to cables of national significance. A protection zone declaration is a legislative instrument for the purposes of the *Legislative Instruments Act 2003* and is required to be registered on the Federal Register of Legislative Instruments.

The Explanatory Memorandum for the Bill to the Amending Act states that the two main purposes of a protection zone are:

- to provide a more effective deterrent to stop people who may undertake activities that have the potential to damage submarine cables of national significance; and
- to enable cable planning and location decisions to be made in a more considered way, taking into account the interests of other users of the sea and seabed—this will encourage cable owners to co-locate cables in protection zones.

On 3 August 2006, ACMA came to the view that both the Southern Cross Cable and the Australia Japan Cable, which are located off the coast of Sydney, New South Wales (NSW), are cables of national significance. On 9 August 2006, ACMA published proposals for protection zones in relation to these two cables and sought public comment on the proposals. On 15 February 2007, ACMA published a variation to the proposals to widen the area of the protection zones and sought public comment on the variation to the proposals.

3. CONSULTATION

In developing this Declaration, ACMA undertook the following actions by way of consultation to promote discussion and feedback regarding the proposed Declaration:

- in accordance with clause 16 of Schedule 3A, referred the proposal to an Advisory Committee composed of representatives of key stakeholder groups (including the cable owners, commercial fishing groups, recreational fishing groups, environment and water resources representatives, the NSW Government, the Port of Sydney, SCUBA diving groups, ship owners, and telecommunications users);
- consulted with interested parties not represented on the Advisory Committee, notably the resource sector, the Australian Federal Police and NSW Water Police, indigenous bodies, and other Commonwealth agencies including Attorney-General's Department, Australian Fisheries Management Authority, Australian Hydrographic Office, Australian Maritime Safety Authority, Defence Science and Technology Office, Department of Agriculture, Fisheries and Forestry, Department of Communications, Information Technology and the Arts, Department of Defence, Department of Environment and Water Resources, and Department of Industry, Science and Resources;
- in accordance with clause 17 of Schedule 3A, published a proposal for the protection zone seeking public comment with a three month public comment period;
- released a detailed discussion paper and information sheet about the protection zone proposal;
- published a variation to the proposal for the protection zone seeking public comment with a five week public comment period;
- maintained an up-to-date website containing information about the submarine cable protection regime, links to copies of the proposal for a protection zone, and inviting public submissions on the proposal;
- supplied a copy of the proposal and the variation to the proposal to every recreational fishing club in NSW, to every SCUBA diving club in the greater Sydney region, and to numerous other interested stakeholders;
- maintained a toll-free telephone line for protection zone enquiries;
- held targeted information sessions with representatives from the commercial fishing, recreational fishing and SCUBA diving sectors; and
- met frequently with representatives from the Australia Japan Cable and the Southern Cross Cable to discuss specific aspects of the proposal.

There is broad support among stakeholders for ACMA to declare a protection zone in relation to the Australia Japan Cable and the Southern Cross Cable.

4. PURPOSE AND OPERATION

Submarine cables in Australian waters carry about 99 per cent of Australia's international voice and data traffic, and constitute a vital element of the national infrastructure. The volume of international communications through submarine cables is increasing and will continue to do so as the information economy grows and generates demand for bandwidth.

Submarine fibre optic communications cables are vulnerable to damage and breakage from various activities, including certain fishing techniques, anchoring by large vessels, dredging and dumping. In 1991, and again in 1997, submarine cables off Sydney were damaged by commercial trawl fishing operations. In July 2001, a trading ship dragged anchor off the coast of Sydney and severed two significant submarine communications cables.

Such cable breakage impedes information flow, affecting the capacity of Australians (particularly businesses) to conduct international transactions. Cable breaks disrupt the flow of international voice and data traffic for clients of the cable owners; impose costs, particularly on e-commerce; threaten reputation with overseas customers for quick and reliable service; and cause the loss of data and the loss of business. In 2002, the estimated value of submarine communications cables to the national economy was greater than A\$5 billion per annum. Cable owners estimate the direct cost to them of repairing a cable break at between \$1.2 million and \$3.3 million. The cost of cable breaks and repairs as well as the substantial flow-on costs to consumers and the public is ultimately borne by end users.

The primary purpose of the protection zone is to provide security and reliability of a critical component of Australia's national information infrastructure by deterring actions that may damage submarine cables of national significance. According to the Explanatory Memorandum for the Bill to the Amending Act, cables of national significance would generally be high capacity cables that are important to the national economy and that link Australia to global communications systems. The protection zone will have the added benefit of protecting cables that are not of national significance that are also located within the zone.

5. NOTES ON SECTIONS

Section 1 – Name of Declaration

Section 1 provides that the Declaration may be cited as the *Submarine Cable (Northern Sydney Protection Zone) Declaration 2007*.

Section 2 – Commencement

Section 2 provides for the Declaration to commence on 1 October 2007.

Section 3 – Definitions

Section 3 defines certain terms used in the Declaration. Where a term used in the Declaration is used in Schedule 3A, it generally has the same meaning in the Declaration as it does in Schedule 3A.

Many of the terms are technical in nature, or are used to help explain the examples that are listed in the Declaration.

Abalone spatula means a tool with a broad, flat and flexible blade used to pry abalone from the seabed.

ACMA means the Australian Communications and Media Authority.

Act means the *Telecommunications Act 1997*.

Anchor chain assembly means a length of chain that connects an anchor with an anchor line.

Anchor line means a rope or chain used to suspend an anchor from a ship.

Australia has the same meaning as in clause 2 of Schedule 3A to the Act. That is, *Australia*, when used in a geographical sense, includes all of the external Territories.

Australian waters has the meaning given by clause 2 of Schedule 3A to the Act. That is, *Australian waters* means: (a) the waters of the territorial sea (within the meaning of the *Seas and Submerged Lands Act 1973*) of Australia; and (b) the waters of the exclusive economic zone of Australia; and (c) the sea above that part of the continental shelf of Australia that is beyond the limits of the exclusive economic zone.

Bar means the unit of measurement for ultrasonic pressure waves.

Beach safety meshing net has the meaning given by clause 42 of the *Fisheries Management (General) Regulation 2002* as in force when this instrument commenced.

Benthos means sedentary animals or plants that live on the seabed.

Branching unit means any part of a submarine cable that allows the cable to branch.

Breaking strain, in relation to an object, means the force required for an object to break.

Cable carrier, in relation to a submarine cable that is within the Northern Sydney Protection Zone, means: (a) if a submarine cable is a network unit — the carrier that owns or jointly owns the cable, or is named in a nominated carrier declaration that is in force in relation to the cable; or (b) if a submarine cable is not a network unit and was installed after the commencement of Schedule 3A of the Act — a carrier that held a protection zone installation permit under Schedule 3A to install the cable in the protection zone; or (c) in any other case — the carrier that owns, or jointly owns, a network unit that is immediately connected to the cable, or is named in a nominated carrier declaration in force in relation to that network unit.

Circle type hook means a circular fishing hook where the barb of the hook faces its shaft.

Civil engineering work includes: (a) planning, design, construction, maintenance, management and demolition of a fixed structure or public works; and (b) depositing sand in a place.

Conduct has the meaning given by clause 2 of Schedule 3A to the Act. That is, *conduct* means an act, an omission to perform an act or a state of affairs.

Dropline means a vertically set weighted fishing line with 6 or more hooks that kept vertical by a float.

Electro-optic devices means those electronic parts of a submarine cable that manage or re-transmit communications along a line.

Equaliser means submerged electro-optic devices that are installed at intervals along a submarine cable to boost signal transmission.

Explosive device does not include: (a) firearms of less than 20 millimetre calibre; or (b) firearms used or intended to be used for life saving or distress signalling purposes.

Grapnel means a grabbing device used, or intended to be used, to grab an item on the seabed.

Grid lines means the local pattern used to map the seabed with seismic survey equipment.

Installation has the same meaning as in clause 2 of Schedule 3A to the Act. That is, *installation*, in relation to a submarine cable, includes: (a) the laying of the cable on or beneath the seabed; and (b) the attachment of the cable to any other cable or thing; and (c) any activity that is ancillary or incidental to the installation of the cable.

J-hook means a fishing hook where the barb of the hook is parallel to the shaft.

Longline means a fishing line with 6 or more hooks lying horizontally along or near the seabed.

Low water mark means the height of the lowest ebb tide.

Mainline means the principal fishing line used or intended to be used as, or as part of, a dropline, longline, setline or trotline.

Midwater trawl means trawl gear that is designed and rigged to work in midwater, including surface water.

Network unit has the meaning given by Division 2 of Part 2 of the Act.

New South Wales means the State of New South Wales.

Northern Sydney Protection Zone means the protection zone that is declared by this Declaration.

Nominal location means the nominal location of the Australian Japan Cable or Southern Cross Cable specified in section 7 of this Declaration.

Ocean disposal point means a point where specified material may be disposed and includes a point designated or declared by the Commonwealth or a State or Territory government to be a point where the disposal or abandonment of material is permitted (whether or not particular material is specified).

Pressure waves means controlled pulses of sound generated by seismic survey equipment.

Protection zone installation permit has the meaning given by clause 2 of Schedule 3A to the Act.

Repeater means a device used, or intended to be used, to enhance the signal along a submarine cable or part of a submarine cable.

Scuttle, in relation to a ship, means to deliberately sink a ship.

Seismic survey means any method of exploration for resources that involves the transmission of pressure waves into the seabed and the measurement of vibrations that occur because of those pressure waves.

Setline means a fishing line that has multiple snoods attached to a horizontal demersal-set mainline.

Ship has the meaning given by clause 2 of Schedule 3A to the Act. That is, *ship* means any kind of vessel used in navigation by water, however propelled or moved.

Shot means the weight attached to the end of a shotline.

Shotline means a weighted line that may be used to moor a ship.

Sliding ring anchor means an anchor that has an anchor line fitted to a ring that is designed to slide freely along the shank of the anchor.

Snood means any hook and fishing line that is connected, whether directly or indirectly and whether permanently or temporarily, to a mainline.

Spoil ground means an area where specified material may be disposed and includes an area designated or declared by the Commonwealth or a State or Territory government to be an area where the disposal or abandonment of specific material is permitted.

Submarine cable has the meaning given by clause 2 of Schedule 3A to the Act. That is, *submarine cable* means that part of a line link: (a) that it is laid on or beneath the seabed that lies beneath Australian waters; and (b) that is laid for purposes that include connecting a place in Australia with a place outside Australia (whether or not the cable is laid via another place in Australia); and includes any device attached to that part of the line link, if the device is used in or in connection with the line link. Note: Any part of a line link that is laid elsewhere than on or beneath the Australian seabed, and any device attached to such part of a line link, is not a submarine cable for the purposes of Schedule 3A.

Submerged plant items, in relation to a submarine cable that is in the Northern Sydney Protection Zone, means electronic components (for example, repeaters, passive equaliser units and branching units are all submerged plant items) of a

submarine cable system that serve to manage, or intended to manage, the signal at intervals along the cable's route.

Trace means any fishing line used to attach a hook to a mainline.

Trap rope means any rope used to suspend a pot or trap from a ship.

Trip anchor means an anchor that is fitted with lugs at both ends of the shank with an anchor line or rope fitted securely to the front lug (located near the anchor prongs) and then tethered to the rear lug via a weak or 'sacrificial' link.

Trip release mechanism, in relation to an anchor, means a device or system that, when fitted to an anchor, allows the anchor to be removed backwards from the seabed.

Trotline means 2 or more droplines that are connected by horizontal midwater bars.

Section 4 – Definition of line

Section 4 provides that the term 'line' has its ordinary meaning when used in relation to 'fishing operations', or when used in relation to a 'fishing line', a 'shot line', or an 'anchor line'. The Act defines "line" in a different way, and is not the definition generally to be used in the Declaration.

Section 5 – Application of Declaration

Section 5 makes it clear that the Declaration does not operate, and does not purport to operate, beyond Australia's international law jurisdiction.

Section 6 – Area of the Northern Sydney Protection Zone

Section 6 sets the area of the protection zone.

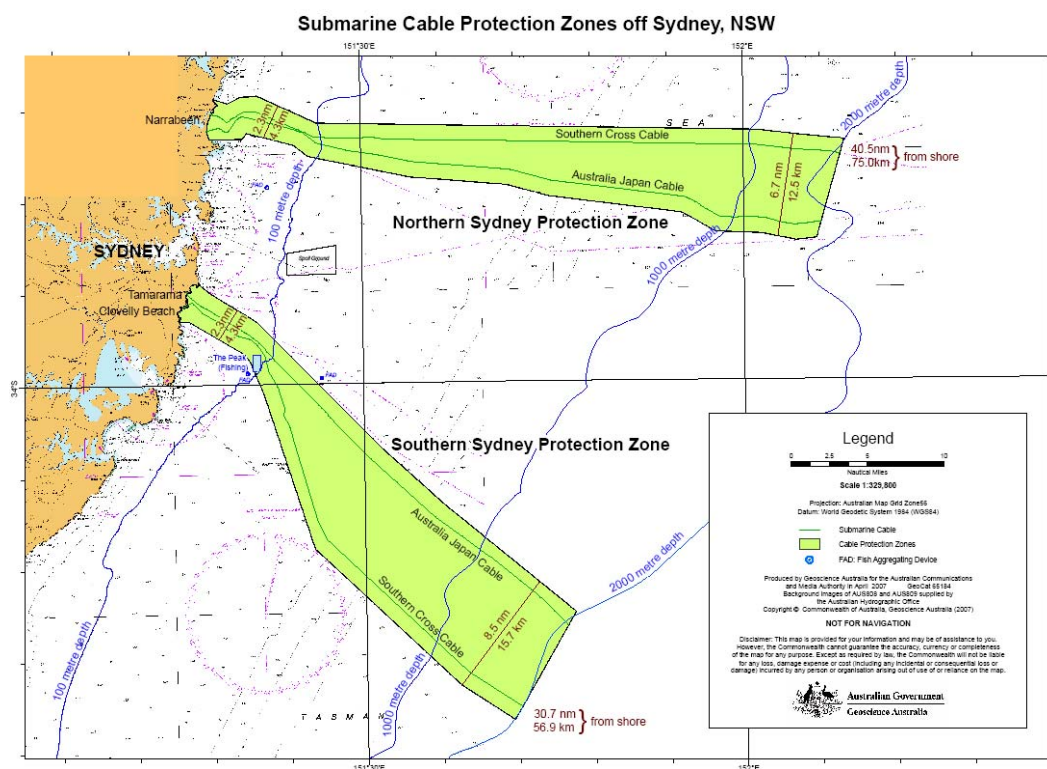
The geographic coordinates listed in section 6 set the protection zone to consist of the area between the nominal location of the Australia Japan Cable and the Southern Cross Cable and the area no more than one nautical mile (1852 metres) from the outside edge of the points on the surface of the sea above the nominal location of the two cables. The protection zone commences at the low-water mark and finishes at a point corresponding to a water depth of 2,000 metres.

Clause 9 of Schedule 3A allows ACMA to declare a protection zone in relation to more than one cable. In that case, a protection zone may consist of the area between the nominal location of each cable and the area no more than one nautical mile from the outside edge of the points on the surface of the sea above the nominal location of the two outermost cables. Here, ACMA has simplified the shape of the protection zone to assist marine users in determining whether or not they are in the zone. Thus, the boundary of the protection zone does not encroach closer than 1500 metres to, nor extend more than 1852 metres from, the nearest cable. Under clause 9 of Schedule 3A, the protection zone includes the waters, sea and subsoil beneath that area.

The protection zone has been narrowed at the southwest extremity of the zone, so that it does not include the area to the east of Long Reef Point (33°44'30" S, 151°19'00" E: World Geodetic System 1984), which is an extremely popular fishing and diving area. This is achieved by not extending the boundary of the Northern Protection Zone south of 33°44'00" S from the low-water mark, due east out to approximately 40 metre water depth (at which point the protection zone boundary heads in a generally north-easterly direction).

The protection zone is about 2.2 nautical miles (4.1 kilometres) wide at its narrowest point (in inshore waters about 80 metres deep) and fans out to a maximum of 6.7 nautical miles (12.5 kilometres) at its widest point (in waters beyond 500 metres deep). This widening of the protection zone area with increasing water depth is necessary to enable the co-location of cables into the protection zone should the need arise in the future. Such cables need to be installed at a distance of at least twice the corresponding water depth away from any other cable. Declaring a wide protection zone is designed to encourage the installation of new cables into the existing protection zone, which will reduce the need for declaring protection zones in other areas.

A map depicting the Northern Sydney Protection Zone (and the Southern Sydney Protection Zone) is included below.



Section 7 – Nominal location of submarine cables in the Northern Sydney Protection Zone

A Declaration of a protection zone must specify a nominal location for the relevant cable or cables (Schedule 3A, sub-clause 8(1)). Hence, section 7 provides the nominal location of (i) the Australia Japan Cable and (ii) the Southern Cross Cable.

The location must be expressed in geographic coordinates and must include the geodetic datum to which the coordinates refer (Schedule 3A sub-clause 8(2)). The reference to ‘geographic coordinates’ means a set of two pieces of information, specifically the measurement of longitude and the measurement of latitude of a specific point, but this information does not in itself provide the means of identifying the position of a particular point on the surface of the Earth with any accuracy. A datum, the reference surface for the latitude and longitude, must also be given, as there is more than one datum that could be used. The geodetic datum is the mathematical model of the Earth used to determine the exact position of geographic coordinates having regard to the curvature of the Earth. The Declaration provides all geographic coordinates in the World Geodetic System 1984, which is identical to the Australian Geodetic Datum 1994 as described in the Commonwealth of Australia Gazette GN35 of 6 September 1995.

The actual (that is, physical) location of a submarine cable may change over time, either because of ocean currents or movements of the seabed, repairs to the cable, or contact of the cable with marine equipment.

This section ensures that the boundaries of a protection zone as specified under section 6, and therefore its area, can be established with precision even if the cable is not laid precisely at the nominal location, or if the cable moves after it is laid. The protection zone boundaries will be specified and fixed.

Section 8 – Prohibited activities in the Northern Sydney Protection Zone

Section 8 specifies those activities that are prohibited throughout the protection zone. Along with section 9, it forms a framework for regulating activities in the protection zone, which is intended to minimise the risk of damage to cables.

The particular focus of this section is to prohibit activities that are likely to result in a physical connection between a ship or other object and the seabed that is capable of damaging a cable. This section prohibits activities that constitute a serious threat of damage to a submarine cable.

Three of the activities listed in section 8 (Item 1 in Table 5), were listed in Schedule 3A (sub-clause 10(4)) as being activities that constitute a serious threat of damage to a submarine cable, namely the use of, or towing operating or suspending from a ship:

- trawl gear that is designed to work on or near the seabed (for example a demersal trawl) (Schedule 3A, subparagraph 10 (4) (a) (i));
- a dredge (Schedule 3A, subparagraph 10 (4) (a) (iv)); or

- a structure moored to the seabed with the primary function of attracting fish for capture (for example, a fish aggregating device) (Schedule 3A, subparagraph 10 (4) (a) (viii)).

In addition, ACMA has identified other activities that also constitute a serious threat of damage to a submarine cable, namely:

- the use of, or towing operating or suspending from a ship:
 - a mid-water trawl;
 - a type of net, rope, chain or other object used in fishing operations that is capable of contacting the seabed;
 - a demersal longline (including setlines or trotlines);
 - a Danish seine;
 - a Scottish seine;
- scuttling or attempting to scuttle a ship; and
- establishing, maintaining or using a spoil ground or ocean disposal point.

These activities are prohibited under subparagraph 10 (4)(g) of Schedule 3A because they are all activities that involve a serious risk that an object will connect with the seabed in a manner that is capable of damaging the cable.

Items 1 and 3 – Demersal trawl gear

Items 1 and 3 in Table 5 prohibit the use of, towing, operating, or suspending from a ship, demersal trawl gear throughout the protection zone.

Trawling is a fishing technique whereby a vessel tows a large cone or funnel-shaped net through the water. By design, demersal trawl equipment rolls almost continuously along the seabed using steel bobbins (rollers) connected to the lower wire of the trawl net. The equipment can be extremely heavy; for example, the timber or steel boards that act to keep the net open can weigh more than 400 kilograms each. Due to its weight and the fact that it comes into direct contact with the seabed, the use of such equipment poses a serious risk of damage to submarine cables.

Trawl gear can penetrate the soft sediment of the seabed by as much as 50–60 centimetres. Therefore, demersal trawling presents the added problem of potentially shifting a layer of sediment with each fishing pass, which can expose buried cables, making them more vulnerable to damage.

The majority of cable damage around the world arises from either demersal trawling or anchoring. Significant damage has occurred to cables off the New South Wales coast in 1991 and again in 1997 as a direct result of trawl fishing operations.

The Australian Fisheries Management Authority data indicate that some demersal trawl fishing takes place within the area of the protection zone.

Items 1 and 3 – Dredges

Items 1 and 3 in Table 5 prohibit the use of, towing, operating, or suspending from a ship, dredges throughout the protection zone.

Clause 10 of Schedule 3A lists the use of a dredge as an activity that ACMA may prohibit. The term ‘dredge’ is a broad term and includes a ‘fishing dredge’ used for harvesting molluscs and scallops as well as a dredge used to collect sand from riverbeds and seabeds. In this instance, a ‘dredge’ is referring principally to ‘fishing dredges’. The use of dredges for sand extraction is restricted under section 9 (Item 12 in Table 6).

Fishing dredges operate somewhat like a demersal trawl in that a vessel tows a rigid structure (which may be a 3–4 metre wide, 250-kilogram metal tray with a mesh bag) across the seabed to collect molluscs (typically clams and scallops). Mechanised (hydraulic) fishing dredges operate by shooting high-pressure streams of water into the seabed to dig out the molluscs, which then collect in a towed metal frame.

Dragging such rigid and heavy structures along the seabed poses a significant risk to submarine cables. In addition, like demersal trawling, dredging can remove a layer of sediment with each pass, which may expose buried cables, thereby increasing their vulnerability to damage.

Dredging occurs in quite localised areas within Australian waters. At present, ACMA is not aware of any dredging operations occurring within the protection zone. This prohibition is unlikely to have any impact upon current marine users.

Items 1 and 3 – Fish aggregating devices

Items 1 and 3 in Table 5 prohibit the use of, towing, operating, or suspending from a ship, a structure moored to the seabed with the primary function of attracting fish for capture (for example, a fish aggregating device (FAD)) throughout the protection zone.

Fish aggregating devices are structures or objects placed intentionally in the open ocean with the primary function of aggregating pelagic fish. A simple type of FAD is an anchored buoy that may have objects attached and suspended in the water such as plastic floats or foam blocks. FADs are moored semi-permanently to the seabed with anchors, stakes or weights and removed during the winter months for servicing.

As FADs are staked or anchored to the seabed, there is a serious risk that installing or removing a FAD will connect with the seabed, and thereby cause damage to a submarine cable.

At present, ACMA is not aware of the use of fish aggregating devices within the protection zone. As FADs can easily be positioned outside the protection zone without any negative implications for their operation, the prohibition on the installation of FADs within the protection zone should have no impact upon current marine users.

Item 2(a) and 3 – Mid-water trawl gear

Items 2(a) and 3 in Table 5 prohibit the use of, towing, operating, or suspending from a ship, mid-water trawl gear throughout the protection zone.

Despite its name, mid-water trawl gear comes into relatively frequent and heavy contact with the seabed. Like demersal trawling, mid-water trawls use very heavy timber or steel boards to keep the net parted. These boards can strike the seabed with considerable force and the trawl net itself may wrap around submarine cables. This activity involves a serious risk of connection with the seabed, with such connection being capable of causing damage to submarine cables if carried out within the protection zone.

Mid-water trawling is a relatively uncommon technique in Australian waters and, to ACMA's knowledge, there are no vessels currently utilising this technique within the protection zone. This prohibition should therefore have no impact upon current marine users.

Items 2(b) and 3 – Other demersal gear

Items 2(b) and 3 in Table 5 prohibit the use of, towing, operating, or suspending from a ship, any demersal fishing gear throughout the protection zone other than when used in the course of fishing activities restricted by section 9. In other words, while pots and traps, gillnets, droplines, and demersal fishing line using J-hooks can be used within the protection zone (provided they are used in accordance with other restrictions outlined in the Declaration), fishers are not allowed to use any other type of demersal gear within the protection zone.

The purpose of this prohibition is to (i) allow certain types of demersal fishing gear to be used within the protection zone (specifically those gear types that are restricted elsewhere in the Declaration), and (ii) prevent the use of fishing gear in the future that could conceivably damage a cable within the protection zone.

This prohibition has no impact on the use of pelagic equipment that does not pose a risk to submarine cables, such as a squid jig, a purse seine, a haul net or a fishing line that does not contact the seabed. As this prohibition is designed to prevent the uptake of demersal fishing methods in the future, it should have no impact upon fishers currently utilising the protection zone.

Items 2(c) and 3 – Demersal longlines (including setlines and trotlines)

Items 2(c) and 3 in Table 5 prohibits the use of, towing, operating, or suspending from a ship, longline fishing gear throughout the protection zone.

Longlines (including trotlines and setlines) can consist of strong mainlines, sometimes with many branch lines and hundreds—or, in the case of some auto-longlines, thousands—of baited hooks. With some Commonwealth-managed auto-longlines, the mainline itself can be more than 1,000 metres long. Demersal lines are often anchored or weighted to the seabed while the line is being set before being winched to a vessel at the surface. Demersal line fishing of this sort could damage a submarine cable because the

large hooks could snag or penetrate a cable and the longlines themselves could become entangled with a cable. Anchors or weights attached to lines could also damage or drag a cable.

While longlining does occur in Australian waters, to ACMA's knowledge there are no vessels currently utilising this technique within the protection zone. This prohibition should therefore have minimal impact upon marine users.

Items 2(d), 2(e) and 3 – Danish or Scottish seining

Items 2(d), 2(e) and 3 in Table 5 prohibit the use of, towing, operating, or suspending from a ship, Danish or Scottish seines within the protection zone.

A Danish or Scottish seine operates in a similar manner to a demersal trawl; in each case, the two ends of a long strand of heavy wire remain fixed to the fishing vessel, while the looping middle section of the wire drags along the seabed. The action of the wire scraping along the seabed causes a 'mud curtain' to rise up into the water column around the advancing wires. This, in turn, causes fish to swim towards a towed net. The equipment is designed specifically to drag along the seabed, and connection with the seabed in the vicinity of a cable is capable of causing damage to the cable.

ACMA understands that Danish or Scottish seining are relatively uncommon techniques in Australian waters and there are no vessels currently utilising this technique within the protection zone. This prohibition should therefore have no impact upon marine users.

The use of beach seines and purse seines (which pose little or no risk to submarine cables) are unaffected by this Declaration.

Item 3 – The towing, operating or suspending from a ship any item used in an activity mentioned in items 1 or 2 in Table 5

As discussed above, Items 1 and 2 in Table 5 prohibit the *use of* demersal trawl gear, dredges, fish aggregating devices, mid-water trawl gear, other demersal gear that is not otherwise restricted, demersal longlines, Danish seines or Scottish seines. Item 3 in Table 5 prohibits the *towing, operating or suspending from a ship* demersal trawl gear, dredges, fish aggregating devices, mid-water trawl gear, other demersal gear that is not otherwise restricted, demersal longlines, Danish seines or Scottish seines.

Item 4 – Scuttling of ships

Item 4 in Table 5 prohibits the intentional scuttling of ships within the protection zone.

Occasionally, vessels are intentionally scuttled and allowed to settle on the seabed. For example, the military may sometimes scuttle confiscated or outdated vessels. State governments have sunk obsolete vessels to provide an artificial reef to attract fishers and SCUBA divers. A ship scuttled within a protection zone inevitably contacts the seabed, and is capable of causing damage to a submarine cable.

ACMA understands that the scuttling of ships is a rare activity. Given that there are many areas off the coast around Sydney that would be suitable sites for ship scuttling, this prohibition should have no impact upon marine users.

Item 5 – Spoil grounds and ocean disposal points

Item 5 in Table 5 prohibits the dumping of materials onto the seabed at designated spoil grounds or at other ocean disposal points.

Dumping in general is prohibited under the *Environment Protection (Sea Dumping) Act 1981*. However, State or Australian Government authorities can designate a defined area or ‘spoil ground’ where specified materials (for example, dredge waste) may be dumped legally onto the seabed. Likewise, governments may define a specific place or ‘ocean disposal point’ for the legal disposal of specified materials, such as explosive ordnance. The material inevitably settles on the seabed.

The establishment of a spoil ground or an ocean disposal point within the protection zone could result in damage to the submarine cable and could reduce the ability of cable owners to carry out maintenance and repair activities to the cable. It would also reduce the potential for additional cables to be co-located within the protection zone.

Item 5 does not prohibit the placement of sand for beach renourishment or foreshore protection projects. These activities are regarded as ‘civil engineering work’, which is restricted under Item 13 in Table 6 (section 9).

Item 5 prohibits the disposal of explosive ordnance or explosive devices within the protection zone.

A spoil ground has been established approximately seven nautical miles (thirteen kilometres) to the south of the protection zone. To ACMA’s knowledge, there are no spoil grounds or ocean disposal points currently within the protection zone. This prohibition should therefore have no impact upon current marine users.

Section 9 – Restricted activities in the Northern Sydney Protection Zone

Section 9 specifies restrictions on activities in the protection zone. The particular focus of this section is on activities that involve techniques and the use of equipment in the water that are less likely than those specified in section 8 to result in physical contact between a ship or other object and the seabed but that, if they occur, could still damage a cable. Table 6 lists 17 activities that are restricted within the protection zone and provides details of the restrictions that apply to each activity.

Items 1 and 6 – The use of a net anchored to the seabed

Items 1 and 6 in Table 6 restrict the use of, towing, operating, or suspending from a ship, a demersal gillnet, beach safety meshing net, or any other form of demersal shark netting to within 500 metres from shore.

Demersal gillnets are nets that are fixed to the seabed with weights or anchors and held upright, typically by a series of floats along the top line of the net. In some cases, the net may be up to 6 kilometres in length. The footrope (lower line of the net) is often weighted with a lead core. The net is set and left *in situ* before being winched to the surface from a vessel to retrieve the catch. The weights, anchors or the net itself could snag a cable and damage it when the net is winched to the surface.

Within 500 metres from shore, submarine cables are heavily armoured, housed in metal conduit and buried several metres below the seabed. Because there is no real possibility of a demersal gillnet or beach safety meshing net causing damage to a cable within 500 metres of shore, this Declaration does not restrict the use of demersal gillnets or beach safety meshing nets within 500 metres of shore.

Although demersal gillnets are not, to ACMA's knowledge, currently used beyond 500 metres from shore, this Declaration will prevent the use of such gear in those areas in the future.

Beach safety meshing nets in NSW are installed typically within 500 metres of shore. Therefore, this restriction should have no impact upon the use of beach safety meshing nets in the protection zone.

Items 2 and 6 – The use of a pot or trap

Items 2 and 6 in Table 6 restrict the use of, towing, operating, or suspending from a ship, pots and traps so that, beyond 500 metres from shore, fishers can only use a pot or a trap provided (i) the pot or trap has a rectangular base less than 2 metres in length and 2 metres in width (or a circular base less than 2 metres in diameter), and (ii) the trap rope is not composed of wire and has a breaking strain that does not exceed 850 kilograms.

There are many types of pots and traps used for fishing operations in Australian waters. Pots or traps usually consist of wire or string mesh or wooden battening around some form of rigid frame. Typically, a pot or trap is lowered slowly from a vessel to the seabed using nylon rope. Internal weights ensure the trap remains upright as it sinks to the bottom. A rope connects the trap to a marker buoy at the surface. The pot or trap remains *in situ* on the seabed and retrieved after a few hours or days. The pots or traps do not penetrate the seabed, but can conceivably snag a cable lying on top of the seabed, which could result in the cable being moved or damaged as the pot or trap is retrieved.

Within 500 metres from shore, submarine cables are heavily armoured, housed in metal conduit and buried several metres below the seabed. Because there is no real possibility of a pot or trap causing damage to a cable within 500 metres of shore, this Declaration does not restrict the use of pots or traps within 500 metres of shore.

Restricting the allowable size of the pots or traps within the protection zone will ensure that pots or traps large enough to damage a cable will not be used within the zone. The maximum allowable dimensions for pot and trap size within the protection zone are consistent with the current maximum allowable dimensions for pot and trap size according to the NSW Department of Primary Industry regulations for potting and trapping in open waters off NSW (see the *Fisheries Management [General] Regulation 2002*, regulations 59-65). This means that all pots and traps that are used legally within

NSW waters can be used legally within the protection zone (provided the trap rope does not have a breaking strain in excess of 850 kilograms).

The maximum allowable breaking strain of the trap rope (850 kilograms) is below the minimum line strength required to lift or damage a submarine cable. This will ensure that if a pot or trap does become entangled with a cable, the dropline itself will break before the cable is moved or lifted. Trap ropes composed of commercial 8-millimetre medium-density polypropylene or polyethylene or non-metallic materials of an equivalent strength are unlikely to have a breaking strain that exceeds 850 kilograms and are therefore permissible within the protection zone.

This restriction does not prevent current potting and trapping activities of low risk to cables from continuing, whilst ensuring that any new potting and trapping techniques with the potential to damage cables are not employed within the protection zone in the future.

Trapping and potting is common practice within Australian waters and occurs on both a commercial and recreational basis within the protection zone. To ACMA's knowledge, all legal potting and trapping activity within the protection zone currently conforms to the restrictions specified in Items 2 and 6 in Table 6. Therefore, this restriction is unlikely to have any impact on current potting or trapping operations.

Items 3 and 6 – The use of a demersal dropline

Items 3 and 6 in Table 6 restricts the use of, towing, operating, or suspending from a ship, a demersal dropline, so that beyond 500 metres from shore, fishers can use commercial demersal droplines provided that (i) only circle-type hooks (rather than J-hooks) are used, (ii) the breaking strain of the dropline does not exceed 850 kilograms, and (iii) the dropline does not use wire in the mainline, or in any of the snoods or traces.

Droplines are defined in the Declaration as “a vertically set weighted fishing line deploying 6 or more hooks and kept upright by a float(s).” Under NSW Department of Primary Industries’ regulations on line fishing in open waters off NSW (see the *Fisheries Management [General] Regulation 2002*, regulation 66), recreational fishers are not allowed to attach 6 or more hooks to their fishing line. Therefore, the restrictions specified within Items 3 and 6 in Table 6 apply only to commercial droplining operations.

Recreational fishers with up to 6 hooks attached to their line sometimes refer colloquially to this line as a ‘dropline’ or a ‘paternoster rig’. As mentioned, this activity does not fall under the definition of ‘droplining’ according to the Declaration. If fishers are using J-hooks on their line, then their activity is restricted under Items 4 and 6 in Table 6.

Within 500 metres from shore, submarine cables are heavily armoured, housed in metal conduit and buried several metres below the seabed. Because there is no real possibility of a dropline causing damage to a cable within 500 metres of shore, this Declaration does not restrict the use of droplines within 500 metres of shore.

A typical commercial dropline has between 50-100 hooks attached to it via ‘snoods’ or ‘traces’. Dropline fishers routinely use circle-type hooks, which (unlike the typical J-type hooks used by most recreational fishers) curve to such an extent that the sharp point of

the hook actually faces towards the shank of the hook. Consequently, unlike a J-hook, a circle-type hook is physically unable to pierce a submarine cable. Dropline fishers utilise circle-type hooks as standard practice as it increases fish catch rate on a dropline. Restricting hook types to ensure that only circle-type hooks are used will ensure that other forms of hooks will not be used on droplines within the protection zone in the future.

The maximum allowable breaking strain of the dropline (850 kilograms) is below the minimum line strength required to lift or damage a submarine cable. This will ensure that if a dropline does become entangled with a cable, the dropline itself will break before the cable is moved or lifted. Droplines or hauling ropes composed of commercial 3-millimetre monofilament nylon or 5-millimetre medium-density polypropylene or polyethylene or non-metallic materials of an equivalent strength are unlikely to have a breaking strain that exceeds 850 kilograms and are therefore permissible within the protection zone.

The use of wire in the mainline or in attachments to the mainline (called snoods or traces), is prohibited to ensure that wire, which could potentially abrade cable armouring, cannot be used within the protection zone. Current droplining operations rarely use wire within the protection zone.

Thus, this restriction enables current droplining activities of low risk to cables to continue, whilst ensuring that any new droplining techniques with the potential to damage cables are not employed within the protection zone in the future.

Commercial droplining occurs occasionally within the protection zone. ACMA understands that all droplining activity within the protection zone currently conforms to the restrictions specified in Items 3 and 6 in Table 6. Therefore, this restriction should not have any impact on current droplining operations.

Items 4 and 6 – the use of a demersal fishing line containing J-hooks

Items 4 and 6 in Table 6 restricts the use of, towing, operating, or suspending from a ship, a demersal fishing line containing J-hooks so that beyond 500 metres from shore fishers can only use a demersal fishing line containing one or more J-hooks if the breaking strain of the fishing line does not exceed 50 kilograms.

These Items apply to any line fishing using J-hooks where the line has the capacity to come into contact with the seabed. These items do not apply to pelagic or mid-water line fishing operations, nor do the items apply to fishing operations using only circle-type hooks.

Cable armouring can be pierced by the barb of a J-hook if the hook is pulled into the cable with considerable force. Therefore, limiting the breaking strain of the line to 50 kilograms when fishing with a J-hook will ensure that if a hook were to contact a cable, the line would break before the hook could pierce the cable armouring.

Within 500 metres from shore, submarine cables are heavily armoured, housed in metal conduit and buried several metres below the seabed. Because there is no real possibility of a J-hook causing damage to a cable within 500 metres of shore, this Declaration does

not restrict the use of demersal fishing line containing J-hooks within 500 metres of shore.

Within the Declaration, the maximum allowable breaking strain for a fishing line with a J-hook is 50 kilograms, whereas the allowable breaking strain for dropline fishing is considerably higher (850 kilograms). The reason for this difference derives from the nature of the hook used in the respective activities. As discussed above, J-hooks have the potential to pierce cable armouring if the hook is pulled with force into the cable. Therefore, the breaking strain of the line carrying the J-hooks needs to be restricted to lighter lines (i.e. to lines with a breaking strain of less than 50 kilograms). In contrast, dropline fishers use circle-type hooks, which cannot physically pierce cable armouring. The risk droplining poses to cables is the possibility that the mainline will wrap around the cable. Limiting the breaking strain of the mainline to 850 kilograms ensures that if a fisher attempts to retrieve a snagged dropline, the dropline will break long before the cable will be moved or damaged.

To ACMA's knowledge, the vast majority of fishers using demersal fishing line containing J-hooks use fishing line with a breaking strain that does not exceed 50 kilograms. Thus, the restrictions should have little impact on the vast majority of fishers targeting demersal species. Fishers wishing to target demersal fish beyond 500 metres from shore using line with a breaking strain greater than 50 kilograms will not be able to carry out these activities within the protection zone.

Items 5 and 6 – The use of a grapnel

Items 5 and 6 in Table 6 restricts the use of, towing, operating, or suspending from a ship, a grapnel so that beyond 500 metres from shore grapnels can only be used by persons engaged in the following activities:

- (a) exploring for or exploiting resources (other than marine species); or
- (b) installing, maintaining or removing an electricity cable, an oil or gas pipeline and any like cables or pipelines and any associated equipment; or
- (c) constructing or removing a navigational aid; or
- (d) constructing or removing an installation for the use of ships; or
- (e) conducting civil engineering work; or
- (f) conducting research that involves contact with the seabed.

These activities are restricted elsewhere in the Declaration and must occur in a manner that is not likely to damage or impede the efficient operation, maintenance, or repair of a submarine cable. Consultation between the persons intending to use a grapnel and the cable carriers will play a key role in ensuring that any grappling is conducted in a cable-safe way.

A grapnel is any grabbing device suspended from a ship with the purpose of snagging and retrieving an object from the seabed. This activity clearly represents a risk of snagging a submarine cable. For the purposes of the Declaration, a grapnel does not include a 'reef anchor' or a 'reef pick', which are commonly used by scuba divers and

fishers and sometimes colloquially referred to as ‘grapnels’ or ‘grapnel anchors’. Reef picks or reef anchors have relatively flexible prongs that bend readily if the anchor snags on a demersal object. These objects are restricted under Item 17 in Table 6.

Cable operators use grapnels to locate and retrieve their cables during installation, maintenance or repair operations. Although cable maintenance or repair is not included in the list of activities in which grapnels can be used, clause 40 of Schedule 3A provides that it is not an offence for the carrier who owns or operates the cable, or a person acting on behalf of such a carrier, to engage in a prohibited or restricted activity for the purpose of installing, maintaining or repairing a submarine cable for which the carrier is responsible. Thus, cable operators can lawfully use grapnels to install, maintain or repair their own cable.

Within 500 metres from shore, submarine cables are heavily armoured, housed in metal conduit and buried several metres below the seabed. Because there is no real possibility of a grapnel causing damage to a cable within 500 metres of shore, this Declaration does not restrict the use of grapnels within 500 metres of shore.

This restriction will impact upon marine users wishing to use a grapnel that are not legitimately conducting the activities listed in this Item.

Item 6 – The towing, operating or suspending from a ship of an object mentioned in items 1 to 5 in Table 6.

As discussed above, Items 1 to 5 in Table 6 restrict the *use of* a net anchored to the seabed, a pot or trap, a demersal dropline, demersal fishing line containing J-hooks, or grapnels, respectively. Item 6 in Table 6 prohibits the *towing, operating or suspending from a ship* a net anchored to the seabed, a pot or trap, a demersal dropline, demersal fishing line containing J-hooks, or grapnels.

Item 7 – Installing an electricity cable, an oil or gas pipeline, any like cables or pipelines, and any associated equipment

Item 7 in Table 6 restricts the installation of an electricity cable, an oil or gas pipeline, any like cables or pipelines, and any associated equipment such that the activity must not occur unless:

- (a) the entity responsible for the installation activity has provided at least 21 days’ notice of the planned activities and details of the location of the planned activities; and
- (b) the entity responsible for the installation activity has complied with any reasonable written request from a cable carrier for information about the planned activities and has considered and responded to any reasonable representations made to it by a cable carrier in regards to cable protection; and
- (c) the new cable or pipeline is installed in a way that crosses the protection zone following the shortest practicable route; and

- (d) the activity occurs in a manner that does not damage or impede the efficient operation, maintenance, or repair of a submarine cable; and
- (e) the new cable, pipeline or equipment does not approach or cross a submarine cable within 500 metres of a cable's submerged plant items (such as a repeater, a branching unit or an equaliser).

The installation of an electricity cable, an oil or gas pipeline, any like cables or pipelines, and any associated equipment obviously involves significant contact with the seabed in a manner that could damage a submarine cable.

Any person responsible for installing a cable or pipeline within the protection zone must consult with the owners of any operational submarine communications cables within the protection zone about the activity to be undertaken at least 21 days prior to commencing the planned activity. After receiving details of the activities proposed to be undertaken within the protection zone, a cable carrier can, within a reasonable time frame, notify the entity wishing to undertake the installation activity if they feel that the planned activity could potentially damage or impede the efficient operation, maintenance, or repair of a submarine cable. The entity must take into account this information before installing a cable or pipeline, noting that clause 36 of Schedule 3A provides that it is an offence to engage in conduct that results in damage to a submarine cable that is within a protection zone.

ACMA's website contains contact details of all cable carriers within the protection zone, which will enable those planning to install an electricity cable, an oil or gas pipeline, any like cables or pipelines, and any associated equipment to contact the cable carriers to initiate the consultation required in the Declaration.

When carrying out repairs to a submarine communications cable, the cable repairers must grapple for the cable using a grapnel suspended from a ship. The chance of inadvertently snagging a nearby pipeline or cable is minimised if the new infrastructure is installed at a 90° angle across the existing cable. In addition, the presence of other infrastructure, such as electricity cables or pipelines, within the protection zone reduces the opportunity to co-locate additional cables within the zone. Therefore, the Declaration requires the installation of new pipelines and electricity cables such that the infrastructure is installed as close as reasonably possible to a 90° angle across the entire protection zone (thereby minimising the path of the cable or pipeline across the protection zone).

Submarine cable systems contain submerged plant items (such as repeaters, equalisers and branching units). The Declaration requires that electricity cables and pipelines not be installed within 500 metres of these sensitive electro-optical units. Submerged plant items are located at infrequent intervals along a cable route (sometimes as far as 50 kilometres apart). The location of these plant items need to be determined through consultation with the relevant cable carriers.

At present, ACMA is not aware of any plans to install electricity cables, oil or gas pipelines, any like cables or pipelines, or any associated equipment in the protection zone. Because the installation of cables and pipelines is a relatively rare activity, and because submerged plant items are rare within the protection zone, this restriction should have negligible impact upon marine users.

Item 8 – Maintaining or removing an electricity cable, an oil or gas pipeline, any like cables or pipelines, and any associated equipment

Item 8 in Table 6 restricts the maintenance or removal of an electricity cable, an oil or gas pipeline, any like cables or pipelines, and any associated equipment such that the activity must not occur unless:

- (a) consultation has taken place between the entity responsible for the maintenance or removal activity and each cable carrier within the protection zone (specifically the entity responsible for the maintenance or removal activity must provide 21 days' notice of the planned activities and details of the location of the planned activities); and
- (b) the entity responsible for the maintenance or removal activity has complied with any reasonable written request from a cable carrier for information about the planned activities and has considered and responded to any reasonable representations made to it by a cable carrier in regards to cable protection; and
- (c) the activity occurs in a manner that does not damage or impede the efficient operation, maintenance, or repair of a submarine cable.

In this case, maintaining an electricity cable, oil or gas pipeline, any like cable or pipeline, or any associated equipment in the protection zone includes any activity relating to the maintenance of the cable where that activity involves likely contact with the seabed (for example, repairing a section of the cable or pipeline).

Any person responsible for maintaining or removing a cable or pipeline within the protection zone must consult with the owners of any operational submarine communications cables within the protection zone about the activity to be undertaken at least 21 days prior to commencing the planned activity. After receiving details of the activities proposed to be undertaken within the protection zone, a cable carrier can, within a reasonable time frame, notify the entity wishing to undertake the maintenance or removal activity if they feel that the planned activity could potentially damage or impede the efficient operation, maintenance, or repair of a submarine cable. The entity must take into account this information before maintaining or removing a cable or pipeline, noting that clause 36 of Schedule 3A provides that it is an offence to engage in conduct that results in damage to a submarine cable that is within a protection zone.

ACMA's website contains contact details of all cable carriers within the protection zone, which will enable those planning to maintain or remove an electricity cable, an oil or gas pipeline, any like cables or pipelines, and any associated equipment to contact the cable carriers to initiate the consultation required in the Declaration.

At present, ACMA believes that there are no electricity cables, oil or gas pipelines, any like cables or pipelines, or any associated equipment in the protection zone. Because the installation of cables and pipelines is a relatively rare activity, this restriction on maintenance or removal of cables and pipelines should have negligible impact upon marine users.

Item 9 – Constructing or removing an installation for the use of ships

Item 9 in Table 6 restricts the construction or removal of an installation for the use of ships such that the activity must not occur unless:

- (a) consultation has taken place between the entity responsible for the construction or removal activity and each cable carrier within the protection zone (specifically the entity responsible for the construction or removal activity must provide 21 days' notice of the planned activities and details of the location of the planned activities); and
- (b) the entity responsible for the construction or removal activity has complied with any reasonable written request from a cable carrier for information about the planned activities and has considered and responded to any reasonable representations made to it by a cable carrier in regards to cable protection; and
- (c) the activity occurs in a manner that does not damage or impede the efficient operation, maintenance, or repair of a submarine cable.

For the purpose of the Declaration, “an installation for the use of ships” includes permanent structures such as a wharf, jetty, boat ramp or slipway, as opposed to non-permanent navigational aids, such as a marker buoy or a pylon identifying the location of a marine hazard. Constructing or removing an installation of this nature obviously involves significant contact with the seabed in a manner that could damage a submarine cable.

Any person responsible for constructing or removing an installation for the use of ships within the protection zone must consult with the owners of any operational submarine communications cables within the protection zone about the activity to be undertaken at least 21 days prior to commencing the planned activity. After receiving details of the activities proposed to be undertaken within the protection zone, a cable carrier can, within a reasonable time frame, notify the entity wishing to undertake the construction or removal activity if they feel that the planned activity could potentially damage or impede the efficient operation, maintenance, or repair of a submarine cable. The entity must take into account this information before constructing or removing an installation for the use of ships, noting that clause 36 of Schedule 3A provides that it is an offence to engage in conduct that results in damage to a submarine cable that is within a protection zone.

ACMA's website contains contact details of all cable carriers within the protection zone, which will enable those planning to construct or remove an installation for the use of ships to contact the cable carriers to initiate the consultation required in the Declaration.

Because the construction or removal of installations for ships is a relatively rare activity, ACMA believes this restriction will have negligible impact upon marine users.

Item 10 – Constructing navigational aids

Item 10 in Table 6 restricts the construction of a navigational aid such that the activity must not occur unless:

- (a) consultation has taken place between the entity responsible for the construction activity and each cable carrier within the protection zone (specifically the entity responsible for the construction activity must provide 21 days' notice of the planned activities and details of the location of the planned activities); and
- (b) the entity responsible for the construction activity has complied with any reasonable written request from a cable carrier for information about the planned activities and has considered and responded to any reasonable representations made to it by a cable carrier in regards to cable protection; and
- (c) the activity occurs in a manner that does not damage or impede the efficient operation, maintenance, or repair of a submarine cable.

For the purpose of the Declaration, a “navigational aid” includes non-permanent structures, such as a marker buoy, which are typically fixed to the seabed with heavy weights, stakes or anchors, or a pylon identifying the location of a marine hazard. ‘Constructing’ a navigational aid includes the process of fixing the navigational aid to the seabed. Therefore, constructing a navigational aid involves contact with the seabed in a manner that could damage a submarine cable.

Any person responsible for constructing a navigational aid within the protection zone must consult with the owners of any operational submarine communications cables within the protection zone about the activity to be undertaken at least 21 days prior to commencing the planned activity. After receiving details of the activities proposed to be undertaken within the protection zone, a cable carrier can, within a reasonable time frame, notify the entity wishing to undertake the construction activity if they feel that the planned activity could potentially damage or impede the efficient operation, maintenance, or repair of a submarine cable. The entity must take into account this information before constructing a navigational aid, noting that clause 36 of Schedule 3A provides that it is an offence to engage in conduct that results in damage to a submarine cable that is within a protection zone.

ACMA’s website contains contact details of all cable carriers within the protection zone, which will enable those planning to construct a navigational aid to contact the cable carriers to initiate the consultation required in the Declaration.

Because the construction of navigational aids is a relatively rare activity, ACMA believes this restriction will have negligible impact upon marine users.

Item 11 – Harvesting the benthos

Item 11 in Table 6 restricts the harvesting of benthos such that people can not collect benthos beyond 500 metres from shore unless they do so by hand or using hand held devices, such as an abalone spatula.

The benthos refers to the sessile animals and plants that live on the sea floor, such as oysters, abalone and seagrass. The benthos does not include motile animals such as lobsters or crabs. Harvesting of the benthos includes activities such as pearl, abalone, mussel and oyster collection. The harvesting of the benthos, by definition, requires

contact with the seabed, which could damage an exposed submarine cable if the activity were conducted using heavy or mechanised equipment.

Within 500 metres from shore, submarine cables are heavily armoured, housed in metal conduit and buried several metres below the seabed. Because there is no real possibility of benthos harvesting causing damage to a cable within 500 metres of shore, this Declaration does not restrict benthos harvesting within 500 metres of shore.

Collection of the benthos using hand-held equipment (such as a simple abalone spatula) poses no risk to a cable. Thus, beyond 500 metres from shore, benthos can be harvested by hand collection methods only.

While current techniques of benthos harvesting are benign, it is necessary to restrict this activity to ensure that harvesting using heavy or mechanised equipment (which is capable of damaging a cable) does not occur in the protection zone in the future. Because harvesting of the benthos by methods other than hand collection does not occur beyond 500 metres from shore, this restriction should have negligible impact upon marine users.

Item 12 – Exploring for or exploiting resources (other than marine species)

Item 12 in Table 6 restricts the exploration for or exploitation of resources (other than marine species) such that the activity must not occur unless:

- (a) consultation has taken place between the entity responsible for the exploration or exploitation activity and each cable carrier within the protection zone (specifically the entity responsible for the exploration or exploitation activity must provide 21 days' notice of the planned activities and details of the location of the planned activities); and
- (b) the entity responsible for the exploration or exploitation activity has complied with any reasonable written request from a cable carrier for information about the planned activities and has considered and responded to any reasonable representations made to it by a cable carrier in regards to cable protection; and
- (c) the exploration or exploitation activity occurs in a manner that does not damage or impede the efficient operation, maintenance, or repair of a submarine cable; and
- (d) seismic survey activities are adjusted so that pressure waves in excess of 2.0 bar or more do not arrive at the seabed in the location of any of the cable's submerged plant items (such as a repeater, branching unit or equaliser); and
- (e) any exploitation activities do not involve physical contact with the seabed.

This item covers the exploration for or exploitation of resources of all kinds other than living marine species (such as fish and shellfish), and may include exploring for and exploiting petroleum (for example, oil and gas) and minerals (including sand and offshore coal) in the sea and on or under the seabed.

Exploring for non-living marine resources, such as oil and gas, often utilises non-invasive seismic sounding conducted at the water surface. This activity involves discharging an airgun that sends a seismic energy pulse into the seabed and subsoil to obtain sub-bottom

profile data. Some exploration activity involves physical contact with the seabed, such as test drilling or the use of explosives to disturb the seabed.

Exploitation activities include mining activities (such as sand and offshore coal mining) and the use of mining techniques, including activities preparatory or ancillary to mining.

Any person responsible for the exploration for or exploitation of resources (other than marine species) within the protection zone must consult with the owners of any operational submarine communications cables within the protection zone about the activity to be undertaken at least 21 days prior to commencing the planned activity. After receiving details of the activities proposed to be undertaken within the protection zone, a cable carrier can, within a reasonable time frame, notify the entity wishing to undertake the exploration or exploitation activity if they feel that the planned activity could potentially damage or impede the efficient operation, maintenance, or repair of a submarine cable. The entity must take into account this information before exploring for or exploiting resources (other than marine species), noting that clause 36 of Schedule 3A provides that it is an offence to engage in conduct that results in damage to a submarine cable that is within a protection zone.

ACMA's website contains contact details of all cable carriers within the protection zone, which will enable those planning to explore for or exploit resources (other than marine species) to contact the cable carriers to initiate the consultation required in the Declaration.

An active submarine cable system includes electro-optic devices (such as repeaters, branching units and passive equaliser units) that are required to manage the signal at intervals along its route. Such plant items are uncommon features along a length of submarine cable, often some 50–75 kilometres apart. These cable components are particularly sensitive to disturbance. Therefore, seismic survey activities must be adjusted so that pressure waves in excess of 2.0 bar or more do not arrive at the seabed in the location of any of the cable's plant items.

In some instances, the exploration or exploitation of resources from the seabed or subsoil could conceivably cause some level of seabed subsidence, which in onshore mining operations can usually be prevented by subsidence management techniques. Within the proposed protection zone, subsidence could pose a threat of damage to a submarine cable by causing the cable to bend beyond its tolerance. A submarine cable that straddled a subsided portion of seabed would as a result be more vulnerable to damage and snagging by other marine activities. Subsidence could also impede cable repair and maintenance operations. Therefore, exploration or exploitation activity can only occur within the protection zone if the activity does not damage or impede the efficient operation, maintenance, or repair of a submarine cable. Thus, any exploration or exploitation activity within the protection zone must occur in a way that does not affect the integrity of the seabed supporting the cable infrastructure.

The exploitation of non-living resources can only occur within the protection zone if there is no physical contact with the seabed within the protection zone itself. This means that resources lying in the subsoil within the protection zone can only be accessed by entering the seabed from outside the protection zone and tapping laterally into the resource.

Exploitation of an oil or gas reservoir involves laying a metal plate on the seabed, which is used as a template through which to drill towards the reservoir. This drilling process obviously involves significant physical contact with the seabed, and could damage a submarine cable if it were conducted on or near the cable. In some circumstances, drilling can be conducted from a deviated well (that is, from an angle) into an oil or gas reservoir. Therefore, drilling platforms installed just outside of a protection zone could potentially exploit resources located within the subsoil within the protection zone by drilling laterally into the reserves.

ACMA understands that offshore coal deposits are potentially located below the seabed within the protection zone. Exploiting offshore coal deposits within the protection zone can only occur by initiating the excavation from outside the protection zone and tunnelling laterally towards the coal seam.

The exploitation of resources such as oil, gas or coal can take 20 years or more before the reserves are exhausted. Because of this, the plant items used in drilling and extraction operations will need to remain on the seabed for the duration of the extraction process. Establishing such infrastructure within the protection zone would therefore reduce the potential for additional cables to be co-located within the protection zone.

Sand mining or dredging is a major cause of submarine cable damage worldwide. Typically, sand mining is conducted by vacuuming sand and water slurry from the seabed into a floating dredge. The conduit used to siphon the sand from the seabed contacts the seabed continuously as it takes up the slurry into the dredge, which represents a significant threat to a submarine cable. The floating dredges used in sand mining operations (and the barges or vessels that transport the extracted resources) are usually anchored or fixed to the seabed and therefore pose a further threat to a submarine cable. Because the exploitation of sand (i.e., dredging) involves physical contact with the seabed within the protection zone, this restriction effectively prohibits offshore sand mining or dredging within the protection zone.

It should be noted that Schedule 3A (Division 3) provides a process that enables the protection zone area or the prohibitions or restrictions within the protection zone to be varied or revoked. This process enables other marine users to apply to ACMA to vary a protection zone declaration to take account of their interests, where necessary. Thus, if a person wished to exploit resources within the proposed protection zone, they would be able to apply for a protection zone variation, which might facilitate simpler access to the underlying resources.

Restrictions covering the installation of pipelines within a protection zone, which would be required for the transportation of extracted gas and oil, are contained in Item 7 in Table 6.

Because submerged plant items are rare components of submarine cable systems (for instance, often located at more than 50-kilometre intervals), the restriction on seismic activity should have minimal impact on exploration activities in the protection zone. To ACMA's knowledge, the exploitation of non-living resources within the protection zone does not occur at present. Hence, restrictions on the exploitation of non-living resources should have negligible impact upon marine users.

Item 13 – Removing a navigational aid or conducting civil engineering work

Item 13 in Table 6 restricts (i) the removal of a navigational aid and (ii) the conducting of civil engineering work such that neither activity can occur unless:

- (a) consultation has taken place between the entity responsible for the construction or civil engineering activity and each cable carrier within the protection zone (specifically the entity responsible for the construction or civil engineering activity must provide 21 days' notice of the planned activities and details of the location of the planned activities); and
- (b) the entity responsible for the removal activity or civil engineering work has complied with any reasonable written request from a cable carrier for information about the planned activities and has considered and responded to any reasonable representations made to it by a cable carrier in regards to cable protection; and
- (c) the construction or civil engineering activity occurs in a manner that does not damage or impede the efficient operation, maintenance, or repair of a submarine cable.

For the purpose of the Declaration, a 'navigational aid' includes non-permanent structures (such as a marker buoy or a pylon identifying the location of a marine hazard), which are typically fixed to the seabed with heavy weights, stakes or anchors. Therefore, removing a navigational aid involves contact with the seabed in a manner that could damage a submarine cable.

Civil engineering work includes the planning, design, construction, maintenance, management and demolition of a fixed structure or public works. Civil engineering work also includes the depositing of sand for beach renourishment or foreshore protection purposes. These activities involve significant contact with the seabed and could damage a cable if the activity were conducted too close to the cable. For this reason, consultation with the appropriate cable carriers is necessary to ensure the activity does not place any submarine cable at risk.

Any person responsible for removing a navigational aid or conducting civil engineering work within the protection zone must consult with the owners of any operational submarine communications cables within the protection zone about the activity to be undertaken at least 21 days prior to commencing the planned activity. After receiving details of the activities proposed to be undertaken within the protection zone, a cable carrier can, within a reasonable time frame, notify the entity wishing to undertake the activity if they feel that the planned activity could potentially damage or impede the efficient operation, maintenance, or repair of a submarine cable. The entity must take into account this information before removing a navigational aid or conducting civil engineering work, noting that clause 36 of Schedule 3A provides that it is an offence to engage in conduct that results in damage to a submarine cable that is within a protection zone.

ACMA's website contains contact details of all cable carriers within the protection zone, which will enable those planning to remove a navigational aid or conduct civil engineering work to contact the cable carriers to initiate the consultation required in the Declaration.

Because removing a navigational aid or conducting civil engineering work are, to ACMA's knowledge, both rare activities, this restriction should have negligible impact upon marine users.

Item 14 – Conducting research that involves contact with the seabed

Item 14 in Table 6 restricts conducting research that involves contact with the seabed beyond 500 metres from shore such that the activity must not occur unless:

- (a) consultation has taken place between the entity responsible for the research activity and each cable carrier within the protection zone (specifically the entity responsible for the research activity must provide 21 days' notice of the planned activities and details of the location of the planned activities); and
- (b) the entity responsible for the research activity has complied with any reasonable written request from a cable carrier for information about the planned activities and has considered and responded to any reasonable representations made to it by a cable carrier in regards to cable protection; and
- (c) the research activity occurs in a manner that does not damage or impede the efficient operation, maintenance, or repair of a submarine cable.

Research that contacts the seabed beyond 500 metres from shore can take many forms—some of which could pose a risk to submarine cables (for example, taking 'core' or 'grab' samples of the seabed). Therefore, it is necessary to restrict the activity to ensure that only cable-safe methods are employed near the submarine cables.

Within 500 metres from shore, submarine cables are heavily armoured, housed in metal conduit and buried several metres below the seabed. Because the risk of research activity damage to a cable within 500 metres of shore is negligible, this Declaration does not restrict research activity within 500 metres of shore.

Any person responsible for conducting research that involves contact with the seabed beyond 500 metres from shore within the protection zone must consult with the owners of any operational submarine communications cables within the protection zone about the research activity to be undertaken at least 21 days prior to commencing the planned activity. After receiving details of the activities proposed to be undertaken within the protection zone, a cable carrier can, within a reasonable time frame, notify the entity wishing to undertake the research activity if they feel that the planned activity could potentially damage or impede the efficient operation, maintenance, or repair of a submarine cable. The entity must take into account this information before conducting research that involves contact with the seabed beyond 500 metres from shore, noting that clause 36 of Schedule 3A provides that it is an offence to engage in conduct that results in damage to a submarine cable that is within a protection zone.

ACMA's website contains contact details of all cable carriers within the protection zone, which will enable those planning to conduct research that involves contact with the seabed beyond 500 metres from shore to contact the cable carriers to initiate the consultation required in the Declaration.

Because ACMA understands that conducting research that contacts the seabed beyond 500 metres from shore is a rare activity, this restriction should have negligible impact upon marine users.

Item 15 – The use of an explosive or explosive device

Item 15 in Table 6 restricts the use of explosives or explosive devices such that the activity must not occur unless:

- (a) it is conducted in the course of exploring for or exploiting resources (other than marine species) or conducting civil engineering work, or in the course of constructing or removing a navigational aid or an installation for the use of ships. In each of these instances, the use of explosives or explosive devices can only occur provided the activity does not damage or impede the efficient operation, maintenance, or repair of a submarine cable (that is, it must occur in accordance with the other restrictions set out in the Declaration); or
- (b) it is conducted by or with the Australian Defence Force within a specified defence Firing Practice Area.

For the purpose of the Declaration, firearms of less than 20 millimetre calibre or firearms used or intended to be used for life saving or distress signalling purposes (such as line-throwing guns or the “Very” type of firearm) are not regarded as ‘explosive devices’ and can still be used within the protection zone.

The use of explosives or explosive devices on or near a submarine cable could obviously damage the cable. Nonetheless, there could be a legitimate need to use explosive devices within the protection zone, including in the course of civil engineering work or mineral or petroleum exploration and exploitation, or in the construction of an installation for ships (such as a jetty) or a navigational aid. Explosives and explosive devices can be used in these instances provided they are used in accordance with all other relevant restrictions – for instance, they can only be used in a manner that does not damage or impede the efficient operation, maintenance, or repair of a submarine cable.

In addition, the Australian Defence Force may have a legitimate need to use explosives or explosive devices, consistent with Defence Force Regulations, within a declared Firing Practice Area located within the protection zone. Defence has stated its intention to include in its operational procedures the means and procedures by which it will take action to protect the submarine cables in the declared practice areas.

Item 16 – Lowering, raising or suspending a shotline from a ship

Item 16 in Table 6 restricts the use of a shotline such that the activity must not occur beyond 500 metres from shore unless:

- (a) the ship is operating in waters less than 100 meters deep; and
- (b) the shot does not weigh more than 20 kilograms; and
- (c) the shotline has a maximum breaking strain that does not exceed 850 kilograms.

Shotlining is the practice of using a ‘shot’ (usually a simple lead weight or a metal bucket filled with concrete) suspended from a ship so that the shot settles on the seabed, thereby mooring the vessel.

Within 500 metres from shore, submarine cables are heavily armoured, housed in metal conduit and buried several metres below the seabed. Because there is no real possibility of shotlining causing damage to a cable within 500 metres of shore, this Declaration does not restrict shotlining within 500 metres of shore.

Shotlining could damage a cable if a heavy shot were dropped onto the cable. However, a shot weighing less than 20 kilograms dropped directly onto a single- or double-armoured submarine cable is very unlikely to cause damage to the cable. Therefore, shotlining can be carried out in waters less than 100 metres deep (where the cables are either single- or double-armoured) provided the shot weighs less than 20 kilograms.

A cable could also be damaged if the shotline snagged a cable as the marine user attempted to winch the shotline to the surface. However, restricting the maximum allowable breaking strain of a shotline to 850 kilograms should provide adequate protection to the cables, because in this case if a shotline were to snag on an armoured cable, the shotline would break before the cable could be moved or damaged.

Shotlining is not allowed in the protection zone beyond 100 metres water depth because in these greater depths the cable is less likely to be sufficiently armoured for the activity to occur safely.

Because ACMA understands that shotlining beyond 500 metres from shore using a shot that exceeds 20 kilograms and/or suspended on a line with a breaking strain in excess of 850 kilograms is a relatively rare activity, this restriction should have negligible impact upon marine users.

Item 17 - Lowering, raising or suspending an anchor from a ship

Item 17 in Table 6 restricts the use of an anchor such that an anchor must not be lowered, raised or suspended from a vessel in any waters beyond 500 metres from shore unless either:

- (a) the vessel is operating in waters less than 100 metres deep, and
 - (i) the vessel’s anchor does not weigh more than 20 kilograms and is fitted with a trip release mechanism; and
 - (ii) the anchor line has a maximum breaking strain that does not exceed 850 kilograms at the point of attachment to the anchor or anchor chain assembly; or
- (b) the vessel is using an anchor that weighs less than 30 kilograms and is anchored within 200 metres of one of the shipwreck sites specified in the following table of geographic coordinates:

Item	Latitude	Longitude
1	33° 41' 19.50" S	151° 21' 43.26" E
2	33° 42' 53.04" S	151° 20' 58.74" E
3	33° 43' 00.54" S	151° 20' 53.64" E
4	33° 43' 01.86" S	151° 20' 40.02" E
5	33° 43' 06.00" S	151° 20' 59.76" E
6	33° 43' 06.00" S	151° 21' 04.80" E
7	33° 43' 06.12" S	151° 20' 59.76" E
8	33° 43' 09.84" S	151° 20' 59.10" E
9	33° 43' 10.02" S	151° 20' 59.10" E
10	33° 43' 10.44" S	151° 21' 59.34" E
11	33° 43' 10.44" S	151° 21' 01.20" E
12	33° 43' 16.50" S	151° 21' 17.22" E
13	33° 43' 19.56" S	151° 21' 21.12" E
14	33° 43' 23.02" S	151° 21' 25.14" E
15	33° 43' 34.32" S	151° 21' 03.90" E

Within 500 metres from shore, submarine cables are heavily armoured, housed in metal conduit and buried several metres below the seabed. Because there is no real possibility of anchoring causing damage to a cable within 500 metres of shore, this Declaration does not restrict anchoring within 500 metres of shore.

Beyond 500 metres from shore, a heavy anchor could damage a cable if it were lowered onto the cable. (In contrast, an anchor weighing less than 20 kilograms lowered directly onto a single- or double-armoured submarine cable is very unlikely to cause damage to the cable.) A cable could also be damaged if the anchor snagged a cable as the marine user attempted to winch the anchor to the surface. However, if the breaking strain of the anchor line were less than 850 kilograms, an anchor snagged on an armoured submarine cable would not be strong enough to damage the cable.

Further, the risk of an anchor snagging a cable is reduced greatly if the anchor utilises a trip-release mechanism (such as a 'trip anchor' or 'sliding ring anchor') that is specifically designed to minimise the likelihood that the anchor will snag on a seabed irregularity.

A trip anchor is an anchor fitted with lugs at both ends of the shank, where the anchor line is fitted securely to the front lug (located near the anchor prongs) and then tethered to the rear lug via a 'sacrificial' link. If the anchor snags on the seabed or a cable, pressure applied to the anchor line causes the sacrificial link to break. This enables the anchor to be retrieved to the surface via the line attached to the front lug such that the anchor shaft trails *behind* the anchor prongs as the anchor passes through the water column.

A sliding ring anchor is an anchor where the anchor line is fitted to a ring that is designed to slide freely along the shank of the anchor. If the anchor snags on a seabed irregularity or a cable, the marine user can alter the direction of force applied to the anchor, causing the ring to slide along the anchor shaft so that the anchor line pulls at the anchor from a point near the anchor prongs. As above, this enables the anchor to be retrieved to the surface such that the anchor shaft trails *behind* the anchor prongs as the anchor passes through the water column.

Therefore, beyond 500 metres from shore, anchoring can be carried out in waters less than 100 metres deep (where the cables are either single- or double-armoured) provided (i) the anchor weighs less than 20 kilograms, (ii) a trip release mechanism is fitted to the anchor, and (iii) the breaking strain of the anchor line does not exceed 850 kilograms.

An anchor line composed of commercial 8-millimetre medium-density polypropylene or polyethylene or non-metallic materials of an equivalent strength are unlikely to have a breaking strain that exceeds 850 kilograms and is, therefore, likely to be permitted within the protection zone.

The NSW Government intentionally scuttled a series of ships in the 1970s and 1980s to form an artificial reef with the specific objective of attracting SCUBA divers and commercial and recreational fishers. ACMA has allowed anchoring around fifteen of the shipwrecks within the protection zone (the geographic coordinates of the specified wrecks are listed above). Within 200 metres of each of the fifteen specified shipwrecks, vessels can use an anchor that weighs up to 30 kilograms. There are no restrictions on the breaking strain of the anchor line when anchoring within 200 metres of the specified shipwreck sites.

It is important to note that the restriction on anchoring *does not* apply to some shipwrecks located within the protection zone. One wreck (*'The Bellubra'*) has split into two discrete fragments that lie approximately 150 metres south of the Australia Japan Cable, while another (unnamed) wreck lies about 200 metres north of the Southern Cross Cable. Using an anchor heavier than 20 kilograms and/or with a line with a breaking strain that exceeds 850 kilograms at these sites poses an unacceptable threat to the cables. Therefore, the restriction on anchoring applies to these wrecks. Anchoring at these sites is restricted as per the broader restriction on anchoring within 100-metre water depths.

The *SS Duckenfield* is an historic shipwreck located in approximately 25 metres of water at 33° 43'05.76" S, 151° 19' 25.56" E (WGS84). Under the *Historic Shipwrecks Act 1976* (Cth), anchoring into the *SS Duckenfield* or allowing an anchor or anchor chain to damage the *SS Duckenfield* is prohibited. This Declaration does not affect regulations relating to anchoring into the *SS Duckenfield*. Anchoring into the *SS Duckenfield* or allowing an anchor or anchor chain to damage the *SS Duckenfield* will continue to be prohibited under the *Historic Shipwrecks Act 1976*.