



Catch fish. Not cables.

The commercial fishing guide to your rights and responsibilities with regard to submarine cables



In a time of rapidly expanding global telecommunications, submarine cables play an important role by connecting Australia with the world. Up to 98 per cent of international telecommunications is carried by cable.

A single optical fibre cable can simultaneously carry millions of telephone, facsimile or data circuits – in many ways, international submarine cables play key roles in supporting national socio-economic wellbeing.

But the annual cost of maintaining these cables runs into tens of millions of dollars and a large proportion of these costs result from damage caused by fishing gear.



Why are cables vulnerable to damage?

Many people incorrectly assume that cables lie flat and straight on the seabed and are not an obstruction to properly maintained, bottom-towed gear.

However, despite the extensive precautions taken by cable owners during the laying of submarine cables, seabed irregularities may result in unavoidable cable suspensions occurring. Where the cable is suspended, the chances of damage are significantly greater.

During repair work, when a new section is spliced in, it is necessary for the repair ship to install an amount of cable approximately equal to twice the water depth. Once a cable has been repaired, the location becomes vulnerable to further damage, as the excess cable may, despite all possible precautions being observed, form loops and stand proud of the seabed.

Cable burial can only be used where the seabed is geologically suitable and tide and current conditions are favourable. These areas don't always correspond to popular fishing grounds. Technology limitations also mean that burial is not always practical in water depths greater than 1000 metres.

Even when cable is buried below the seabed for its protection, it can still be damaged when equipment (such as a clam dredge) penetrates the seabed on each drag, or where dredges have made successive passes over the same area.

If a buried cable has been previously fouled and pulled up out of the seabed, it becomes even more vulnerable even if it wasn't damaged.

Despite careful route selection, armouring and laying procedures for cables, fishing areas change as fish migrate or as resources are depleted and new fishing grounds may appear over existing cable routes. Experience has shown that even heavy armour does not always provide cables with sufficient protection, especially where heavy trawl gear or anchored gear is used.

How are submarine cables broken?

Cable breaks occur when fishing gear is towed across or anchored close to or across submarine cables. They can also be broken when a ship's anchor is dropped directly onto them or drags across.

Fishing-related damage may also be caused by trawl otter-boards, beam trawls, scallop dredges, clam dredges or net anchors. These are used directly on the seabed and in the cases of dredges and net anchors, actually penetrate the seabed. When such gear is towed across a cable, problems will occur.

Tension breaks can also occur when cables are fouled by fishing gear. This type of damage may not involve the cable being dragged to the surface. If the cable is fouled and broken by towed gear, one end of it can remain entangled and be dragged on board the fishing vessel.

Where a vessel is equipped with strong lifting equipment, cables may be inadvertently brought to the surface intact and attempts are sometimes made to cut the cable and free the fishing gear.

Cable can also be damaged when shoes on beam trawls, scallop dredges, the leading edge of otter boards, or the knife on a clam dredge cut through armour wires and cable insulation. Where the cable armour has been previously damaged, the potential for a snag with resulting extensive damage to cable and gear is increased.

Why avoid submarine cables?

It is extremely dangerous to bring on board a cable fouled in fishing gear. A cable is under considerable tension; cutting or breaking the cable could cause serious or even fatal injury if it whips free.

Modern cables can carry very high voltages that can prove lethal if they are cut, or if broken cable ends are brought on board. The weight of cables also affects the stability of smaller vessels. They risk sinking if they attempt to raise a cable from the seabed. Loss of vessel and lives has resulted under these circumstances.

Loss of expensive gear, time and often a valuable catch can occur when fishing gear fouls a submarine cable. Damage to modern cables causes serious disruption to communications affecting trade, international affairs and safety at sea.


There are severe penalties for wilfully or negligently damaging a submarine cable. Under Commonwealth legislation, the vessel skipper and/or any person deliberately or recklessly interfering with a submarine cable may be penalised with a fine or imprisonment – or both. Civil damages claims by the owners of the cable against the vessel owner/operator for repairs and loss of revenue can run into tens of millions of dollars. Vessels and their gear may be impounded.

How do I avoid cables?

Considering the possibility of positioning inaccuracies and repaired cable section deviations, the fishing community are advised to keep towed gear a minimum distance of one nautical mile from either side of charted cables.

For safe navigation and the avoidance of vital submarine cables, the most recent charts should always be available on the fishing vessel.

Australia's submarine cables are clearly identified on all charts used for navigation in the waters surrounding Australia.

The international symbol for an active submarine cable is a wavy line coloured magenta or black 

In general, the accuracy with which cables are laid varies inversely to the distance from land. Navigation on cable ships is of a high standard but is limited by the techniques available when the cable was installed. Cables laid in the early 1970s, before satellite navigation became commonplace, could be up to one nautical mile (nm) out of charted position.

With the use of satellites and other sophisticated navigational electronic aids, the positional accuracy of recently-laid cables is usually better than 0.5 nm. However, despite this high accuracy during laying, the cable may now be re-laid away from its original charted position due to cable repairs having been required subsequent to the original cable lay.

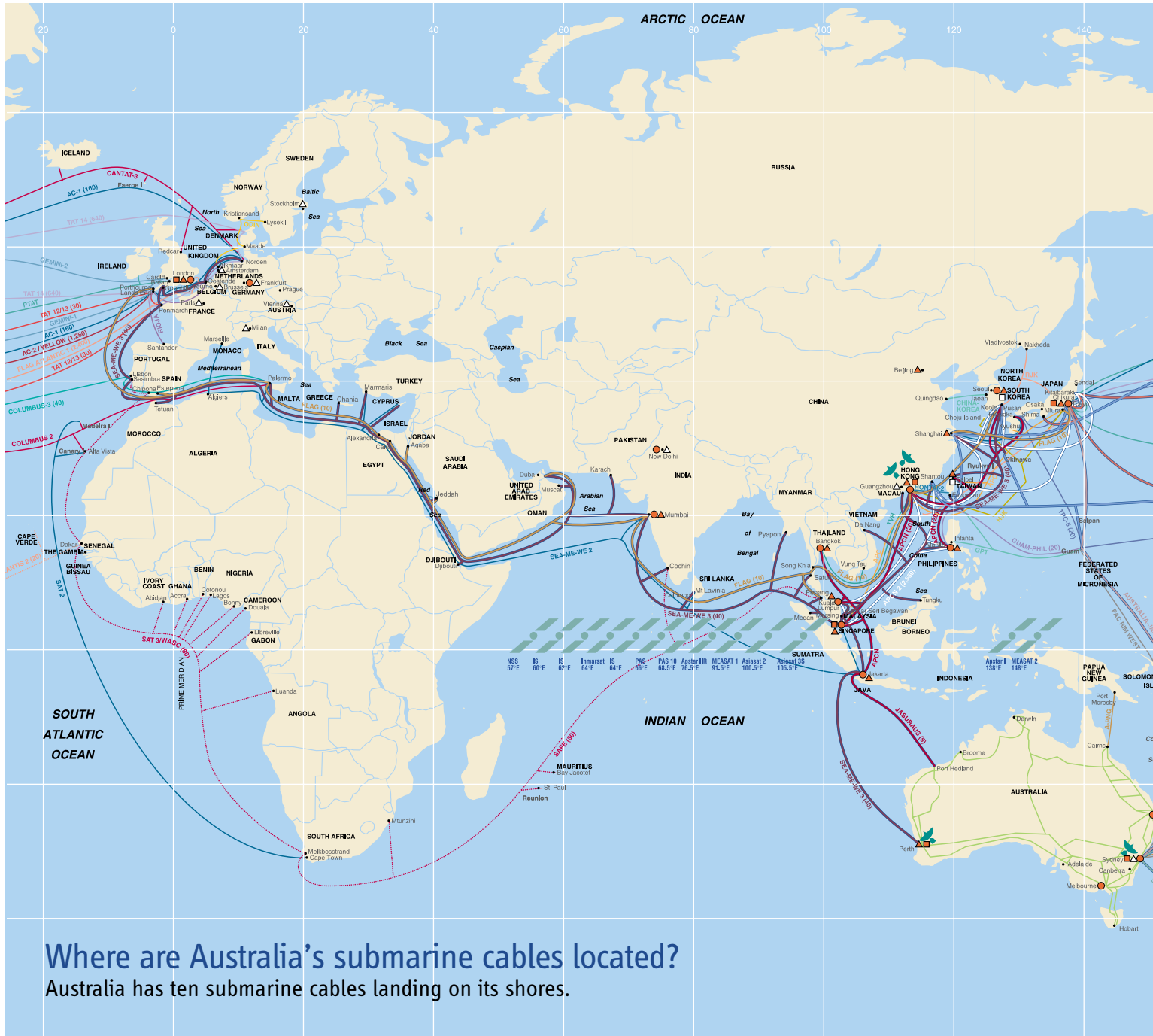
What do cable companies do to reduce damage?

Cable owners use a variety of initiatives to reduce the possibility of damage to submarine cables from fishing activities. They include:

- Sounding surveys of proposed cable routes to locate topographic irregularities to be avoided.
- Side scan sonar surveys of proposed cable routes to identify wrecks and obstructions.
- Consultation with the fishing community and authorities before laying cables.
- Research on fishing gear design and maintenance practices.
- Armouring of cables in vulnerable areas.
- Burial of cables in vulnerable areas (where possible).
- Education and awareness programs.
- Distribution of free information and cable warning charts.



Global Reach



Where are Australia's submarine cables located?
Australia has ten submarine cables landing on its shores.

East Coast

ANZCAN A (Australia to Norfolk Island)

This cable lands at Bondi Beach, Sydney NSW and Anson Bay, Norfolk Island.

TASMAN 1 (Australia to New Zealand)

This cable system, now out of telecommunications service but used for scientific research purposes, also lands at Bondi Beach, NSW.

A-PNG (Australia to Papua New Guinea)

This cable lands at Holloway's Beach, Cairns in North Queensland.

COMPAC

This cable system, now out of telecommunications service but used for scientific research purposes, lands at Bondi Beach, NSW.

SEACOM

This cable system, now out of telecommunications service but used for scientific research purposes, lands at Cairns in North Queensland.

TASMAN 2 (Australia to New Zealand)

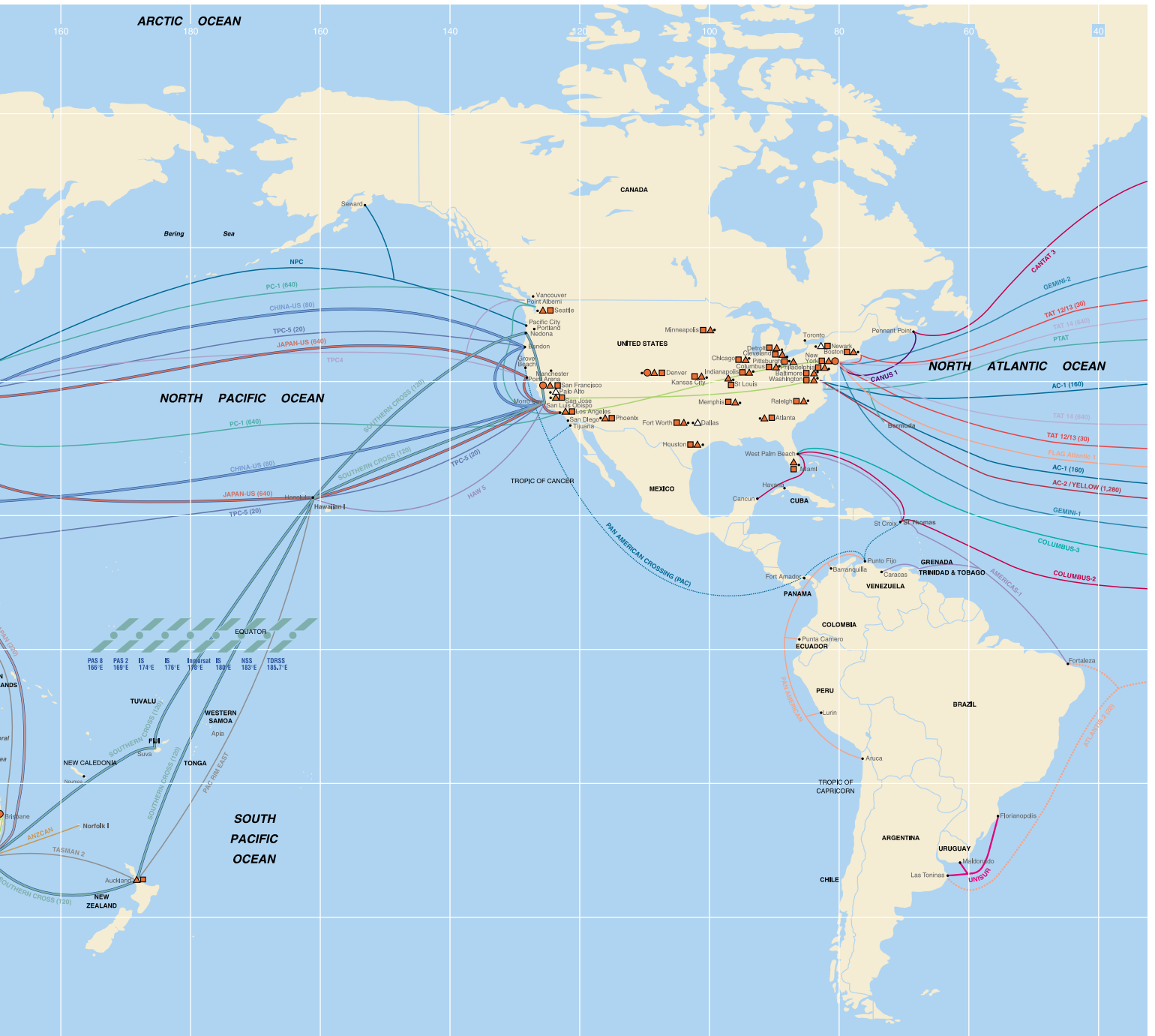
This high capacity fibre optic cable lands at Bondi Beach, NSW.

PACRIM WEST (Australia to Guam)

This high capacity fibre optic cable lands at Narrabeen, NSW.

BASS STRAIT (Victoria to Tasmania)

This very high capacity fibre optic cable runs between Sandy Point, Victoria and Boat Harbour, Tasmania.



AUSTRALIA-JAPAN

This ultra high capacity fibre optic cable lands at Narrabeen and Tamarama beaches, NSW.

SOUTHERN CROSS

This ultra high capacity fibre optic cable lands at Narrabeen and Clovelly beaches, NSW.

West Coast

A-I-S (Australia-Indonesia-Singapore)

This cable system, now out of telecommunications service but used for scientific research purposes, lands at Whitford's Beach near Perth.

JASURAU (Australia-Indonesia)

This very high capacity fibre optic cable lands at Port Hedland, Western Australia.

SEA-ME-WE 3 (South East Asia-Middle East-Western Europe)

This very high capacity fibre optic cable lands at Floreat Beach near Perth, Western Australia.

International Submarine Cable Network accurate at time of printing.



What do I do if my fishing gear fouls on a cable?

When a cable gets accidentally entangled, great care needs to be taken when attempting to free the fouled gear. Comparatively little pressure is required to penetrate the insulation of a cable. When this happens, water will reach the centre conductor and render the cable unusable – even though it may not be broken.

If you believe gear cannot be freed without risk or damage to the cable, the gear should be abandoned. Cable owners are required to pay compensation for any gear lost under these circumstances, provided such a loss can be proven and that all reasonable precautions were taken to prevent damaging the cable.

Claims for gear lost or damaged through entanglement with a submarine cable should be lodged in writing within 24 hours of arrival at the next port of call. Particulars of the incident should be given and full details recorded in the official vessel log. The report must include:

- The vessel's name, registered licence number and captain's name and contact details.
- Name and address of vessel owner/s.
- Vessel's position at the time of the incident (indicate land bearings and readings of electronic navigation system used).
- Water depth.
- Charts used at the time of the incident.
- A description of the cable if sighted.
- A copy of the relevant page from the vessel log in which the incident was recorded.
- Action taken to free gear and/or avoid damage to the cable.

This information is required for proper processing of claims and is used for identifying any possible cable position charting errors.



What is the International Cable Protection Committee?

The International Cable Protection Committee (ICPC) is an international forum consisting of representatives from over 80 administrations or commercial companies owning or operating submarine cables around the world. Cable owners are active members of this committee and fully support the organisation's objectives. The principal goal of the ICPC is to promote the safeguarding of submarine cables from man-made and natural hazards, including:

- Serving as a vehicle for the exchange of technical and legal information pertaining to submarine cables.
- Canvassing fishing communities and other offshore industries to make them aware of ICPC interest and programs.
- Funding of projects or programs, which are beneficial for the protection of submarine cables systems.
- Participation in fishing and offshore industry expositions, industry meetings and technical conferences.
- Distribution of promotional items for the purpose for fostering a cooperative spirit in those industries whose work activities could affect submarine cables.

For more information, visit the ICPC website at <http://www.iscpc.org>

Contact point for claims lodgement

The contact point to claim for loss or damage of fishing gear due to accidental entanglement with submarine cables is provided at the end of this booklet.

Submarine Cables and Pipeline Protection Act (1963) ('the Act')

This Act entitles you to claim compensation from cable owners should your gear become fouled on one of their cables. In order to be entitled to compensation you must be able to demonstrate that you have taken all reasonable precautionary measures to save your own gear. The Act makes you liable for a penalty, possibly imprisonment, if you damage one of the submarine telecommunications cables either intentionally or as a result of your negligence. Further, and in addition to this statutory penalty, if you damage a cable, the owners may be able to recover from you the cost of repairing the damage, as well as any losses they incur due to the cable being out of use.

What are the different types of cable?

The world's oceans contain hundreds of submarine communications cables – connecting county to country; person to person in an interlinking global network. A single cable can simultaneously carry millions of telephone, facsimile or data messages. Coaxial submarine cable systems, installed until the mid-1980s, have a capacity of up to 4,500 two-way circuits. The newer generation of fibre optic cable systems can carry as many as 1.5 million circuits over a cable less than half the diameter of the older coaxial cables.

There are two basic types of coaxial and fibre optic cables:

Lightweight (armourless) cable is generally laid in water depths of greater than 2,000 metres and is protected by a sheath of polyethylene.

Armoured cable is generally laid in water depths of less than 2,000 metres and is protected by one or more layers of steel wires. There can be from 10 to 20 armour wires of different sizes, wound spirally in a bedding of jute, synthetic yarn and tar.

The diameter of coaxial cable ranges from 4cm (1.5 inches) for lightweight cables to 10cm (4 inches) for armoured cables used near shore landings. For fibre optic cables, the diameter may be as small as 2cm (0.8 inches) for lightweight, to 5cm (2 inches) for armoured cable.

Where can I obtain more information and charts?

If you would like more information to help ensure that your trawlers catch fish and not cables, or if you want free charts in order to identify the location of Australia's submarine cables, please call: 1800 652 388 (in Australia), or contact:

Global Manager
Submarine Cable Operations and Protection
Reach Ltd
GPO Box 7000
Sydney NSW 2001
Tel (in Australia): 1800 652 388

Australia Japan Cable Limited
Network Coordinator
PO Box Q664
Queen Victoria Building NSW 1230
Tel: +61 2 8289 0354
Fax: +61 2 9262 9406

Southern Cross Cable Network
SCCL Australia Limited
Landing Party Operations Manager
SingTel Optus Pty Limited
65 Epsom Road, Rosebery NSW 2018
Tel: +61 2 9342 0908
Fax: +61 2 9342 0931

www.reach.com enquiries@reach.com

