Multiple Uses of the Seabed off the Oregon Coast: An Analysis of Recent Interactions Between the Fishing Industry and the Submarine Cable Industry

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Abstract

Multiple use conflicts have historically presented challenges for various industries and organizations that must find ways to work together. The fishing industry and the submarine cable industry are not exceptions. As fishing activity is being forced to share the seabed with new uses, and as an increasing number of cables are being laid on the seabed, the fishing industry and the submarine cable industry have found themselves repeatedly competing for the same areas of the seabed. When this shared use occurs, multiple use conflicts may transpire, resulting in adverse impacts to both the fishing industry and the submarine cable industry.

Only recently have conflicts between these two industries become prominent. To address these concerns, fishermen and cable companies in Oregon have begun to interact and discuss ways to resolve these multiple use conflicts. This thesis describes these interactions in detail to illustrate how concerns and relationships have changed in the past decade. Formal agreements have resulted from these interactions and led to the establishment of an inter-industry process to deal with future cable projects that land in this state.

The success of the outcomes of the interactions between the fishing industry and the submarine cable industry are analyzed using a set of criteria including satisfying interests, securing joint gains, producing commitments and improving relationships. According to this analysis, these outcomes are rated quite successful, especially with regards to improving relationships between the two industries. These relationships establish the foundation for future projects that must deal with the same issues, and demonstrate to the industries that a successful solution is attainable. Based on the success in Oregon, guidelines are recommended for the fishing industry and the submarine cable industry in other areas to facilitate better communication and a positive working relationship in the future.

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Chapter 1. Introduction

"Marathon Negotiations Lead to Breakthrough on Fiber Optic Cables!!!" This proclamation headlined the April 2, 1999 issue of Oregon Coastal Notes,[1] announcing a major step forward in negotiations between a submarine cable company and an association of Oregon fishermen. Such interactions have recently become more common; a significant improvement over the ways in which these two industries have historically interacted.

Evolution of a Multiple Use Conflict

Interactions between the fishing industry[2] and the submarine cable industry[3] began in the 1850s when the first transoceanic submarine cable, a telegraph cable, was laid across the English Channel. This cable was operational for only a few days until a curious fisherman, thinking he had discovered a new species of seaweed, cut the cable to preserve a sample (Wagner 1995). This was followed by other incidents of damage to submarine cables by fishing activity. As a result, an international agreement,[4] which placed the liability for damages to cables on fishermen, was enacted in the 1880s to protect submarine cables from this type of damage.

The United States (U.S.) developed its own protection laws, based on this international agreement, a few years later. However, even with these laws in place to deter fishing activity from areas where cables are located, cable faults resulting from fishing activity off the West Coast have still been reported (Dugal pers. com. 1999). These occasional events of fishing gear and cable entanglements have not been momentous enough to cause much concern to either industry for the past century. Only recently, within the past five years or so, have conflicts between the fishing industry and the submarine cable industry begun to emerge.

The fishing industry has traditionally had the right to use the seabed. As competing uses of the ocean have become more intrusive, the fishing industry has been forced to find ways to share the seabed with other users. Concerns of this sharing are continually being expressed as more and more uses of the seabed develop, such as oil and gas exploration and the development of marine protected areas. The cumulative impacts that result from the increased competition between fishing and other seabed uses have had a substantial effect on fishing activity.

Within the past decade, the submarine cable industry has grown rapidly due to increasing demand in the international telecommunications market generated by Internet and corporate data traffic (Pioneer Consulting 1999). This means that more and more cables are being installed worldwide, including transoceanic and other cables along the U.S. West Coast (Table 1 and Figure 1). This increase in the number of submarine cables has resulted in a greater use of the seabed off of the West Coast by the submarine cable industry.

As fishing activity is being forced to share the seabed with new uses, and as an increasing number of cables is being laid on the seabed, the fishing industry and the submarine cable industry have found themselves repeatedly competing for the same areas of the seabed. When this shared use occurs, multiple use conflicts may result. According to Miles et al. (1982, 432), "Multiple use conflicts arise when more than one use of a resource or a marine area precludes or adversely impinges upon the use of other resources (or the same space) by other users."

Adverse impacts to both the fishing industry and the submarine cable industry may result from their shared use of the seabed. When fishing, particularly trawling, occurs over areas where submarine cables have been laid, for example, there is the potential for entanglement of the fishing gear and the cable. This may cause damage to both the cable and the fishing gear, and result in large economic costs to both users.

Cable burial is one common method of cable protection, but this is not always technically feasible due to bottom conditions. Cable protection laws have attempted to deter fishing in areas where cables are located. Because of these

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[1]Oregon Coastal Notes is a weekly newsletter, during legislative sessions, which is published by the Oregon Coastal Zone Management Association (OCZMA).

[2]From here on, fishing industry refers to those in the commercial fishing industry that bottom fish, most specifically trawlers.

[3]From here on, submarine cable industry refers to those in the telecommunications industry responsible for the production, installation, maintenance, protection and ownership of submarine cables, most specifically fiber optic cables.

[4]An international agreement includes "treaties and other agreements of a contractual character between different countries or organizations of states (foreign) creating legal rights and obligations between the parties" (Black 1990, 816).

Table 1. Cable Landings on the U.S. West Coast

Name	Domestic Owner	Date In-Service	Number of Landings	West Coast Landing Points
Washington--Alaska	AT&T	1956	2	Port Angeles, WA; Ketchikan, AL
HAW-1	AT&T	1957	1	Point Arena, CA
HAW-2	AT&T	1964	1	San Luis Obispo (SLO), CA
HAW-2	AT&T	1964	1	San Luis Obispo (SLO), CA
HAW-4	AT&T; HTC	Apr. 1989	1	Point Arena, CA
North Pacific Cable	PTC	May 1991	2	Pacific City, OR; Seward, AL
TPC-4	AT&T	Oct. 1992	1	Manchester, CA
HAW-5	AT&T	1993	1	SLO, CA
TPC-5	AT&T	Dec. 1996	2	SLO, CA; Bandon, OR
Alaska United Fiber System	GCI	Feb. 1999	4	Juneau, Whittier and Valdez, AL; Seattle, WA
NorthStar	WCIC	Oct. 1999	4	Nedonna Beach, OR; Juneau, Whittier and Valdez, AL
China-US	AT&T	2000	2	SLO, CA; Bandon, OR
Southern Cross Cable Network	MFSG	2000	2	Nedonna Beach, OR; SLO, CA
PC and PAC	Global Crossing	2000	3	Grover Beach, CA (2); Harbor Point, WA
Festoon (Global West)	Global Photon	2001	7	San Francisco; Monterey; Manressa Beach; Morro Bay; Santa Barbara; Manhattan Beach; Mission Beach (all CA)
Japan US	AT&T; MFSG	2001	2	Point Arena, CA; Morro Bay, CA
Project Oxygen	N/A	2002	2	SLO, CA; Bandon, OR
Pan-American	N/A	2002	1	San Diego, CA
APS	N/A	2002	2	Pacific City, OR; Point Delgada, CA

Source: California State Lands Commission (1999), DSL (no date), Dugal (pers. com. 2000); ICPC (2000), Pioneer Consulting (1999), Rein (pers. com. 2000).

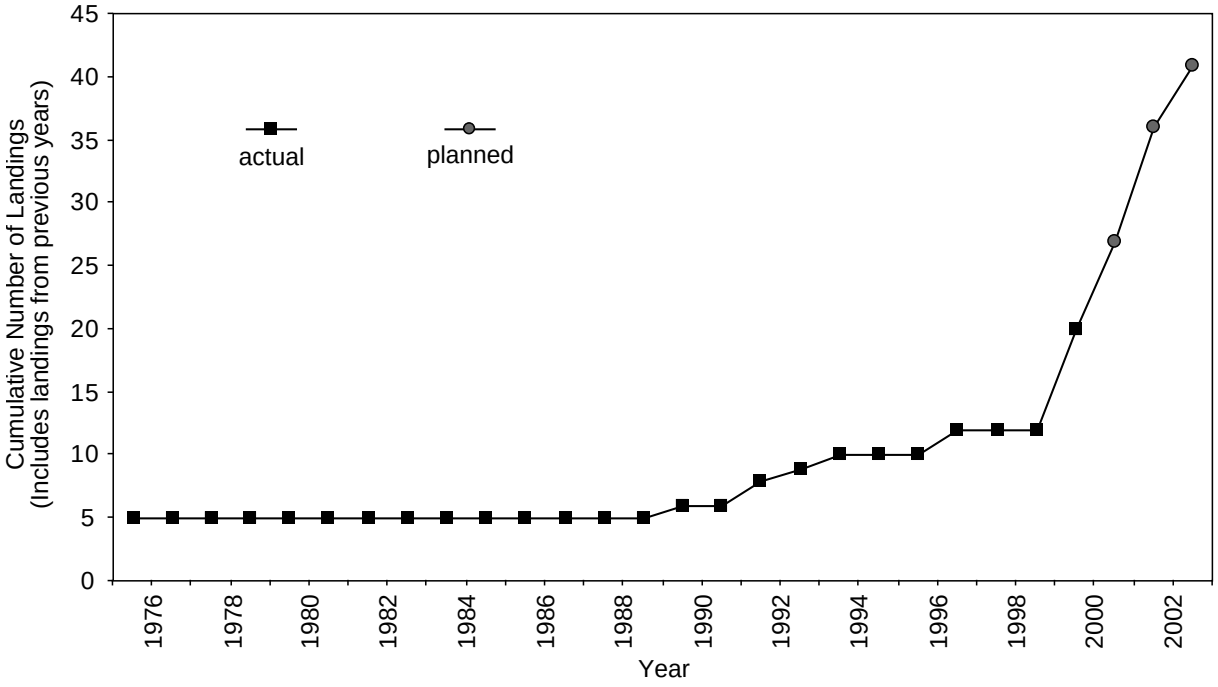

Figure 1. Trend in the Number of Cable Landings on the U.S. West Coast.

laws, the installation of a submarine cable through a fishing ground may impact the fishermen's ability to utilize productive bottom areas. This loss of fishing ground can result in large economic losses to the fishermen. As the shared use of the seabed has increased, more concerns have been expressed by both industries over these multiple use conflicts.

To address these concerns, the fishing industry and the submarine cable industry have recently begun to interact and discuss ways to resolve these multiple use conflicts. A successful conflict resolution requires the parties to focus on their interests, instead of their positions (Fisher and Ury 1991). The fishing industry is interested in maintaining its right to fish in traditional grounds without the threat of being held liable for cable damage or losing its fishing gear. The cable industry wants to install its cable in a cost-effective way and ensure its protection in the future. Fishermen have joined together to share their interests with cable companies during the planning process of new cable projects. The cable industry has responded to these interests, and negotiations between the two industries have been initiated prior to laying new cables in an attempt to solve some of these multiple use conflicts and protect both the fishing gear and cables from loss or damage.

Fishermen and cable companies operating in Oregon originated this negotiation process in the U.S., which has influenced action in other West Coast states. Formal agreements have been worked out to address such multiple use issues as routing of the cables, cable burial, establishing safe practices for fishing around submarine cables and liability for cable damage. To date, there have been three negotiated agreements between fishing organizations and cable companies in Oregon, and a process has been established to deal with future cable projects that land in that state.

The Organization of this Thesis

Chapter Two follows this introduction with a discussion of the issues associated with the multiple use of the seabed by the fishing industry and the submarine cable industry. These include the location of the cable and fishing grounds, types of damage to the cable and fishing gear, protection of the cable and fishing gear and costs of damage to the cable and fishing gear. The explanation of these issues is essential to the understanding of how a conflict situation might arise and what steps can be taken to reach a resolution.

Chapter Three is an overview of the legal framework that applies to submarine cables and fishing. It examines the laws that apply to the placement of submarine cables and those that apply to the protection of submarine cables. Within the placement laws, specific government approvals at the federal, state and local level that are necessary

for permitting a cable project are discussed. State and local approvals refer to those required in Oregon, as each state has slightly different requirements and it would be infeasible to cover all of these. Policy changes that have recently occurred in Oregon in relation to submarine cable projects are also discussed in this section. The protection laws deal primarily with cable protection provisions and liability issues for damages to submarine cables and fishing gear, and also assign criminal penalties for violating these provisions.

Chapter Four includes an in-depth narration of the events that have occurred in Oregon in the past decade in relation to the five cable projects that have been permitted. It begins with a discussion of the methodology, known as qualitative interviewing, used to collect the information in this chapter. The initial concerns raised by the fishing industry and the subsequent negotiations and agreements with the cable companies are explored to give a comprehensive view of how these events have transpired. Comparisons among the five cable projects illustrate what obstacles, if any, the different projects encountered, and how these projects influenced one another. The role of the state of Oregon in these interactions will also be discussed, although there will not be an in-depth analysis of state policies regarding submarine cable projects, as this would be beyond the scope of this thesis.

A discussion of the literature relating to conflict resolution appears in Chapter Five in order to develop a framework for evaluating the success of the outcomes of the negotiations. The different ways of describing and understanding conflict and the different types of approaches to resolving a conflict situation are depicted. The factors used to determine when negotiation is an appropriate approach and the criteria for evaluating the success of a dispute resolution outcome are also discussed.

Chapter Six utilizes the framework discussed in the previous chapter to analyze the different negotiations in Oregon and determine what types of conflicts occurred and what types of approaches to resolving these conflicts were used. The interactions are evaluated to determine whether or not negotiation was the appropriate approach to use in this situation. The outcomes of the interactions between the fishing industry and submarine cable industry in Oregon are analyzed, using the criteria discussed previously, to ascertain their success.

Finally, Chapter Seven ends this thesis with a summary of the recent interactions between the fishing industry and the submarine cable industry. Conclusions are drawn about the lessons from the Oregon experience, the potential influence of this situation on other U.S. West Coast states, national and global implications and areas for further study. Based on the success in Oregon, this thesis offers recommendations of strategies for the fishing industry and the submarine cable industry to adopt for cable projects in the future.

Chapter 2. Multiple Use Issues

Before the formal negotiations between the fishing industry and the submarine cable industry in Oregon can be described and analyzed, the issues associated with the multiple use of the seabed by these two groups must be discussed. This will lead to a further understanding of how a conflict situation might arise and what steps can be taken to reach a resolution. There are four main issues associated with the shared use of the seabed by submarine cables and fishing. These are: 1) location of cables and fishing grounds, 2) types of damage that can occur to cables and fishing gear, 3) measures for protecting cables and fishing gear from damage, and 4) costs when damage occurs.

Location

Where the use of the seabed by submarine cables and bottom fishing coincide, there is the potential for conflict. If a cable is laid on the surface of the seabed where bottom fishing activity takes place, fishing gear may become entangled with the cable when passing over it, potentially causing damage to both the gear and the cable and resulting in large economic costs. There are ways of reducing this possible conflict, including both industries avoiding the use of the same areas of the seabed. When this is not possible, however, other alternatives, such as cable protection measures, can be employed.

The location of fishing grounds is only one factor considered when selecting an appropriate route for a submarine cable. In this selection process, a cable company "attempts to optimize the shortest distance between landing points and risk avoidance. Risks include bottom topography and types, pipelines and other cables, easements, sanctuaries, fishing activities, etc." (Munier pers. com. 2000). It is often difficult to find a route that can avoid all of the difficult cable laying conditions (Doyle 1997), so there may be some sections of cable that pass through fishing grounds and have an impact on fishing activity in that area.

Although routing through fishing grounds may be unavoidable when installing a cable, it is necessary for the cable company to have the best information about the location of these grounds, which can be provided by the fishing industry. The fishing industry has historically not been involved in the planning process for the routing of cables. Consequently, the cable companies have not had adequate information about the areas that are highly fished and several cables have been laid through these productive grounds. In the past, the fishing industry has sometimes been unaware of the location of a cable until after it has been installed, and at that point it is too late to change its location.

Damage

Damage may result when fishing gear and submarine cables become entangled. Cables faults, which render the cable inoperable, are caused by tension breaks or crushing (Munier pers. com. 2000). Certain types of fishing gear are more likely than others to bring about this damage. Trawling is the fishing method that has been responsible for the majority of cable faults (ICPC 1997). There are two main sets of trawl gear – the bottom trawl and the beam trawl. The bottom trawl, or otter trawl, includes a heavy footrope along the front bottom edge of the net, floats or lifting devices attached to the headrope on the top of the net and two doors that keep the gear on the bottom and maintain the horizontal spread for the net (ICPC 1997). Other bottom trawl gear that may contact the seabed include rockhopper gear (heavy rubber discs) designed to work on very hard bottom and tickler chains, which cause bottom species to jump up or swim off the seabed and be captured by the net (ICPC 1997). The beam trawl consists of a rigid beam attached across the front of the net to maintain horizontal spread, and tickler chains and sole plates that come in contact with the bottom (ICPC 1997). Dredges, longlines, gillnets and FADs (fish aggregating devices) are other types of fishing gear that may cause damage to submarine cables. In addition to the fishing gear mentioned above, anchoring may also cause damage to submarine cables, especially because anchors penetrate the seabed much deeper than most fishing gear (ICPC 1997).

Entanglement can occur when trawl doors, beams, nets, or other gear come in contact with a cable and become stuck. The impact of this ground gear on a cable can result in damage by either bending or breaking the cable, depending on the amount of force exerted by the fishing vessel. Cable faults can also be caused by crushing, which usually is the result of a trawl riding over a cable at an oblique angle (Munier pers. com. 2000). These impacts are most likely to occur where cables are exposed or when the gear penetrates the seabed (ICPC 1997). Cable failure may result from either damage to the insulation or a break in the fibers (Munier pers. com. 2000).

Cables are most at risk of being damaged when efforts are made to recover fishing gear that has become entangled (ICPC 1997). Attempts to free this snagged gear not only can cause damage to the cable, but can also place the fishing vessel and crew in danger. The force on the fishing vessel when it attempts to lift the gear can be very high due to the weight of the cable and the amount of tension in the cable (ICPC 1997). This force can be strong enough to capsize the vessel. In many cases, fishing gear must be cut from the vessel to ensure safety and avoid further damage to the cable.

Protection

As discussed previously routing a cable through fishing grounds is sometimes unavoidable. When this multiple use occurs, there are several precautionary measures that can be taken to minimize the impacts to fishing activity and reduce the risk of damage to the cable and fishing gear.

Cable armoring and burial can provide protection for submarine cables, but these methods are expensive and cannot always be used. Armoring offers a protective shield consisting of steel wire and insulating material, but even these layers cannot fully protect the cable from bending or breaking and burial is usually necessary (AT&T Submarine Systems 1993). Current technology enables cable plows to bury cable in the seabed to water depths of about 2000 meters, but only across geologically suitable tracts of the seabed (Munier pers. com. 2000; AT&T Submarine Systems 1993). Cables are laid on all conditions of seafloor, ranging from sand and silt substrates to rock and sandstone formations (Doyle 1997). Plows generally operate by cutting a trench in the seabed (typically about 1 meter deep) and laying the cable in this trench (AT&T Submarine Systems 1993). Cable plows are unable to operate on very steep slopes and rough topography, which are likely conditions on the continental slope past the continental shelf edge, or about 1500 – 2000 meters water depth (Munier pers. com. 2000). A remotely operated vehicle (ROV) may be able to bury the cable after it has been laid, with the capability to operate down to 2500 meters water depth. This, however, is also dependent on bottom conditions; rough bottom or steep slopes may be unfavorable to ROV post-lay burial (Munier pers. com. 2000). Often, cables remain exposed in some areas along the planned route. A main objective in cable laying is to achieve full burial in the identified risk areas, including rough bottom topography, areas with pipelines and other cables, sanctuaries and fishing grounds (Munier pers. com. 2000).

Cable burial does not completely protect cables from damage caused by fishing activity, although it is one of the best methods available. “Burial is highly effective in protecting cables in most areas which are used extensively for commercial fishing” (Wagner 1995). However, some types of fishing gear may penetrate the seafloor and become entangled in a buried cable, or buried cables may become exposed due to bottom conditions, thereby rendering them vulnerable to damage (AT&T Submarine Systems 1993). Fishing gear may penetrate the seabed under a number of circumstances. In unusual circumstances, a trawl door may jump over a large obstacle, like a rock, and land hard, diving into the seabed (ICPC 1997). When a vessel stops its forward motion or makes a sharp turn, a trawl door may lay flat on the bottom and a door with a solid bracket may penetrate the seabed much deeper than usual (ICPC 1997). Some degree of penetration is also likely on smooth bottom under normal operation. Fishing vessels often make multiple tows over the same area of the seabed and tickler chains may remove layers of sediment as they pass over the bottom, potentially exposing buried cables (ICPC 1997). Shifting sediments due to strong currents may also expose cables, or the extra length in a segment of cable may form a loop that extends above the seabed (ICPC 1997). Exposed cables are more likely to be damaged by tension breaks or crushing than are buried cables.

Another means of reducing the likelihood of damage is through cable protection programs, which provide communication with the fishing community about safe fishing practices near submarine cables. Some cable companies send personnel to fishing ports to distribute charts and other information about the location of cables (Doyle 1997). Cable companies also attend trade shows or expositions to hand out information and discuss better ways to ensure cable protection. Although these efforts have helped to decrease cable failures, problems have not been eliminated (Wagner 1995). With the development of new types of fishing gear and the extension of fishing activity to deeper waters, the protection of cables has become an increasing concern (Wagner 1995).

Costs of Damage

“At least twice a month, somewhere in the world a fisherman snags a cable with fishing gear” (AT&T Submarine Systems 1993).

A cable company incurs enormous costs when one of its cables is damaged. First, a considerable effort must go into rerouting signals from the damaged cable to other

cables and satellites. Although this can usually be handled with little or no delay, there is still the possibility of dropped calls, lost data, and disruptions to business operations worldwide (AT&T Submarine Systems 1993). The cable company also loses the revenue from these rerouted calls. "Because communications cables create revenue by selling capacity (circuits or bandwidth), every minute of downtime can result in an opportunity cost of thousands of dollars for the cable operator. As the capacity of fiber optic cable increases, so does the economic impact of a breach of service" (Doyle 1997, 56). The cost of cable repair can be staggering as well. A company must pay to station repair ships around the world that are ready to sail at a moment's notice. The actual repair of the cable can be labor intensive and costly. Single cable repair costs have been estimated to exceed $1 million (Wagner 1995). In addition, cable companies must sometimes compensate for the lost or damaged gear of the fishing vessel involved in the cable damage, which may be on the order of tens of thousands of dollars (Bodnar pers. com. 2000). The total costs of cable failures are escalating rapidly, due to the increase in capacity. Consequently, the need for enhanced protection is high (Doyle 1997).

The economic consequences of snagging a cable and causing damage can be staggering to fishermen as well. The cable company can file suit to recover for damages to a cable, which, in some cases, can be substantial enough (over $1 million) to put a fisherman out of business. There is also a cost involved in replacing or repairing lost or damaged gear, which can sometimes be recovered from the cable company if a vessel owner has taken the proper measures to avoid further damage to the cable. However, there are uncompensated costs associated with the loss of catch and the loss of fishing time due to damaged or sacrificed gear. A study was completed in California to assess a cable project's potential economic impacts on trawlers, including decreased revenues and added expenses due to abandoned gear and lost fishing time. Results indicated that net income would decrease by $40 per day, or about 7.7 percent of baseline net income (California Coastal Commission 2000). Other economic costs for the fishermen are associated with lost fishing grounds. When a cable runs through fishing grounds, fishermen may choose not to fish in these grounds to avoid damaging their gear and the cable. The fishermen forgo any revenue they may have received by fishing in this area. An economic analysis completed in Oregon valued the forgone revenue from fishing grounds that were lost due to the placement of a submarine cable at over $1 million (Fox pers. com. 2000b; Gunnari 1999). Fishing near a cable is a risky enterprise, yet some fishermen take this risk to maintain their livelihood if the most valuable fishing grounds occur in the same area as a submarine cable (McMullen pers. com. 2000b).

Chapter 3. Legal Framework

The multiple use issues discussed in the previous chapter have been addressed through several international agreements, or conventions, and national laws. This legislation can be divided into two main categories - those that govern the placement of submarine cables and those that govern the protection of submarine cables. The placement agreements and laws include granting the right to lay submarine cables on the seabed, as well as various government approvals that are necessary for laying a cable and bringing it to shore in the U.S. The protection agreements and laws deal primarily with cable protection provisions and liability issues for damages to submarine cables and fishing gear, and also assign criminal penalties for violating these provisions.

Placement Laws

Convention on the Continental Shelf

The 1958 Convention on the Continental Shelf prevents a nation from prohibiting the laying of submarine cables on its continental shelf.[5] It reads that "Subject to its right to take reasonable measures for the exploration of the continental shelf and the exploitation of its natural resources, the coastal State may not impede the laying or maintenance of submarine cables or pipelines on the continental shelf."[6]

Convention on the High Seas

The 1958 Convention on the High Seas recognizes four freedoms of the high seas,[7] including the freedom of fishing and the freedom to lay submarine cables and pipelines. These freedoms "shall be exercised by all States with reasonable regard to the interests of other States in their exercise of the Freedom of the high seas."[8] The Convention on the High Seas grants all States the right to lay submarine cables on the bed of the high seas.[9] This convention also includes a provision that prevents a nation from prohibiting the laying of submarine cables on its continental shelf,[10] similar to that in the Convention on the Continental Shelf.

United Nations Convention on the Law of the Sea

The 1982 United Nations Convention on the Law of the Sea (UNCLOS) is the controlling international law at present and has built upon the two earlier conventions, incorporating the older provisions into the new convention. UNCLOS grants the right to all States "to lay submarine cables and pipelines on the bed of the high seas beyond the continental shelf."[11] Similar to the Convention on the Continental Shelf and the Convention on the High Seas, UNCLOS states that "Subject to its right to take reasonable measures for the exploration of the continental shelf, the exploitation of its natural resources and the prevention, reduction and control of pollution from pipelines, the coastal State may not impede the laying or maintenance of such cables or pipelines."[12] Also, these provisions do not affect "the right of the coastal State to establish conditions for cables or pipelines entering its territory or territorial sea, or its jurisdiction over cables and pipelines constructed or used in connection with the exploration of its continental shelf or exploitation of its resources or the operations of artificial islands, installations and structures under its jurisdiction."[13]

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[5] "continental shelf" is used as referring

(a) to the seabed and subsoil of the submarine areas adjacent to the coast but outside the area of the territorial sea, to a depth of 200 metres or, beyond that limit, to where the depth of the superjacent waters admits of the exploitation of the natural resources of the said areas;

(b) to the seabed and subsoil of similar submarine areas adjacent to the coasts of islands. (Convention on the Continental Shelf, *Article 1*,).

[6] Convention on the Continental Shelf, *Article 4*.

[7] "high seas" is defined as all parts of the sea that are not included in the territorial sea or in the internal water of a State (Convention on the High Seas, *Article 1*).

[8] Convention on the High Seas, *Article 2*.

[9] Convention on the High Seas, *Article 26*.

[10] Convention on the High Seas. *Article 26*.

[11] UNCLOS, Part VII, Section 1. Article 112.

[12] UNCLOS, Part VI. Article 79.

[13] UNCLOS, Part VI. Article 79.

These three international conventions grant the right to States to lay submarine cables, but do not specify any procedures for doing so. In the U.S., legislation has been implemented which requires that government approvals be obtained before submarine cables are installed.[14] This legislation and the procedures for obtaining the necessary government approvals will be discussed in the following section.

Government Approvals

There are a number of government approvals, such as permits, easements, etc., which must be obtained before submarine cables can be brought to shore in the U.S. Various levels of government, including federal, state, and local jurisdictions, issue these approvals. This section addresses those approvals that relate to the actual placement of submarine cables,[15] and will categorize these by the level of jurisdiction at which they occur.

Federal

There are two main government approvals at the federal level[16] that are required for bringing a submarine cable onshore in the U.S. Both of these approvals fall under the jurisdiction of the U.S. Army Corps of Engineers (COE). The River and Harbors Act of 1899,[17] Section 10[18] governs the first approval. The COE must "insure that development activities in coastal waters do not impede or interfere with the continued navigability of these waters" (Kalo et al. 1999, 103). A permit is issued after consideration of the possible adverse impacts the project may have on navigation within the navigable waters of the U.S.[19]

The second COE approval is a Clean Water Act (CWA),[20] Section 404[21] permit. Section 404 gives the COE "the power to regulate the discharge of dredge and fill material into navigable waters" (Kalo et al. 1999, 127). Under the CWA, the term "navigable waters" is defined as the waters of the United States, including the territorial seas.[22] The Section 404 program is "directed at maintaining or enhancing the quality of the nation's waters" (Kalo et al. 1999, 103-104). The impacts of the project on water quality due to the discharge of dredge or fill material are considered in the issuance of this permit.

COE regulations[23] require that cumulative impacts on the public interest be taken into consideration when reviewing an application. The factors considered in the public interest review include:

> conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, ***fish and wildlife values***, flood hazards, floodplain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership and, in general, the needs and welfare of the people (Kalo et al. 1999, 162, emphasis added).

In a proposed project, the relevant factors are weighed to determine the reasonably foreseeable benefits and detriments. The outcome of this balancing process determines the authorization of the proposal. Within the public interest review, a criterion used in evaluating a COE application states that "where there are unresolved conflicts as to

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[14] This legislation includes federal laws, such as the Clean Water Act and the Rivers and Harbors Act, as well as state legislation, such as the Oregon Constitution, the Oregon Territorial Sea Plan and specific Oregon statutes (ORS) and administrative rules (OAR).

[15] Some approvals relate more to the operation of submarine cables, such as those issued by the Federal Communications Commission (FCC). There are also approvals required for laying a cable on land or across an inland body of water. These types of approvals are not discussed in this thesis.

[16] Federal jurisdiction over submarine cable projects extends seaward out to 200 nautical miles, an area know as the Exclusive Economic Zone (EEZ) (Kalo et al. 1999). The freedom to lay submarine cables granted by the Convention on the High Seas applies within the U.S. EEZ, seaward of the U.S. territorial sea, which extends from shore seaward to twelve nautical miles (Kalo et al. 1999). Under the Convention on the Continental Shelf, the U.S. may not prohibit the laying of submarine cables within its EEZ, beyond its territorial sea. The right to lay submarine cables granted by UNCLOS does not apply within the U.S. EEZ because the continental shelf in the U.S. extends through the entire EEZ (Kalo et al. 1999).

[17] 33 U.S.C. § 401 et seq.

[18] 33 U.S.C. § 403.

[19] "Navigable waters of the United States are those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce" (33 C.F.R. § 329.4).

[20] 33 U.S.C. § 1251 et seq. The CWA was originally called the Federal Water Pollution Control Act (FWPCA).

[21] 33 U.S.C § 1344.

[22] 33 U.S.C. § 1362 (7). The term "waters of the United States" is defined under 33 C.F.R. § 328.3 (a).

[23] 33 C.F.R. § 320.4 (a).

[24] 33 C.F.R. § 320.4 (a)(2)(ii).

resource use, the practicability of using reasonable alternative locations and methods to accomplish the objective of the proposed structure or work"[24] will be considered.

In addition to the public interest review, the procedural requirements of the National Environmental Policy Act of 1969 (NEPA),[25] including the consideration of the environmental consequences of a project, must be followed in a COE permit review. The COE must also ensure that the proposed project complies with other federal laws, such as the Endangered Species Act (ESA),[26] the Marine Mammal Protection Act (MMPA)[27] and the Coastal Zone Management Act (CZMA).[28] Although other federal agencies do not have permitting authority for the placement of a submarine cable, they provide comments that are considered in the COE permit decision.

State

Government approvals are also required at the state level.[29] Each state has a different process for reviewing and permitting a project that falls within its jurisdiction.

Several agencies in Oregon[30] play a part in reviewing and permitting a submarine cable project. The Oregon Division of State Lands (DSL), acting as both a land manager and a regulator, is responsible for two government approvals (Kroft pers. com. 2000). First, an easement for the placement of a submarine cable in the Territorial Sea must be issued by the DSL and approved by the Oregon State Land Board (SLB), which is composed of the Governor, the Secretary of State and the State Treasurer. "The responsibility for administering the public and private use of the beds and banks of state owned submerged and submersible lands, rests with the State Land Board and its administrative agency, the Division of State Lands" (DSL 1998, 1). Submarine cables must cross the Territorial Sea,[31] a state-owned territory, to come ashore, and, therefore, require an easement. The DSL, when issuing an easement, is guided by the Public Trust Doctrine, which "requires that the state's management of waterways avoid unreasonable interference with public navigation, fisheries and commerce" (SLB and DSL 1995, 6). The Oregon Ocean Resources Management Plan, ORS 196-197, the Statewide Planning Goals (particularly Goal 19) and the Oregon Territorial Sea Plan also guide the DSL when deciding to issue an easement (SLB and DSL 1995). Under Article VIII, Section 5 (2) of the Oregon Constitution (1859), the SLB "shall manage lands under its jurisdiction with the object of obtaining the greatest benefit for the people of this state, consistent with the conservation of this resource under sound techniques of management."

The DSL assumes a regulatory role when issuing a Removal-Fill Permit for submarine cable projects within the Territorial Sea or other waters of the state. According to Oregon law, any activity that proposes "the removal of material from the beds and banks or filling of the waters of this state"[32] requires a permit. A DSL review of an application includes consultation with affected property owners, government agencies and public interest groups.[33] The DSL shall issue a Removal-Fill permit "if the director determines that the removal described in the application will not be inconsistent with the protection, conservation and best use of the water resources of this state"[34] or "if the director determines that the proposed fill would not unreasonably interfere with the paramount policy of this state to preserve the use of its waters for navigation, fishing and public recreation."[35] An applicant may file a joint application that covers the state easement and Removal-Fill permit, as well as the COE approvals.

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[24] 33 C.F.R. § 320.4 (a)(2)(ii).

[25] 42 U.S.C. § 4321 et seq.

[26] 16 U.S.C. § 1531 et seq.

[27] 16 U.S.C. § 1361 et seq.

[28] 16 U.S.C. § 1451 et seq.

[29] The 1953 Submerged Lands Act (43 U.S.C. § 1301 – 1315) established a seaward boundary of three nautical miles (nine in the case of Texas and Florida) within which coastal states have jurisdiction over the seabed (submerged lands) and its resources (OPAC 1994).

[30] The process of obtaining approvals for a submarine cable project in states other than Oregon will not be discussed in this section due to the level of detail necessary to describe the different processes. For the most part, other states require approvals similar to those required in Oregon for permitting a submarine cable project.

[31] According to the Oregon Territorial Sea Plan, the Territorial Sea in Oregon is defined as the ocean and sea floor from mean lower low water seaward to three nautical miles (OPAC 1994).

[32] ORS 196.805.

[33] OAR 141-85-035.

[34] ORS 196.825 (1).

[35] ORS 196.825 (2).

A state water quality certification from the Oregon Department of Environmental Quality (DEQ) is another necessary approval. This is governed by the CWA, Section 401,[36] which "requires that any applicant for a federal license or permit to conduct any activity which may result in a discharge to waters of the state, must provide the licensing or permitting agency a certification from DEQ that the activity complies with water quality requirements and standards"[37] (Oregon DEQ Permits Handbook 2000). The DSL and COE joint permit application is forwarded to DEQ, which "reviews the project to ensure that it does not endanger Oregon's streams and wetlands and to confirm that the plans meet water quality laws and standards" (Oregon DEQ Permits Handbook 2000). If the DEQ denies the certification, this denial acts as an absolute veto of the COE permit application, rendering it invalid. This 401 certification process gives the state substantial power over the issuance of the COE permit.

The Oregon Department of Fish and Wildlife (DFW) is not authorized to issue or veto a permit for a submarine cable project, but it does have a commenting responsibility to the DSL (Fox pers. com. 2000b). These comments are received by the DSL during the application review process. The fish and wildlife resources of the state fall under the jurisdiction of the DFW, and this department must assess the impacts the project will have on these resources. In the most recent cable projects, the DFW has found that a majority of the impacts affect the fisheries, and the ecological and environmental impacts are minimal (Fox pers. com. 2000b). The comments, therefore, have focused on the fishery impacts and how these can be mitigated. These comments are considered by the DSL when issuing a permit, and can sometimes become conditions on a permit.

A submarine cable project must also receive a permit from the Oregon Department of Parks and Recreation (PRD). This permit is similar to the DSL Removal-Fill Permit,[38] but it covers the project activities on the state owned ocean shore.[39] The PRD must consider the impacts the project may have on public recreation, public use of the beach, public safety and conservation of natural resources.[40] The submarine cable that crosses the beach and a cable landing station onshore are typically the parts of the project over which the PRD has authority. For the most part, the PRD is not involved with the impacts on fishing, although the project cannot be completed without the PRD permit.

The Oregon Department of Land Conservation and Development (DLCD) has been designated the coastal zone management agency in Oregon pursuant to Section 306(c)(5) of the CZMA and ORS 196.435.[41] The DLCD has an approved Coastal Management Program (CMP), giving it federal consistency authority. Under the CZMA,[42] there is a federal consistency requirement that an applicant for a Federal license or permit "must certify to the state CMP that the proposed activity, whether in or outside the coastal zone, affecting any land or water use or natural resource of the coastal zone, will be conducted in a manner that is consistent with the enforceable policies of the CMP" (U.S. Department of Commerce 1995). The DLCD must either concur with or object to the applicant's certification. Like the DEQ water quality certification, the DLCD consistency concurrence is a necessary component of the COE permit; a COE permit cannot be issued without this certification. The DLCD also acts as the coordinating agency for a submarine cable project, making sure that the applicant communicates with all of the agencies that are involved in the project (Valentine pers. com. 2000). The main role of the DLCD in a submarine cable project is to review the COE application to ensure consistency with the state CMP, local comprehensive plans, and permits from other agencies (Valentine pers. com. 2000).

Local

Local jurisdictions in Oregon develop local comprehensive plans (LCPs) for planning and/or permitting projects that fall within county or city limits. These LCPs are reviewed at the state level by the DLCD to ensure consistency with the Oregon CMP and, upon approval, are implemented in the local decision-making process for permitting development projects.

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[36] 33 U.S.C. § 1341.

[37] ORS 468B; OAR 340-041; OAR 340-048.

[38] Senate Bill 11, enacted by the 1999 Legislature, along with new administrative rules, amend the PRD's ocean shore permitting authority to include Removal-Fill projects formerly under the jurisdiction of the DSL (Oregon PRD News 2000).

[39] The ocean shore refers to "the land lying between the extreme low tide of the Pacific Ocean and the statutory vegetation line as described by ORS 390.770 or the line of established upland shore vegetation, whichever is farther inland." (Oregon PRD News 2000 - Proposed amendment, OAR 736-020-0002 (13)).

[40] OAR 736-020-0005 (1).

[41] OAR 660-035-0020.

[42] 16 U.S.C. § 1456 (c)(3)(A).

Local jurisdiction covers only the parts of a project that occur upland from the vegetation line; all other activity is subject to review by the PRD (onshore) or the DSL (within the Territorial Sea). Therefore, in the case of a submarine cable project, local permits will generally be required only for an easement across the upland portion of the beach and for the construction of a landing facility. The main concern of local jurisdictions is preventing damage to the beach and the sand dunes (Ascher pers. com. 2000). Local comments also play a large role in the issuance of local approvals (Gunderson pers. com. 2000).

Policy Changes in Oregon

In response to recent events, Oregon has made several changes to its policies regarding the placement of submarine cables and the issuance of an easement by the DSL. The initial request by the DSL for the authorization to begin public rulemaking occurred on February 10, 1998 at a SLB meeting (SLB 1998). The goals of the proposed rules were "to ensure that the placement of fiber optic and other cables in the Territorial Sea and tidally influenced waters protects the public trust values, conserves living marine and other seabed resources, and avoids or reduces conflicts with other ocean users and industries" (DSL 1999c). Public informational meetings and hearings were held in June of 1999 to discuss the proposed policies and administrative rules concerning fiber optic cable easements (Cleary 1999). Public testimony was given at these meetings by both the fishing industry and the submarine cable industry regarding the proposed rule changes (Kroft 1999a). The proposed administrative rules went through a series of amendments based on the comments that were received, and were finally adopted by the SLB on October 12, 1999 (SLB 1999b). The adopted rules[43] (see Appendix A) recognize that other federal, state, and local laws have influence over the placement of cables, require that the route selected for the placement of a cable best meet the policies and goals of these rules, but not be confined to corridors,[44] require that cables be buried to the greatest extent possible and encourage early communication with affected ocean users to discuss possible use conflicts.

In addition to these new administrative rules, there have also been proposed amendments to the Oregon Territorial Sea Plan regarding fiber optic cables, based on Statewide Planning Goal 19 (Ocean Resources). The Oregon Ocean Policy Advisory Council (OPAC) recommended "that the state employ three basic policy objectives when reviewing and permitting seafloor telecommunication cables: - avoid conflicts between fishers and telecommunication cables on the seafloor; - recover costs and provide financial return to the public from such cables; and - provide a clear approval process for seafloor utility rights-of-way" (Bailey 1998). The proposed amendments take the form of a new chapter entitled Telecommunication Cables, Pipelines, and Other Utilities in Part Four of the Territorial Sea Plan (OPAC 2000). These amendments include background information on fiber optic cables that have landed in Oregon, policies that consider the protection of ocean fisheries, the avoidance, reduction or resolution of conflicts between affected ocean users and the use of burial, communication and coordination to avoid or reduce these conflicts. OPAC adopted these amendments on January 28, 2000 to be submitted to the Land Conservation and Development Commission on June 8, 2000.

Protection Laws

Convention for the Protection of Submarine Cables

The international Convention for the Protection of Submarine Cables was concluded on March 14, 1884 and entered into force for the United States on May 1, 1888. This Convention declares the breaking or injury of a submarine cable a punishable offence, except in the case of a party attempting to save his/her life or a vessel, after having taken all necessary precautions to avoid damage to the cable. Vessel owners, upon proof that they have sacrificed their gear in order to avoid damaging a cable, shall be indemnified by the owner of the cable. Another provision of this convention states that vessels, fishing gear and nets must be kept a distance of at least one nautical mile from a vessel engaged in laying or repairing a submarine cable or from a buoy designed to show the positions of cables during the laying process. There is, however, no legal requirement for vessels, fishing gear and nets to be kept away from cables once they are installed.

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[42] 16 U.S.C. § 1456 (c)(3)(A).

[43] OAR 141-083-0800 through OAR 141-083-0870.

[44] There was considerable discussion of cable corridors in this rulemaking process. The proposed rules stated that the "Division may require the placement of cables within corridors that: (a) Already contain cables; (b) May be identified by the Division; or (c) May be identified in the Territorial Sea Plan" (Cleary 1999). Public comment on this topic questioned how and when these corridors would be identified and required, indicated that damage by geologic events, fishing activities, or terrorist acts to a corridor containing more than one cable could increase the risk of interrupting communications and compromise system redundancy and stated that cable repair would be more difficult in a corridor. Therefore, the final rules did not require corridors, but stated that the DSL may require placement of cables along an agreed upon route (OAR 141-083-0810 (6)).

Submarine Cable Act[45]

The Submarine Cable Act, enacted on February 29, 1888, is the legislation that secures the execution of the Convention for the Protection of Submarine Cables in the U.S.[46] The sections of this act correspond to the provisions regarding protection, liability, and indemnification for sacrificed gear set forth in the Convention for the Protection of Submarine Cables, and establish specific penalties for the violation of these provisions. The Submarine Cable Act also declares that these penalties shall not be a bar to a suit for damages on account of breaking or injury of a submarine cable.[47]

Cable companies may attempt to recover for the cost of damage to a cable through a lawsuit. However, it has often been difficult to identify the responsible party, and the process of taking a case to court can be expensive and not always produce a successful result (Wagner 1995). Cable companies often end up paying for this damage, even though the liability rests with the fisherman. If the responsible party can be identified, the cost of damage may be considerable (see Chapter 2); some fishermen, therefore, are inclined to keep their distance from known locations of submarine cables to avoid this liability (Fox 1999).

Convention on the High Seas

The Convention on the High Seas establishes provisions[48] regarding protection, liability, and indemnification for sacrificed gear similar to those that appear in the Convention for the Protection of Submarine Cables.

United Nations Convention on the Law of the Sea

UNCLOS also includes provisions regarding the protection of submarine cables. These provisions provide the same protections as those previously discussed, but include one significant addition. Under UNCLOS, breaking or injury of a submarine cable, along with "conduct calculated or likely to result in such breaking or injury"[49] shall be a punishable offence. This is the first convention that provides for the prevention of cable damage. Under previous conventions, cable companies are only permitted to take action after damage to a cable has occurred, giving them no means to prevent this damage. UNCLOS allows for the enforcement of measures such as safe fishing practices and punishment of those who fail to follow these measures, even if cable damage does not occur. Although the UNCLOS provisions have been widely accepted as customary law, the U.S. has not yet ratified UNCLOS, nor has it adopted legislation that would enable cable companies to prevent cable damage from occurring.

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[45] 47 U.S.C. § 21–33.

[46] The jurisdiction of the U.S. applies to actions within waters of its territorial sea (within 12 nautical miles) or on board a U.S. vessel outside of these waters (47 U.S.C. § 33).

[47] 47 U.S.C. § 28.

[48] Convention on the High Seas. *Articles 27, 28 and 29*.

[49] UNCLOS, Part VII, Section 1. Article 113.

Chapter 4. The Oregon Experience

Recent events in Oregon serve as an excellent example of the ways in which interactions between the fishing industry and the submarine cable industry have changed over the past decade. The first fiber optic cable to come ashore in Oregon, the North Pacific Cable (NPC), landed in 1991. Since then, four additional cables[50] have landed on Oregon's coast (see Table 1). The issues associated with the shared use of the seabed by the fishing industry and the submarine cable industry have only recently been addressed. The relationship between these two industries has evolved with each successive cable that has come ashore in the state.

Information Collection

The description of the events that occurred in Oregon is largely anecdotal, for two main reasons. First, there are few documented sources that describe the events in detail. Also, there is not one single depiction of the events that occurred; rather, different perceptions of what happened shed light on the entire experience. This chapter will combine information from different sources to develop a comprehensive and accurate description of the Oregon experience.

In order to collect this anecdotal information in a credible manner, a methodology known as qualitative interviewing, as described by Rubin and Rubin (1995), was used. There are several reasons that this technique is applicable to this research. According to Rubin and Rubin (1995), qualitative interviewing is used to find out what others feel and think about their worlds without imposing the interviewer's world on theirs. It is a way to understand experiences and reconstruct events in which the interviewer did not participate (Rubin and Rubin 1995). Rubin and Rubin (1995) outline three characteristics of qualitative interviews: 1) they are modifications or extensions of ordinary conversations; 2) they are more interested in the understanding, knowledge and insights of the interviewees than in categorizing people or events in terms of academic theories; and 3) the content, flow and choice of topics changes to match what the individual knows and feels. This chapter reconstructs the events that have transpired in Oregon between the fishing industry and the submarine cable industry and describes how these groups felt about the experience, especially the negotiations.

Qualitative interviews are useful in establishing how present situations resulted from past decisions or events, when the purpose of the research is to unravel complicated relationships and slowly evolving events, and when the goal is shedding new light on puzzling questions (Rubin and Rubin 1995). The recent interactions between the fishing industry and the submarine cable industry in Oregon satisfy all of these conditions. Rubin and Rubin (1995, 51) state that "a topic that is suitable for qualitative work requires in-depth understanding that is best communicated through detailed examples and rich narratives."

The type of qualitative interview used for this thesis is a topical interview, or oral history, which allows the interviewer to learn about particular events or processes (Rubin and Rubin 1995). In a topical interview, the reported results are based on the interpretations of the interviewer, reconstructing what happened and how it was understood (Rubin and Rubin 1995). This thesis describes the Oregon experience as interpreted from the different information that has been collected. Therefore, this chapter can be viewed as the author's interpretation of the events that occurred based on the information provided by the interviewees.

When selecting individuals to interview there are several factors to consider. The interviewer should begin by talking to a variety of people to get acquainted, and then narrow the potential interview list down to the most appropriate people. The persons should be knowledgeable about the situation or experience, they should be willing to talk, and they should represent a range of points of view, especially when there is a contentious situation (Rubin and Rubin 1995). A number of individuals were initially contacted to determine the most appropriate people to talk with in more depth. Qualitative interviews for this research were conducted with individuals who were directly involved in the negotiations and therefore most knowledgeable about the events that occurred. These interviews covered all of the different players in the negotiations, including fishermen, cable companies and state agencies, and totaled more than twenty interviews (see Appendix B). To ensure accuracy, individuals who are cited in this thesis were given the opportunity to review this documentation.

[50] There have actually been four cable projects to come ashore since the NPC, which included a total of six cables. Each project will be referred to as a single cable for simplicity.

A semistructured (or focused) format was used to guide the interviews and solicit specific information. The design of a qualitative interview must be flexible, iterative and continuous (Rubin and Rubin 1995), which means that the interviewer learns from previous interviews and redesigns, adapts and narrows further research based on what has been learned. This design can be contrasted to more rigid designs such as surveys or questionnaires, where research questions are predesigned and adjustments are not made based on information that is learned throughout the process (Rubin and Rubin 1995). In the course of the interviews for this thesis, questions were changed and adapted to new information that was collected (see Appendix C).

Finally, the credibility of qualitative interviews can be judged by the transparency, consistency-coherence, and communicability of the work (Rubin and Rubin 1995). To keep research transparent, an interviewer should maintain careful records so the reader can see the process of data collection. The interviewer should check ideas and responses that appear to be inconsistent and be able to explain why these occur. Also, the readers should be able to understand what it is like to be within the research arena. For this paper, records of all correspondence were documented and maintained to show the process of data collection. Any inconsistencies that were reported were further investigated to understand why they occurred. This chapter has been written so that the reader has a good understanding of the research process and the people involved.

The events described in this chapter are based on official documents and the author's own direct observations of the interactions between the fishing industry and the cable industry, in addition to interviews. This enhances credibility using a technique known as triangulation. Multiple sources of evidence should be used when collecting data in order to "address a broader range of historical, attitudinal, and behavioral issues" (Yin 1994, 92). Another advantage of using several different sources of information is the development of converging lines of inquiry, a process of triangulation (Figure 2). For this thesis, multiple interviews were conducted to initially ask the same questions of different people, documents were used to support the information that was collected in the interviews and direct observations provided insight into the interactions between the groups.

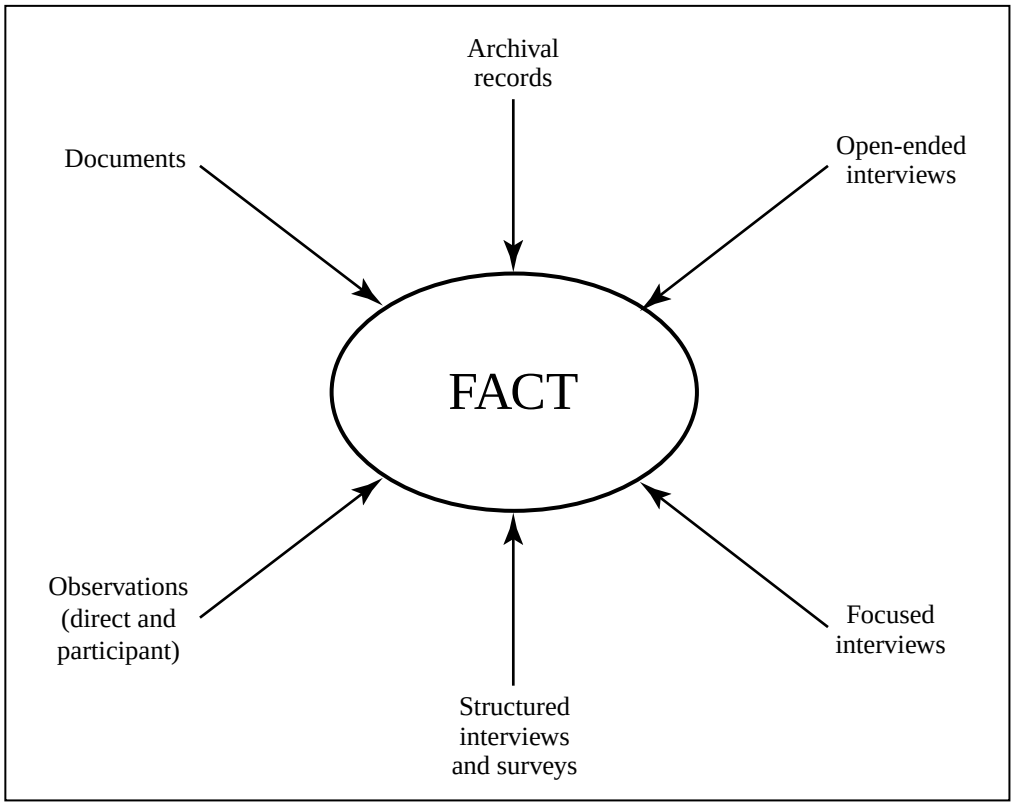

Figure 2. Convergence of Multiple Sources of Evidence Source: Adapted from Yin (1994).

The following discussion will describe the recent events that have transpired between the fishing and submarine cable industries in Oregon. It includes all five cable projects that have landed on Oregon's shores, and illustrates how the interactions between the fishermen and the cable companies have changed over the past decade.

The North Pacific Cable

Pacific Telecom Cable, Inc. (PTC) landed the first Oregon submarine fiber optic cable, the NPC, in Pacific City (Figure 3) early in 1991. This cable runs between Oregon and Japan, and has a spur connecting to Alaska. PTC received the necessary government approvals (see Chapter 2) for this project with little public concern being expressed (Fox pers. com. 2000b; Kroft 1999b; Walker pers. com. 2000). Town meetings were held to inform the local public of the cable project; it was received favorably (Walker pers. com. 2000). The only mention of fishing came from the comments of the DFW, which suggested that the cable should be buried at least 24" deep and out to at least 3300 feet (just over 1000 meters) water depth to avoid damage to the cable and/or loss of fishing gear (DFW 1989). The NPC was buried according to the best burial technology at that time, and has since been buried deeper as technology has improved (Walker pers. com. 2000).

As a condition of the DSL Removal-Fill permit, PTC was instructed to "maintain communications with the local dory fishermen at Pacific City concerning cable issues that may

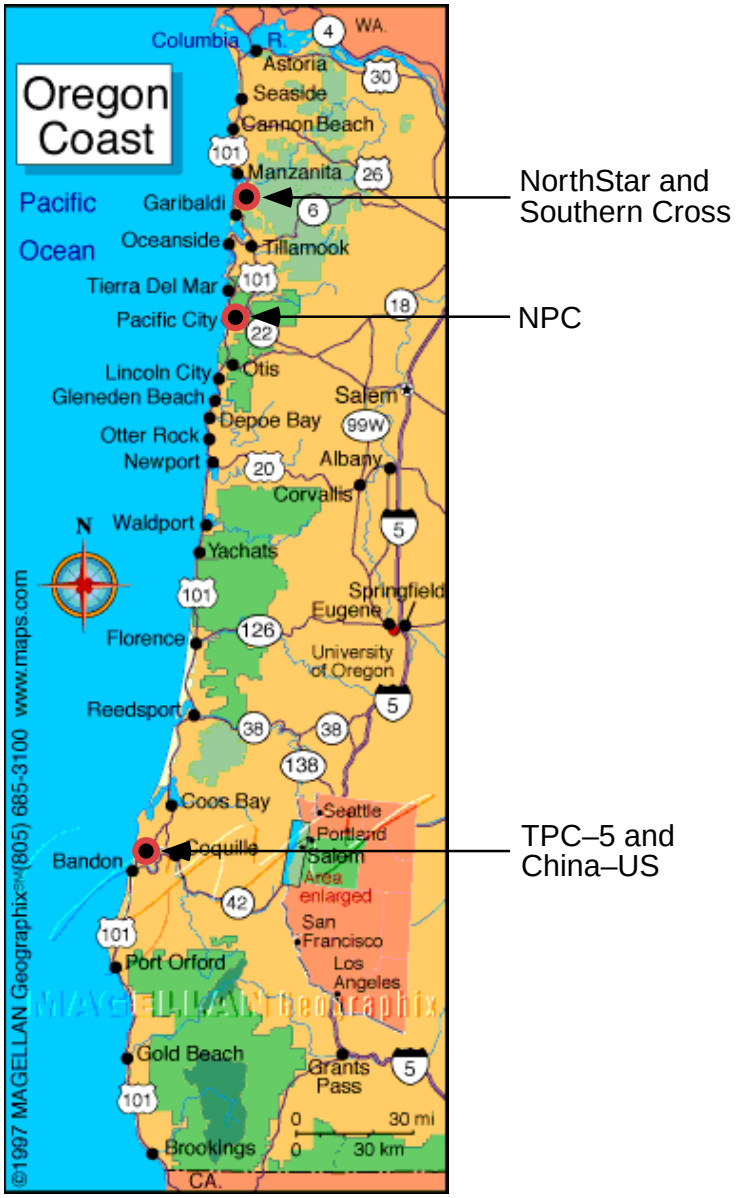

Figure 3. Cable Landing Locations in Oregon. Nedonna Beach is located near Garibaldi.

Source: Adapted from Maps.com & MAGELLAN Geographix (1999)

affect local nearshore fishing practices. If after cable placement, the cable, for any reason, becomes suspended or otherwise exposed such that it adversely affects the nearshore fishery, Pacific Telecom Cable, Inc. shall make all reasonable efforts to resolve the problem" (DSL 1989). According to a PTC representative, there have been no issues with the dory fishermen since the cable has been laid, and, therefore, subsequent interaction has not been necessary (Walker pers. com. 2000).

The TPC-5 Cable

The next submarine cable to come ashore in Oregon was the TPC-5, or Transpacific Cable 5.[51] This cable was installed at Bandon (Figure 3) in 1996, continued down the coast to San Luis Obispo, CA and then across the Pacific Ocean to Hawaii, Guam and Japan. AT&T is the domestic owner of this cable system and was responsible for the installation at Bandon. Like the previous cable project, this one received very little public comment, even after the public notice of application was circulated for review and a notice was posted on the shorefront property where the cable was to be installed (Brown 1994). Comments were again received from the DFW, which requested "that a condition be placed on the permit requiring the cable to be buried to a water depth of 3,000 feet [just under 1000 meters] using the techniques outlined in the public notice" (Snow 1994). The condition placed on the DSL Removal-Fill permit stated that "AT&T shall maintain communications with local commercial and recreational fishing interests concerning cable issues that may affect nearshore fishing practices. If problems arise with submerged cable, AT&T shall make all reasonable efforts to resolve the problem" (DSL 1995).

An important event in this case was the attendance of an AT&T representative at a meeting of the Oregon Trawl Commission (OTC) on September 9, 1994. This representative discussed a different cable that AT&T had previously installed off of the Washington coast, which was being rerouted as a result of multiple breaks due to trawler activity in this area. The fishermen were told how to get information about the updated location of the cable, and advised to keep their gear at least one nautical mile away from the cable to reduce the likelihood of lost gear and cable damage (OTC 1994). The AT&T representative also announced that a new cable (TPC-5) was coming into Bandon. There were general discussions of cable companies talking to fishermen before they installed their cables (OTC 1994), but no specific process related to TPC-5 was mentioned. Despite this interaction at the OTC meeting, few concerns were noted at the time of permitting. According to Joe Easely (1996) of the OTC, nothing more was heard of this project until 1996, when the notice of installation of the TPC-5 cable was released. It was not until issuance of this notice, after all of the necessary permits had been granted, that concerns began to surface.

Several letters were received by the DSL in July 1996 around the time of cable installation (DSL 2000b). These letters from members of the fishing industry expressed concern about the impacts of this cable on fishing. According to these fishing interests, the planned cable route "cuts through the heart of some of the richest, long-standing fishing grounds" (Rumbaugh 1996) for the Coos Bay fleet. In addition, the fishermen interpreted the advised one mile buffer zone around the cable to be a legal requirement, although no such requirement actually exists (see Chapter 3). This perception of the buffer zone caused fishermen to feel that they were losing even more valuable ground due to the cable (Leipzig 1996). They began to express these concerns when they were notified of the installation, requesting that the DSL reopen this case for discussion (Easely 1996; Leipzig 1996; Rumbaugh 1996).

According to a letter from Paul Cleary (1996), the director of the DSL, these requests were considered, but the DSL was unable to reopen the AT&T Removal-Fill permit "because there ha[d] not been a permit condition violation." Cleary (1996) also addressed the issue of the buffer zone, stating that "it is our understanding that Coast Guard regulations require closure to all vessels within one-mile of "active" cable laying operations. This is not a permanent closure as it terminates once the active operations are completed." AT&T's intentions to comply fully with the permit conditions, which require that the cable be buried wherever possible, were also mentioned by Cleary (1996). It was noted that there could have been better communication in this case, and that the DSL encouraged improved communication in the future (Cleary 1996).

A final plea from the fishing industry (Waldrop 1996) was heard when AT&T's Removal-Fill permit came up for review in December of 1996. Additional letters from the fishing industry requested that this project again be reviewed for its impacts on fishing (Waldrop 1996). A letter from the DFW recognized that little could be done about the location of the cable because it was already in place (Fox 1996). However, the DFW did request that "a condition be placed on the renewed permit that requires AT&T to meet with local fishing interests in the Coos Bay area to

[51] The TPC-5 actually consists of two cable segments that both land at Bandon. As noted previously, they will be referred to as one combined cable for simplicity.

configure the buffer area so that it minimizes impacts to the fishery" (Fox 1996). Clearly there were still some misunderstandings within the fishing community about the legal requirements of a one-mile buffer zone, which escalated their concerns. AT&T did not request a renewal of this permit, however, because the Removal-Fill permit activities were already complete (McCabe pers. com. 2000). Therefore, the permit was not renewed and there was no further review of the project.

At about the same time as these events were taking place, fishermen's concerns with submarine cables were heightened when the NPC cable was hit and damaged in May of 1995. In order to recover the cost of repairs for the capacity owners of this cable,[52] PTC, the cable owner, filed a liability claim against *Venture West*, the fishing vessel that was allegedly responsible for the damages. This claim was settled before it went to trial; the vessel owner paid in excess of $1.2 million to PTC (Holcom 1999). As fishermen became aware of this settlement, the potential impact of submarine cables on fishing activity became more apparent. Holcom (1999) stated that this settlement "sent shivers down the spines of financially troubled fishermen who knew catching a fiber optic cable would send them deeper than the sea itself." According to Holcom (1999), the lawsuit created "a battle zone of fishermen concern and hot political interest and debate."

The NorthStar Cable

In April of 1998, WCI Cable (WCIC) applied to the DSL and to the COE for the necessary approvals to land a fiber optic cable system called NorthStar in Nedonna Beach, near Garibaldi (Figure 3). This system was being built to connect to the Alaska Fiber Star (AFS) Network, which is a fiber optic backbone in Alaska, so as to provide a link between Alaska and the lower 48 states of the U.S.

Unlike the previous two cables that had come ashore in Oregon, the NorthStar cable was met with concerns from the fishing industry from the outset of the project. Having been introduced to the potential impacts of submarine cables when the TPC-5 cable ran through productive fishing grounds near Coos Bay and by the liability settlement for damage to the NPC cable, Oregon fishermen were already aware of their vulnerability to additional cables. When Scott McMullen, a fishing vessel owner and operator out of Astoria, Oregon, got word of the NorthStar cable project via a newspaper article, he sought to reduce the impacts on fishermen (McMullen pers. com. 2000). McMullen (1998a) drafted a letter stating these impacts to a fellow fisherman, Terry Thompson, who was also a Representative in the Oregon State Legislature. The DSL was notified of this concern and encouraged WCIC to address the fishermen's interests (McMullen 1998d, pers. com. 2000).

At the same time as this communication was taking place, WCIC was being encouraged by one of their contractors to initiate communications with the fishing industry. Peratrovich, Nottingham & Drage, Inc. (PN&D), an engineering consulting firm, had been contracted by WCIC to find, permit, and engineer the NorthStar cable route into Nedonna Beach (Holcom 1999). These consultants, working out of their office in Astoria, were aware of the concerns being expressed by the fishing industry about the previous submarine cables that had been installed in Oregon. Originally planning to land the NorthStar cable in Pacific City, Oregon, WCIC had decided to seek an alternate landing site, which would require another bottom survey. PN&D concluded that it would be in WCIC's best interest to consult with fishermen prior to doing another bottom survey in order to determine where the most productive fishing grounds were located (Gunderson pers. com. 2000). William Gunderson, one of the consultants, suggested that WCIC meet with the fishermen to discuss this issue.

Geoff Fowler, the WCIC project manager for the Oregon landing, agreed to this meeting, which took place in June of 1998 (Fowler pers. com. 2000). This was a distinct break from the traditional *modus operandi* of the submarine cable industry, which was used to getting its permits without much outside discussion. WCIC was a company new to the industry, and Fowler was given a great deal of authority for the project in Oregon (Fowler pers. com. 2000). Fowler (pers. com. 2000) recalls that the reason he agreed to meet with the fishermen was because he thought it was the right thing to do and because he was unaware of past practice in this industry.

The meeting between the fishermen and WCIC proved to be groundbreaking for both industries. Both realized that they did not understand each other's business very well, and a great deal of information sharing took place (Fowler pers. com. 2000; McMullen pers. com. 2000b). WCIC recognized that the fishermen had excellent information about bottom conditions that could be valuable to the routing of the cable (Fowler pers. com. 2000; McMullen pers.

[52] Capacity owners are distinguished from the actual owner of the cable, who is responsible for the initial installation and ongoing maintenance and upkeep. Several different companies can own capacity on a single cable. This capacity is then sold to the public for uses such as telephone calls and Internet service.

Table 2. Comparison of the Oregon Agreements.

	NorthStar OFCC/WCI	**China-US BSCC/AT&T**	**Southern Cross OFCC/MSFG**
Date	July 9, 1998	April 9, 1999	January 11, 2000
Fishing	Allowed to fish in area of cable; Only covers current gear and technology; No dredging.	No dredging.	Allowed to fish in area of cable; Only covers current gear and technology; No dredging.
Burial	1 meter or more to a water depth of 1500 meters; ROV verification following and every 5 years.	Wherever practicable - 1 meter or more to a water depth of 1800 meters; ROV inspection on an 18-24 month cycle, decreasing frequency with the approval of the Council.	1 meter or more to a water depth of 2000 meters; ROV verification following and every 5 years.
Liability	Fishermen released from liability from damages if they honor agreement and operating procedures (developed later) - no legal action.	Dispute resolution process established - claims cannot be taken to court.	Fishermen released from liability from damages if they honor agreement and operating procedures - no legal action.
Committee	5 voting members (3 fishing industy, 2 cable industry); Chairperson – fishing industry; 2 non-voting members (1 fishing industry, 1 cable maintenance).	4 member Board of Directors - 2 fishing industry, 2 cable industry (neutral party selected in case of a tie).	7 voting members (4 fishing industry, 3 cable industry); Chairperson – fishing industry; 2 non-voting members (1 fishing industry, 1 cable maintenance).
Annual Fund	$150,000 for lost gear claims, lost gear bridge loans and to reimburse Committee expenses.	Fisheries Improvement Fund - $1.25 million initially, $100,000/year - for research or other projects; Operating Fund - $50,000 - for operations of the Council. Also pay 50% of the value of the replacement gear for loss of business, lost profits or any other damages incurred.	$126,000 one time payment for initial organizing funds; Contribution to Oregon Committee Expenses on an annual and a pro rata basis with other cable company members - capped at $150,000/cable company; Sacrificed Gear Fund - $150,000 - for lost gear claims, lost gear bridge loans and related expenses.
Lost Gear Claims	Reviewed by committee (no more than 3/year expected at 15-20K each).	Reviewed by Council; Indemnified according to US and International Law.	Reviewed by Committee according to claims review procedure; Also pay 50% of the value of the replacement gear for loss of business, lost profits or any other damages incurred.

com. 2000b). Each industry's interests and concerns were discussed and it became apparent that they agreed on a number of issues (McMullen 1998b). McMullen (1998b), in a letter, listed those issues that had been discussed and agreed upon,[53] and suggested that a written agreement be prepared. Two days later, the Agreement to Create and Establish the Oregon Fishermen's Undersea Cable Committee (OFUCC),[54] the formal agreement, was completed and signed. "This Oregon Agreement is thought to be the first in the world between industries which have traditionally had a contentious relationship" (McMullen 1998d). The interactions between the two industries in this case was a major step in their evolving relationship.

This agreement (see Appendix D) addressed several significant issues, the major ones being burial of the cable and release of liability for the fishermen (Table 2). WCIC agreed to bury the cable along its route to a water depth of 1500 meters. The parties also acknowledged that all current fishing activities be allowed to continue in the area of the cable. WCIC agreed to release the fishermen from liability for damage to the cable, so long as they honor the procedures established by the agreement. However, these procedures were not in place at the time the agreement was signed, and much of the submarine cable industry was concerned that WCIC was giving away a blanket liability for cable damage (McMullen pers. com. 2000c). An annual fund was also established to pay for lost gear claims and a hotline was set up for fishermen to call and report possible entanglements. A significant result of this agreement was the formation of the OFCC to enhance communication and cooperation between the fishing industry and the submarine cable industry in the future.

Once this agreement was complete in July of 1998, WCIC and the fishermen took it to the state agencies that were handling the permitting requirements for this project. The state, having encouraged interaction between the fishermen and WCIC, was supportive of this agreement (McMullen pers. com. 2000c). In order to meet the provisional system acceptance (PSA) date of December 1998, WCIC needed its permits by August of 1998, just a month away (Fowler pers. com. 2000). The fishermen endorsed a quick permitting process for the NorthStar cable, and WCIC worked to push the project forward (Fowler pers. com. 2000; McMullen pers. com. 2000c).

Again, the DFW offered some comments on this project. It wanted the permit to require burial to a water depth of 1500 meters (about 50 miles offshore) (Fox 1998). One comment stated that "the permit should also be conditioned to meet specific requirements in the agreement currently being drafted between the Oregon Fishermen's Cable Committee and the cable company" (Fox 1998). WCIC received its required permits in August in time to meet the PSA date (Fowler pers. com. 2000). The final easement included a condition that the "grantee shall comply with the Agreement to Create and Establish the Oregon Fishermen's Undersea Cable Committee" (DSL 1999a).

The China-US Cable

In October of 1998, AT&T submitted an application to the DSL to land another submarine cable, part of the China-US cable network, at its Bandon cable station (Figure 3).[55] AT&T proposed to lay this cable alongside the existing cable that landed in Bandon in 1996, utilizing conduits that had already been placed.

At the time that AT&T was planning the cable route, comments from the fishing industry were received. There was no mechanism in place to facilitate communication between the fishermen and AT&T, as the OFCC had not yet been established, which resulted in some misunderstandings between the two groups (McMullen pers. com. 2000c). According to a lawyer representing AT&T, the input from fishermen requested "that the new cables be laid as close as possible to the existing cables" (Pfeiffer 1999a). The fishermen assumed, however, that this meant AT&T could route the new cables in between the existing ones, so as not to enlarge the buffer zone that already existed. Harris and Husing (1999) explained that "most folks expected AT&T would try to run the new cables down through the middle of the existing corridor to minimize displacement of the fishing industry." An AT&T lawyer explained in a letter why this could not be done:

> Cable spacing is determined by concerns for network security and maintenance. Two cables in a network are not placed in proximity to each other because of the danger that a single accident (movement on a fault line or a ship dragging an anchor) could injure both cables and put the entire network out of service. As a general matter, cables are separated by at least twice the depth of the water so that a cable needing repair can be

[53] These issues included the location of the cable route, cable burial, the creation of a joint fisheries/cable organization, the establishment of a gear replacement fund and the continuation of current trawling along the cable route.

[54] The OFUCC was later renamed the Oregon Fishermen's Cable Committee, or OFCC. From here on, this organization will be referred to as the OFCC.

[55] The China-US cable is again two cable segments that both land at Bandon and will be referred to as one combined cable for simplicity.

> retrieved with a grapnel without concern that the grapnel will damage an adjacent cable (Pfeiffer 1999b).

This misunderstanding illustrates that these two industries were not aware of the details of each other's operations due to a lack of communication. The fishing industry was still not satisfied with this project and expressed its concern to the permitting authorities (DSL 2000c).

Several comments and letters received by the DSL from the fishing industry reflected the concerns that fishermen had with this project (DSL 2000c). In particular, the fishermen were concerned with the enlargement of the buffer zone from the previous Bandon cable and the loss of more fishing ground. A claim heard by the fishing industry was that "every time just one cable goes in, the fishermen lose about 80 square miles of important fishing grounds" (Burns 1998). A letter from McMullen (1998c) encouraged the DSL to use the permitting process to work out the issues between the cable company and the fishermen. McMullen (1998c) writes that "we think that AT&T should be required to work out an agreement with the fishermen most affected prior to DSL permit approval." There were also several letters from the fishing community addressed to the COE stating similar concerns and requests (DSL 2000c).[56]

Following several requests for collaborative meetings and encouragement from the state to cooperate, AT&T and the fishing industry did engage in communications in an attempt to resolve some of these pressing issues (McMullen 1999a; Wargo 1999). On certain issues, the two groups were close to reaching an agreement, but progress came to a halt during the middle of March 1999 (Smith 1999). The main issue causing the impasse was a demand from the fishermen for a release from liability for damaging a cable. AT&T was unwilling to agree to this (Smith 1999). A letter from an AT&T lawyer states that "AT&T must maintain the right to pursue a claim if the circumstances of a particular case warrant it, because that is the only way the Company has to protect the cable and insure continuity of service to millions of users" (Smith 1999). If the fishermen did not receive protection for fishing over the cables, they would be faced with a buffer zone around the cables that would take away productive fishing grounds, or else subject themselves to liability for damage if they choose to fish within that area.

A local fishing organization stated that "The next step in our negotiations is to declare this a cable corridor and determine the costs associated with this corridor to the fishing fleet" (Coos Bay Trawlers' Association, Inc. 1999). This consisted of an analysis of the economic impacts to the fishermen for loss of fishing grounds if the cable was not rerouted. The cable, as planned, could only be buried along approximately 70% of its route. Rock outcrops along the remaining route did not allow for burial. The DFW noted that cables which are not buried create a "no fishing zone" due to economic and safety risks, and this results in a loss of fishery yield within a buffer zone, or corridor, running parallel to the cable (Fox 1999). The Coos Bay Trawlers Association, Inc. (1999) stated that

> The Bandon corridor will close approximately 300 sq. miles of important fishing grounds that attributes over 1 million dollars to the fleet annually. …This is an annual cost and has to be dealt with annually and fairly. We do not believe individual fishers should be reimbursed rather a fund to be utilized in a way to benefit the fisheries and their communities! If AT&T's people can agree to this concept in theory and in writing an agreement could be reached soon.

This fishing organization undertook a more complete analysis to look at actual dollar values of the fish that were caught in areas within the buffer zone.[57] A request was also made to the DFW to complete an analysis of the economic impacts in the area of the cables to show the loss that fishermen would suffer (McMullen 1999b). The DFW reported that its analysis was consistent with that done by the Coos Bay Trawlers' Association, Inc., even though different methods were used (Fox 2000b). The final economic impact to the fishing fleet was valued at over 1 million dollars per year (Fox 2000b).

Another option the fishermen considered was the rerouting of the cable so that it would pass through less productive fishing grounds and more burial would be possible (McMullen 1999a). The fishermen had worked together to come up with a new route that would achieve these goals (McMullen 1999a). AT&T, however, could not agree to reroute the cable. A lawyer for AT&T explained that "the cable cannot be rerouted at this point without millions of dollars of costs and a delay of such length that the entire project would be jeopardized. …Simply put, relocation

[56] The COE became more involved in this project than it had been in previous ones. However, its involvement remained minor compared to that of the state. It was at the state level that the fishermen had the most clout.

[57] The results of this analysis indicated the values from lost fishing areas as follows: rock cod fishery to 160 fathoms—$450,000 annually; shrimp fishery from 60–160 fathoms—$500,000 annually; english sole, dover sole, sablefish, thronyhead fisheries to 900 fathoms—$600,000 annually; petrale sole fishery out to 900 fathoms—$250,000 annually; total—$1,800,000 annually (Gunnari 1999).

of the cable would likely render the project commercially infeasible" (Pfeiffer 1999b). The lawyer also explained logistical reasons rendering the reroute unacceptable, such as surveying a new route, manufacturing new cable, and scheduling a vessel to install this new cable (Pfeiffer 1999b). All of these issues require additional planning, time and costs that would affect the commercial viability of this cable system.

Further communication between AT&T and the fishermen was put on hold at this point, AT&T awaiting a decision from the DSL and the fishermen still trying to convince the DSL not to issue a permit without an agreement. At the end of March 1999, a critical letter was sent from Governor Kitzhaber to AT&T recommending that AT&T return to discussions with the fishermen to work out an agreement (Kitzhaber 1999). In addition, the governor suggested that it would be best to resolve these issues prior to the SLB meeting, which was to be held on April 6, 1999. It was at this meeting that the easement for the China-US cable would be considered. With this pressure from the state, the two groups immediately returned to negotiations and, after several rounds of communications, reached an agreement (Harris 1999). This was not the end, however.

One day prior to the SLB meeting, AT&T submitted some changes to the agreement, which forced the two groups back to the table (Husing 1999). A final meeting to negotiate an agreement was scheduled one hour before the SLB meeting. This meeting included state representatives as well as the fishermen and representatives from AT&T, although the state representatives acted more as facilitators and observers than active participants (McMullen pers. com. 2000c; Husing 1999). After much deliberation between AT&T and the fishermen during this meeting, a mutually acceptable agreement was finally reached, and the two groups were able to walk into the SLB meeting side-by-side and announce their success (Husing 1999; SLB 1999a). The China-US cable easement was approved at this SLB meeting with the support of the fishermen (SLB 1999a). A condition to the final easement, which was issued on April 9, 1999, was that AT&T "shall comply with the terms and provisions of the GRANTEE'S agreement with the Oregon fishing community as outlined at the April 6, 1999, meeting of The Oregon State Land Board" (DSL 1999b).

The final agreement between AT&T and the fishermen (see Appendix E) was substantially different from the previous agreement with WCIC (Table 2). The main difference was that the fishermen were not granted a release of liability for damage to the cable. Instead, AT&T deposited an initial $1.25 million into a Fisheries Improvement Fund intended for research on fisheries stocks and other beneficial projects for the fishing industry. The projects were to be aimed at offsetting the adverse impacts of submarine cables on commercial fisheries, and the fund was to be administered by the joint AT&T and fishing industry committee (DLCD 1999). AT&T agreed to reroute a portion of the cable, to bury the cable where practicable to a water depth of 1800 meters, and to consult with the fishermen about any future cable installation routes. This agreement did not set up a fund to replace gear, but instead AT&T agreed to indemnify a vessel owner for sacrificed gear according to the law and a process for responding to claims was outlined, including a payment of 50% of the value of the replacement gear for loss of business, lost profits or any other damages incurred. There was also a dispute resolution process established for any conflict occurring between AT&T and any of the fishing industry signatories. This process would utilize informal discussions, mediation and, if necessary, binding arbitration to resolve the dispute, but the conflict would be resolved out of court. The Bandon Submarine Cable Council (BSCC) was established as a result of this agreement, much like the OFCC in the NorthStar cable project.

The Southern Cross Cable

The most recent cable project to receive a permit to land in Oregon was the Southern Cross cable. This cable network links Australia and the U.S., with landings in Hawaii as well. MFS Globenet, Inc. (MSFG), a subsidiary of MCI Worldcom, was the domestic company responsible for permitting and installing the cable. Southern Cross, originally planned to land in northern California, was rerouted to land at Nedonna Beach, near Garibaldi (Figure 3). This cable would utilize the conduits that WCIC had already installed, so WCIC was also involved in the process of permitting and installing this cable.

MFSG was aware of the WCIC agreement with the fishermen for the NorthStar cable and initiated communications with the OFCC prior to applying for the easement (DSL 2000a). MFSG worked with the OFCC to select a route that would allow for the most burial and minimize the loss of fishing ground (DSL 2000a). An initial Memorandum of Understanding was entered into by the OFCC, MFSG and WCIC on December 15, 1999. According to McMullen (pers. com. 2000a), the group wanted to make this a "model" agreement exemplifying how cable companies and fishermen can and should work together. The final agreement, which replaced the Memorandum of Understanding, was completed on January 11, 2000.

The application for this cable was received by the DSL in December of 1999 and sent out for review to interested

parties. The DFW again commented that their main concern was the impact on fisheries off Oregon (Fox 2000a). Fox (2000a) then went on to state that he has "discussed this project with Scott McMullen of the Oregon Fishermen's Undersea Cable Committee and understand that they are entering into an agreement with the cable company regarding liability and fishery conflict concerns. We [DFW] applaud the work of both the Committee and the cable company in this effort." The letter asked that the agreement be referenced in a permit condition and that the permit be conditioned to require the burial of the cable to a water depth of 2000 meters (Fox 2000a).

A hearing was also held to collect public testimony on this cable project on February 1, 2000. This was a joint hearing for both the DSL and the PRD approvals. According to the DSL, there was not much public comment received at this hearing (Hedrick pers. com. 2000). A letter from Save Oregon's Shores received after the public hearing expressed approval of the project and recommended the issuance of a permit (Fultz 2000).

In late January MFSG received its COE and DSL Removal-Fill permits. On February 8, 2000, only 53 days after MFSG had applied for its permits, the DSL easement was approved at the State Land Board Meeting. The fishermen supported MFSG throughout the permit process, which was essential to help move things along very quickly (McMullen pers. com. 2000c). In addition, the Southern Cross cable was being installed into an existing facility, so the permit review was not as intense as it would be with an entirely new project and the process was able to move more rapidly. The Southern Cross cable landed in Oregon in April 2000.

The MFSG/OFCC agreement (see Appendix F) is very similar to the previous one between WCIC and the fishermen (Table 2). It grants to the fishermen a release of liability for damage to the cable, as long as they honor the established operating procedures. These procedures (see Appendix G) were established after the creation of the WCIC/OFCC agreement, and currently apply to both OFCC agreements. A claims process for sacrificed gear, in addition to a fund, was set up in this agreement. Burial of the cable to a water depth of 2000 meters is called for in this agreement. A representative from MFSG serves as a voting member of the OFCC, which now consists of fishermen, representatives from MFSG and WCIC and a cable technology specialist. This model agreement was able to address issues that were not considered in the first OFCC agreement, but had emerged since.

Summary

Clearly, there has been a substantial change in the ways in which fishermen and cable companies have interacted in Oregon in the past decade. When the first cable, the NPC, landed on Oregon's shores, there was really no concern expressed by the fishing industry. At that time, the fishermen were not aware of the impacts of a submarine cable and were not organized to question this project. The cable company was also unaware of the adverse impacts that the project may have and didn't see the need at that time to initiate communication.

The realities of the consequences of a cable project were felt following the installation of the next cable, TPC-5. This cable cut right through one of the most productive fishing grounds, taking away valuable area for fishing. Around this same time, a fishing vessel was charged with a settlement amounting to over one million dollars for damaging the NPC, intensifying the fishing industry's concern with submarine cable projects.

The next cable project, NorthStar, was announced a few years later, and the fishing industry was better prepared to express its concerns. The cable company heading up this project, WCIC, became aware of these concerns and was willing to talk with the fishermen to work out an agreement. Negotiations took place and a final agreement was created, establishing the OFCC as the organization to facilitate communication for this and future cable projects.

AT&T brought the next cable, China-US, to shore in Oregon. This project was also met with fishing concerns. Negotiations again took place, but there were more hurdles in this project than the previous one. With persistence and pressure applied from the state, an agreement was formed and another organization, BSCC, was established.

The most recent cable project in Oregon, Southern Cross, exemplified how the relationship between the fishermen and cable companies has grown. MFSG contacted the fishermen at the beginning of this project, involving them in the routing and installation of the cable. Again, an agreement was formed through the already established OFCC, with a better understanding of the issues that needed to be addressed. MFSG received support from the OFCC for this project and the permit process moved very quickly. The OFCC created this agreement as a model for future interactions between the fishing industry and the submarine cable industry.

Chapter 5. Conflict Resolution

The interactions between the fishing industry and the submarine cable industry in Oregon exemplify the ways in which a conflict situation can be resolved. There is a large literature discussing conflict and conflict resolution (Cross and Rosenthal 1999; Deutch 1973; Fisher and Ury 1991; Lewicki et al. 1994; Moore 1986; Nicholson 1991; Nyhart and Dauer 1985; Schellenberg 1996; Suskind and McCreary 1985). Each discussion offers a different way of describing and understanding conflict or a unique approach to resolving a conflict situation. There are also considerations of the ways in which outcomes of dispute resolutions may be evaluated. The following discussion of the different approaches to conflicts, conflict resolution and the outcome of a conflict resolution will focus on four areas: 1) types of conflict; 2) approaches to use in resolving conflicts; 3) methods for determining when conflicts are "ripe" for a negotiation approach; and 4) methods for evaluating success of a conflict resolution outcome. Chapter Six uses the framework developed from these categories to analyze the recent interactions between the fishing industry and the submarine cable industry in Oregon along with the success of the agreements, or the outcomes of these interactions.

Classification of Conflicts

Conflict has been defined in many ways. Deutsch (1973, 10) simply stated that "a *conflict* exists whenever *incompatible* activities occur." Conflict has often been viewed as negative, but this is not always the case. "Conflict is not necessarily bad, abnormal, or dysfunctional; it is a fact of life. … Conflict can lead to growth and be productive for all parties" (Moore 1986, ix). Deutsch (1973, 8-9) suggests that conflict "prevents stagnation, it stimulates interest and curiosity, it is the medium through which problems can be aired and solutions arrived at, it is the root of personal and social change."

There are several different ways to classify conflicts. Lewicki et al. (1994) identify four levels of conflict: 1) intrapersonal – within an individual; 2) interpersonal – between individuals; 3) intragroup – within a group; and 4) intergroup – between groups. Conflicts can also be distinguished by the type of issue they involve. Deutsch (1973) lists five basic types of issues: 1) control over resources; 2) preferences and nuisances; 3) values; 4) beliefs; and 5) the nature of the relationship between the parties. Conflicts that are specific to the use of coastal resources and the outer continental shelf have also been classified into three categories, according to the types of issues involved: 1) policy priorities; 2) the use of fixed resources; and 3) development or environmental protection standards (Susskind and McCreary 1985).

Conflict Resolution Approaches

Conflict resolution can be defined as "the process of facilitating a solution where the actors no longer feel the need to indulge in conflict activity and feel that the distribution of benefits in the social system is acceptable" (Nicholson 1991, 59). The literature has described several different approaches for resolving a conflict. These include processes to be followed or strategies to be implemented by the different parties when faced with a conflict. Susskind and McCreary (1985) offer five consensual approaches to dispute resolution: 1) unassisted negotiation; 2) facilitation (also known as collaborative problem solving or policy dialogues); 3) mediation; 4) mini-trials; and 5) non-binding arbitration. Schellenberg (1996) also summarizes a set of approaches for resolving a conflict, including coercion, negotiation and bargaining, adjudication, mediation, and arbitration. These approaches are summarized in Table 3.

Cross and Rosenthal (1999) compare three models of conflict resolution – distributive bargaining, integrative bargaining, and interactive problem solving. These models are more specific examples of one or more of the approaches described above, and are outlined in Table 4.

Conditions for Using a Negotiation Approach

Negotiation is one of the most common approaches to conflict resolution. People use negotiation everyday to resolve conflicts (Fisher and Ury 1991). There are certain situations in which negotiation is the most appropriate conflict resolution approach to use. According to Moore (1986), a conflict is ripe for negotiation when the parties involved are:

- Interdependent and must rely on the cooperation of one another in order to meet their goals or satisfy their interests.
- Able to influence one another and can undertake or prevent actions that can either harm or reward.

Table 3. Approaches to Conflict Resolution

Approach	Description
Unassisted Negotiation# (Negotiation and Bargaining)*	Involving the parties in a process of discussion that seeks to bring them into voluntary agreement; Parties are encouraged to talk through their differences and search for a win/win outcome.
Facilitation#	At a point of confrontation, a non-partisan facilitator can help the parties to find joint problem solving opportunities.
Mediation*, #	Using a third party to help the conflicting parties come to a mutually satisfactory agreement; Helps to re-establish communication or bring about reconciliation when communication has broken down.
Mini-trials#	Using mock-trials to obtain a more realistic appraisal of a party's chance in court; Use prior to incurring the costs and delays of going to court; Can lead to negotiations.
Non-binding Arbitration*, #	Using a third party to decide the issues in a dispute; Yields a definitive result; Used when court is not an alternative to no agreement.
Coercion*	Forcing parties in conflict to a particular conclusion.
Adjudication*	Using the power of the state and its legal system to provide an authoritative conclusion.

Source: *Schellenberg (1996), #Susskind and McCreary (1985).

Table 4. Comparison of Three Models of Conflict Resolution

Distributive Bargaining	Integrative Bargaining	Interactive Problem Solving
Competitive	Cooperative	Third-party consultation (informal mediation)
Position-based	Interest-based	Needs-based
Agreement-oriented	Agreement-oriented	Transformation-oriented
Maximize self-interest	Maximize joint gains	Aimed at improving communication and attitudes
Division of fixed resources	Joint problem solving	Joint problem solving
Win/lose or zero-sum outcomes	Win/win or mutual gain outcomes	Analytical dialogue
Not focused on past history or future involvement	Expand alternatives	

- Pressured by deadlines and time constraints and share an impetus for early settlement.
- Aware that alternative procedures and outcomes to a negotiated settlement do not appear as viable or desirable as a bargain that they reach themselves.
- Able to identify the critical primary parties and involve them in the problem-solving process.
- Able to identify and agree on the issues in dispute.
- In a situation in which the interests of the parties are not entirely incompatible.
- Influenced by external constraints that encourage them to reach a negotiated settlement.

Evaluation of the Outcome

This thesis not only examines the kind of approach to conflict resolution used, but also whether or not this approach led to a successful outcome. "Productive conflict resolution … depends on the abilities of the participants to devise efficient cooperative problem-solving procedures, the participants' capacities to lay aside distrust and animosity and work together, and the availability of solutions that will at least partially satisfy all of the participants' interests" (Moore 1986, ix). The outcome of a conflict resolution process can be analyzed to determine how successful it was. Susskind and McCreary (1985) offer criteria for evaluating the success of an outcome, which are summarized in Table 5.

Table 5. Criteria for Evaluating the Success of a Conflict Resolution Outcome

Criteria	**Description**
Interests satisfied	All of the parties' interests should be satisfied by the outcome. This avoids perpetuating the conflict or the chance for reoccurrence.
Joint gains secured	An option, or solution, should be selected that secures all joint gains. A process of joint problem solving is usually required to achieve this.
Commitments produced	The resolution process should produce a definitive result, or a set of implementable commitments. Parties should only make promises that they can keep.
Legitimacy ensured	The outcome should ensure legitimacy in the eyes of all those affected. Everyone should feel that a good precedent has been set and that no one has been misled.
Uncertainty dealt with wisely	Uncertainty and what is known about the natural and technical systems involved should be dealt with wisely.
Efficiency resulted from communication	The outcome should be reached efficiently in terms of time and expense. This usually requires good communication between the parties.
Relationships improved	The parties should be left in a better position to deal with their differences in the future. Relationships should be enhanced for these future interactions.

Source: Susskind and McCreary (1985).

Chapter 6. Analysis of Recent Interactions

The events and interactions between the fishing industry and the submarine cable industry in Oregon can be analyzed to determine what approaches to conflict resolution were used and whether or not the outcomes, in this case the agreements, were successful. This analysis is based on the previous discussion of the literature applying to conflict resolution and the description of the events in Oregon and will determine 1) if indeed a conflict existed and what type of conflict it was, 2) what approach was used to resolve this conflict, 3) if the conflict was ripe for a negotiation approach, and 4) whether or not the outcomes of these interactions were successful.

Classification of Conflicts

A multiple use conflict may arise when incompatible uses of the seabed occur. The fishing industry and submarine cable industry experienced a multiple use conflict in the past decade, which resulted in adverse impacts on fishing activity and cable operations. This conflict, however, does not have to be viewed as negative. It can be seen as productive, providing the opportunity for creative solutions (the agreements) to an emerging problem and facilitating the development of social change through new relationships.

The conflict between the fishing industry and the submarine cable industry can be classified as an intergroup conflict because it involved more than one group – the fishermen, the cables companies and, at times, the state. The use of the seabed is the main issue driving this conflict. Therefore, it can be described as a conflict that involves the use of and control over fixed resources. Secondary issues are also present, such as the values of each group and the nature of their relationship. Nyhart and Dauer (1985, 149) comment that:

> Conflicts about the use of ocean and coastal resources typify an increasingly important class of social disputes: They involve multiple interests and parties, both private and governmental, often with widely distributed constituencies. The stakes frequently include, in addition to significant economic dimensions, values not always amenable to financial quantification. The underlying scientific information is at once central and uncertain. And the shared uses of the resource, both present and proposed, have lifetimes far longer than those of ordinary commercial arrangements – implicating, therefore, repeated interactions among and evolution of the affected interests.

Conflict Resolution Approaches

The three most recent cable projects in Oregon - NorthStar, China-US and Southern Cross - all involved interactions between the fishing industry and the submarine cable industry. The approaches to conflict resolution that the parties used were somewhat different, depending on the situation. For instance, in the China-US project, some facilitation was used by the state when the parties were at an impasse. There were many commonalities with all three projects, however, as negotiation and integrative bargaining were the main approaches used.

Negotiation

Negotiation can take on several different meanings. Susskind and McCreary (1985) explain an approach called unassisted negotiation, where parties are encouraged to talk through the conflict and search for a win-win outcome, turning confrontation into joint problem solving. Negotiation as described by Schellenberg (1996) involves the process of interactions between parties that is aimed at reaching a mutual accord. Moore (1986, 6) offers another definition of negotiation:

> Negotiation is a bargaining relationship between parties who have a perceived or actual conflict of interest. The participants voluntarily join in a temporary relationship designed to educate each other about their needs and interests, to exchange specific resources, or to resolve one or more intangible issues such as the form their relationship will take in the future or the procedure by which problems are to be solved.

The interactions between the fishermen and cable companies in Oregon can indeed be classified as negotiations as described above. Each cable project interaction involved communication between the parties about the conflict and had an ultimate goal of reaching a mutually beneficial agreement. What seemed like a lack of communication at first turned into a joint effort by the parties to reach an agreement. Once communication was initiated and the information sharing process began in the NorthStar project, it was clear that both groups wanted to work out a resolution. This led to a negotiation process to find a solution that would satisfy all interests.

In the China-US project, the fishermen and AT&T educated one another about their interests and their constraints. Each party did not have a good understanding of the other's operations, and this became much clearer during their interactions. It was beneficial to share this information, because both parties became aware of the reasons why the other was or was not able to agree to certain terms.

The interactions between the fishermen and the cable companies also involved some discussion of the future relationship of these parties. In the NorthStar project it was decided that an organization (OFCC) would be formed to facilitate future communication between the fishing industry and the submarine cable industry in Oregon. There was also a dispute resolution process established in the event that any conflicts arose in the future. This organization set a precedent in Oregon, and the following two projects included the development of a new, but similar, organization (BSCC) and integration into the already-formed OFCC.

Based on the nature of the interactions between the fishing industry and the submarine cable industry in these projects, the approach that was taken to resolve the multiple use conflicts can be described as negotiation. This approach can be further defined to include an integrative bargaining approach to conflict resolution. "Negotiations … never involve purely conflicting interests. There are also common interests, which serve as the foundation for integrative bargaining" (Schellenberg 1996). Integrative bargaining is the type of negotiation approach that best describes the interactions between the fishermen and the cable companies in Oregon.

Integrative Bargaining

In integrative bargaining, the parties try to meet all of their common interests and maximize the benefits for all of those involved, as opposed to just maximizing their own self-interest. According to Cross and Rosenthal (1999, 565), "Integrative bargaining is a cooperative, interest-based, agreement oriented approach to dealing with conflicts that are intended to be viewed as 'win/win' or mutual-gain disputes." This approach involves joint problem solving and aims to increase the payoffs to the parties, involving both concession making and searching for mutually profitable alternatives (Cross and Rosenthal 1999). "Some common integrative bargaining techniques include clear definition of the problem, open sharing of information, and exploration of possible solutions" (Cross and Rosenthal 1999, 565).

The negotiations between the fishing industry and the submarine cable industry in Oregon included an integrative bargaining approach. In all three cable projects (NorthStar, China-US and Southern Cross) the parties worked to find a solution that would satisfy their interests and result in a win/win situation. This was possible because their interests were not entirely incompatible, but allowed for solutions that were mutually beneficial. The parties did have to make some concessions, but in the end both parties were better off. The interactions involved the common techniques of integrative bargaining. The problem, in this case the multiple use conflict, was defined and the issues that caused the most concern were explored. As discussed previously, there was a great deal of information sharing that took place in all three of the cable project interactions. Finally, many alternative solutions, such as rerouting the cable, burying the cable, establishing safe fishing practices and granting a release of liability, were discussed. The final agreements attempted to select those alternatives that were the most beneficial to all parties. These interactions, based on their common interests and search for joint gains, used an integrative bargaining approach to resolve this conflict.

Conditions for Using a Negotiation Approach

The multiple use conflict between the fishing industry and the submarine cable industry in Oregon satisfied all of the conditions outlined in Chapter Five for using a negotiation approach. The parties needed to cooperate in order to reach a mutually agreeable solution. A resolution could not be achieved without the communication and consideration of each other's interests.

Both parties had the ability to influence each other and take actions that could either lead to a successful negotiation or cause an impasse. The fishing industry had a great deal of support from the state and was able to influence the permitting process and have its interests considered. The submarine cable industry had the law on its side and could use the threat of liability against the fishermen. The fishermen and cable companies were motivated to negotiate to prevent the other from taking actions that could escalate the conflict.

There was definitely a time constraint in all of the projects; time meant money to the cable companies. In the NorthStar project, the permits had to be received in time to meet the PSA date, and the China-US project was subject to international pressure for the operation of the system by a specific deadline (Brain pers. com. 2000). The fishermen were not subject to the same time constraints, but it was important for them to be involved in the project as early as possible.

A negotiated settlement was the most desirable outcome of this conflict situation for both parties. The alternatives would likely have resulted in long delays in receiving permits and substantial changes to the project due to requirements of the permitting agency. The permits might even have been denied if the cable companies had not considered the fishing interests. On the other hand, the project could have been permitted without full consideration of the fishing interests, resulting in substantial impacts to the fishing industry. Neither party wanted to take the chance of these extreme situations occurring and realized that a negotiated agreement could better satisfy all of their interests.

In the NorthStar cable project, WCIC had to identify the fishermen with whom they needed to talk. WCIC was fortunate to have engaged PN&D, a local consulting firm that was aware of local issues. Once the right fishermen (the current members of the OFCC) had been identified and the OFCC had been formed, cable companies knew who to contact in future projects. State agencies, having the final decision on issuing an easement for the project, were also involved in the problem-solving process by encouraging and supporting negotiations between the fishermen and the cable companies.

The multiple use issues in the dispute (see Chapter 2), including the location of the cable, protection from damage and costs of damage, were easy to identify. These were the main issues discussed in all of the interactions between the fishermen and cable companies.

The interests of the parties were not entirely incompatible in this situation. Although the seabed uses of the fishermen and cable companies might occur in the same area, there were ways for both uses to exist, such as burying the cable and allowing fishing in that area without the threat of liability. In the China-US project, a payment was made to the fishing organization to mitigate the impacts instead of issuing a release of liability. Negotiations like these led to mutual gains for both parties.

There were also external constraints acting on the parties that encouraged them to reach a negotiated settlement. These mainly came from the state government agencies, which encouraged an agreement between the fishermen and cable companies before issuing the permits. This external pressure was especially apparent in the China-US project, when the Governor of Oregon sent a letter to AT&T recommending that it return to negotiations with the fishermen in order to have its project permitted in a timely manner.

The multiple use conflict between the fishing industry and the submarine cable industry in Oregon satisfied all of the conditions set out by Moore (1986) to render it ripe for negotiation. The nature of the conflict and the interactions between the parties suggested that negotiation was an appropriate approach to resolve this conflict and produce a desirable outcome.

Evaluation of the Outcome

In addition to identifying that negotiation was the approach used, and the appropriate one, to resolve this conflict, the success of the outcomes can also be analyzed using the criteria discussed by Susskind and McCreary (1985) (see Table 5). Again, the three most recent cable projects in Oregon all involved some type of interaction between the fishermen and the cable companies that led to an agreement. A summary of the relative success of each agreement based on the criteria can be found in Table 6.

Table 6. Evaluation of the Success of the Outcomes in Oregon

Criteria	NorthStar OFCC/WCIC	China-US BSCC/AT&T	Southern Cross OFCC/MFSG
Interests satisfied	+	∅	+
Joint gains secured	∅	+	+
Commitments produced	+	+	+
Legitimacy ensured	+	-	+
Uncertainty dealt with wisely	+	+	+
Efficiency resulted from communication	+	-	+
Relationships improved	+	+	+
+ = successful, ∅ = neutral, - = unsuccessful			

Interests satisfied

The first criterion suggests that all of the parties' interests should be satisfied by the outcome, so that reoccurrence of the conflict is avoided. The interests of the fishermen were basically the same in each of the three cable projects. They wanted to be able to fish in their usual grounds, even if that meant fishing over an area where a cable had been installed. They also did not want to be held liable if they hooked a cable. In the case of an entanglement, the fishermen wanted to be assured that they would be compensated for sacrificing their gear. Another interest of the fishermen was to provide input to the routing and burial of the cables.

In the NorthStar case, WCIC wanted to obtain the permits for this project as quickly as possible, in order to meet its PSA date. This meant that it had to address the fishing concerns upfront. WCIC was also interested in establishing good relations with the fishermen and working out an agreement that was mutually satisfactory. The final agreement gave the fishermen a waiver of liability for damage, set up a fund to replace gear and ensured burial of the cable along its route. WCIC was able to obtain its permits in a timely manner and helped establish the OFCC to facilitate future interactions between these two industries. In the case of the NorthStar cable project, the interactions between the fishermen and WCIC leading to the formation of the OFCC and to the final agreement ensured that the interests of both parties were met.

The Southern Cross cable project was very similar to the NorthStar project, as it planned to land at the same shore facility. The OFCC had already been established and MFSG was already aware of the interests of the fishermen. MFSG wanted to obtain its permits quickly and ensure that their cable would be protected. To reduce the likelihood of damage to the cable, the Southern Cross agreement included a set of procedures that had been previously established for fishermen to follow when fishing near a cable. The agreement also granted a release of liability if these procedures were followed, which promoted safe fishing and gave MFSG a way to recover damages in the case of blatant negligence. The Southern Cross agreement was based on the previous OFCC agreement and it, too, satisfied the interests of both the fishermen and MFSG.

The BSCC/AT&T agreement was somewhat different from the other two and did not satisfy all of the interests of the parties involved. AT&T needed its permits for the China-US cable by a certain time to meet foreign demands. Being a large worldwide telecommunications company, AT&T was also under international pressure not to give up its right to file suit for damages, because this could set a precedent for the entire submarine cable industry and reduce its control over the protection of cables. AT&T wanted to establish good relations with the fishermen but was somewhat constrained by the interests of the foreign owners of the China-US cable system. There were several delays throughout the process of interactions that inhibited AT&T from moving forward with the project. The BSCC/AT&T agreement did not grant the fishermen a waiver of liability for damaging the cable, which satisfied the interest of the cable companies but impacted the fishermen by deterring them from fishing in their usual grounds. This issue is likely to emerge again in future interactions between AT&T and fishermen. The formation of the BSCC, however, was a positive outcome for both parties, facilitating a relationship that had never before existed.

Joint gains secured

In all three of the cable projects, both the fishermen and the cable companies were able to use a joint problem solving process to arrive at a solution. There was a great deal of communication and information sharing that had never occurred between these two industries before. Each party was able to educate the other about its operations, interests and constraints. With this understanding, it was much easier to create solutions that benefited both the fishermen and the cable companies.

Although all interests were not satisfied in the China-US project, both the fishermen and AT&T gained something from their interactions and the final agreement. The fishermen received a sum of money to apply toward research, and AT&T did not have to waive the fishermen's liability for damage. A process to replace gear was established, the fishermen contributed to a rerouting of the cable and a dispute resolution process was agreed upon. AT&T also agreed to consider fishing impacts in future cable installations and consult with the fishermen when routing the cable, and the fishermen agreed not to oppose future cables if AT&T abided by these terms. The BSCC/AT&T agreement provided mutual benefit for the fishermen and AT&T.

The OFCC/WCIC agreement initially produced many gains for the fishermen, but less for WCIC. The fishermen were granted a release from liability for damages, a gear replacement fund was established and cable burial was required. Both parties benefited from the establishment of the OFCC, which improved relations between the two industries and ensured that all interests would be considered in future cable projects. In this case, however, safe fishing procedures were not set up initially, so WCIC's waiver of liability applied even to fishermen who were not operating safely near the cable. If damage occurred

and the fisherman responsible was signatory to the agreement, he or she could not be held liable and WCIC would be responsible for the damage. This aspect of the OFCC agreement did not facilitate joint gains. It was not until later that safe fishing procedures, including avoiding fishing over unburied cables, were established. These procedures prevented gross or willful negligence when fishing near a cable and enhanced cable protection for WCIC.

Apparently the OFCC had learned from the previous outcome when the Southern Cross project arrived. This new agreement with MFSG was very similar to the original OFCC agreement. However, this new agreement incorporated from the outset the established procedures for fishing near a cable that must be followed to receive a waiver of liability for damage. In this case, MFSG had some assurance that fishermen were operating in a safe manner to avoid damage; otherwise they could file suit. And the fishermen could still fish in the area of buried cables, so loss of fishing ground was not significant. The outcome of the interactions between the OFCC and MFSG was truly a win/win situation.

Commitments produced

The conflict resolution process for each of the three projects produced a definitive set of commitments that could be implemented and abided by. A final agreement was formed in each case that outlined the commitments made by the parties. These agreements became conditions on the permits for the cable projects, ensuring their implementation. The parties only agreed to terms that they could guarantee, which is why AT&T was unable to release the fishermen from liability for damages. The written agreements, including the procedures for safe fishing near a cable, serve as *bona fide* commitments on the part of both the fishermen and the cable companies.

Legitimacy ensured

In both of the OFCC interactions, the parties felt that a good precedent was being set. The NorthStar project was the first interaction and the fishermen and cable companies were not exactly sure what they were entering. They were unaware of some of the important issues that would emerge later, but at the time felt that they were doing what was right, and this was acceptable to both parties. Nevertheless, the OFCC learned from the outcome of the first agreement and was able to improve upon that in the interactions with MFSG. There was more consideration for what was justifiable to both parties, and this was reflected in the agreement as well as the fishermen's operating procedures.

All of the parties involved in the China-US project interactions were not convinced that this outcome set the best precedent. The fishermen felt that they should have been granted a waiver of liability, rather than a sum of money dedicated to research. AT&T also had apprehensions about this contribution. Although AT&T did not want to give up its right to file suit for damages, the payment of a large sum of money to this group did not seem to be the answer. AT&T feared that this would set a precedent and that it would be subject to contributing an equal amount for future cable projects. Based on discussions with those involved in this situation, the author believes that if this outcome could be redone it would probably turn out more like the OFCC agreements.

Uncertainty dealt with wisely

All of the outcomes paid attention to uncertain conditions, such as the shifting of cables or the possibility of lost gear, by establishing processes for future inspection of the cables and lost gear claims. Each agreement specified that the cable be buried as deeply as possible using the best available technology. These agreements also specified that the cable be periodically inspected by an ROV to ensure that it remained buried. The agreements were restricted to current fishing gear and technology, leaving open the possibility of further agreements to cover the development of new fishing methods that might be more damaging, even to buried cables. The current agreements do not cover any type of dredging, which would be more likely to penetrate the surface and cause damage to the cable. The OFCC added a representative to the committee from the cable industry who specialized in cable technology. This person could provide advice on what types of technology to utilize in different situations to reduce the risk of uncertainty, both at the outset of the project and throughout the cable's lifetime.

All three agreements established an annual fund or a process to replace gear in the event that a vessel was forced to cut the gear when an entanglement occurred. For the most part, these funds overestimated the amount of gear that would normally be lost in a year (Fowler pers. com. 2000), allowing for a cushion in the case of uncertainty. The possibility of fishing areas relocating further offshore was dealt with in the agreements by ensuring that the cables were properly armored so that they could later be buried to a greater water depth.

Efficiency resulted from communication

The negotiations between the fishermen and the cable companies occurred in a very timely manner in both the NorthStar and the Southern Cross project. The initial com-

munication between these industries in the NorthStar case facilitated a great deal of information sharing and discussion of interests. Both parties wanted to resolve this multiple use conflict and create a mutually beneficial agreement. WCIC was also working against a deadline and needed an efficient process to ensure that it would get its permits on time. The communication between these parties led to an efficient process, with an agreement being created within one month of initial communications.

The Southern Cross project had an equally efficient process, if not more so. Because there was an established process already in place, through the OFCC, to facilitate communication between the fishermen and the cable company, this process of negotiation was very efficient. MFSG communicated with the OFCC from the outset of the project to discuss their interests and the formation of a new agreement. The project was completely permitted, including the formation of a final agreement, in a record low 53 days.

Communication between the parties was not as productive in the China-US project. There were times throughout the negotiation process where the parties reached an impasse and further interaction was halted. There was a great deal of information sharing between the fishermen and AT&T, which vastly improved each party's understanding of the other's situation. However, there were many delays in the permitting process due to the parties' inability to resolve certain issues and the state's unwillingness to proceed without resolution, and this made for a somewhat inefficient process.

Relationships improved

This criterion was met in all three interactions between the fishermen and the cable companies. These industries had a history of either negative interactions or no interactions, based on the first two cable projects that came into Oregon. The NorthStar project marked the first time that the parties communicated with one another about the multiple use issues in an attempt to resolve these issues. In all three interactions, the parties had the goal of reaching a mutually beneficial agreement and worked together to find this solution. The two industries gained a mutual respect for one another upon learning about each other's interests and understanding each other's backgrounds. This respect and understanding facilitated the building of relationships for future interactions between these industries. Now that a process is in place for dealing with new cable projects and their impacts on fishing, the fishing industry and the submarine cable industry are both in a better position to resolve future conflicts.

Conclusions

Several conclusions can be drawn from this evaluation of the success of the outcomes of the interactions between the fishing industry and the submarine cable industry. First, it must be noted that this was a relatively simple situation to resolve, which is one of the reasons why resolution was achieved so quickly in some cases. There were only two parties involved, the issues were easy to identify, there were clear economic interests rather than more ideological ones, and there were no serious environmental issues involved. Second, the success of these outcomes was highly contingent on the people who were involved. The personalities of the fishermen and cable company representatives facilitated cooperation between the two groups. The state representatives also played a large role in shaping these interactions, and the support of the Governor was a critical component in the interactions between AT&T and the fishermen. These were all unique situations, and may not have been as successful if different individuals had been involved.

With that said, all three outcomes can be seen as successful to some degree. Some unknowns existed in the very first agreement, but these were dealt with subsequently. The China-US project is not rated completely successful because two of the criteria are not met, but there is an overall feeling of achievement and a great deal was accomplished. The agreement in the Southern Cross project lives up to its status as the "model" agreement, producing a very successful outcome. Perhaps the most important criterion, one at which each interaction was successful, is improving relationships between the two industries. These relationships establish the foundation for future projects that must deal with the same issues, and communicate to the industries that a successful solution is attainable.

The methodology used to analyze the success of these outcomes was an adequate framework for this situation. The type of conflict and approach used to resolve this conflict were first classified based on the definitions and descriptions of these types of conflicts and approaches in the literature. The conditions for using a negotiation approach that were outlined by Moore (1986) were applied to the interactions between the fishermen and the cable companies in Oregon to show that this approach was an appropriate one. Finally, the criteria used to analyze the agreements were sufficient for evaluating the success of these outcomes and encompassed all areas of the outcomes, including efficiency, commitments, joint gains, and enhanced relationships.

The conflicts experienced by the fishing industry and the submarine cable industry have just recently emerged, lead-

ing to resolution through the formation of agreements. These interactions provide a new case study for determining which conflict resolution approaches were used and whether the outcomes proved to be successful. As the literature on conflict resolution continues to grow, an analysis such as the one in this thesis will add to the credibility of applying these methods to different situations to determine how conflict resolution can be successful.

Chapter 7. Conclusion and Recommendations

Summary

The recent interactions between the fishing industry and the submarine cable industry in Oregon show how a multiple use conflict can be successfully resolved and, more importantly, how relationships can be built between two industries with little past communication.

Bottom fishing and submarine cables have coexisted for over a century without much conflict. Only in the past decade has an increasing concern with submarine cables been expressed by members of the fishing industry. The number of cables being installed along the U.S. West Coast has risen sharply in the past five years, and this increase is expected to continue for at least the next few years. A greater area of the seabed is now being used by this industry, which has alarmed fishermen who depend on the use of the seabed for their livelihood.

Adverse impacts to both the fishing industry and the submarine cable industry may arise from their shared use of the seabed, resulting in a multiple use conflict. This conflict emerged in the most recent cable projects to land in Oregon, and the fishermen and cable companies initiated discussions about ways to resolve the multiple use issues. Agreements were formed and relationships were enhanced, which changed the ways in which these two industries interact.

Several types of conflicts and different approaches to resolving conflicts were described to determine which applied to the situation in Oregon. The multiple use conflict between the fishing industry and the submarine cable industry was classified as an intergroup conflict involving the use of and control over fixed resources. Negotiation and integrative bargaining were the approaches used to resolve these conflicts, and it was determined that negotiation was indeed the appropriate approach to use. The goal of these negotiations was to use joint problem solving to reach a mutually beneficial agreement.

To determine the success of the interactions between the fishing industry and the submarine cable industry in Oregon, a set of criteria designed to evaluate the outcome of a dispute resolution was applied to the situation. The outcomes of the three negotiated agreements were, overall, very successful. Both the fishermen and the cable companies benefited from the agreements; their relationship was enhanced, a process was set up for future interactions and the protection of fishing gear and cables was assured. In addition to the agreements that were created, two organizations were established in Oregon to deal with future communications between the fishing industry and the submarine cable industry. A precedent is set whereby the interests of both industries will be considered in any future submarine cable project.

Conclusion

There are several lessons that were learned by the fishermen, the cable companies, and the state officials from these events in Oregon. First, communication at the outset of a cable project is essential, because once routing and other plans are in place, it is very costly and time consuming to change them. Also, information sharing is an important interaction between the two industries that allows them to understand their main interests and how each operates. This can foster mutual respect between the two industries and enhance their relationship. Fishermen and cable companies are able to work together to find mutually beneficial ways of resolving their multiple use conflicts. The fishermen, by banding together and forming an organization to respond to cable issues, can improve communication within their own industry as well as with the submarine cable industry. Cable companies, by respecting the fishermen and their interests, are able to earn that respect back and enhance their relationships with fishermen.

The conflict between the fishing industry and the submarine cable industry was highly political, and the state of Oregon played a large role in the outcome of this dispute, especially in the China-US project. If the state agencies had not encouraged interactions and the development of an agreement in this case, agreement probably would not have been reached. The state, which had never before been confronted with this conflict, needed to find new ways to manage the issue and establish a process for permitting new cable projects, taking all interests into consideration. This was the underlying mandate for the new administrative rules regarding the DSL easements and the proposed amendments to the Territorial Sea Plan. Both policy changes incorporate the interests of the fishermen into the consideration of cable projects that land in Oregon.

Influence On Other U.S. West Coast States

The events that have transpired between the fishing industry and the submarine cable industry in Oregon and the lessons that have been learned from the successful resolutions have the potential to influence how these types of situations are dealt with elsewhere. Currently, the other U.S. West Coast states are facing similar conflicts between the two industries and other agreements have been formed in these states. The events in Oregon may have had some influence on these other interactions. However, different issues and political climates also play a role in the ways in which these situations are handled. There are some distinct differences between Oregon and the other West Coast states in this regard.

California

California, of all the West Coast states, has had the greatest number of cables land on its shores. Currently, several projects have applied for permits and are still awaiting a decision by the state agencies. A submarine cable project in this state must go through a California Environmental Quality Act (CEQA) review to determine the project's impacts on the environment. The CEQA review is more intensive than the environmental review that has been done in Oregon, and sometimes requires an environmental impact report (EIR), which looks at mitigation measures for the project. A recent study addressed mitigation measures for environmental impacts such as disturbance of soft and hard bottom habitats and destruction of benthic invertebrates or sensitive and rare epifaunal species as a result of cable burial activities (California Coastal Commission 2000).

Impacts on fishing are also considered in the CEQA review. CEQA requires that these impacts be mitigated, which can occur through an agreement between the fishermen and the cable companies (McMasters pers. com. 2000). Although the approval process is different for permitting a cable project in California than it is in Oregon, recent interactions between the fishing industry and the submarine cable industry have been similar in the two states. Agreements have been created in California that have focused on many of the same issues as in Oregon, such as burial of the cable, releasing the fishermen from liability and establishing procedures for fishing near a cable. A Joint Cable/Fisheries Liaison Committee has been formed in Central California to facilitate communication and cooperation between the fishermen and the cable companies, much like the OFCC or BSCC in Oregon. This organization was also influenced by the formation of a Joint Committee in the early 1980s to deal with conflicts between the oil industry and the fishing industry (Giannini pers. com. 2000). There has also been an organization of fishermen in Northern California that have joined together to address concerns with submarine cables. As more cables land along the California coast, it will be necessary for fishermen in other regions of the state to form these types of organizations in order to efficiently interact with the cable industry.

Washington

The ocean coast of Washington is less hospitable to cables than are the coasts of Oregon and California. Thus, submarine cables enter the state of Washington via the Strait of Juan de Fuca and come ashore in Puget Sound. The main concern with cables in Washington is the impact to the nearshore environment, including threats to habitat and endangered species, such as salmon (Mauren pers. com. 2000). The installation and maintenance portion of each cable project is reviewed for environmental or ecological impacts. Fishing impacts are not a large concern, mainly because most of the cable is buried and because trawling in Puget Sound is almost non-existent.[58] However, tribal concerns are an issue in Washington, and a recent cable project in Puget Sound addressed several comments expressed by the Tulalip Tribe regarding the location of the cable and impacts on tribal fishing activity (Toba pers. com. 2000). This same cable project also involved an agreement with the Olympic Coast National Marine Sanctuary (OCNMS), which included a fee payment as mitigation for impacts resulting from the cable crossing through the sanctuary (Galasso pers. com. 2000). The Washington Department of Natural Resources has been working to establish proper valuation methods for a cable project in order to establish policies for agencies to charge for proprietary easements (Mauren pers. com. 2000).

Alaska

Alaska has had three submarine cables land on its coast. Like Washington, Alaska has been working on implementing new regulations for assessing the fair market value of a cable project and charging fees for the issuance of a right-of-way (Kruse and Walter pers. com. 2000). Although environmental concerns are not a major issue in this state, fishing impacts have been given some attention (Kruse and Walter pers. com. 2000). There are agreements in place between Alaska fishermen and cable companies for the two most recent cable projects in Alaska. These agreements were highly influenced by the original OFCC agreement, which the Alaska fishermen used effectively to

[58] Specific restrictions on trawling in Puget Sound can be found in RCW 75.12.390 and WAC 220-48-001 through WAC 220-48-019.

initiate negotiations with the cable companies (Kruse and Walter pers. com. 2000; Rein pers. com. 2000). The fishing industry here, as in Oregon and California, is well organized and prepared to deal with future cable projects. The Alaska Department of Natural Resources is also in the process of establishing new policies for considering fishing interests in submarine cable projects (Kruse and Walter pers. com. 2000).

National and Global Implications

Multiple use conflicts between the fishing industry and the submarine cable industry are not just regional issues, but are of national and global significance. Concerns with these multiple use issues are prevalent on the East Coast as well as the West Coast of the U.S. (Schorb pers. com. 1999). These concerns may lead to legislative changes that incorporate fishing concerns and other impacts into the consideration of submarine cable projects. A re-examination of the existing legislation on the protection of submarine cables, including possible amendments focused on current issues such as liability and cable burial, may also be needed.

As submarine cables are being installed all over the world, this multiple use conflict is not an issue only in the U.S., but spans the globe. The International Cable Protection Committee (ICPC), which was founded in 1958, promotes the safeguarding of submarine cables against potential hazards, including fishing. As the interactions and communication between the fishing industry and the submarine cable industry increase, the ICPC will need to develop ways to deal with these multiple use issues and encourage cooperation between the two industries.

Further Areas of Study

This thesis sets the foundation for further areas of research on this issue. Any one of the five cable projects discussed in this thesis could be studied in more depth and compared to the other projects. The policy changes in Oregon were a significant result of the education that the state received from the first project to the last. These policies could be analyzed to determine whether they meet the goals that were established at the outset of their development, whether they consider all relevant impacts of a cable project and whether all factors are included in the decision-making process for the approval of a project. The events in other West Coast states could be analyzed, as the Oregon events have been in this thesis, to provide a more detailed comparison of the different states. Interactions between the fishing industry and the submarine cable industry in other coastal U.S. states, as well as other countries, could also be researched further. This thesis is intended to be a starting point for further studies and analyses that will shed more light on this issue.

Recommendations

Events that have occurred in Oregon and an analysis of the outcomes of the interactions between the fishing and the submarine cable industries lead to the following set of guidelines, or strategies, that the fishing industry and the submarine cable industry can use to deal with multiple use issues associated with cable projects in the future.

The Fishing Industry

- Form an organization to facilitate communication with the cable industry.
- Communicate with other fishermen about cable projects and fishing impacts.
- Maintain awareness of the location of cables that are already installed and those that are planned for the future.
- Explain fishing industry operations to the cable industry to avoid miscommunication.
- Establish and follow procedures for fishing near a cable to avoid damage.
- Establish procedures to be followed if a cable is snagged.
- Be involved in the permit process and provide comments about issues that the cable industry has not addressed.
- Ensure that government agencies responsible for permitting a cable project are aware of the recent interactions between fishermen and cable companies.

The Submarine Cable Industry

- Find out what local fishermen/fishing organizations exist in the region where the cable is to be installed; if no organization exists, encourage the formation of one.
- Communicate with the fishing industry from the beginning of the planning process.
- Determine what areas are fished along the planned cable route.
- Provide information on the location of cables to fishermen.
- Explain cable industry operations to the fishing industry to avoid miscommunication.
- Establish procedures for promoting the protection of cables, including safe fishing practices.

- Maintain knowledge of current cable installation technology and share this information with fishermen.
- Ensure that government agencies responsible for permitting a cable project are aware of the recent interactions between fishermen and cable companies.

These recommendations are intended to facilitate communication between the fishing industry and the submarine cable industry in the future. There is no doubt that these two industries will interact in the future. It is likely that these interactions will involve the resolution of multiple use conflicts. Application of the suggested guidelines will help to minimize these conflicts and will better prepare both parties to discuss their interests and reach a mutually beneficial solution. These guidelines apply globally, even though each situation will need to adjust them to address unique concerns. If Oregon's lead in adopting such guidelines is widely implemented, both the fishing industry and the submarine cable industry will benefit from a constructive working relationship.

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List of Acronyms and Abbreviations

AFS	Alaska Fiber Star
BSCC	Bandon Submarine Cable Council
CEQA	California Environmental Quality Act
CMP	Coastal Management Program
COE	United States Army Corps of Engineers
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
DEQ	Oregon Department of Environmental Quality
DFW	Oregon Department of Fish and Wildlife
DLCD	Oregon Department of Land Conservation and Development
DSL	Oregon Division of State Lands
EEZ	Exclusive Economic Zone
EIR	Environmental Impact Report
ESA	Endangered Species Act
FAD	Fish Aggregating Device
FCC	Federal Communications Commission
FWPCA	Federal Water Pollution Control Act
HTC	Hawaiian Telephone Company
ICPC	International Cable Protection Committee
LCP	Local Comprehensive Plan
MFSG	MFS Globenet, Inc.
MMPA	Marine Mammal Protection Act
NEPA	National Environmental Policy Act
NPC	North Pacific Cable
OCNMS	Olympic Coast National Marine Sanctuary
OCZMA	Oregon Coastal Zone Management Association
OFCC	Oregon Fishermen’s Cable Committee
OFUCC	Oregon Fishermen’s Undersea Cable Committee
OPAC	Oregon Ocean Policy Advisory Council
OTC	Oregon Trawl Commission
PN&D	Peratrovich, Nottingham & Drage, Inc.
PRD	Oregon Department of Parks and Recreation
PSA	Provisional System Acceptance
PTC	Pacific Telecom Cable, Inc.
ROV	Remotely Operated Vehicle
SLB	Oregon State Land Board
SLO	San Luis Obispo
TPC-5	Transpacific Cable 5
UNCLOS	United Nations Convention on the Law of the Sea
U.S.	United States
WCIC	WCI Cable

Appendix A

Rules for Granting Easements for Fiber Optic and Other Cables on State-Owned Submerged and Submersible Land Within the Territorial Sea

DIVISION 83

DIVISION OF STATE LANDS

RULES FOR GRANTING EASEMENTS FOR FIBER OPTIC AND OTHER CABLES ON STATE-OWNED SUBMERGED AND SUBMERSIBLE LAND WITHIN THE TERRITORIAL SEA

Adopted By The State Land Board On October 12, 1999

141-083-0800 Purpose And Applicability

These rules:

(1) Govern the granting and renewal of easements for fiber optic and other cables on state-owned submerged and submersible land within the Territorial Sea.

(2) Establish a process for authorizing easements for such cables.

(3) Supersede any provisions contained in OAR 141-083-0010 through 141-083-0700 relating to fiber optic and other cables within the Territorial Sea.

(4) Do not apply to landing structures or other equipment related or connected to the cable placed on state-owned upland. Such uses are governed by, and require forms of authorization stipulated in other agency rules.

141-083-0810 Policies

(1) The placement of fiber optic and other cables on state-owned land within the Territorial Sea is recognized by the Division as a conditionally allowable use of that land, subject to and consistent with the requirements and provisions of applicable international treaties (for example, the Convention for the Protection of Submarine Cables of 1884; the Convention of the High Seas of April 1958; the Convention on the Continental Shelf of April 1958; and the Submarine Cable Act) and other applicable federal, state, and local laws.

(2) The State Land Board, through the Division, has a constitutional responsibility to manage "the lands under its jurisdiction with the object of obtaining the greatest benefit for the people of this state, consistent with the conservation of this resource under sound techniques of land management" pursuant to Article VIII, Section 5(2) of the Oregon Constitution.

(3) The Division shall manage state-owned submerged and submersible land, including that within the Territorial Sea, to ensure the collective rights of the public to fully use and enjoy this resource for commerce, navigation, fishing, recreation, and other related public purposes consistent with applicable federal and state laws.

(4) Easements for cables shall be located so as to:

(a) Protect the public trust values of commerce (including fiber optic and other cable transmissions), navigation, fishing, and recreation;
(b) Conserve living marine and other seabed resources; and
(c) Avoid or reduce conflicts with other ocean users and industries.
(d) Comply with all applicable local, state, and federal laws including Statewide Planning Goal 19.

(5) The Division shall administer these rules to ensure to the greatest extent possible that:
(a) Persons applying for, and holding a cable easement receive timely, consistent, predictable, and fair treatment; and
(b) Public trust values (commerce, navigation, fishing, and recreation) are supported, protected and enhanced.

(6) The Division may require the placement of cables along a route that has been determined by the agency, after consultation with the easement applicant, affected state and federal agencies, and other interested persons, to best meet the policies and goals of these rules.

(7) The Division shall require that all cables be buried using the best available proven technology whenever Territorial Sea bottom conditions permit to a sufficient depth to minimize conflicts with other ocean users and industries, and recognizing the potential need to retrieve the cable for repair or removal.

(8) The Division shall not recommend approval of a cable easement to the Land Board unless the Division finds that the applicant has met the provisions of these rules and the requirements of Statewide Planning Goal 19.

(9) An approval of an easement by the State Land Board shall be conditional and not valid until the applicant has received all other authorizations required by the Division and other applicable local, state, and federal governing bodies for the placement of the cable in the Territorial Sea.

141-083-0820 Definitions

(1) "Cable" means a conductor of electricity or light with insulation or a combination of conductors insulated from one another.

(2) "Cable Easement" is an authorization issued by the Division designating the route where a cable is to be laid on state-owned submerged and submersible land within the Territorial Sea. A cable easement does not grant any other proprietary or other rights of use to the holder.

(3) "Director" means the Director of the Division of State Lands.

(4) "Division" means the Division of State Lands.

(5) "Fiber Optic Cable" means an insulated and often armored cable used to transmit telecommunications through glass fibers using pulses of light.

(6) "Goal 19" is the Statewide Planning Goal to conserve the long-term values, benefits, and natural resources of the nearshore ocean and the Continental Shelf.

(7) "Landing" means the site on shore where a fiber optic or other cable is attached to land-based cable(s). A landing may consist of a beach manhole, receiving building, and associated equipment. If the landing is located on state-owned upland, additional authorization(s) shall be obtained from the Division or other land-owning agency (for example, Oregon State Parks) as well as other required approvals from state and local

government agencies.

(8) "Ocean Policy Advisory Council" or "OPAC" has the same meaning as provided in ORS 196.438.

(9) "Ocean Users" include, but are not limited to persons using the Territorial Sea for commerce, navigation, fishing and recreation.

(10) "Person" is an individual at least eighteen (18) years old, a political subdivision or public agency, or any corporation, association, firm, partnership, joint stock company, or quasi-public corporation registered to do business in the State of Oregon.

(11) "Territorial Sea" has the same meaning as provided in ORS 196.405(6). It includes the waters and seabed extending three geographical miles seaward from the line of mean low water seaward to the extent of state jurisdiction.

(12) "Territorial Sea Management Plan" has the same meaning as provided in ORS 196.405(7). It is the plan for managing Oregon's Territorial Sea and ocean shore as required under ORS 196.405 through 196.580.

141-083-0830 Cable Easement Application Requirements

(1) Any person wanting to place a cable in the Territorial Sea shall obtain an easement from the Division, and approval by the Land Board.

(2) Unless otherwise allowed by the Director, a fully completed application for an easement shall be submitted to the Division at least one-hundred and eighty (180) days prior to placement of any part of the cable or construction of any associated landing-related facility or equipment on state-owned submerged and submersible land within the Territorial Sea. Each application for a cable easement shall be accompanied by a non-refundable application processing fee payable to the Division in the amount indicated in OAR 141-083-0830(3) of these rules.

(3) Each application for a cable easement crossing the Territorial Sea shall be accompanied by a non-refundable deposit payable to the Division in the amount of five thousand dollars ($5,000).

(4) Should the Division, in consultation with the applicant and other interested parties, determine that it is necessary to conduct environmental or other studies necessary to assist in evaluating the project's compliance with the requirements of Statewide Planning Goal 19 and the Territorial Sea Management Plan, the applicant shall be directly responsible for retaining and paying for the requisite studies.

141-083-0840 Pre-Application And Application Review Process

(1) Prior to submitting an application to the Division, the person wanting to place a cable on state-owned submerged and submersible land within the Territorial Sea shall meet with Division staff to discuss the proposed project, alternative routes, factors affecting cable installation, and desired schedule. The person is also encouraged to meet with affected ocean users and industries prior to meeting with the Division to discuss possible use conflicts and other issues attendant with the proposed cable route(s).

(2) Upon receipt of an application, the Division will determine if it is complete. Applications which are determined by the Division to be incomplete shall be returned to the applicant

with an explanation of the reason(s) for rejection.

(3) If a rejected application is resubmitted within one hundred and twenty (120) calendar days from the date the Division returned it to the applicant, no additional application fee will be assessed.

(4) Applications determined by the Division to be complete will be circulated to various local, state, and federal agencies and other interested persons for review and comment. The Division will circulate the application according to the requirements of its State Agency Coordination Program.

(5) To obtain public comment and identify possible issues concerning the proposed cable, the Division may hold public information meetings in the vicinity of each cable landing prior to, or after receipt of an application. The person proposing the cable or easement applicant shall attend any public meetings scheduled by the Division and be prepared to discuss the project.

(6) An easement applicant may amend their application at any time in order to address issues, concerns, or information shortfalls identified by the Division or other commentors.

(7) After receipt of agency and public comment concerning the proposed project resulting from the State Agency Coordination application circulation, the Division shall determine whether additional information is needed and/or modifications required to the proposed project. The easement applicant shall then be notified in writing of the Division's requirements.

(8) An easement applicant shall be given the opportunity to revise their proposed project or demonstrate why suggested changes are not feasible prior to the Division's development of its recommendation to the State Land Board regarding the subject easement and related requirements for the location, construction, operation and maintenance of the cable.

(9) The Land Board may approve or deny the easement based on the recommendation of the Division and the findings required by OAR 141-083-0810(8).

141-083-0850 Cable Easement Terms And Conditions

(1) All cable easements issued under these rules shall require approval by the State Land Board.

(2) Easement applicants may be required to obtain a surety bond to ensure that they will perform in accordance with all terms and conditions of the easement. The surety bond amount shall be determined by the Division. A cash deposit or certificate of deposit in an amount equal to the amount required for a surety bond and which names the State of Oregon as co-owner may be substituted in lieu of a bond.

(3) A cable easement issued by the Division shall be valid for an initial term of twenty (20) years, and may be renewed at the holder's option for an additional twenty (20) year term upon application to the Division.

(4) All cables are to be buried using the best available proven technology whenever Territorial Sea bottom conditions permit to a sufficient depth to minimize conflicts with other ocean users and industries and recognizing the potential need to retrieve the cable for repair or removal.

(5) The Division shall be notified in writing by the easement holder at least ninety (90) days:
  (a) Prior to any pre-planned change in the location of the cable.
  (b) Prior to any change in ownership of the cable.
  (c) After the discovery of any change in the location of the cable resulting from accidental contact or geologic or other natural causes.
  (d) Prior to any abandonment or termination of use of the cable.

(6) If determined necessary by the Division in consultation with the easement holder and other interested parties, and if permitted by the applicable federal agency(ies) regulating the cable, the easement holder shall remove the cable from the state-owned submerged and submersible land within one (1) year following the termination of use of the cable or expiration of the easement.

(7) Easements issued pursuant to these rules may be subject to a term based payment or annual rental payments subsequently established by the Land Board pursuant to governing law for use of state-owned submerged and submersible land.

(8) Easement holders shall inspect cables to ensure that they remain both within the area authorized by the easement and buried. These inspections are to be done on a frequency to be determined by the Division in consultation with the easement holder and other interested parties.

141-083-0860 Penalties

(1) In addition to any other penalties provided or permitted by law, the placement of any cable or related structure on state-owned land without an easement or otherwise not in compliance with these rules shall constitute a trespass, and be prosecuted pursuant to governing law.

141-083-0870 Reconsideration Of Decision

(1) An easement applicant or any other person adversely affected by the issuance or denial of a fiber optic cable or other cable easement on state-owned submerged and submersible land within the Territorial Sea may request that the Land Board reconsider the decision.
  (a) Such a request shall be received by the Director no later than thirty (30) calendar days after the delivery of the decision.
  (b) The Director shall review the request within sixty (60) calendar days after the date of delivery of the request.
  (c) The Director may recommend to the Land Board either that the easement issuance or denial be modified based on the merits of the request, or that the Land Board authorize initiation of a contested case proceeding.

(2) If the Director recommends that the Land Board initiate a contested case proceeding, the Land Board shall select a hearing officer and proceed pursuant to ORS 183.413 through 183.470.

Appendix B

Individuals Interviewed

Name	Affiliation
Fishing Industry	
Jody Giannini	California Joint Cable/Fisheries Liaison Committee, Inc.
Gerald Gunnari	BSCC
Scott McMullen	OFCC
Cathy Novak	California Fishermen's Representative
Submarine Cable Industry	
Ellen Brain	AT&T
Geoff Fowler	WCIC
William Gunderson	PN&D
Bruce Rein	Alaska United Fiber Optic Cable System
Paul Schorb	AT&T
David Walker	PTC
Government Agency	
Robert Bailey	DLCD
Barbara Dugal	California State Lands Commission
Dave Fox	DFW
Jerry Hedrick	DSL
Ono Husing	OCZMA
Jeff Kroft	DSL
Kim Kruse	Alaska Department of Natural Resources
Mark Mauren	Washington Department of Natural Resources
Steve McMasters	SLO County Planning
Tom Melville	DEQ
Teena Monical	COE
Christine Valentine	DLCD
Mary Walter	Alaska Department of Natural Resources
Steve Williams	PRD

Appendix C

Sample Interview Questions

Initial

- What is the situation between the fishing industry and submarine cable industry in Oregon? What individuals are involved?
- What has been the chronology of events between the fishing industry and the submarine cable industry in Oregon? How far back do these events date?
- Are there documented sources of these events?
- What is the nature of the relationship between the fishing industry and the submarine cable industry in Oregon?
- How has the situation between the fishing industry and the submarine cable industry changed from the first interactions to the present?
- What is the situation in states other than Oregon?

Focused

- How many submarine cable projects have you [your organization] been involved in? What were these?
- What is the role of [your organization] in a submarine cable project?
- What is the [name of cable project] story - what was the process for getting a permit for cable – was there any concern from fishermen – were there any hurdles to get through - how long did it take - who was involved, what were the external factors?
- What is the situation in [your state]? How many cables are there? When did they land? What was the process (permits, concerns from fishermen, hurdles, how long it took, who was involved, external factors)? Was it influenced by Oregon? How was it different than Oregon? Were there agreements made?
- What are the main issues in this conflict?
- What are the interests of [your organization] in the conflict?

Adapted

- Why was concern expressed in the NorthStar case and not previously?
- Was NorthStar influenced by previous cable situations (hook up on North Pacific Cable, miscommunications with AT&T in the TPC-5 case)?
- How were subsequent cable landings (AT&T, Southern Cross) influenced by the NorthStar case? How did the fishermen get their power? Were their agreements similar?
- How were fishermen able to get their concerns heard in the NorthStar case when it hasn't happened before? What was the source of their power?
- What was the ultimate goal of the negotiations?
- What is meant by safe fishing practices/operating procedures? As specified in the agreements or as implied?
- What has been learned from the Oregon experience?
- How has this influenced other states?
- Why has there not been much conflict for over 100 years and only now are fishermen beginning to express concerns?

Appendix D

OFCC/WCIC Agreement

AGREEMENT TO CREATE AND ESTABLISH THE OREGON FISHERMEN'S UNDERSEA CABLE COMMITTEE

Certain Oregon Commercial Fishing Interests in the Newport/Yaquina Bay area, the Garibaldi area, and the Columbia River area and WCI Cable, Inc./Alaska Northstar Communications, LLC (WCICI/ANC) hereby enter into this Agreement to create and establish the Oregon Fishermen's Undersea Cable Committee (OFUCC) and to propound and declare its goals, duties, authorities and responsibilities.

GOALS

To continue communication, coordination and cooperation between members of the Oregon commercial fishing and fiber optic cable industries so that they can amiably discuss and resolve concerns;

To encourage the employment of commercially reasonable cable installation and maintenance techniques to minimize interference with and/or interruption of commercial fishing activities;

To sponsor a 24 hour toll free telephone hot line staffed by an individual who has authority to approve the cutting of fishing gear which is possibly snagged on WCICI/ANC fiber optic cable and to reimburse the fishermen for the cost of the cut gear;

To establish a Fund to compensate commercial fishermen for the replacement of cable-related fishing gear losses and to fund the Committee and Committee activities;

To form a Committee constituted of Oregon commercial fishermen and WCICI/ANC fiber optic cable representatives who oversee the Fund and administer the Committee's related activities;

To release participating commercial fishermen from liability for damage to the WCICI/ANC fiber optic cable system; and

To create, support and promote the establishment of a buried telecommunications submarine cable corridor from Nedonna Beach, Oregon offshore through fishing grounds for future submarine cables.

SHARED UNDERSTANDINGS

The parties acknowledge and agree that this Agreement covers only the WCICI/ANC fiber optic cable running from the shoreside of Nedonna Beach, Oregon seaward to the fiber optic cable buried to a water depth of 1500 meters and armored for post-lay burial to a water depth of 2000 meters. The parties also acknowledge and agree that because the fiber optic cable is intended to remain buried, all current fishing activities to include Class A limited entry ground fish permit holders with trawl endorsement, Washington, Oregon and California pink shrimp permit holders, and participants in the prawn trawl fisheries are to be allowed to fish in the area of the WCICI/ANC fiber optic cable. The parties also acknowledge and agree that this Agreement is limited to the traditional fisheries and current gear and technology in the fishing industry. This Agreement expressly does not cover or protect the fishermen who utilize clam dredges, scallop dredges, and /or any other sub-benthic technology.

24 HOUR TELEPHONE HOT LINE

WCICI/ANC shall provide and maintain a 24 hour toll free telephone hot line for fishermen to call who believe they have snagged their gear in the WCICI/ANC fiber optic cable from shoreside of Nedonna Beach, Oregon seaward to a water depth of 2000 meters. There shall always be one WCICI/ANC person on duty at all times who has the authority (1) to make a decision and (2) the background and experience to make the most prudent decision under the circumstances. The individual shall have the authority to make a quick decision to cut the snagged fishing gear based on limited information if a failure to cut the gear could jeopardize lives or other property including the WCICI/ANC fiber optic cable.

FUND

WCICI/ANC shall establish and maintain annually a fund of $150,000.00 to pay lost gear claims, provide lost gear bridge loans and reimburse approved Committee expenses. Accounting control procedures shall be developed by a certified public accountant selected by the Committee prior to funding the account. The account shall be funded before the WCICI/ANC fiber optic cable is installed at Nedonna Beach, Oregon. The Fund shall not expend more that $150,000.00 in a calendar year. The reimbursement for snagged gear is not expected to exceed three gear sets per calendar year at an average cost of $15,000.00 to $20,000.00 per gear set.

COMMITTEE

Voting Members

The Committee shall be constituted of five (5) voting members, three (3) fishermen representatives and two (2) industry representatives. The fishermen shall be drawn from three (3) different geographic areas and two (2) different fisheries. The representatives shall be from the (1) Newport/Yaquina Bay area, (2) Garibaldi area, and (3) Columbia River area. At least one representative shall be a shrimper and one a trawler. Two industry representatives shall be from WCICI/ANC in Oregon or its assign or successor. There shall be a chairperson who is a fisherman who shall have served previously as a representative on the OFUCC for 6 months and who shall be elected by the three fishermen representatives. The Committee shall establish policies, procedures and rules to review and address claims for reimbursement, to publicize and advance the goals of this Agreement, and to conduct other activities consistent with the provisions of this Agreement.

The initial fishermen representatives shall be Terry Thompson, Leo Kuntz, and Scott McMullen. These three fishermen representatives shall select the initial chairperson. WCICI/ANC shall appoint the two industry representatives before the cable is installed at Nedonna Beach, Oregon.

Non-Voting Members

There shall be two (2) non-voting members selected by the voting members. One shall be a third-party specialist in undersea telecommunications maintenance and one shall be from a fishermen's organization such as the Oregon Trawl Commission.

Committee Costs

The Committee shall establish an initial organizing cost budget. WCICI/ANC shall pay all actual costs in the budget including the out-of-pocket expenses for the Committee fishermen representatives. Each Committee member's fees shall be paid at the rate of $50.00 per hour with a maximum of $500.00 per day in addition to reasonable expenses.

RELEASE OF LIABILITY

WCICI/ANC agrees to release any claims against vessel owners and operators and refrain from taking any administrative, legal or other action to sanction and/or recover damages against vessel owners and operators who honor the procedure established by the Committee pursuant to this Agreement. WCICI/ANC further agrees to encourage all administrative, legal and other authorities to honor the procedure established by the Committee pursuant to this Agreement.

WCICI/ANC ACTIVITIES

Cable Burial

WCICI/ANC has contracted to have the fiber optic cable installed at a depth of one meter or more beneath the sea bed seaward from shore to a water depth of 1500 meters. The fiber optic cable may be buried at less than one meter, but not less than three feet, in hard ground such as portions of the "reef area" along the cable route. Additionally, where soft bottom is encountered, the fiber optic cable may be buried deeper than several meters. In all instances, current technology will be utilized in the cable burial process including remote operated vehicles ("ROV") post-lay burial, where required, and ROV inspection immediately following installation to a water depth of 1500 meters. The WCICI/ANC EPC contractor will attempt to bury the cable more than nine feet below the sea bed from the shoreside seaward to a water depth of 22 meters to protect against storm erosion and sediment drift.

WCICI/ANC agrees that a Committee fisherman representative shall be on board the cable installation vessel during cable construction and initial installation reconnaissance out to a water depth of 1500 meters. The Committee representative shall have access to observe all activities while the cable is being buried. WCICI/ANC shall pay all the Committee representative's reasonable expenses. There shall be debris control efforts during burial of the cable. After burial of the cable, there shall be an ROV inspection out to a water depth of 1500 meters to verify cable burial along the cable route.

Shoreside Cable Route Markers

WCICI/ANC shall provide a design to the Committee and fund construction to place at least two Committee-approved shoreside cable route markers to assist fishermen in locating the fiber optic cable center line. The Committee shall maintain the markers.

As-Built Coordinates

WCICI/ANC shall provide cable as-built installation GPS and LORAN C (in both 5990 and 9940 chains) coordinates to fishermen as soon as the WCICI/ANC EPC contractor delivers the information to WCICI/ANC. This data shall be provided in written and electronic data form.

ROV Burial Verification

WCICI/ANC shall conduct an ROV burial verification every 5 years and after a major geological or environmental event.

REVIEW BY LEGAL COUNSEL

The parties acknowledge and agree that they have had this Agreement reviewed by legal counsel or were afforded an opportunity to have this Agreement reviewed by legal counsel.

DISPUTE RESOLUTION

In the event of a dispute between the parties to this Agreement, the parties shall (1) discuss the problem between themselves and attempt a resolution. If the dispute is not thereby resolved within seven (7) days, the parties shall (2) mediate the problem in Portland, Oregon or in another mutually agreed location. If the dispute is not thereby resolved within thirty (30) days, the parties shall (3) engage in binding arbitration in Portland, Oregon or in another mutually agreed location according to the rules and provisions of the American Arbitration Association.

This Agreement is entered into this 9th day of July, 1998 in Newport, Oregon.

WCI Cable, Inc./Alaska Northstar Communications, LLC
By: Geoffrey G. Foster
Its: Project Manager

Terry Thompson

Leo Kuntz

Scott McMullen

Appendix E

BSCC/AT&T Agreement

MEMORANDUM OF AGREEMENT

Certain Commercial Fishing Interests and AT&T Corp. hereby enter into this Agreement to create the Bandon Submarine Cable Council and to set forth rights, responsibilities and obligations of the parties with respect to the submarine telecommunications cables in the area of Bandon, Oregon.

Goals

To promote communication, coordination and cooperation between members of the commercial fishing community fishing offshore of Bandon, Oregon, and AT&T so that they can amicably discuss and resolve concerns;

To encourage the use of commercially reasonable cable installation and maintenance techniques, including cable burial where feasible, to minimize interference with and interruption of commercial fishing activities; and

To encourage the use of prudent fishing practices and to increase the knowledge and understanding of undersea cables in the fishing community.

Agreement

1. **Bandon Submarine Cable Council**

a. Promptly after this Agreement is executed by AT&T, AT&T shall cause to be incorporated the Bandon Submarine Cable Council ("Council"), a not-for-profit corporation chartered under Oregon law.

b. The Council shall be governed by a four member Board of Directors ("Board"). Two directors shall be appointed by AT&T or its successor in interest. Two directors shall be elected by the fishing industry signatories to this agreement. At least one fishing industry director shall be a Coos County, Oregon commercial fisherman. In the event of any decision resulting in a tie vote among the directors, the four directors shall select a neutral party to facilitate resolution of the dispute and serve as a fifth voting member when necessary.

c. The Council shall establish policies, procedures and rules to review and address claims for gear reimbursement, to publicize and advance the goals of this Agreement, to promote safety in commercial fishing activities and to conduct other activities consistent with the provisions of this Agreement.

d. During the term of this Agreement, AT&T shall contribute $50,000.00 annually to an Operating Fund to finance the operations of the Council. The payment shall be due on May 1 of each year, except that in 1999 the payment shall be due within 30 days of

AT&T's execution of this Agreement. The Council shall draw upon the Operating Fund to pay its operating expenses, to hire a Liaison Officer to staff an office for the Council in the Coos Bay region, to compensate the fishing industry directors at the rate of $50.00 per hour, up to a maximum of $500.00 per day, for their time devoted to Council activities, and to reimburse the fishing industry directors for their reasonable expenses.

e. The Board shall hold one regular meeting annually in the Bandon area. In addition, the Board shall hold an emergency meeting on the call of any Director. Emergency meetings may be telephone conference calls.

2. **Term**

This Agreement shall be for an initial term of 20 years. It may be renewed for up to three additional 5 year terms by vote of the Board so long as there are submarine cables in commercial service at the Bandon Station.

3. **Scope**

This Agreement covers the submarine fiber optic cables running seaward from the shore near Bandon, Oregon to 125 degrees 15 minutes West Longitude, and includes the so-called "TPC-5" cables, the cables of the China-U.S. Cable Network System, and any submarine cables that may be laid off shore of Bandon in the future under the terms of this Agreement.

4. **Parties**

a. This Agreement shall be binding upon AT&T and any entity that succeeds to AT&T's interest in the submarine cables that terminate at the Bandon Cable Station. AT&T is the U.S. representative of a consortium of domestic and international partners in the China-U.S. Cable Network System and is a partial owner of the cable systems terminating at the Bandon Cable Station. AT&T shall use its best efforts to ensure that its domestic and international partners understand and abide by the terms and conditions of this Agreement.

b. Participation in this agreement is open to Commercial Fishing Interests in traditional trawl fisheries using current gear and technology. Participation in this Agreement is not open to Commercial Fishing Interests who utilize clam dredges, scallop dredges, and any other sub-benthic fishing methods or technology. An eligible shipowner may become a party to the Agreement by executing the signature page and forwarding it to AT&T at the address specified below. Each shipowner which is signatory to the Agreement shall receive a one-time payment in the amount of $500 from AT&T within 30 days of AT&T's receipt of an executed signature page. The shipowner will only utilize such funds to update navigation or communications equipment to assist the operator of such vessel to plot the positions of the cables in the onboard navigation equipment and to contact the Submarine Cable Owner/Operator in the event of contact with the an undersea fiber optic cable.

5. **Compensation for Time and Expenses Through April 6, 1999**

The vessel owners who participated in negotiations with AT&T leading to this Agreement shall be compensated by AT&T for their time in negotiations and related activities through and including April 6, 1999, at the rate of $25.00 per hour. Those individuals shall also be reimbursed for their reasonable expenses and attorneys' fees incurred in connection with the negotiations and related activities. Compensation for time and reimbursement for expenses incurred after April 6, 1999, shall be from the Operating Fund of the Council as directed by the Board.

6. **Fisheries Improvement Fund**

The Council shall establish and administer a Fisheries Improvement Fund from which disbursements will be made for research on fisheries stocks and for such other projects as the Board determines shall benefit the commercial fishing industry and the fisheries of the Oregon coast and shall not be detrimental to the interests of the submarine cable industry. Within 30 days of the establishment of the Fund, AT&T shall deposit $1.25 million into the Fund account. Each year during the term of this agreement, on or about May 1, AT&T or its successor shall deposit $100,000.00 into the Fund account, except that the 1999 payment shall be made within 30 days of AT&T's execution of this Agreement. The Council shall arrange for an annual audit of the Fund by a certified public accountant.

7. **Reroute of the E 1 Cable**

AT&T shall have rerouted a portion of the so-called "E 1" segment of the China–U.S. Cable Network that will run from Bandon to San Luis Obispo, California. The cable will follow the originally planned route from the mouth of the conduit to a point approximately 4 miles offshore. At that point, the cable will turn north, crossing the southernmost TPC 5 cable, and then turn west, following a route generally parallel to and north of the southernmost TPC 5 cable, to a point approximately 18 miles offshore. At that point the cable will turn south, crossing the TPC 5 cable, and rejoin the originally planned route. AT&T provided a chart generally depicting this route to Gerald Gunnari.

8. **Permit Issuance Contingency**

This Agreement was contingent upon approval by the Oregon State Land Board at its April 6, 1999 meeting of an easement across state submerged lands for the China–U.S. Cable Network, which approval has been received. This Agreement was also contingent upon AT&T's receipt of all necessary State and Federal permits for the Bandon landing of the China–U.S. Cable Network, which permits have also been received. The Commercial Fishing Interests signatory to this Agreement shall use their best efforts to facilitate the timely issuance of all permits for the Bandon landing.

9. **Defense of Agreeement**

The Commercial Fishing Interests signatory to this Agreement shall use their best efforts to defend this Agreement as fair and comparable to the agreement in principle reached March 23, 1999, between AT&T and the fishing community in San Luis Obispo.

10. **AT&T Activities**

a. Wherever practicable, and in accordance with any applicable federal or state permits, AT&T shall have a cable plow bury the China-U.S. Cable Network System and future fiber optic cables to a target minimum depth of one meter or more beneath the sea bed seaward from shore to a water depth of 1800 meters. If use of a cable plow is not practicable, AT&T shall have divers or a remote operated vehicle ("ROV") bury the cable to a target minimum depth of 0.6 meter or more. The parties understand that, in areas where none of the above methods is practicable, the cable will be unburied.

b. AT&T agrees that, if logistically feasible and with the consent of the vessel owner and the master, a representative of the Commercial Fishing Interests may be on board the cable installation vessel during cable installation out to a water depth of 1800 meters.

c. AT&T shall provide cable as-built Latitude and Longitude and LORAN C (in 9940 chains) coordinates to fishermen as soon as practicable, but in no case later than 30 days, after installation. These data shall be provided in written and electronic data format. Information will be provided on navigational charts in WGS 84 datum. The parties understand and agree that this service does not relieve mariners of their obligations to maintain current charts, notices to mariners and navigational publications issued by NOAA or the U.S. Coast Guard.

d. AT&T shall have the cable routes inspected by ROV on a 18-24 month cycle, contingent upon cableship availability within the 6 month window. If, after three inspections, the cables remain as originally placed, AT&T may decrease the number of inspections with the approval of the Council. In addition, upon the occurrence of a geological or meteorological event that might affect the condition of the cable, or if two gear claims are made in a particular area within one year, AT&T shall make arrangements to have that section of the cable inspected by ROV. If a formerly-buried segment of the cable is found to be exposed, AT&T shall have the the cable retroburied by ROV, if practicable.

11. **24-Hour Telephone Hotline**

AT&T shall provide for and maintain a 24-hour telephone hotline for fishermen to call who believe they have snagged their fishing gear in an AT&T submarine cable. There shall always be one AT&T employee on duty to assist fishermen in identifying the affected cable and determining the prudent response to the incident. The advice provided is not binding on the

master, who shall at all times have responsibility to act as necessary in accordance with international law.

12. **Sacrificed Gear Claims**

If any signatory shipowner party to this Agreement sacrifices fishing gear in order to avoid injuring a submarine cable covered by this Agreement, AT&T will indemnify that shipowner for its sacrificed gear pursuant to its obligations under U.S. and international law. Where AT&T disputes the shipowner's entitlement to replacement of sacrificed gear under applicable law, the dispute shall be resolved according to the dispute resolution provisions of this Agreement. AT&T shall select fishing gear suppliers in each port which agree to provide expedited replacement for approved claims for sacrificed gear. AT&T shall pay a premium to the gear supplier if necessary to secure replacement on the most expedited basis reasonably possible. Parties who choose not to use the approved gear suppliers will submit their claims to the Board for review and the Board shall forward approved claims to AT&T for indemnity payment directly to the fishermen. In addition, AT&T shall pay an administrative fee of 50% of the cost of the replaced gear to the affected shipowner. Payment of a sacrificed gear claim will release AT&T from its indemnity obligations for sacrificed gear under international and U.S. law.

13. **Future Cable Installations.**

AT&T will use all reasonable efforts to install any future submarine cables in routes selected in consultation with the Council and other representatives of the local fishing community. Minimizing the negative impacts to the commercial fishing industry in the area of the cable shall be a principal consideration in the route selection decision. AT&T shall not be liable for additional contributions to the Council Operating Fund or the Fisheries Improvement Fund as a result of installing additional cables at the Bandon Station if the routes for those cables are selected pursuant to the terms of this paragraph. The fishing industry signatories hereto agree that they shall not oppose the installation of future cables developed in accordance with the terms of this paragraph and that they shall provide further written assurances memorializing their consent to the future cable installations to the extent such assurances are requested by AT&T.

14. **Dispute Resolution**

a. In the event of a dispute between AT&T and one or more of the fishing industry signatories to this Agreement, the parties shall attempt to resolve the dispute through the Council by informal discussions, telephone calls, faxes or other reasonable means. If the dispute cannot be resolved within 10 working days, or other reasonable time, the parties agree to meet with the Board in Coos Bay, Oregon or another mutually agreed location, to further attempt a resolution with the assistance of a mediator hired by and at the expense of the Council. If the dispute is not thereby resolved within 30 days or such additional time as the parties may mutually agree, the parties shall engage in binding arbitration in Portland, Oregon, or another mutually-agreed neutral location, according to the Commercial Arbitration Rules and provisions

of the American Arbitration Association. The arbitration award shall be final and may include costs, including reasonable attorneys' fees. These procedures are agreed to be without prejudice to the right of the parties to take legal measures to preserve evidence in accordance with the general maritime law. Judgment upon any award may be entered in any court of competent jurisdiction. The parties specifically agree and submit to the jurisdiction of the U.S. District Court.

b. Any fishing industry signatory who is subject to a claim for cable damage shall immediately inform his insurance carrier of the claim and invite the carrier to participate in the dispute resolution process. Should it be necessary in order to preserve a claim for insurance coverage, a fishing industry signatory shall have the right to decline to have the dispute resolved in binding arbitration and to elect instead to have the dispute submitted to a court of law. The fishing industry signatory shall make this election within 30 days of the parties' failure to resolve the dispute with the assistance of a mediator.

15. **Non-waiver of Rights and Obligations**

Participation in this Agreement will not be construed as a waiver of any rights or obligations the parties may have under the International Convention for Protection of Submarine Cables (14 March 1884); the Geneva Convention on the High Seas (29 April 1958); the United Nations Law of the Sea Convention (10 December 1982); and the Submarine Cable Act, 47 U.S.C. §21 et seq.

16. **Review by Legal Counsel**

The parties agree and acknowledge that they have had this Agreement reviewed by legal counsel or were afforded an opportunity to have this Agreement reviewed by legal counsel.

17. **Address for Notice to AT&T**

Notices to AT&T, including copies of signature pages executed by fishing industry signatories, shall be mailed to AT&T at the following address:

Robert Wargo
Cable Protection Manager
Room S200
340 Mt. Kemble Ave.
Morristown, NJ 07960

18. **Representations by Fishing Industry Signatories**

By executing this Agreement, each Fishing Industry Signatory represents that he/she is the registered owner or authorized representative of the registered owner of the vessel identified, that the vessel owner is licensed to engage in commercial trawl fishing in the Pacific Ocean

offshore of Bandon, Oregon, and that the vessel does not employ clam dredges, scallop dredges, or any other sub-benthic fishing methods or technology.

19. **Execution in Counterparts**

This Agreement may be executed in any number of counterparts, all of which together shall constitute but one original document.

This Agreement is entered into as of this _24th_ day of __April_____, 1999 in Coos Bay, Oregon.

AT&T Corp.:

By __Ellen Brain_____
(Original signed by)

Its___Deputy Director_____

Fishing Industry Party:

Printed Name of Registered Owner: _____

Address of Registered Owner _____

_____

Name and Registration Number of Vessel: _____

Signature of Owner or Authorized Agent: _____

Nature of Agent's Authorization: _____

Fishing Industry Parties who sign this Agreement should retain the original of the signed Agreement and send a copy of this page to:

Robert Wargo
Manager
International Systems Maintenance

Room S200/W10
340 Mount Kemble Avenue
Morristown, NJ 07960
Phone: (973) 326-3398
Fax: (973) 326-3663
email: rwargo@att.com

Upon receipt of the signature page, AT&T will forward to the vessel owner $500 to be used for improvements to communication and/or navigation equipment.

Appendix F

OFCC/MFSG Agreement

AGREEMENT BETWEEN AND AMONG THE OREGON FISHERMEN'S UNDERSEA CABLE COMMITTEE, INC., MFS GLOBENET, INC. AND WCI CABLE, INC.

This Agreement is entered into on the date noted below between and among: The Oregon Fishermen's Undersea Cable Committee, Inc. ("Oregon Committee"), an Oregon non-profit corporation with a business address at 2001 Marine Drive, Suite 112, Astoria, Oregon 97103, and MFS Globenet, Inc. ("MFSG"), a subsidiary of MCI WORLDCOM, Inc., Delaware corporations with a business address at One Tower Lane, Suite 1600, Oakbrook Terrace, Illinois 60181, and WCI Cable, Inc. ("WCIC"), a Delaware corporation with a business address at 1815 NW 169th Place, Suite 5050, Beaverton, Oregon 97006. The Oregon Committee and MFSG are at times referred to collectively as the "Parties." WCIC is a signatory to this Agreement because it is a party to the "Agreement To Create And Establish The Oregon Fishermen's Undersea Cable Committee" ("Oregon Accord") executed on July 9, 1998 and through representatives is a member of the Oregon Committee. The Oregon Accord is also referred to as the "Oregon Fishermen's UnderSea Cable Accord." WCIC is a signatory to this Agreement because WCIC is relinquishing one of its voting memberships on the Oregon Committee, among other changes requiring its written consent. This Agreement is the "Final Agreement" referred to in and contemplated by the "Memorandum Of Understanding" entered into by the Parties and WCIC on or about December 15, 1999.

The Oregon Committee is constituted of representatives of both the Oregon commercial fishing industry and the telecommunications industry. The fishing representatives are from the areas near and the waters off of Astoria/Columbia River, Garibaldi, Newport/Yaquina Bay, Charleston/Coos Bay and Brookings/Harbor in the State of Oregon. The telecommunications representatives are from WCIC and other telecommunications companies. MFSG intends to install a submarine fiber optic cable from Nedonna Beach, Oregon seaward through commercial fishing grounds in the waters off of the State of Oregon. MFSG agrees to adhere to the terms and conditions of the Oregon Accord as modified and amended by this Agreement and as amended by the Oregon Committee. Among the other Goals set forth below, the Oregon Accord seeks to minimize risks to, interference with, and/or interruption of commercial fishing activities and of submarine fiber optic cable operations.

GOALS

The Parties to this Agreement endorse and encourage the pursuit and fulfillment of the Goals set forth in the original Oregon Accord. The Goals originally stated in the Oregon Accord are:

To continue communication, coordination and cooperation between members of the Oregon commercial fishing and fiber optic cable industries so that they can amiably discuss and resolve concerns;

To encourage the employment of commercially reasonable cable installation and maintenance techniques to minimize interference with and/or interruption of commercial fishing activities;

To sponsor a 24 hour toll free telephone hot line staffed by an individual who has authority to approve the cutting of fishing gear which is possibly snagged on [the] fiber optic cable and to reimburse the fishermen for the cost of the cut gear;

To establish a Fund to compensate commercial fishermen for the replacement of cable-related fishing gear losses and to fund the Committee and Committee activities;

To form a Committee constituted of Oregon commercial fishermen and [the] fiber optic cable representatives who oversee the Fund and administer the Committee's related activities;

To release participating commercial fishermen from liability for damage to the [the] fiber optic cable system; and

To create, support and promote the establishment of a buried telecommunications submarine cable corridor from Nedonna Beach, Oregon offshore through fishing grounds for future submarine cables.

SHARED UNDERSTANDINGS

The Oregon Accord was the first effort by representatives of the commercial fishing and telecommunications industries to discuss, describe and delineate their shared use of a community resource – the ocean. The Oregon Accord and this Agreement are a refinement of the rights and duties set forth in and under international and national law. These Agreements are private compacts between and among individuals and entities. These Agreements are not intended to nor do they create any rights in third parties other than the individual Participating Fisherman who executes the "Individual Fisherman's Agreement And Mutual Release", a copy of which is attached to this Agreement. These Agreements are intended to be implemented with a minimum of government involvement and interference. These Agreements are not intended to be and should not be interpreted or enforced by an agency or court except as set forth in the Dispute Resolution section of the Agreements. These Agreements perforce are not intended to be disclosed in any administrative or judicial proceeding except as otherwise required by law.

The Parties acknowledge and agree that this Agreement covers only the MFSG fiber optic cable running from the shoreside of Nedonna Beach, Oregon seaward to a water depth of 2000 meters. The Parties also acknowledge and agree that because the fiber optic cable is intended to remain buried all current fishing activities undertaken by Class A limited entry groundfish permit holders with trawl endorsement, Washington, Oregon and California pink shrimp permit holders, and participants in the prawn trawl fisheries shall continue in the area of the MFSG cable. The Parties also acknowledge and agree that this Agreement is limited to the traditional fisheries and current gear and technology in the fishing industry. This Agreement expressly does not cover or protect the fishermen who utilize clam dredges, scallop dredges, and/or any other sub-benthic technology.

24 HOUR TELEPHONE HOTLINE; PROVISION OF REPLACEMENT GEAR

MFSG shall provide and maintain a 24 hour toll free telephone hot line for fishermen to call who believe they have snagged their gear on the MFSG fiber optic cable from shoreside of Nedonna Beach, Oregon seaward to a water depth of 2000 meters. There shall be one MFSG person or a designee on duty at all times who has authority (1) to make a decision and (2) the background and experience to make the most prudent decision under the circumstances. The individual shall have the authority to make a quick decision to cut the snagged fishing gear based on limited information if a failure to cut the gear could jeopardize lives or property including the MFSG fiber optic cable. The individual shall have the authority immediately to approve cutting the gear and perforce is authorizing the provision of replacement gear to the Participating Fisherman from suppliers approved by the Oregon Committee. This authorization to the approved suppliers to provide replacement gear to the Participating Fisherman is intended to avoid any delay in providing the replacement gear.

FUND

MFSG shall provide the Oregon Committee with initial organizing funds in the amount of a one-time payment of $126,000.00 within five (5) business days of signing this Agreement or upon issuance of a permit or an easement by the State of Oregon to MFSG, its affiliates, or assigns, whichever occurs later. After this initial payment, MFSG shall share in the Oregon Committee Expenses on an annual and a pro rata basis with other cable company members. The annual contribution shall be funded by MFSG before the MFSG fiber optic cable is installed at Nedonna Beach. The annual contribution shall be calculated on the basis of the number of cables landed at Nedonna Beach, shall be capped at $150,000.00 per cable and shall be made on or by July 1 of each year commencing July 1, 2000. MFSG shall establish before cable installation at Nedonna Beach and replenish on or by July 1 of each year, a Sacrificed Gear Fund of $150,000.00 which will only be used to pay sacrificed gear claims, provide sacrificed gear bridge loans and pay related expenses.

RESOLUTION OF CLAIMS

The Oregon Committee has established a claims review procedure. A Participating Fisherman shall submit a written claim for compensation pursuant to the claims review procedure and on approved forms including the "Sacrificed Gear Claim Form And Release And Settlement" within the time set by the Oregon Committee. The Oregon Committee shall review and then approve or deny a claim in accordance with its claims review procedure. As part of its review, the Oregon Committee may review an inspection of the cable by an underwater remote operated vehicle ("ROV"). If the Oregon Committee approves a claim, the Oregon Committee waives any right to collect from the claimant for the replacement gear it previously caused to be provided to the Participating Fisherman. In addition, the Oregon Committee shall pay from the Fund an amount equal to fifty percent (50%) of the value of the replacement gear to the Participating Fisherman. This sum represents liquidated damages in settlement and satisfaction of any and all claims or possible claims

for loss of business, lost profits or any other damages incurred by the Participating Fisherman. The current "Individual Fisherman's Agreement And Mutual Release" and the "Sacrificed Gear Claim Form And Release And Settlement" that accompany the Oregon Accord shall be modified to reflect this amendment. If the Oregon Committee denies a claim because of fraud, misrepresentation or failure to follow the required procedures, the authorization to the approved suppliers for the sacrificed gear is treated as a bridge loan to the fisherman that must be repaid by the fisherman.

THE OREGON COMMITTEE

The size, structure and membership of the Oregon Committee are set forth in the Oregon Accord as amended by the Oregon Committee. Upon execution of this Agreement, the Committee membership and voting membership of the Oregon Committee shall be modified to include one MFSG voting Committee member. At the same time, WCIC shall reduce its voting Committee membership by one voting member to provide the voting membership to MFSG. The Parties and WCIC intend to maintain the current Committee size, structure and voting membership set forth in the Oregon Accord as amended by the Oregon Committee.

RELEASE OF LIABILITY

MFSG agrees to release claims against vessel owners and operators and refrain from taking any administrative, legal or other action to sanction and/or recover damages against vessel owners and operators who honor the Operating Procedures ("Procedures to Follow While Operating Near the Southern Cross Cable") and other procedures adopted by the Oregon Committee. MFSG further agrees to encourage all administrative, legal and other authorities to refrain from taking action against fishermen who honor the Operating Procedures and other procedures adopted by the Oregon Committee. The specific terms and conditions of the releases are set forth in the "Individual Fisherman's Agreement And Mutual Release" and the "Sacrificed Gear Claim Form And Release And Settlement" that accompany the Oregon Accord and are attached to this Agreement.

MFSG ACTIVITIES

CABLE BURIAL

MFSG shall install the fiber optic cable at a depth of one meter or more beneath the sea bed seaward from shore to a water depth of 2000 meters. The fiber optic cable may be buried at less than one meter in hard ground. In addition, where soft bottom is encountered, the fiber optic cable may be buried deeper than one meter. In all instances, current technology will be utilized in the

cable burial process including the use of a ROV and post-lay burial, where required, and ROV inspection immediately following installation to a water depth of 2000 meters. If MFSG cannot bury the cable at one meter or greater in the surf zone, MFSG shall utilize other technology such as a submerged trencher or articulated pipe armoring to protect the cable against storm erosion and sediment drift.

MFSG agrees that two Oregon Committee fishermen representatives shall be allowed on board the cable installation vessels during cable reconnaissance and installation out to a water depth of 2000 meters. The Oregon Committee fishermen representatives shall have access to observe all activities while the cable is being installed. MFSG shall pay all of the representatives' expenses. MFSG shall pay the fishermen representatives at a rate of $750.00 per day per fisherman. MFSG shall undertake stringent debris control efforts during installation and burial of the cable. Concurrent with burial of the cable, MFSG shall undertake an ROV inspection of the cable out to a water depth of 2000 meters or employ other acceptable technology to inspect the cable to verify cable burial along the cable route.

PATROL VESSELS

MFSG shall pay for patrol boats to be nominated by the Oregon Committee during the cable landing, laying and burial, and any post-lay inspection and burial operation out to a water depth of 2000 meters. The Oregon Committee shall only nominate patrol boats that offer competitive rates for their services.

AS-BUILT COORDINATES

MFSG shall provide to the Oregon Committee Differential Global Positioning System ("DGPS") coordinates recorded from the high-water mark (or first plow-down) to a water depth of 2000 meters and Loran C coordinates in both 5990 and 9940 chains that coincide with each of these DGPS coordinate recordings.

ROV BURIAL VERIFICATION

MFSG shall conduct ROV burial verification at least every five years and after any major geological or environmental event as determined by the Oregon Committee.

REVIEW BY LEGAL COUNSEL

The Parties and WCIC acknowledge and agree that they have had this Agreement reviewed by legal counsel or were afforded an opportunity to have this Agreement reviewed by legal counsel. MFSG shall be responsible for the cost of legal counsel for the Oregon Committee until the Final Agreement is executed by both parties and WCIC.

DISPUTE RESOLUTION

In the event of a dispute between or among the Parties to this Agreement and/or WCIC involving the terms and conditions of this Agreement, the Parties and/or WCIC shall (1) discuss the problem between themselves and attempt a resolution. If the dispute is not thereby resolved within seven (7) days, the Parties and/or WCIC shall (2) mediate the problem in Portland, Oregon or in another mutually agreed location. If the dispute is not thereby resolved within thirty (30) days, the Parties and/or WCIC shall (3) engage in binding arbitration in Portland, Oregon or in another mutually agreed location according to the rules and provisions of the American Arbitration Association.

AUTHORITY TO EXECUTE

The Parties and WCIC execute this Agreement by and through their respective duly authorized representatives who warrant and covenant their authority to enter into this Agreement.

This Agreement is executed this ____ day of January, 2000.

Oregon Fishermen's Undersea Cable Committee, Inc.

By: _____
Scott McMullen, President/Chairman
(Astoria/Columbia River)

By: _____
Jim Seavers, Secretary
(Newport/Yaquina Bay)

By: _____
Terry Thompson (Newport/Yaquina Bay)

By: _____
Brad Pettinger (Brookings/Harbor)

By: _____
Gerald Gunnari (Charleston/Coos Bay)

By: _____
Jack Stoess (WCIC)

By: _____
David Jordan (Garibaldi)

By: _____
Steve Brock (WCIC)

By: _____
Rob Munier (Undersea Telecom. Maintenance Specialist)

By: _____
Geoffrey G. Fowler
(WCIC)

MFS Globenet, Inc.

By: _____
Clem Jones, Senior Vice President and Authorized Agent of MFS Globenet, Inc.

WCI Cable, Inc.

By: _____
Geoffrey G. Fowler, Project Manager

By: _____
Steve Brock, Vice President of Operations

Appendix G

Procedures to Follow While Operating Near
Submarine Fiber Optic Cables

PURPOSE OF THESE PROCEDURES

These procedures have been developed by joint committees of the telecommunications and trawl fishing industries for trawl fishermen to use as a guide to responsible conduct in the vicinity of submarine cables. They are intended to protect submarine cables from being damaged by contact with trawl gear. Fishermen who sign agreements with companies maintaining submarine cables in their area can be protected from liability for damaging the cables by complying with these procedures and compliance will facilitate compensation for trawl gear sacrificed to avoid damage to a submarine cable.

SAFETY FIRST

While cable companies do not encourage trawling over submarine cables, these procedures define how vessels should operate when fishing in the vicinity of cables. These procedures do not change the vessel operator's authority and responsibility to care for the safety of crewmembers, passengers and the vessel, taking all relevant factors into account. **No step in these procedures should be followed if doing so would be unsafe.**

PROCEDURES WHEN OPERATING NEAR A CABLE

For purposes of these procedures, a vessel is considered "near" a cable if the distance from the vessel to the charted position of the cable is equal to or less than:

- 3 times the depth of water, in depths of 150 fathoms (300 meters) or more, or
- 4 times the depth of water, in depths of less than 150 fathoms (300 meters).

A vessel relying on Loran C instead of GPS or DGPS should assume a potential error of _ mile in the vessel's position, and should consider itself "near" a cable if it is within _ mile plus three times the depth of water of the charted position of the cable.

WHENEVER OPERATING "NEAR" A CABLE, A VESSEL MUST COMPLY WITH ALL OF THE FOLLOWING STEPS, A THROUGH G:

A. The vessel shall have on board in useable form the most current nautical chart information, including:

1. the latest NOAA chart;
2. any updates from Local Notices to Mariners;
3. any updates made available by a local cable/fishermen liaison committee (the "Committee"), such as regarding cable burial status; and
4. information made available by companies operating submarine cables in the vicinity.

THESE PROCEDURES ARE APPLICABLE SHOREWARD OF 2000 METERS WATER DEPTH. FOR INFORMATION ABOUT AGREEMENTS BETWEEN CABLE COMPANIES AND THE TRAWL FISHING INDUSTRY CONTACT THE OREGON FISHERMEN'S CABLE COMMITTEE AT 503 325-2285 OR VISIT THEIR WEBSITE.

www.ofcc.com

B. Anyone acting as helmsman “near” a cable must understand and be able to implement these procedures.

C. If a vessel has an electronic or video chart plotter, the route of the cable shall be displayed on the plotter screen or display. If the vessel has gear on the bottom “near” a cable, the plotter shall be recording the tow.

D. When operating “near” a cable, special care should be observed. Gear should not be set or hauled up. No turns of more than 90 degrees should be executed and no activity that lays a door over should be executed.

E. No clam or scallop dredge, anchor, grapple, or other gear designed to significantly penetrate the surface of the seabed should be used “near” a cable. All trawl gear should be in good condition, and free of elements that could snag cables.

F. Gear should not be in contact with the bottom over any location where a cable is reported or known to be unburied.

G. The helmsman should closely monitor the groundspeed by the most accurate means available when “near” a cable, and monitor the video plotter display for any sign of possible cable contact.

PROCEDURES IN CASE OF POSSIBLE CABLE CONTACT

1. In case of any deviation from normal towing conditions the helmsman, if other than the master, should summon the master to the bridge. The master of the vessel shall take all appropriate action to keep the vessel safe and protect the cable.

2. If conditions (such as reduced speed or course deviation near a cable) suggest possible cable contact, the operator should take the vessel out of gear.

3. Do not attempt to free the gear by hauling up gear or by powering up the vessel.

4. The Master will call the cable operator and supply all information requested.

5. Vessel will cut away gear if advised by the cable operator that the location given indicates a possible cable contact. The Master should call the Committee for the provision of replacement gear.

6. In any case of a possible or known cable contact, the master and helmsmen should file a report with the Committee immediately upon returning to port; preserve all related records (including tow records); and cooperate with any investigation by the Committee and/or the cable company.