

ADDENDUM REPORT

INTERNATIONAL, PRIVATE-SECTOR TUG-OF-OPPORTUNITY SYSTEM
(ITOS) FOR THE WATERS OF THE OLYMPIC COAST NATIONAL MARINE
SANCTUARY AND THE STRAIT OF JUAN DE FUCA

ADDENDUM EXECUTIVE SUMMARY

The following U.S. Coast Guard (USCG) document reviews the ITOS Implementation Plan as submitted by the International, Private-Sector Tug-of-Opportunity System (ITOS) Industry Coalition.

The voluntary industry effort for an International, Private-Sector Tug-of-Opportunity System (ITOS) came from a call for the USCG to develop and submit a plan to Congress on the most cost-effective means of implementing an ITOS (specifically for vessels in distress operating on the waters of the Olympic Coast National Marine Sanctuary or the Strait of Juan de Fuca).

This call came as the Alaska Power Administration Asset Sale and Termination Act, PL 104-58, which was signed by the President on November 28, 1995. Since that time, an industry coalition of seven maritime organizations (referred to throughout as the Coalition) provided a skeletal plan that the USCG evaluated in a Report to Congress on January 31, 1997.

The Report to Congress identified a need to address unresolved issues in an Addendum. In addition, the Report to Congress stressed that the Addendum would report on steps taken toward implementation of ITOS. The Coalition reported on their efforts in a letter and an ITOS Implementation Plan. This Addendum discusses key issues within that plan.

In parallel with ITOS related efforts, the USCG conducted a broader study of the overall marine safety regime entitled, Scoping Risk Assessment, Protection Against Oil Spills in the Marine Waters of Northwest Washington State. The results of that study, though related, are reported under a separate cover. The study is referred to throughout the Addendum as the Scoping Risk Assessment (Appendix F).

In accord with the President's Direction and the guidance provided by the Secretary, the USCG has facilitated the efforts of the marine industry. Simultaneously, the USCG actively solicited input from stakeholders in this process, including Native Americans, environmentalists, State and Canadian Governments. Throughout, whenever appropriate, the USCG solicited the aid and advice of other government agencies.

Many organizations provided input into this development process. The Canadian government participated by holding public meetings with the marine industry in Canada and by direct letter included in this Addendum. The U.S. Department of Commerce and its National Oceanic and

Atmospheric Administration were especially helpful in

addressing weather and current related issues. These inputs enabled the Coast Guard to modify the marine safety criteria.

Commercial trends highlighted in the Volpe Center's Scoping Risk Assessment (Appendix F) show concern expressed during the lifting of the Alaska North Slope exportation ban regarding an increase in foreign tanker traffic is unfounded. In fact, 95% of oil shipped by vessel to the Puget Sound refineries is carried by U.S. flag tankers. The ITOS offers a viable addition to existing risk reduction and marine safety enhancement efforts in the Strait of Juan de Fuca and the Waters of the Olympic Coast National Marine Sanctuary. However, the exact nature of this reduction and the exact level of coverage provided by ITOS may only be verified after system implementation.

Initial industry projections underestimated the time needed to implement such a system. However, substantial progress has clearly been made toward implementation. The Coalition raised initial capital and began assessing fees for all vessels greater than or equal to 300 Gross Registered Tons transiting the Strait of Juan de Fuca on May 1, 1997. Installations of transponders began the first week in October. The tug database is complete as of August 31, 1997 and antenna installations for expanded coverage are in place. Also noteworthy is the fact that the Coalition went beyond the statutory area of interest to include system coverage well into the offshore area beyond the Olympic Coast National Marine Sanctuary and marine safety criteria coverage areas.

The Coalition has incorporated a comprehensive exercise program which they feel ensures operational validation of the ITOS. The Coalition's operational validation is similar to evaluation performed on new USCG Vessel Traffic System equipment. This ITOS exercise program will address: data integrity, communications, interaction with U.S. and Canadian Coast Guards, transponder function, and verification of potential distressed vessel and tug resource locations.

The Coast Guard acted as a facilitator in this complex process and is continuing evaluation of the need for unannounced drills. The Coast Guard will continue to monitor the progress of the Marine Exchange of Puget Sound as industry implements ITOS.

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I. OVERVIEW

The Alaska Power Administration Asset Sale and Termination Act (PL 104-58) was signed into law on November 28, 1995. This law required the USCG to identify a plan for the most cost effective means of implementing a private-sector International, Tug-of-Opportunity System (ITOS) and provide a report to Congress. An industry Coalition provided a plan for an ITOS to the USCG. The USCG reviewed this plan and the Commandant of the USCG signed and forwarded the report to Congress on January 31, 1997.

The Report to Congress identified a need to address unresolved issues in an Addendum. Specifically, the action plan on page 80 of the Report to Congress called for:

1. resolution of outstanding documentation requirements on legal and contractual issues, operational issues and fiscal administration
2. further review of weather and current conditions with NOAA and,
3. resolution of Canadian concerns.

In order to ensure that the above issues were adequately addressed, the Coast Guard sent a letter to the Commander of the Thirteenth Coast Guard District in Seattle, Washington with additional details. This letter, attached as Appendix A, serves as the foundation by which this Addendum reviews the ITOS Implementation Plan.

II. PRIVATE-SECTOR ITOS COALITION

A. Summary

A self-initiated marine industry group formed voluntarily to address the President's directive to encourage private-sector efforts to improve vessel safety. The group is a coalition of marine industry associations from the United States and Canada. Coalition members include: the American Waterways Operators (AWO), the Chamber of Shipping of British Columbia, the Council of Marine Carriers, the Puget Sound Steamship Operators Association (PSSOA), the North Pacific Fishing Vessel Owners Association (NPFVOA), the Transportation Institute, and the Western States Petroleum Association (WSPA). This group is referred to as the Coalition throughout the remainder of this document. The Coalition submitted a skeletal ITOS Plan to the USCG on 15 October 1996. This plan was subjected to a public meeting

held on November 26, 1996, and was evaluated by the USCG in the report to Congress, dated January 31, 1997.

B. Canadian Marine Industry Participation

From the inception of the Coalition, the Canadian marine industry has participated in all aspects of the development of ITOS. Representatives of the Chamber of Shipping of British Columbia, the Council of Marine Carriers, several towing companies and a petroleum products carrier have attended the Coalition meetings and the USCG's public meetings at Seattle, Washington. Since the USCG's public meeting at Seattle, Washington on November 26, 1996, the Coalition (including Canadian representatives) has met as follows:

December 11, 1996	Seattle, Washington
January 14, 1997	Seattle, Washington
February 12, 1997	Vancouver, British Columbia
March 5, 1997	Seattle, Washington
April 1, 1997	Seattle, Washington
April 17, 1997	Seattle, Washington
May 15, 1997	Vancouver, British Columbia
July 9, 1997	Bellingham, Washington

On February 12, 1997, the Coalition met at Vancouver, British Columbia for the specific purpose of briefing the Canadian marine industry and holding a Coalition meeting. At that time, the Chairman of the Chamber of Shipping of British Columbia stated his support for the ITOS. He also expressed intent to schedule a vote by the Board of Directors to begin assessing fees to fund the ITOS. The Board met and approved the assessment fees. Assessment began on May 1, 1997. Fee assessment is discussed in greater detail in Section V of this report.

C. Canadian Government Involvement

As in the case of the Canadian marine industry, Canadian Government (primarily Canadian Coast Guard) representatives attended most of the meetings of the Coalition held in 1997. The Canadian Coast Guard has continued to assist in the facilitation of the Coalition, to provide information to

assist in the implementation of the ITOS and to monitor the progress of implementation. In addition, the Canadian Coast Guard provided comments concerning ITOS implementation. Those comments are included as Appendix C.

D. Canadian Public Meetings

The Canadian Coast Guard held a public meeting of the Regional Advisory Council (RAC) on Oil Spill Response of the Pacific Region on May 16, 1997, at Vancouver, British Columbia. The regional advisory councils are authorized by Chapter 36 of the Statutes of Canada (1993). The councils foster government and industry partnership for the purpose of providing advice and recommendations on improving the strategic framework of oil spill response in order to safeguard the public interest and mitigate detrimental economic and environmental impacts. Concerns and recommendations, if any are raised to a council, are forwarded to the Commissioner of the Canadian Coast Guard, the Minister of Fisheries and Oceans, and/or the Standing Committees on Transportation or the Environment, as appropriate.

At the meeting of the Pacific Region Council on May 16, 1997, the Executive Director of the Chamber of Shipping of British Columbia explained the ITOS Plan. No issues or concerns were raised.

The Canadian Coast Guard may hold additional public meetings and information sessions for the Indian tribes that inhabit areas of the south coast of Vancouver Island.

III. OPERATIONAL IMPLEMENTATION

Following submittal of the skeletal plan, the Coalition initiated steps to implement a private-sector ITOS. These included the following: 1) formal monthly meetings, 2) an evaluation of vessel tracking technologies, 3) designation of a supplier, 4) the hiring of a project manager to develop documentation, 5) the collection of fees from U.S. and Canada bound shipping, 6) the development of an Implementation Plan, and 7) contracting for the purchase and installation of tug tracking and monitoring equipment. The Implementation Plan provided by the Coalition is included as Appendix B.

This section will specifically address:

- timeline for implementation of ITOS

- tracking and monitoring progress
- marine radio coverage, and
- deployable towing gear

A. Timeline For Implementation of ITOS

As indicated in Appendix A, the Coalition plan needed to address the schedule for implementation of this system. Figure 1 of Appendix B indicates that the ITOS will be completely on-line by December 31, 1997. This goal appears realistic.

B. Tug Tracking and Monitoring Progress

In December 1996, the Coalition charged the Marine Exchange of Puget Sound (MAREX) with identifying the start up and annual recurring costs of developing and implementing the ITOS. Based upon that information the Coalition developed specifications and a request for proposals for a tug tracking and monitoring system, also known as an Automated Identification System (AIS). Five potential suppliers presented proposals to the Coalition at a meeting on January 14, 1997.

Each of the offerors offered AIS products of varying degrees of sophistication and cost. They differed significantly, however, as to the practicality and technical maturity of the proposed systems, and the availability and dependability of the supporting communications infrastructure. Some called for employing VHF radio, others proposed digital selective calling (DSC) or satellite subscriber services as the primary communications path between vessel mounted transponders and the main shore-based station. The system ultimately selected was a Meteor Communications Corporation (MCC) system using a VHF-FM marine radio on a frequency 44.58 MHz.

MCC has had approval to operate its AIS in Canada on 44.58 MHz for several years. It did not, however, have approval to operate on this frequency in the United States until recently. On May 27, 1997, the Federal Communications Commission (FCC) granted MCC a license to employ this frequency throughout the United States, including Alaska, Hawaii and Puerto Rico. With this common frequency, the ITOS base stations link directly to existing British Columbia base stations. This extends the area of coverage to Vancouver Island, the San Juan Islands, the Strait of Georgia and along the Inside Passage to Prince Rupert, British Columbia.

The Coalition determined that the MCC system met or exceeded all Coalition specifications. Subsequently, at a meeting on February 12, 1997, at Vancouver, British Columbia, the Coalition designated MCC as its supplier to provide the tug

tracking and monitoring system. The MCC system consists of the following:

- Transponders (modem, antenna, VHF-FM radio, GPS port, embedded DGPS receiver, microprocessor),
- Workstations with displays,
- System software,
- Data storage and management computers,
- Backup system components

The MCC system will provide automated position updates (30 second intervals) of participating tugs, produce a graphical representation of those positions, and provide tug course, speed and individual tug operating parameters.

The MAREX signed a Letter of Intent with MCC on May 30, 1997, that, among other things, required MCC to resolve all issues regarding base station and tug installation licensing. Subsequently, the MAREX and MCC concluded negotiations and signed a contract on July 16, 1997.

The MAREX and MCC report a functioning AIS installation with a limited number (10) of completed tug installations as of October 24, 1997. The MAREX plans to complete all tug transponder installations (approximately 106) by December 31, 1997.

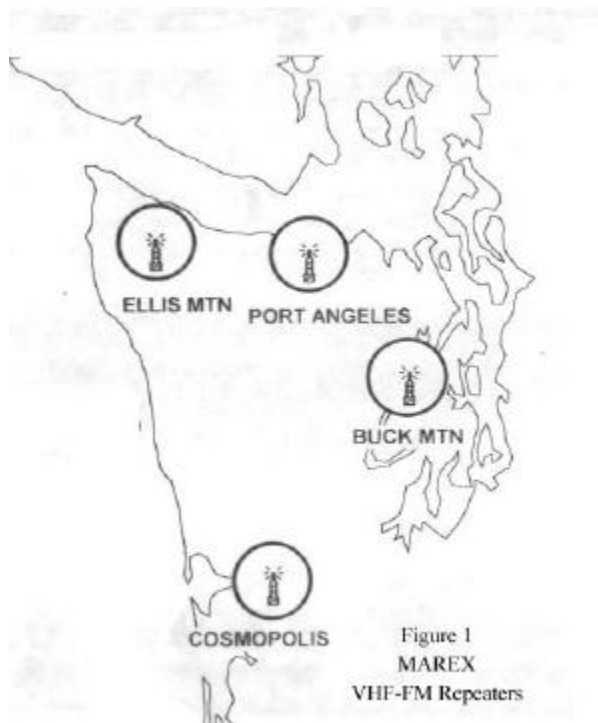
This meets the requirements for a functioning system and based on the current rate of installation, MCC will be able to meet the December 31, 1997 goal.

C. Extended VHF-FM Marine Radio Coverage

Radio coverage was required based on the statutory requirement for the ITOS plan to cover the Olympic Coast National Marine Sanctuary and the waters of the Strait of Juan de Fuca.

The MAREX currently has four VHF-FM marine radio transceiver sites located at Port Angeles, Washington; Cosmopolis, Washington; Buck Mountain near Quilcene, Washington; and Mount Ellis, Washington. These sites provide radio coverage to the following: 1) to Grays Harbor, Washington and the southern Washington coastal area (Cosmopolis); 2) the central and eastern portions of the Strait of Juan de Fuca (Port Angeles); 3) the Puget Sound (Buck Mountain) area; and 4) the western end of the Strait of Juan de Fuca or most of the waters of the Olympic Coast National Marine Sanctuary (OCNMS).

Figure (1) is a map showing the locations of the MAREX repeaters.



This coverage exceeds the statutory plan requirements.

D. ITOS Vessel Emergency Towing Packages

Included in the report to Congress, the Coalition identified a need to pre-position emergency towing equipment due to the apparent lack of emergency towing gear on board some deep draft commercial vessels. A single air-deployable towing package, which meets draft International Maritime Organization (IMO) provisions, was deemed by the Coalition to be adequate to meet this perceived need.

The Report to Congress identified the need for the ITOS Implementation Plan to address how often a deployable towing package might be used. No study has been done to determine the number of vessels lacking emergency towing gear. However, the USCG believes that use of such a package would be extremely infrequent, if ever, for the following reasons: (1) tankers are required to have this package; (2) tugs routinely carry towing gear; (3) a tug does not necessarily have to be made up to the disabled vessel in order to provide assistance; and (4) much of the equipment identified as part of the deployable package in the report to Congress is usually carried by merchant vessels.

The USCG and the Coalition have discussed the general concept of air-deployable towing packages. However, the Coalition has not yet formally approached the USCG to develop an agreement to perform any function in support of this element of the ITOS program.

The USCG believes that an additional emergency towing package would only be an enhancement to ITOS and is not a requirement critical to its success.

IV. TUG MATCHING PROCESS

This section will specifically address:

- tug database
- tug matching, and
- tug dispatch

A. Tug Database

In the report to Congress the Coalition's ITOS Plan called for developing a tug database. This database would contain information on each participating tug's specifications, equipment and operating characteristics. This information would be relevant to a vessel master choosing an appropriate tug to respond to a distress.

The Coalition completed the database in September, 1997. The database uses standard vessel equipment rating classifications to allow users to evaluate the comparative utility of participating tugs.

B. Tug Dispatch

During the development of the ITOS Implementation Plan, much deliberation centered on tug dispatch. The Coalition explored liability surrounding dispatch of tugs and determined that resource identification to a distressed vessel was all the Coalition could provide.

The USCG Captain of the Port may always exercise the statutory authorities in the Ports and Waterways Safety Act and Title 33 Code of Federal Regulations. Generally, the Captain of the Port will request and contract for tug services if the case warrants. However, the Captain of the

Port may direct vessel movement if necessary in the interest of the safety of vessels and/or the port.

C. Tug Matching

The report to Congress indicated that the industry plan should be expanded to ensure that requested tugs have the capability, equipment and skill to assist the requesting vessel. The Coalition's ITOS skeletal plan discussed the rating of tug resources but it did not specifically address matching tug performance with vessel need. The report to Congress did include a tug classification scheme developed during the public meeting process. This scheme can assist the Master of the disabled vessel or the U.S. or Canadian Coast Guard in defining an adequate assist vessel. The ITOS Implementation Plan does not match tug performance with vessel need. However, as stated in the cover letter to the plan, "ITOS will assist vessel Masters and the U.S. and Canadian Coast Guards by identifying the location and capabilities of the ITOS tugs in nearest proximity to a vessel requiring assistance". ITOS will use a standard vessel equipment rating classification system to ensure accurate comparison of the capabilities of participating ITOS tugs. The ITOS classification system will use information that tug companies and shipping industry representatives feel to be critical to a vessel Master in evaluating the appropriate use of a tug resource.

The scheme developed during the public meeting is a model that could be used as part of the development of the ITOS classification system. The ITOS database currently includes all of the operating characteristics necessary for a classification scheme.

The USCG believes that a classification scheme is an important part of the ITOS and encourages the Coalition to complete this facet of the system as soon as practicable. This will significantly simplify decision making by a vessel's master in a crisis. Once complete, appropriate outreach should be undertaken by the MAREX to educate vessels' masters. In the interim, the ITOS database has the information necessary for vessel Masters to make appropriate decisions. The scheme developed during the public meeting can be used by the USCG and Canadian Coast Guard as part of their decision making process.

V. FISCAL ADMINISTRATION

This section will specifically address:

- administration

- capitalization and loan amortization process, and
- dynamics of fee assessment

A. Marine Exchange of Puget Sound(MAREX)

The MAREX is a non-profit membership association incorporated under and observing the laws of the State of Washington. The U.S. Internal Revenue Service recognizes the MAREX as a tax exempt organization under Section 501 (c) of the Internal Revenue Code. The MAREX provides 24 hour a day communication and information services to the maritime trade industry of the Pacific Northwest. The MAREX provides VHF-FM radio, telex, mobile telephone, pager and answering services. In addition, the MAREX develops, maintains and stores up-to-date vessel arrival and departure data.

There are two classes of membership: member or associate member. Members are companies with the ability to directly influence the movement of commercial maritime vessels. Associate members are companies that provide services to the maritime industry. Member companies elect the Board of Directors as representatives of their companies. The MAREX has twelve employees: an executive director, an administration staff of five and an operations staff of six.

In its ITOS skeletal plan, the Coalition stated that the MAREX would implement ITOS. Since the report to Congress, the Coalition and the MAREX have worked together in close cooperation to bring to fruition the ITOS concept. April 1 and May 1 of this year represented major milestones in this relationship. With the concurrence of the Coalition at its April 1 meeting, the MAREX Executive Director hired an ITOS Project Manager to develop an ITOS Implementation Plan and associated documents. On May 1, the MAREX Board of Directors formally accepted the responsibility for the implementation of ITOS.

With this change, the ITOS becomes another service provided by the MAREX. The Board, rather than the Coalition, will now bear responsibility for setting ITOS policy. Representatives of the Coalition will serve on an ITOS Advisory Committee that will monitor the ITOS, and provide advice and assistance to the Board, as needed.

B. Capitalization and Loan Amortization

The MAREX indicated ITOS start-up costs are approximately \$490,000 and annual recurring costs range from \$84,000 to \$156,000. Assuming a five year payoff of capitalized

equipment and factoring in recurring costs, the MAREX and Coalition determined they would need to cover approximately \$267,000 a year. \$50.00 per arrival (for each commercial vessel of greater than 300 gross registered ton (GRT)) covers costs with an 80% or better level of voluntary participation. The \$50.00 per vessel arrival fee was formally adopted and is in effect for both Puget Sound and Vancouver, British Columbia bound shipping (since May 1, 1997). The MAREX has arranged loans to fund the initial purchase and installation of workstations, base stations and tug transponder equipment.

C. Fee Assessment

As noted above, MAREX has assessed a \$50.00 per vessel (each vessel greater than 300 GRT) arrival fee on calling ships since May 1, 1997. In Canada, the Chamber of Shipping of British Columbia assesses and collects the fee. It then forwards the receipts to the MAREX, less a service charge to cover Chamber of Shipping costs. In the U.S., billing of members and non-members is being accomplished through the pre-existing mechanism of the Washington State Maritime Cooperative (WSMC) invoice. In either case, collection of fees is the sole responsibility of either the Chamber of Shipping or WSMC.

VI. EXERCISES

This section will specifically address:

- operational validation
- unannounced exercises

The report to Congress recommended that operational validation of the system be incorporated into the ITOS program. Since the report to Congress, the tug dispatch system originally envisioned has been replaced by an information system. This change was necessary because of the legal liabilities inherent in the direct dispatch of tugs. Therefore, the unannounced exercise requirements for the ITOS have been modified.

In order to ensure the most appropriate exercise program, the USCG has continued an ongoing dialogue on this issue with members of the ITOS Coalition and the MAREX. As an outcome of these discussions, the MAREX indicated an agreement on the need for operational validation of ITOS. One of the most important aspects of their program is the ability of the maritime community to test the system at random intervals. This will be accomplished as follows:

Coalition members will call the MAREX with a disabled vessel scenario and request information concerning the nearest available tugs (including name, location, tug particulars, and tug company phone number). The MAREX has agreed to notify the Coast Guards at the beginning of these random tests to enable direct observation. The display in the respective Vessel Traffic Centers

provides the best vantage point for this independent observation. The importance of this exercise program is that all components of the information system are routinely checked and observed.

The MAREX also provided a short synopsis of the internal procedures for operational validation to the Commander of the USCG Thirteenth District on October 23, 1997. These are as follows:

Operationally, the Marine Exchange will assure uninterrupted operational readiness by performing the following functions:

- a. Daily electronic checks for signal transmission and reception at the base stations and the tugs outfitted with transponders;
- b. Daily Very High Frequency (VHF) radio checks with randomly selected participating tugs throughout the area of interest;
- c. Daily verification of the accuracy of tug position at the Marine Exchange base station monitor and transponder signal by making at least one contact with a tug via computer or voice;
- d. Daily voice communications with the United States and Canadian Coast Guards verifying the operation of the system and signal reception by them; and,
- e. Daily verification of any changes/updates made to the tug information database.

(For complete text of this letter see Appendix D)

In addition, in their ITOS Implementation Plan, the Coalition points out that the tug tracking (AIS) equipment is provided with a built-in, daily self-test feature. This feature tests the operational nature of the equipment vice the accuracy of the data. The voice communications component of the ITOS is an extension of the existing MAREX VHF-FM marine radio system that operates 24 hours a day, 365 days a year.

The provisions highlighted above will provide a good indication of system readiness and the feedback necessary to achieve continuous system integrity. They will enable the MAREX and the Coalition to do the following: 1) determine the preparedness of watchstanders; 2) clarify the roles and responsibilities of various parties; 3) validate policies and procedures; 4) serve as a training tool; 5) identify shortfalls; and 6) acquire and or verify operational data.

The USCG is continuing evaluation of the need for unannounced drills. The USCG will continue to monitor the progress of the MAREX of Puget Sound as industry implements ITOS.

VII. TRAINING

This section will specifically address:

- training of Coalition watchstanding personnel, and
- training of tug personnel

A. ITOS Watchstander Training

The primary focus of training in the Coalition's ITOS skeletal plan was on the ITOS watchstanders. The plan specified training in three areas:

1. Tug Tracking,
2. Tug Database,
3. Communications.

With regard to tug tracking, Meteor Communications Corporation (MCC) will provide system operating manuals for workstations and transponders on tugs, as required by its contract with the MAREX. It will also provide on-site training for this equipment.

With regard to the tug database, the MAREX intends to employ its existing Paradox database software to manage the tug database envisioned in the plan. The existing MAREX employees are familiar with the operation of this software. Nevertheless, if the MAREX hires any new ITOS watchstanders, it will employ in-house and or contracted training to familiarize them with the database software.

MAREX anticipates no new training for communications because they do not plan to hire new watchstanders. Current watchstanders are familiar with the system in place, e.g., standard radio procedures.

The USCG believes this training, coupled with the daily checks mentioned in the previous section, adequately covers the need for watchstander training.

B. Tug Crew Training

The Coalition's ITOS skeletal plan indicated that training may be developed for participating tug crews by qualified personnel. The report to Congress states: "The industry plan should be expanded to ensure that the tugs that are requested to assist a disabled vessel actually have the capability, equipment and skill to do so." With the exception of training in the operation and maintenance of the shipboard transponder units, the ITOS Implementation Plan submitted by the Coalition identifies no elements of a tug crew training program. The Coalition indicates that the skills necessary for this program are employed daily by personnel in this industry; the USCG agrees. While the use of Standards of Training, Certification and Watchstanding (STCW) was explored by the Scoping Risk Assessment (Appendix F), the USCG believes that the Master of any vessel is ultimately responsible for determining the readiness of the crew to respond to a given situation.

VIII. LEGAL AND CONTRACTUAL

This section will specifically address:

- ownership & custody of ITOS data
- Memorandums of Agreement
- agreements with towing vessel operators, and
- MAREX contract with Meteor Communications, Corp.

A. Ownership and Custody of ITOS Data

With the concurrence of the Coalition, the MAREX has made the determination that all ITOS data is proprietary and the exclusive property of the MAREX. The tug tracking workstations to be provided to the U.S. and Canadian Coast Guards will not be configured with either printers for printing screen display or database information, or significant memory for data storage other than the MAREX provided tug database. The database and transponder base stations will be available for use by the U.S. and Canadian Coast Guards. This availability will allow validation of system operation, direct observation of exercises and augment government tracking and decision making processes.

B. Memoranda Of Agreements with U.S. and Canadian Coast Guards

The Coalition plans to install tug tracking workstations at U.S. and Canadian Coast Guards' facilities, specifically at the Vessel Traffic Centers (VTCs) at Seattle, Washington and Vancouver, British Columbia. The MAREX has provided a draft Memorandum of Agreement (MOA) for consideration by both Coast Guards. The MOA addresses equipment installation, operation, maintenance, training and access to data. These drafts are presently under consideration by the respective parties. There appear to be no significant impediments to completing the agreements.

C. Agreements with Towing Vessel Operators

The MAREX is working with AWO and the Council of Marine Carriers to identify all tug operators and tugs to include in the first phase of AIS equipment installation. On May 14, 1997, the MAREX, AWO, and various U.S. tug operators met to review the ITOS project, tug database requirements, and tug tracking (AIS) equipment, and installation, maintenance and operations requirements. In addition, the MAREX held a meeting on June 11, 1997, at Vancouver, British Columbia with the Council of Marine Carriers and Canadian tug operators to address the same issues and subjects. The MAREX anticipated identifying all tug operators and specific tugs that would be participating in the ITOS program by August 31, 1997, and has done so.

D. MAREX Contract with Meteor Communications Corp.

In accordance with the contract with Meteor Communications Corp., MCC provided all the necessary tug tracking and monitoring (AIS) hardware, software and training to stand up a fully functioning tracking capability for those tugs outfitted with transponders by August 31, 1997. Plan expectations have been met as of this report.

IX. RESOLVED COMMENTS FROM THE PUBLIC

This section provides a comment resolution summary for comments gathered since the beginning of the ITOS development process. The USCG will provide a complete, detailed resolution of public comments in a future Federal Register.

Comments fell under 21 general categories:

- 1) ITOS focuses on prevention of drift groundings: The USCG agrees. This is the piece of the overall risk hazard environment which ITOS could address; the report to Congress on ITOS identified this limit.
- 2) Additional preventive measures are needed: This lies outside of the scope of this report. All suggestions relating to this topic were forwarded to those responsible for the Scoping Risk Assessment (Appendix F) and were included in their report. This included other potential measures garnered from public and expert input, as well as from research and system review.
- 3) The Area to Be Avoided (ATBA) and ITOS do not protect the OCNMS and entrance to the Strait of Juan de Fuca: A 12 month NOAA study on ATBA compliance will provide more definitive conclusions when complete. Early data from this study, taken with Army Corps transit data, suggests a very high level of ATBA compliance.
- 4) The ITOS Plan and draft report to Congress are superficial: Depth was added to the report to Congress; such comments provided a further basis for this Addendum Report. The broader topic of risk and the extent of other hazards was examined as indicated in number 3).
- 5) Documentation in the plan is inadequate: The report to Congress identified this very clearly; as a result, additional details were provided by the Coalition in their plan for this Addendum.
- 6) Response time criteria should be estimated differently: The CG took this matter under careful consideration and as a result requested a study by NOAA. The details of this effort and the resulting change to the response criteria are included under the section of this report entitled "Marine Safety Criteria".
- 7) ITOS towing information is inadequate: These comments were incorporated into the marine safety criteria in the report to Congress reviewing the ITOS Plan.
- 8) Criteria is needed for drills, exercises, sea keeping and stability: These comments were incorporated into the marine safety criteria in the report to Congress reviewing the ITOS Plan and in this Addendum.
- 9) Resources are not available to support ITOS: Based upon the current level of 106 tugs identified as ITOS participants, this statement may be incorrect. This will become more clear as implementation progresses.
- 10) System performance should be evaluated based upon tug availability: This is only one means to evaluate system capability. Adequacy should be based upon overall system performance, of which ITOS is one part. The USCG sees this as a tug-of-opportunity system. As such, ITOS related efforts are in addition to other programs that make up the marine safety regime. System performance

- should be addressed as to operational function alone and not a guarantee of tug availability.
- 11) Responsibility and accountability for response is unclear: The CG disagrees. Responsibility for operational contingencies rests, first and foremost, with the vessel master. Vessel masters who do not take timely action to resolve threats to their vessel, the port or the marine environment may be directed to take appropriate actions under existing laws and regulations.
 - 12) Coordination with Canada: Coordination with Canada is ongoing and has remained an important part of this process.
 - 13) Future shipping trends should be considered: This issue is certainly a concern from a risk assessment view point, as such it has a direct bearing on a determination of the potential study of further measures. However, the issue is not directly related to operational implementation of ITOS but was addressed in the Scoping Risk Assessment (Appendix F).
 - 14) Tribal treaty rights should be considered: The CG has kept its promise throughout this process to respect treaty rights and trustee responsibilities regarding Domestic Sovereigns. Consultations, meetings and direct exchange of information were maintained in a timely fashion throughout this process. Specific measures proposed by Native American Tribes for consideration were forwarded to those having responsibility for the Scoping Risk Assessment (Appendix F).
 - 15) ITOS Plan review and implementation processes were severely limited due to time: This concern was addressed directly by liberally granting extensions of timelines and deadlines to ensure all possible inputs could be gathered. In addition, a phased approach was undertaken to ensure appropriate inputs were gathered at each stage of the lengthy process.
 - 16) The draft report to Congress and plan need to be modified to fully address existing waterways requirements and related regulations: The report to Congress was modified to do show the existing components of the marine safety regime.
 - 17) Costs and other economic impacts of ITOS and other interventions are unclear: The exploration of costs and other economic impacts of interventions other than ITOS is reserved for Phase III of this process, if such a need is determined by the Secretary.
 - 18) ITOS Public-Private relationship is unique: The CG agrees that the implementation of ITOS represents a voluntary effort on the part of industry to undertake an incremental improvement to the marine safety regime and as such is unique.

- 19) ITOS is a significant contribution to system safety:
ITOS provides a contribution to system safety; the significance of this contribution remains to be determined. The AIS technology employed in ITOS has positive implications for the future of marine information management. The Public-Private relationship in the development of this private-sector initiative is most noteworthy and offers a potential model for cooperation in future endeavors.
- 20) The Ship Drift Analysis model was not clear regarding its details: The CG agrees that a more detailed explanation of the model used in this study could clear up confusion for those who commented. Therefore, a brief explanation was included in this report; a more thorough explanation will be included in the Federal Register.
- 21) The Ship Drift Analysis was not realistic enough: The analysis is based upon a model, the details of which are more fully explained as indicated under item 20). A model is a simplification of real life for prediction purposes. All models are by definition limited; the limits of this model are clearly set forth in this Addendum. The field of ship drift analysis is still emerging and differences in peer approaches to this

complicated problem lie outside of the scope of this Addendum. The CG stands behind the NOAA Ship Drift Analysis.

X. MARINE SAFETY CRITERIA

As identified in the report to Congress, the primary purpose of a tug of opportunity is to prevent drift groundings by controlling a drifting, disabled vessel. In preparation for the report to Congress, a risk survey including the geographic area of interest, tug availability, tug capabilities, response coverage areas and response times was conducted. Of these, the adequacy of response coverage areas and times needed to be revisited for this Addendum. The purpose of the marine safety criteria was to establish goals for internal government planning (including the contracting of assist vessels by the Captain of the Port covered under the section entitled "Tug Matching"). These goals were not to set performance criteria that industry would be mandated to attain. Industry has not and does not intend to incorporate these goals into the structure of ITOS.

The risk survey (conducted by Dr. John Harrald), provided a starting point for the two public meetings held in the Fall of 1996. These public meetings identified conflicting weather and current information. The absence of conclusive information related to weather and current conditions suggested the need for more extensive study. The National Oceanic and Atmospheric Administration (NOAA) was requested to conduct the study. The NOAA report is attached as Appendix E.

Taken together, the results of the NOAA study, the selected response times and the number of tugs that routinely transit the area of interest provide an assessment tool for this one aspect of the marine safety regime.

This section will specifically address:

- the requirement in the report to Congress to further review weather and current conditions
- review response goals in light of the NOAA study

A. NOAA Ship Drift Analysis Model

NOAA established a modeling approach including many factors in a Monte Carlo simulation. The main variable was wind speed. A more detailed explanation of this model will be included in the Federal Register.

The study results are graphic displays that provide probable ship drift locations as a percentage of wind speed within 12 hours of a vessel becoming disabled.

The efforts of NOAA toward the projection of ship drift offer an excellent step in the progressing art of modeling vessel drift. The reader is cautioned that drift analysis of ships is still controversial; this is due to the complex interaction of the various forces upon a vessel.

B. Drift Rate Selection

The NOAA study provided a broad range of possible drift rates but did not identify which rate should be selected. From the NOAA study, the USCG selected a drift rate of 6% of the wind speed for the following reasons:

- This rate is approximately twice the drift rate of a laden tanker (3% per various studies including, Prince William Sound Disabled Tanker Towing Study), and thus represents a conservative limit to allow for the uncertainties in drift modeling as well as for other vessel types.
- The 6% of the wind speed drift rate covers the 95th percentile of loaded and light tankers.
- It covers dry cargo vessel traffic.
- Based on conversations with experts in the fields of modeling and oceanography, the USCG believes this drift rate covers other vessel types, whether loaded or unloaded. The experts consulted during this process indicated that there is not an established rate for these vessels until their size falls well below the 300 gross registered tonnage mark. One expert pointed out that no vessel drift rate has been recorded at 8% of the wind speed.
- The Scoping Risk Assessment (Appendix F) indicates that the primary risk associated with these waters is from collisions. The secondary risk is from powered groundings. The tertiary risk is from drift groundings. Therefore, a drift rate should be chosen commensurate with that risk.

In addition to the above, there are several other factors which the USCG took under consideration in establishing the drift rate. The Volpe National Transportation Systems Center provided information included among these factors in its Scoping Risk Assessment (Appendix F) for the region. The offshore area (coverage areas 4, 4A, 5, 6, & 7) is characterized by the following:

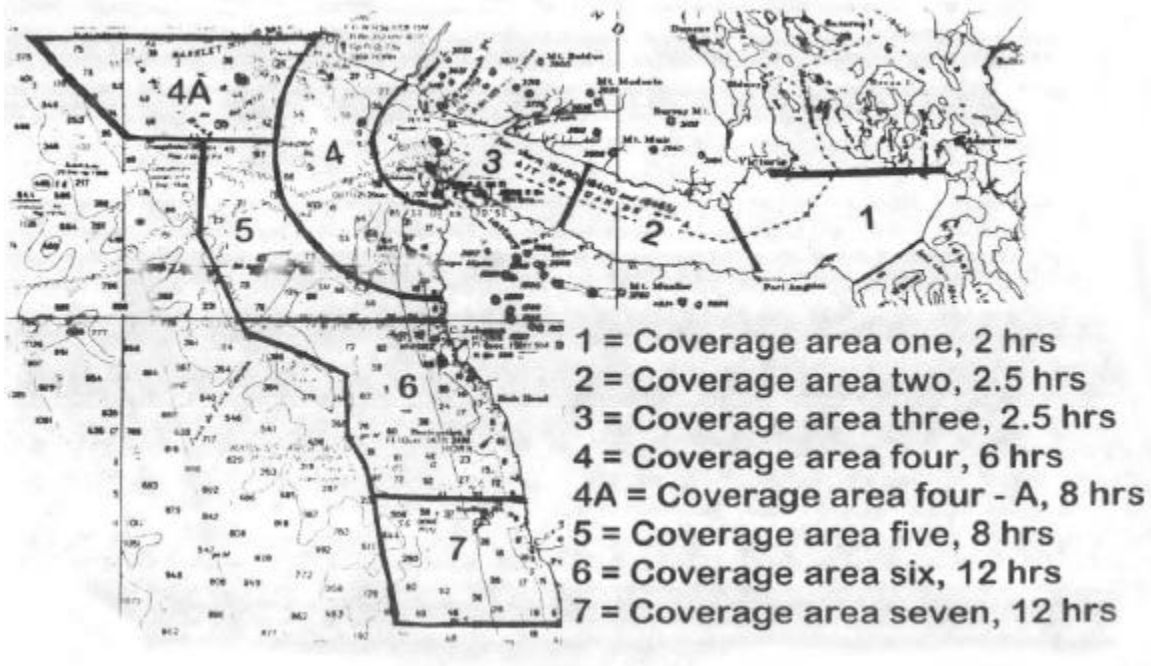
- 1) Percentage of Total Tonnage: 11% of the tonnage transiting the entire system passes into the system from the southern approach;
- 2) Traffic by Transits: 2% of the vessel traffic passing through this area is tanker traffic, 13% is dry cargo vessel traffic by transits, 85% are other than these;
- 3) Accidents by Segment: this area represents 3% of the total accidents by waterway segment;
- 4) Accidents by Type: of accidents by type the ITOS solution (ITOS applies to drift grounding) addresses 3% of total accident types for the waterway system;
- 5) Accidents by Ship Type: accidents by tankers comprise 5% and freighters 14% of the total for the system.

The potential range of vessel sizes and characteristics is wide. Neither NOAA nor the other experts contacted were able to identify a body of available literature for modeling other than tankers and recreational vessels. Among experts there is no clear consensus on all of the important factors in modeling and determining ship drift.

C. Modifications to Response Coverage Areas

In light of the NOAA study, and a selected drift rate of 6%, it became necessary to modify the response goals previously identified in the report to Congress.

Coverage areas 1, 2, 3, 6 and 7 remain unchanged. Areas 4 and 5 have been modified. Coverage area 4 has been expanded to include a 15 mile arc beyond coverage area 3 and remains unchanged respecting response time. Coverage area 4A has been added beyond this arc with an 8 hour response time. Coverage area 5 is reduced to reflect these changes in area as well as time (from 12 hours to 8 hours).



Coverage Areas
Figure 2

- Area 1: (2 hours) East of a line between Port Angeles Light to Race Rocks, on the north by a line from Discovery Island Light to Deception Island and on the east by the eastern boundary of the Strait of Juan de Fuca;
- Area 2: (2.5 hours) East of a line between Slip Point Light to San Simon Point and west of a line between Port Angeles Light to Race Rocks Light;
- Area 3: (2.5 hours) An area bounded on the east by a line between Slip Point Light to San Simon Point and on the west by a ten mile arc centered on Buoy "J";
- Area 4: (6 hours) An area bounded on the East by the 10 nautical miles (NM) westerly oriented, arc off Buoy "J" and a 25 NM westerly oriented, arc off Buoy "J";
- Area 4A: (8 hours) Beginning at the intersection of Coverage Area 4 and 48° 30' N; thence it follows the same latitude, 50 NM off of buoy "J" to the west; from thence to a point at 48°47'16" N, 125°13'21"W; the northern boundary is formed by a line drawn due east to Beale on the Canadian Shoreline where it intersects with the Coverage Area 4 boundary again at the 25NM arc off of Buoy "J";

- Area 5: (8 hours) An area bounded on the east by a 25 NM arc off of Buoy "J" until it reaches the latitude 48° 30'00"N; thence it follows the same latitude to 125° 40'54"W; thence southward to 48° 15'00"N, 125° 40'54"W; thence shoreward to 48° 07'33"N, 125° 38'20"W; thence to 48°00'00"N, 125° 31'12"W and thence due east along the same latitude to shore;
- Area 6: (12 hours) An area bounded on the north by the southern boundary of Area 5 thence from latitude 48° 00'00"N, 125° 31'12"W to 47°57'13"N, 125°29'13"W; thence to 47°50'01"N, 125°05'42"W thence to 47°40'05"N, 125° 04'44"W; thence 47°35'05"N, 125°00'00"W; thence to 47°30"N, 124°59'41"W and due east to shore;
- Area 7: (12 hours) An area bounded on the north by Area 6 thence from 47°30'N, 124°59'41"W to 47° 07'45"N, 124° 58'12"W; thence due east to 47°07'45"N, 124°11'02"W;

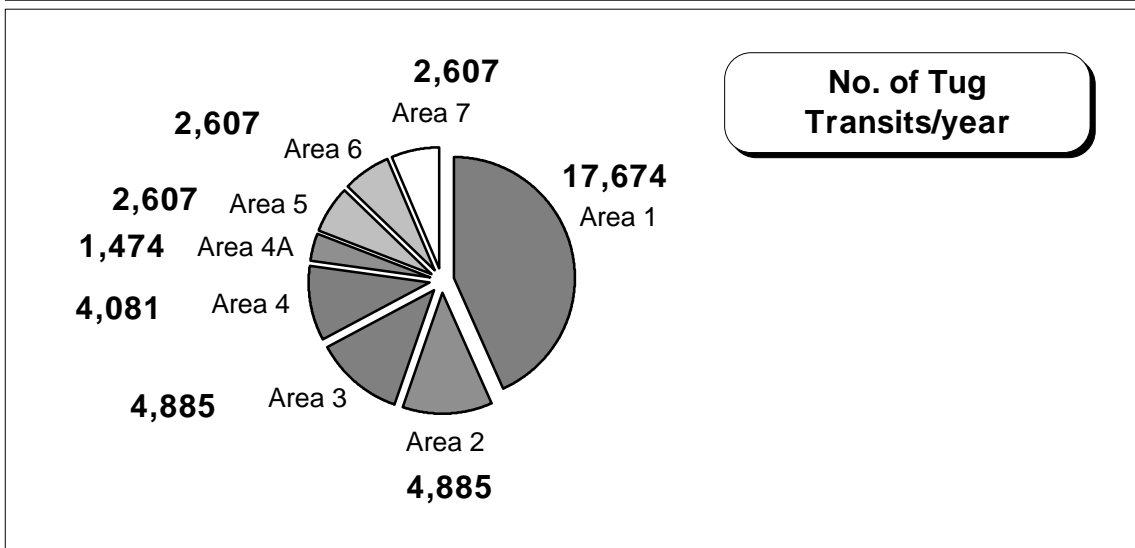
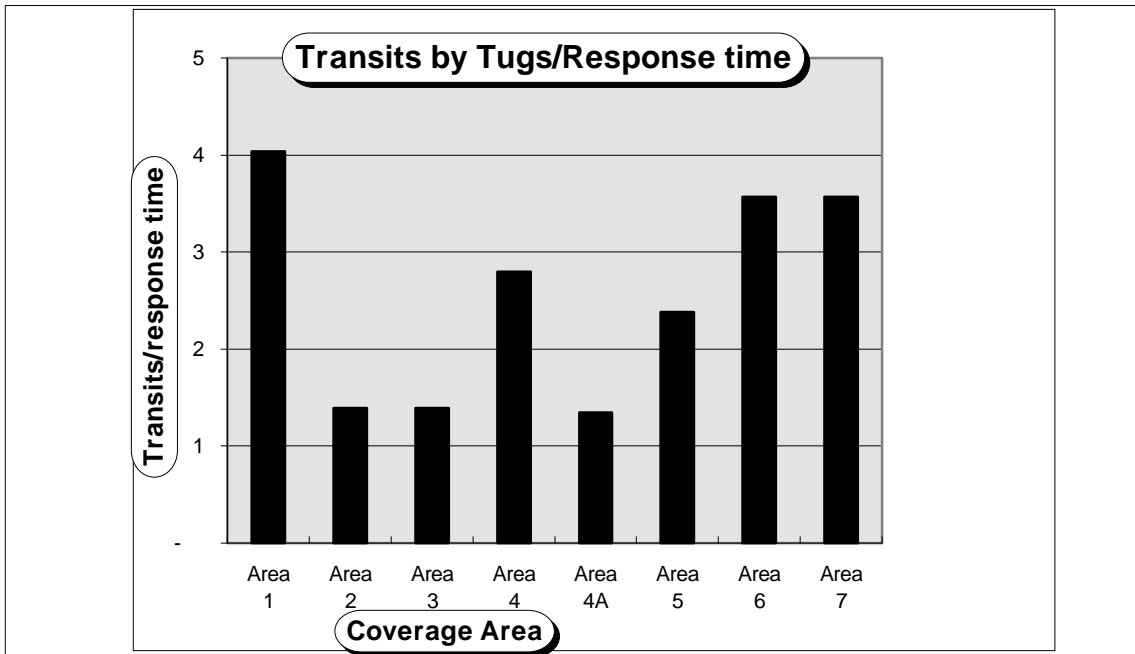
D. Tug Transit Summary Data for Coverage Areas

Tug transit data was previously considered in the report to Congress. The report to Congress used a direct survey of tug companies (conducted by the MAREX) over a 51 day period as the baseline tug transit data. The Scoping Risk Assessment (Appendix F) uses Army Corps of Engineers data over a one year period. Due to the more comprehensive time period and a request from the Department of Transportation, this data is used in this section. The data summary provides total tug transits, averages these transits based upon 365 days per year and further considers these averages in each response coverage area. The graph entitled, "Transits by Tugs/Response Time" shows that there is, on average, at least 1 one available tug resource for each coverage area at any given time. The graph entitled "No. Of Tug Transits/Year" provides a visual representation of the total annual tug transits per coverage area.

Note: It is important to note that this is a static representation and therefore does not account for seasonal and diurnal fluctuations, which may have some impact. However, this static representation provides a good benchmark that may be updated as the system is updated and information becomes available.

Army Corps of Engineers Transit Data (Scoping Risk Analysis)

	Totals	Response time	Average # tugs per area per response time
Area 1	17,674	2 hrs	4
Area 2	4,885	2.5 hrs	1
Area 3	4,885	2.5 hrs	1
Area 4	4,081	6 hrs	3
Area 4A	1,474	8 hrs	1
Area 5	2,607	8 hrs	2
Area 6	2,607	12 hrs	4
Area 7	2,607	12 hrs	4



XI. CONCLUSIONS

Since the report to Congress, and as noted in the body of this Addendum report, substantial progress has been made towards implementation. The goal of December 31, 1997 for completion of the system appears realistic.

The USCG encourages voluntary efforts on the part of the marine industry to enhance marine safety. The Coalition's efforts augment federal, state and local provisions for marine safety and should be facilitated. The USCG stayed close to the charter documents in the scope of work related to this development process. Although outside the boundaries for the ITOS Implementation Plan, many suggestions for enhanced marine safety were identified by various stakeholders who participated in the public comment process. These comments were forwarded directly to those responsible for the Scoping Risk Assessment (Appendix F) and were included in their report.

As underscored in the Report to Congress and stated in the findings of the Scoping Risk Assessment, the existing safety system has many well established assets including: cooperative vessel traffic control, port state controls by the U.S. and Canadian governments and Washington State, American and Canadian aids to navigation, and a variety of special measures like tanker size limits, tug escorts, and navigational restrictions. There are also a number of recent measures whose full effects are yet to be felt, including OPA 90 double hull replacement and international crew and organization standards.

The Coalition set the framework, transformed the original concept document into an action plan with concrete steps for implementation, established an implementation schedule and signed a contract for a system that organizes and tracks available tug resources. The ITOS provides an incremental enhancement to the marine safety regime in the region.

XII. APPENDICES

For information regarding appendices please contact CDR William Carey D-13 (mor)
telephone (206) 220-7210.

A. Appendix A - USCG Letter re Addendum requirements.

USCG Commandant Letter to
USCG Thirteenth District re
Addendum Requirements
Dated June 3, 1997

B. Appendix B - ITOS Implementation Plan

International Private Sector
Tug of Opportunity System
Implementation Plan
Dated July 7, 1997

C. Appendix C - Canadian Coast Guard letter

Letter from Canadian Coast Guard
Dated June 5, 1997

D. Appendix D - MAREX letter re Operational Testing

Letter from MAREX
Dated October 23, 1997

E. Appendix E - NOAA Ship Drift Analysis

Ship Drift Analysis
for the
Northwest Olympic Peninsula
and the
Strait of Juan de Fuca
Dated May, 1997

F. Appendix F - Scoping Risk Assessment

Scoping Risk Assessment
Protection Against Oil Spills
in the Marine Waters of
Northwest Washington State
July 18, 1997