

**HALIFAX HARBOUR SOLUTIONS,
COMMERCIAL FISHERIES OF HALIFAX HARBOUR**

HALIFAX REGIONAL MUNICIPALITY

PROJECT NO. 14368-0004

REPORT TO

HALIFAX REGIONAL MUNICIPALITY

ON

**HALIFAX HARBOUR SOLUTIONS,
COMMERCIAL FISHERIES OF HALIFAX HARBOUR**

**Jacques Whitford Environment Limited
3 Spectacle Lake Drive
Dartmouth, NS B3B 1W8
Tel:(902)468-7777
Fax:(902)468-9009**

October 1, 1999

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1.0 INTRODUCTION

1.1 Background

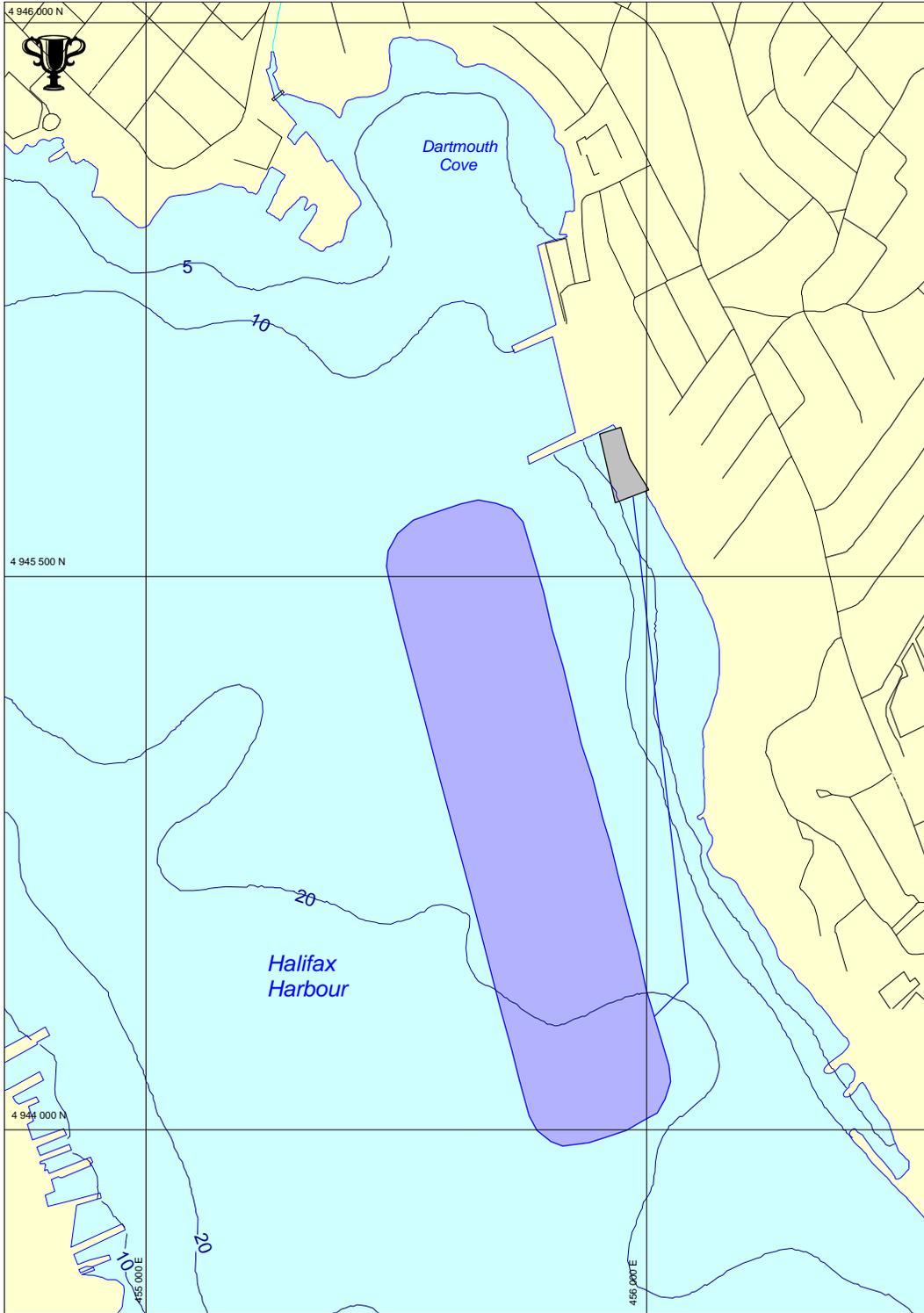
The current state of the Halifax Harbour shows significant pollution effects from the discharge of untreated sanitary, storm and combined sewer outfalls. In recognition of these effects the Halifax Harbour Task Force set out desired water quality objectives for various areas of the harbour. In order to facilitate these improvements the Harbour Solutions Advisory Committee has developed a set of recommendations to advance the project. A Concept Plan has been adopted by the Halifax Regional Municipality which is projected to meet the desired water quality objectives.

This plan involves the development of four advanced primary level treatment plants, which will be phased in over time. In this strategy one plant would be located in Herring Cove to service the south mainland. Two plants, one located south of the harbour narrows and another on the south end of Halifax Peninsula, would service Halifax. The fourth plant would be located in the Dartmouth Cove area to service Dartmouth. Along with the treatment facilities, sewer diffuser outfalls would also be required. The locations of the four plants and their corresponding outfalls are detailed in Figures 1 to 4.

As part of a program of environmental studies the Halifax Regional Municipality requested Jacques Whitford Environment Limited (JWEL) to carry out a series of Oceanographic Baseline Studies including: a Marine Benthic Habitat survey; a Sediment Quality study; a Commercial Fisheries study, and; an Archaeological and Heritage Resources Assessment. This document reports on the Commercial Fisheries component of the baseline studies.

1.2 Objective

The purpose of this component study was to update commercial fisheries and fish holding facilities data presented in documents from the HHCI Environmental Assessment (JWEL 1992) and Component Study Reports (JWEL 1991) relative to the four proposed sewage treatment plant and diffuser facilities and to provide a summary of potential environmental effects of the proposed project on these resources. Also included was a review of the Report of the Federal-Provincial Environmental Assessment Review Panel for the Halifax-Dartmouth Metropolitan Wastewater Management System (Canada-Nova Scotia Environmental Assessment Panel 1993). Specifically, the update focuses on verifying fishing activities including species fished, season and gear used around the areas of the four proposed sewage treatment plant diffuser locations, as identified by the Halifax Harbour Solutions project (Figures 1 to 4).



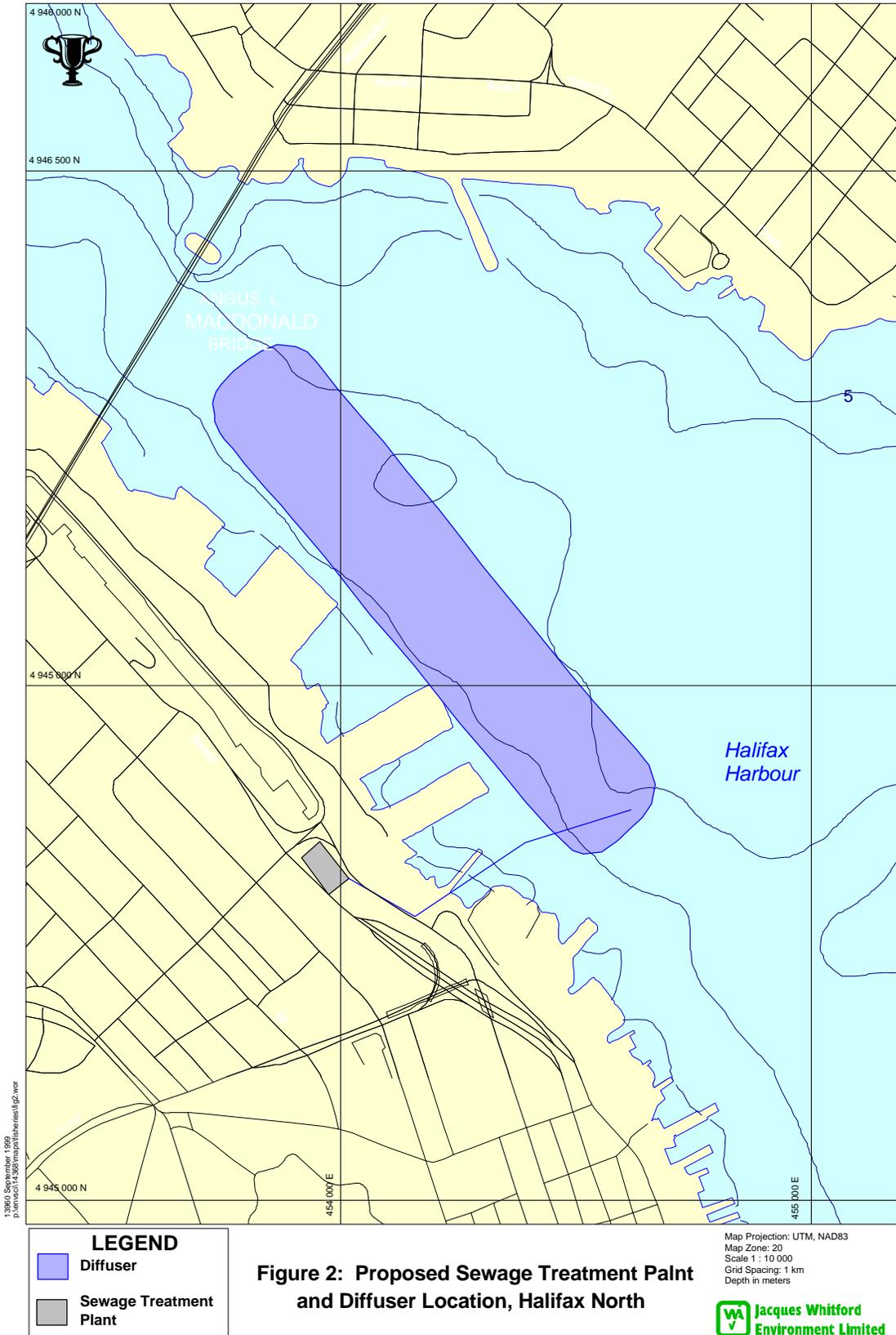
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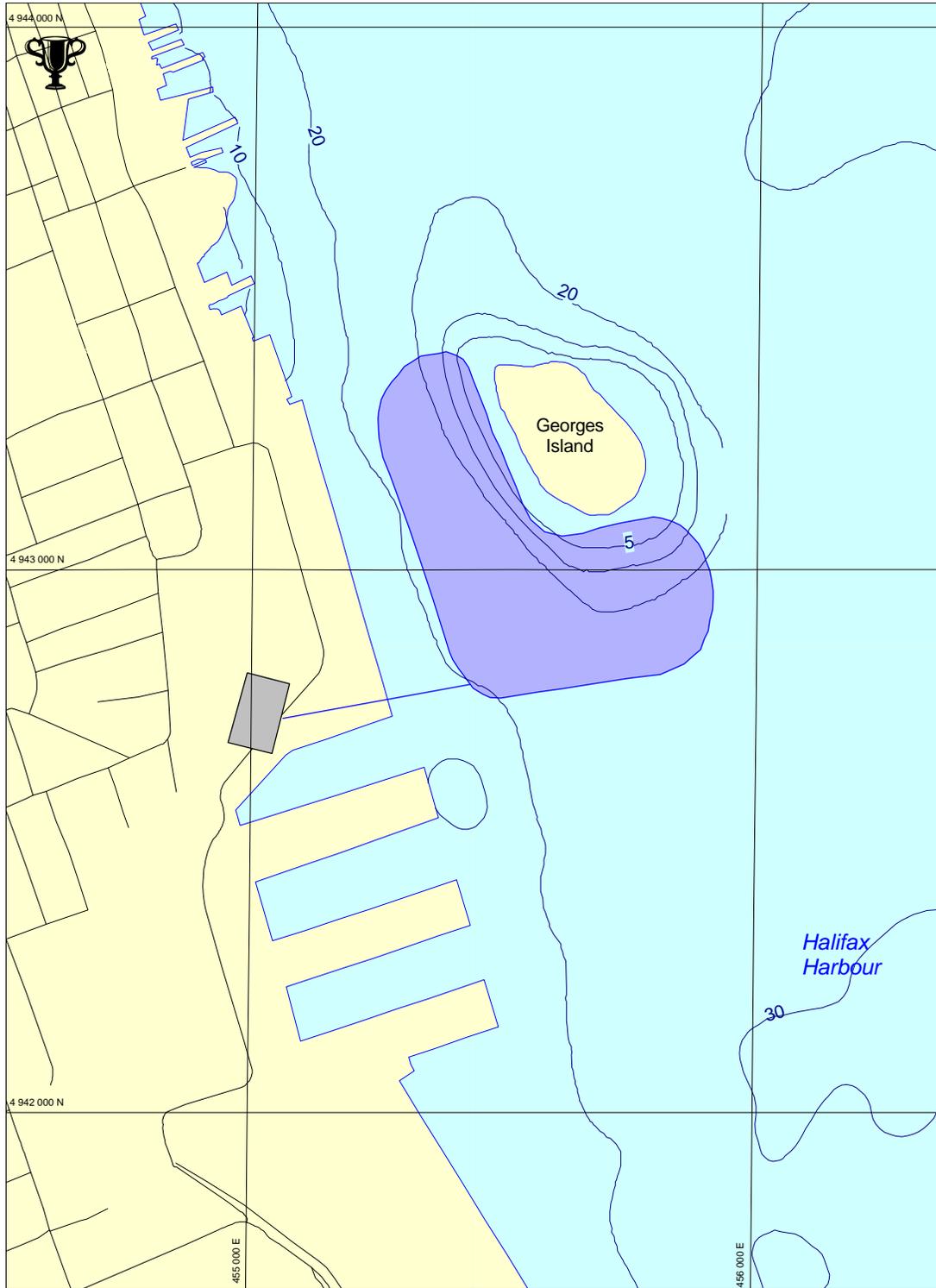
- Diffuser
- Sewage Treatment Plant

Figure 1: Proposed Sewage Treatment Plant and Diffuser Location, Dartmouth

Map Projection: UTM, NAD83
 Map Zone: 20
 Scale 1 : 10 000
 Grid Spacing: 1 km







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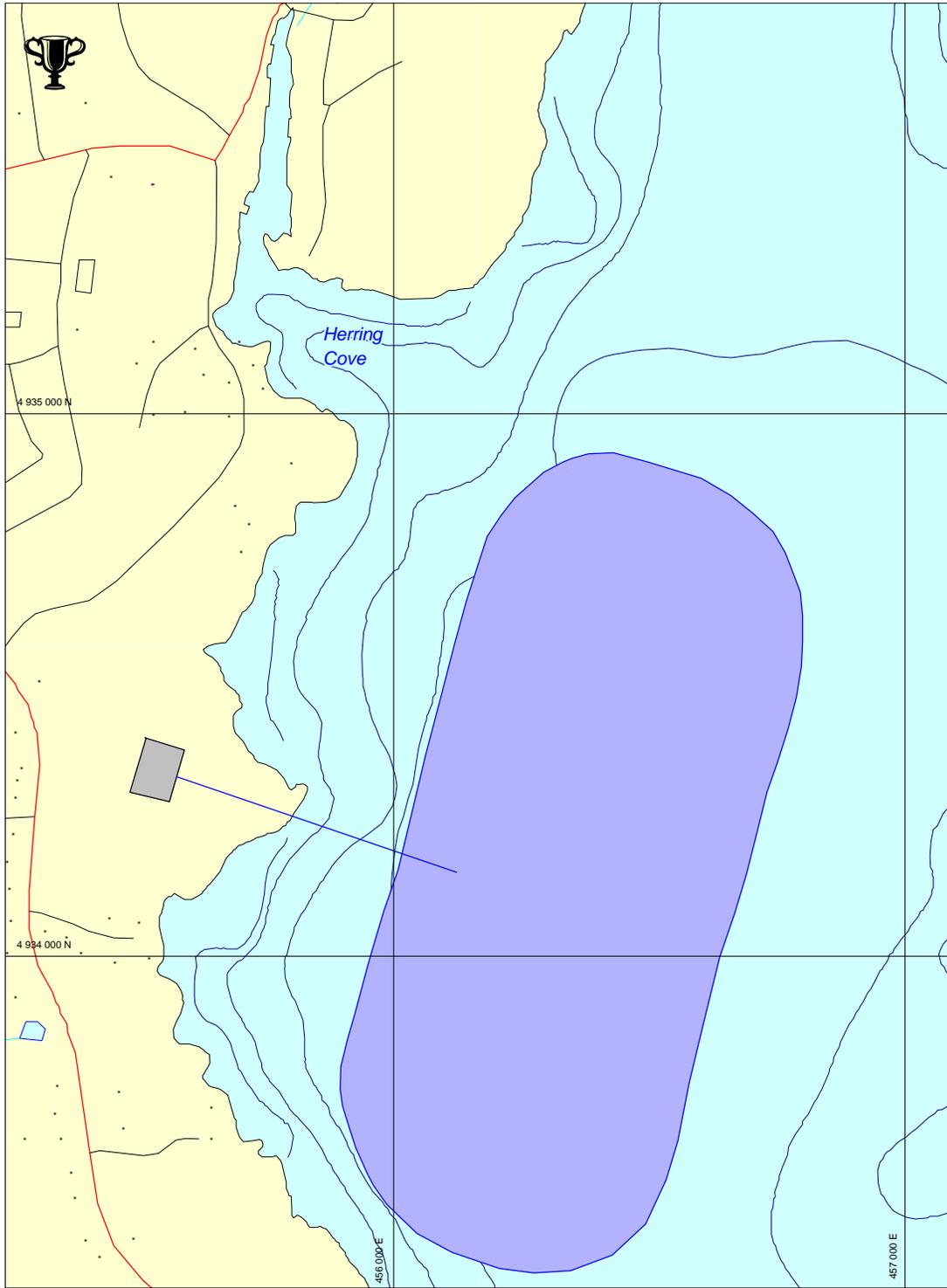
LEGEND

- Diffuser
- Sewage Treatment Plant

Figure 3: Proposed Sewage Treatment Plant and Diffuser Location, Halifax South

Map Projection: UTM, NAD83
 Map Zone: 20
 Scale 1 : 10 000
 Grid Spacing: 1 km
 Depth in meters





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- Diffuser
- Sewage Treatment Plant

Figure 4: Proposed Sewage Treatment Plant and Diffuser Location, Herring Cove

Map Projection: UTM, NAD83
 Map Zone: 20
 Scale 1 : 10 000
 Grid Spacing: 1 km
 Depth in meters



1.3 The Study Area

The identified study area for this report is the outer boundary of Halifax Harbour, including all waters from the entrance of the Bedford Basin south to a line running between Chebucto Head on the west side of the harbour to Devils Island on the east side. Specific information was also sought on the fishery activities that are undertaken in the areas of the proposed diffuser locations (Figures 1 to 4) including the waters:

- 1) between the Canadian Coast Guard Base and N.S. Hospital (Dartmouth);
- 2) between the Naval Dockyard and Karlsen's Wharf (Halifax North);
- 3) south of Georges Island, off Pier 22 (Halifax South); and
- 4) off Hospital Point between Tribune Head and Halibut Bay (Herring Cove Area).

1.4 Report Organization

Following this introduction, Section 2.0 presents the methods used in collecting the data for this report and Section 3.0 presents the results of the investigation. Section 4.0 discusses the concerns raised during the study and also discusses the potential environmental effects of the proposed sewage treatment project on commercial fisheries. Section 5.0 provides a conclusion and supporting information is contained within the appendices.

2.0 METHODOLOGY

Information and data was gathered from a variety of sources including a review of recent literature concerning commercial fisheries in the Halifax area, and interviews. Literature searches were completed on a variety of abstract or library databases. Library catalogue systems that were searched included:

- NOVANET - an electronic catalogue for universities within Nova Scotia including all local universities in Halifax which contains listings of government, private publications as well as current journal and series subscriptions.
- WAVES - catalogue of the libraries of Fisheries and Oceans Canada.

Abstract databases that were searched included:

- ASFA - a database which posts current abstracts and publication information relevant to Aquatic Sciences and Fisheries Abstracts.
- CISTI - an abstract service provided on information pertaining to the Canada Institute for Scientific and Technical Information (National Research Council).

Interviews were conducted with a variety of fisher associations, fish holding facilities, individual fishers and Fisheries Officers. Where possible, a questionnaire and map was provided to gather feedback in written format (see example in Appendix A). Where this was not possible, a telephone interview was conducted to respond to the questionnaire. Fisher associations were not a successful route for communicating with the fishers as the majority of the members were involved with fishing activities and could not be reached for their input. A list of persons interviewed or contacted in reference to this project is presented in Appendix B.

Statistical landing data and licencing information was obtained from Resources Allocation Branch of Fisheries and Oceans Canada. Specific information was requested on the landings and number of licences for the home ports located within Halifax Harbour.

3.0 EXISTING CONDITIONS

3.1 Commercial Fisheries

3.1.1 Licencing and Landings

All commercial fisheries are regulated through the issuance of commercial licences by Fisheries and Oceans Canada. Various methods are used to control the amount of harvested fish (landings). The lobster fishery, for example, is controlled through the licence to fish in a defined area (e.g. lobster fishing area 33 for study area). Other control methods include a quota of allowable catch weight for a particular species such as haddock or pollock, or the imposition of trip limits or by-catch quotas as imposed on the haddock and cod fisheries in Area 20.

Halifax Harbour falls within the boundary of the Northwest Atlantic Fisheries Organization (NAFO) division 4W. Both cod and haddock continue to be under direct moratorium for directed fisheries within the 4W division. The moratoria were implemented in 1993 for the cod fishery and in 1994 for the haddock fishery. Both species are currently harvested on a limited basis under strict by-catch provisions of other directed groundfish fisheries.

Licencing data for the 1999 season was obtained for the home ports within the study area. The data is presented by species fished and by registered vessel class used to harvest the species. Table 1 presents the number of current licences for each home port within the Halifax Harbour study area. It should be noted that not all of the licences issued are currently being used, therefore, there may be discrepancies between licence data and verbal interview accounts of the number of fishers actively involved in a fishery.

Table 2 displays the landings data for all of the home ports within Halifax Harbor including Dartmouth, Eastern Passage, Herring Cove, Portuguese Cove, Purcell's Cove and Woodside. Due to confidentiality restrictions on obtaining commercial fisheries data for any species with less than three fishers per home port, all of the data has been presented in summary for the entire study area, including the total landings and values for the years 1996 and 1997, from both offshore and inshore fisheries. At the time of this report, final data was not available for either 1998 or 1999. It should also be noted that the landed values given are not necessarily associated with vessels registered to those home ports. For example, an offshore herring fleet based in another port may land herring in Halifax for shipment to processing plants elsewhere.

Table 1 1999 LICENCING DATA FOR HOME PORTS WITHIN PROJECT STUDY AREA

| | | Total Number of Issued Licences for Individual Species | | | | | | |
|--|-------------------------|---|-----------|-----------|--------------------------------|----------|-----------|------------------|
| Home port | Vessel Length Class (m) | Groundfish ¹ | Herring | Mackerel | Lobster ² | Shark | Swordfish | Tuna |
| Bedford | 13.4 - 19.5 | 3 (4Vn) | 0 | 0 | 0 | 0 | 0 | 0 |
| Dartmouth | 0 - 13.4 | 2 (4VWX, 5) | 2 | 2 | 1 (Cat A) | 0 | 0 | 0 |
| Eastern Passage | 0 - 13.4 | 21 (4VXW, 5) | 22 | 22 | 16 (Cat A) 1 (Cat B) | 1 | 11 | 0 |
| | 13.4 - 19.5 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| Halifax | 0 - 13.4 | 11 (4VXW, 5) | 6 | 5 | 2 (Cat A) | 0 | 4 | 1 (NAFO 4 Wd) |
| | 13.4 - 19.5 | 4 (4VXW, 5) | 0 | 0 | 0 | 0 | 0 | 0 |
| | >30.5 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Herring Cove | 0 - 13.4 | 6 (4VXW, 5) | 7 | 7 | 3 (Cat A) | 0 | 1 | 0 |
| Portuguese Cove | 0 - 13.4 | 2 (4VXW, 5) | 3 | 3 | 2 (Cat A) | 0 | 0 | 0 |
| Purcell's Cove | 0 - 13.4 | 0 | 2 | 2 | 0 | 0 | 0 | 0 |
| Total Licences for Halifax Harbor | | 50 | 42 | 41 | 24(Cat A) 1 (Cat B) | 2 | 17 | 2 |
| ¹ NAFO Subdivisions - | | Groundfish licences are issued with stipulations as to which areas can be harvested based on boundaries established by the North Atlantic Fisheries Organization (NAFO) | | | | | | |
| ² Licence Categories - | | Category A is a transferable licence with a trap limit of 250 Category B is a non-transferable licence with a trap limit of 75 | | | | | | |

Table 2 TOTAL LANDINGS BY SPECIES FOR HOME PORTS OF DARTMOUTH, EASTERN PASSAGE, HERRING COVE, PORTUGUESE COVE, PURCELL'S COVE AND WOODSIDE

| SPECIES | 1996 Total Landings | 1996 Total Value | 1997 Total Landings | 1997 Total Value |
|--------------------------------------|-------------------------------|------------------|-------------------------------|------------------|
| | (Metric tonnes, round weight) | (\$000's) | (Metric tonnes, round weight) | (\$000's) |
| Groundfish | | | | |
| Cod | 47 | 65 | 58 | 90 |
| Haddock | 42 | 61 | 49 | 87 |
| Redfish | 437 | 182 | 585 | 247 |
| Halibut | 57 | 369 | 78 | 553 |
| Greysole (Witch) | 0 | 0 | 0 | 2 |
| Greenland Turbot | 0 | 0 | 5 | 6 |
| Pollock | 26 | 23 | 25 | 21 |
| White Hake | 250 | 1668 | 221 | 215 |
| Silver Hake | 1 | 0 | 307 | 327 |
| Cusk | 20 | 18 | 39 | 37 |
| Wolffish | 1 | 0 | 1 | 1 |
| Monkfish | 0 | 0 | 11 | 6 |
| Roundnose Grenadier | 0 | 0 | 1 | 1 |
| Red Hake | 0 | 0 | 3 | 1 |
| Groundfish Total | 882 | 887 | 1387 | 1597 |
| Pelagic and other finfish | | | | |
| Herring | 10929 | 1527 | 16524 | 2031 |
| Mackerel | 36 | 16 | 3 | 2 |
| Swordfish | 2 | 22 | 2 | 20 |
| Bluefin Tuna | 31 | 745 | 60 | 1442 |
| Alewives (Gaspereau) | 4 | 1 | 0 | 0 |
| Eels | 0 | 18 | 0 | 24 |
| Skate | 74 | 27 | 334 | 110 |
| Dogfish | 0 | 0 | 1 | 0 |
| Shark | 116 | 162 | 365 | 802 |
| Pelagic & Estuarial Total | 11192 | 2518 | 17291 | 4433 |
| cont... | | | | |

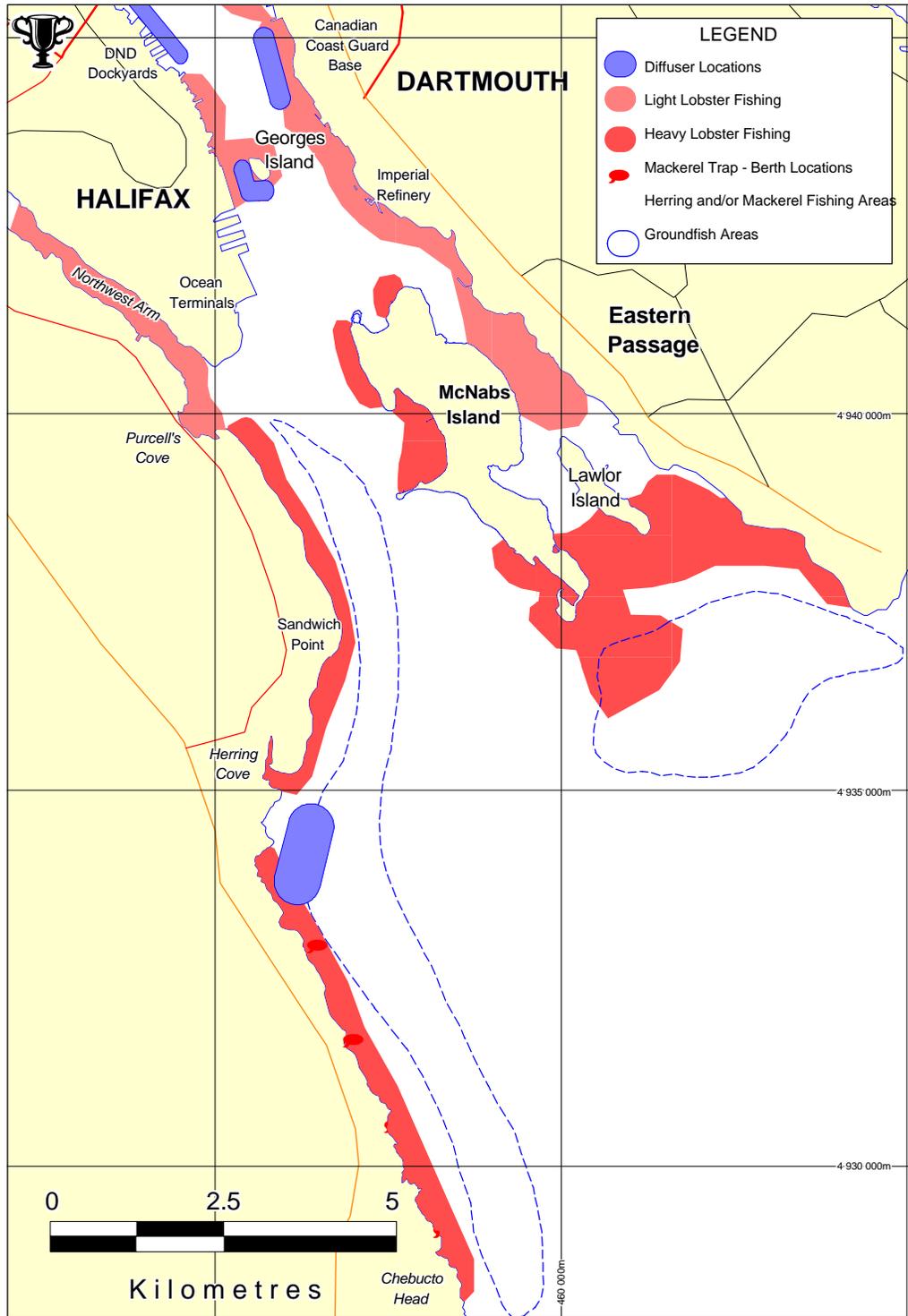
| SPECIES | 1996 Total Landings | 1996 Total Value | 1997 Total Landings | 1997 Total Value |
|---|-------------------------------|------------------|-------------------------------|------------------|
| | (Metric tonnes, round weight) | (\$000's) | (Metric tonnes, round weight) | (\$000's) |
| Shellfish & Mollusc | | | | |
| Squid | 0 | 0 | 1 | 1 |
| Lobster | 26 | 284 | 31 | 347 |
| Red Crab | 212 | 392 | 136 | 246 |
| Sea Urchin | 0 | 0 | 0 | 0 |
| Shellfish Total | 238 | 676 | 168 | 594 |
| Other | | | | |
| Marine Plants | 0 | 0 | n/a | n/a |
| Sea Urchins | 1 | 2 | 0 | 0 |
| Fish Parts (livers, fins, oil, skins, etc.) | 0 | 54 | 0 | 0 |
| Other Total | 1 | 56 | n/a | n/a |
| ALL SPECIES TOTAL | 12313 | 4136 | 18961 | 6763 |

Source: 1996, 1997 Landed Quantities and Value by Species, Commercial Data Division, Fisheries and Oceans, Scotia-Fundy

3.1.2 Commercial Fishery Activities

3.1.2.1 Lobster Fishery

The season for Lobster Fishing Area 33, which includes Halifax Harbor, is active between the last Monday in November and May 31. Figure 5 illustrates lobster fishing areas. The majority of the fishers in the Halifax area fish with 250 traps, using a transferable Category A licence that can be sold at a later date. The vessels used in this fishery are less than 13.7 m in length and generally have a crew of two or three. At the end of the 1998 - 1999 season, there were a total of 17 licences from Eastern Passage, five licences from Herring Cove, two from Portuguese Cove and one from Purcell's Cove (B.E. Sullivan, pers. comm. 1999). The majority of the lobster fishing activity within the harbor occurs south of a line between the Halterm Container terminals and the Imperial Oil Refinery. The areas of greatest activity still continue to be the western shore of the harbour, south of Ferguson's Cove and the area south of McNabs Island, known as the Thrumcap Shoal.



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Map Projection: UTM, NAD83
 Map Zone: 20
 Scale 1 : 75 000
 Grid Spacing: 5km

Figure 5:
Approximate Locations of Commercial Fisheries Activity in Halifax Harbour



There are reports of one fisher from Purcell's Cove who fishes throughout the entire harbor on the western side (Halifax), including the two proposed diffuser locations for Halifax Peninsula North and South. Occasionally, other fishers from the western shore of the Harbour have fished in the more protected harbor waters during the periods of bad weather experienced in January through March (T. Hennebury, pers. comm. 1999).

Similarly, fishers from Eastern Passage also move some of their traps inside to the north of McNabs Island during periods of heavy weather. These fishers fish the eastern side of the harbor from Eastern Passage north to the entrance of the Bedford Basin. There are reports of three fishers from the Eastern Passage area who fish throughout the harbor on a regular basis, with their full complement of traps inside for as much as two full months of the season (T. Hennebury, pers. comm. 1999). The proposed location for the ocean diffuser at the Coast Guard Base in Dartmouth is within what is considered to be productive lobster habitat that is fished regularly by at least two fishers, and occasionally by any of the other fishers from Eastern Passage.

The proposed location of the ocean diffuser in the Herring Cove area is also located in what is considered to be productive habitat for lobster fishing. Fishers from all of the western shore ports of Halifax Harbor fish the entire length of the coastline between Purcell's Cove and Chebucto Head. Comments were made that Watley's Cove is no longer a productive harvest area for lobster possibly due to the poor quality of the water and habitat due to the existing outfall.

3.1.2.2 Pelagic Fishery

Herring and mackerel are the two principle pelagic species that are fished regularly in Halifax Harbor. Figure 5 illustrates herring and mackerel fishing areas. Within the harbor, both of these species are fished primarily as a bait source for the groundfish and lobster fisheries and, to a lesser extent, for human consumption. There were no reports of herring being fished in the harbor as part of the herring roe fishery. Other pelagic species that are fished in the Halifax Harbor area include gaspereau, which have a spring migration up the Sackville River and on rare occasions, bluefin tuna which have been caught within the bounds of the harbor (B.E.Sullivan, pers. comm. 1999).

The herring fishery in Halifax Harbour is typically undertaken using either drift nets, gill nets or hand lines. These fishing methods are considered fixed gear and as a result, harvesting is controlled by the quota that is assigned to the fixed gear fleet for the coastal Nova Scotia herring stock in Area 20. There are currently 42 licences issued for fishers within the Halifax Harbour area, some of which belong to the Eastern Nova Scotia Fishermen's Protective Association and others which belong to the Halifax West Commercial Fishermen's Association.

Herring are fished mainly along the outer reaches of the harbour, south of Point Pleasant Park and south of McNabs Island using gill or drift nets. The season for the herring fishery is 12 months throughout the year, however, the herring are typically fished according to the timing of the runs along the coast. The spring herring run starts in late February and continues into March and April, while the fall run usually starts in September (R. Young, pers. comm. 1999). Some fishers have reported fishing for herring throughout the harbour and even as far north as Mill Cove in the Bedford Basin. The proposed site of the ocean diffuser in the Herring Cove area falls directly within a reported major herring migration path that is heavily fished by both Eastern Passage and the western shore fishers.

Although the season is open from June 1 to December 31, mackerel is predominantly fished as a source of bait for the lobster or groundfish fishery from late summer to early fall. This fishery also corresponds to timing of the mackerel runs, usually with an early summer run and a later fall run, and is most active in the outer reaches of the harbour where the mackerel travel along the shoreline in tighter schools. Mackerel are harvested using gill nets and hand lines as well as mackerel traps, which are typically set along the western shore of the harbour between Fergusons Cove and Chebucto Head. There have been approximately four traps or berths reported for this area (B. Sullivan, pers. comm. 1999).

Mackerel is also a very popular recreational species. The entire harbour area is subject to recreational fishers in both pleasure crafts and from the shoreline in select locations. There is no recreational catch limit for this fish and the season is generally from June to the end of the Labour Day weekend in September. Mackerel are likely to be fished in the areas of the proposed Dartmouth and Herring Cove diffuser locations.

Gaspereau are fished during the spring runs up the Sackville River in Bedford and are regulated by Fisheries and Oceans Canada through issuance of seasonal licences. The gaspereau are usually fished using either gill nets, trap nets, or dip nets and are usually fished at the entrance into the river system in which they will spawn. Gaspereau are also used as a bait fish for the groundfish and lobster fisheries.

Tuna are harvested during the summer months from June to October using either mid-water baited trawl or harpooning. There are no tuna fishing licences registered for any of the Halifax home ports although fishers from other areas of the Maritime provinces fish all along the coast of Nova Scotia. Tuna are often fished close to the coastline and can be chased into bays and harbours by vessels. One tuna was reported to have been caught in the mouth of the Bedford Basin in the mid 1990s (B.E. Sullivan, pers. comm. 1999).

3.1.2.3 Groundfish Fishery

The groundfish fishery in Halifax Harbour is conducted primarily using handlines although there are some reports of fishers using baited trawl (longline) or gillnets (W. Eddy, pers. comm. 1999). Figure 5 illustrates areas of groundfish fishing. The directed fishery for both cod and haddock has been under moratorium since 1994 in NAFO division 4W. Both species continue to be fished under by-catch provisions for other directed

groundfish species such as pollock, white hake and Atlantic halibut. There are a total of 40 licences issued for vessels less than 13.7 m in length and these are the vessels most likely to be conducting groundfish harvesting within the harbour. The season for this fishery is year round, with some specific closures for both spawning and juvenile rearing areas within the 4W division. The most active part of the season is from spring to mid or late summer.

Anecdotal reports from fishers indicate that the majority of groundfish harvesting takes place outside the inner harbour to the south of McNabs Island and off Chebucto Head in the deeper waters. There has been groundfish harvesting throughout the harbour, in particular to the southeast of Georges Island around Ives Knoll. Catch rates within the harbour have been reported to be quite low and of little commercial interest.

Groundfish are also fished recreationally within the harbour. The recreational season extends from early June to the end of the Labour Day weekend in September (R.Young, pers. comm. 1999). The recreational bag limit for groundfish is five fish per day per person excluding Atlantic halibut.

3.1.2.4 Shellfish Harvesting

All shellfish harvesting including the collection of clams, mussels and oysters is prohibited due to fecal coliform contamination within the boundaries of Halifax Harbour north of a line between Devils Island and Chebucto Head.

3.2 Fish Holding Facilities

Four fish holding facilities that use harbour water as a water source for large fish aquariums or for live food storage (Figure 6) were contacted regarding the proposed locations of the four diffusers. The facilities were faxed a questionnaire (Appendix A) and an accompanying map displaying the location of the four sites.

The facilities which were identified as potential study participants are listed below:

- Clearwater Fine Foods;
- Dalhousie Aquatron;
- Fisherman's Market; and
- Bedford Institute of Oceanography.

Since the previous study, however, the facilities at Fisherman's Market moved to a location in Bedford Basin, and as a result, there are no issues or concerns for this operation with respect to the proposed sewage treatment project. Of the remaining three facilities, only one response from Clearwater Fine Foods was received.

4.0 ENVIRONMENTAL ISSUES AND CONCERNS



Map Projection: UTM, NAD83
Map Zone: 20
Scale 1 : 75 000
Grid Spacing: 5km

Figure 6:
Fish Holding Facilities with
Water Intakes in Halifax Harbour

4.0 POTENTIAL ENVIRONMENTAL EFFECTS, ISSUES AND CONCERNS

The single greatest concern of all the fishers interviewed in relation to the proposed Halifax Harbour Solutions sewage treatment project is the potential reduction in the amount of gear fouling that currently occurs. Fishers stated that objectionable floatables are often found attached to all types of gear that are used at any location in the harbour. Herring Cove fishers stated that gill nets, drift nets and mackerel traps set in the existing area of the Watley's Cove left for more than a few days became soiled to the point that they had to be soaked and washed to remove the dirt and other contaminants.

Other fishers were concerned that the proposed locations of the Dartmouth and Herring Cove diffusers would degrade lobster habitat in these areas, as well as disturb the migration patterns of pelagic species. There were no concerns indicated about the location of the two proposed Halifax Peninsula sewage treatment plants and diffusers.

Most fishers indicated that any system that would reduce the number of active outfalls and reduce the floatables within the harbour would be a definite improvement over the existing conditions. One fisher indicated that only full secondary sewage treatment should be considered as the final option, stating that the system in its current configuration would only pipe the sewage away from the higher profile areas of the waterfront and dump it in more remote locations that have viable fisheries.

Concerns indicated from one of the fish holding facilities included the high fecal coliform levels that are often present in the water and total dissolved organics that often result in high production of foam in the live lobster tanks. One concern about the proposed treatment system would be the potential increase in concentration of dissolved organics as a result of the gathering of a high volume of sewage and dispersing from centralized locations.

Environmental issues and concerns related to commercial fisheries and fish holding facilities outlined by Canada-Nova Scotia Environmental Assessment Panel (1993) are summarized below:

- toxic organic compounds and metals will still be disposed of in the Harbour if an effective program to control toxics at the source is not put in place; and
- elevated levels of toxics in Harbour lobsters could increase to levels where consumption is unadvisable and fishing may have to be curtailed.

5.0 SUMMARY

Halifax Harbour supports an active commercial fishery with a 1997 total landed value of all species equaling \$6,763,000. The concerns for potential environmental effects of the proposed sewage treatment facilities on this fishery include:

- gear fouling;
- lobster habitat degradation;
- elevated levels of toxics in lobsters; and
- high fecal coliform levels and total dissolved organics in water used by fish holding facilities.

These concerns are particularly high in the area of Herring Cove where there is herring and/or mackerel fishing and heavy lobster fishing. The concerns for potential environmental effects at the Dartmouth and Halifax South locations are not as high those for the Herring Cove site, however, some lobster fishing does occur at these locations. The Halifax North location appears to be associated with the least amount of concern, with respect to commercial fishing.

6.0 LITERATURE CITED

Jacques Whitford Environment Limited (JWEL). 1991. Component Study Report, Commercial Fisheries of Halifax Harbour, report to Halifax Harbour Cleanup Inc. (HHCI). Dartmouth, NS. 13 pp + Figures + Appendices.

Jacques Whitford Environment Limited (JWEL). 1992. Environmental Assessment Report, Volume I, for the Halifax-Dartmouth Metropolitan Sewage Treatment Facility, report to Halifax Harbour Cleanup Inc. Dartmouth, NS. 288 pp + Figures + Appendices.

Canada-Nova Scotia Environmental Assessment Panel. 1993. Report of the Federal-Provincial Environmental Assessment Review Panel for the Halifax-Dartmouth Metropolitan Wastewater Management System.

Appendix A

Questionnaires and Cover Fax



Jacques
Whitford

Jacques Whitford Building
3 Spectacle Lake Drive
Dartmouth, Nova Scotia
Canada B3B 1W8

Environmental Sciences
Environmental Engineering
Hydrogeology
Geotechnical Engineering
Materials Engineer & Research
Mining Engineering

Facsimile Consulting Engineers
Transmission Environmental Scientists

Tel: 902 468-7777
Fax: 902 468 9009

TO

COMPANY

Fisher
Fishermen's Association

ATTENTION

FAX NUMBER

FROM: Steve Devitt

DATE: March 29, 2000

OUR REF: 14368

We are transmitting a total of 3 pages, including this page. If not well received please call (902) 468-7777. This fax is being sent from (902) 468-9009.

Original to follow No Yes By _____

COMMENTS/MESSAGES

Dear Sir/ Madame:

As discussed in our telephone conversation yesterday, Jacques Whitford Environment Limited is in the process of updating existing environmental information on Halifax Harbour as it relates to the proposed Halifax Harbour sewage treatment project. As you may be aware, the Halifax Harbour Solutions project is currently in the midst of a process that will result in detailed proposals from three proponents to build the advanced primary sewage treatment system for Halifax. Currently, the timeline for the project is to award the contract for the public-private partnership within approximately the next year. Upon award, detailed design including the final location of outfall diffusers will commence. The project will include the construction of four land facilities with ocean diffusers, to be tentatively located in Halifax Peninsula North, Halifax Peninsula South, the Herring Cove area and Dartmouth.

As part of the environmental review, Jacques Whitford Environment Limited is seeking information on the commercial fisheries that are undertaken within the boundaries of the Harbour. We would like the following information if possible. Please indicate on the attached map and questionnaire.

- areas of fishing activity according to species;
- estimated number of fishers from your organization that fish in those activities and their home ports;
and
- types of gear used.

Please indicate what concerns you may have regarding the location of the diffusers and their impacts on the specific fisheries in that area. Please do not hesitate to contact me should you have any questions or comments on this fax. Please fax your completed map to my attention at (902) 468-9009.

Sincerely,

Steven Devitt, B.Sc., Aquatic Scientist

COMMERCIAL FISHERIES SURVEY FORM

Fisherman's Name

Vessel Type

Telephone

Length

Buyer's Name

Crew

Port

SPECIES FISHED IN 1998

Ground Fish

Pelagics

Shellfish

_____ Haddock

_____ Mackerel

_____ Lobster

_____ Cod

_____ Herring

_____ Crab

_____ Plaice

_____ Gaspereau

_____ Mussels

_____ Pollock

_____ Salmon

_____ Clams

GEAR USED

_____ Otter Trawl

_____ Gillnets

_____ Seines

_____ Other Trawls

_____ Codtraps

_____ Lobster

Traps

_____ Baited Hook/Baited Trawls _____ Hand-lines

1. Do you fish in any of the following locations? (See map)

1) Between the Canadian Coast Guard Base and N.S. Hospital

2) Between the Naval Dockyard and Karlsen's Wharf

3) South of Georges Island, off Pier 22

4) Off Hospital Point between Tribune Head and Halibut Bay

2. Do the present conditions in the Harbour have an effect in your fishing activities?

3. How do you think the sewage treatment plants will affect you fishing activities?

4. Who would you call if you had a problem which was caused by the treatment plant?

5. Are you a member of any Fishermen's Associations?

6. Do you know anyone else who is fishing in the vicinity of these locations?

FISH HOLDING FACILITIES SURVEY FORM

Name Organization/ Livelihood

Telephone Association with Harbour

Fax E-mail

1. How would you describe the present water quality of the harbour?

2. How do you think conditions in the harbour will change after the treatment plants are in operation?

3. How is your organization/ livelihood affected by the water quality of the Halifax Harbour?

4. How will the proposed locations for the treatment plants in Halifax Peninsula North, Halifax Peninsula South, the Herring Cove area and Dartmouth affect your organization?

5. Do you have any concerns regarding the location of the treatment plants and associated outfall diffusers?

Appendix B

Contact List

Contact List

The following individuals or groups were contacted to provide information relevant to commercial fisheries of fish holding facilities as applicable to this report.

Mr. John Batt, Dalhousie University Aquatron

Mr. Peter Connors, Eastern Shore Fishermen's Protective Association

Mr. Bernie E. Sullivan, Fisheries and Oceans Canada

Mr. Wayne Eddy, Fisher, (Eastern Passage)

Mr. Bob Fiander, Fishermen's Market

Mr. Fred Green, Fisherman's Market

Mr. Brian Fitzpatrick, Public Works and Government Services Canada

Ms. Christine Gargan, Fisheries and Oceans Canada

Mr. John Garland, Clearwater Fine Foods Inc.

Mr. Patrick Gray, Fisher, (Sambro)

Mr. Donnie Hart, President, Halifax West Commercial Fishermen's Association

Mr. Tommy Hennebury, Fisher (Eastern Passage)

Mr. Brian Jollymore, Fisheries and Oceans Canada

Ms. Elaine Myes, Fisheries and Oceans Canada

Mr. Jamie Osbourne, Fisher, (Eastern Passage)

Mr. Fred Rahey, Fisheries and Oceans Canada (BIO Aquarium Manager)

Mr. Blair Sullivan, Fisher (Herring Cove)

Mr. Harald Uuetoa, Fisher, (Herring Cove)

Ms. Wendy Williams, Fisheries and Oceans Canada

Mr. Rick Young, Fisheries and Oceans Canada