

5 Because these are individual and often sporadic pursuits, it is not possible to define precisely when and where they occur. Limited data are available, with the exception of licensed activities such as hunting and fishing, which have been described previously. Activities typically occur during the appropriate season when the resource is available (e.g., berries are ripe) and near access routes (e.g., T’Railway Provincial Park and forestry access roads).

10 Berry picking is an unregulated province-wide activity. Most of the province is Crown Land, berries are abundant and people pick wherever they wish. The primary berries picked are raspberries, bakeapples, blueberries, partridgeberries, blackberries, black crowberries and squashberries. Some areas of the province are known for particularly good growth of a berry species (e.g., Labrador Straits and the Northern Peninsula for bakeapples, and eastern Newfoundland and the Avalon Peninsula for blueberries).

15 In some cases, the abundance of berries supports cottage industries (e.g., Labrador Preserves Company in the Labrador Straits; Dark Tickle Company on the Northern Peninsula; and Rodrigues Winery at Whitbourne) or full scale processing facilities (e.g., Indian Bay Frozen Foods in Bonavista Bay; Natural Newfoundland Nutraceuticals in Whitbourne). Berries to supply these producers may be harvested in any area where the berries are found. Larger companies depend on berry pickers, many of whom undertake the task to supplement their income.

20 Wood cutting occurs throughout the province and is a regulated activity that requires a Domestic Cutting Permit. Harvested wood is used by the individual, as timber cut under a domestic cutting permit is not to be sold, bartered or used as a gift. Wood cutting, which requires suitable access, typically occurs in areas near population centres and along the T’Railway Provincial Park, particularly in the Labrador Straits and around the Glovertown to Port Blandford area (Conservation Officers 2010, pers. comm.).

15.6 Marine Fisheries

This section describes the historical and recent marine fisheries relevant to the submarine cable corridor and electrode site in the Strait of Belle Isle and to the electrode site near Dowden’s Point in Conception Bay.

25 15.6.1 Study Areas

30 The Study Area for marine fisheries is defined as the marine area east and west of the cable crossing corridor fished by enterprises from local area homeports identified in the *Marine Fisheries in the Strait of Belle Isle Component Study* (Canning & Pitt Associates Inc. 2010) (Figure 15.6.1-1). To provide regional information and context, the North Atlantic Fisheries Organization (NAFO) fisheries management Unit Area (UA) 4Ra (Figure 15.6.1-1) was also considered.

The Study Area for the Dowden’s Point electrode site within Conception Bay is defined as a 5 km wide area extending out from the shoreline electrode site (Figure 15.6.1-2).

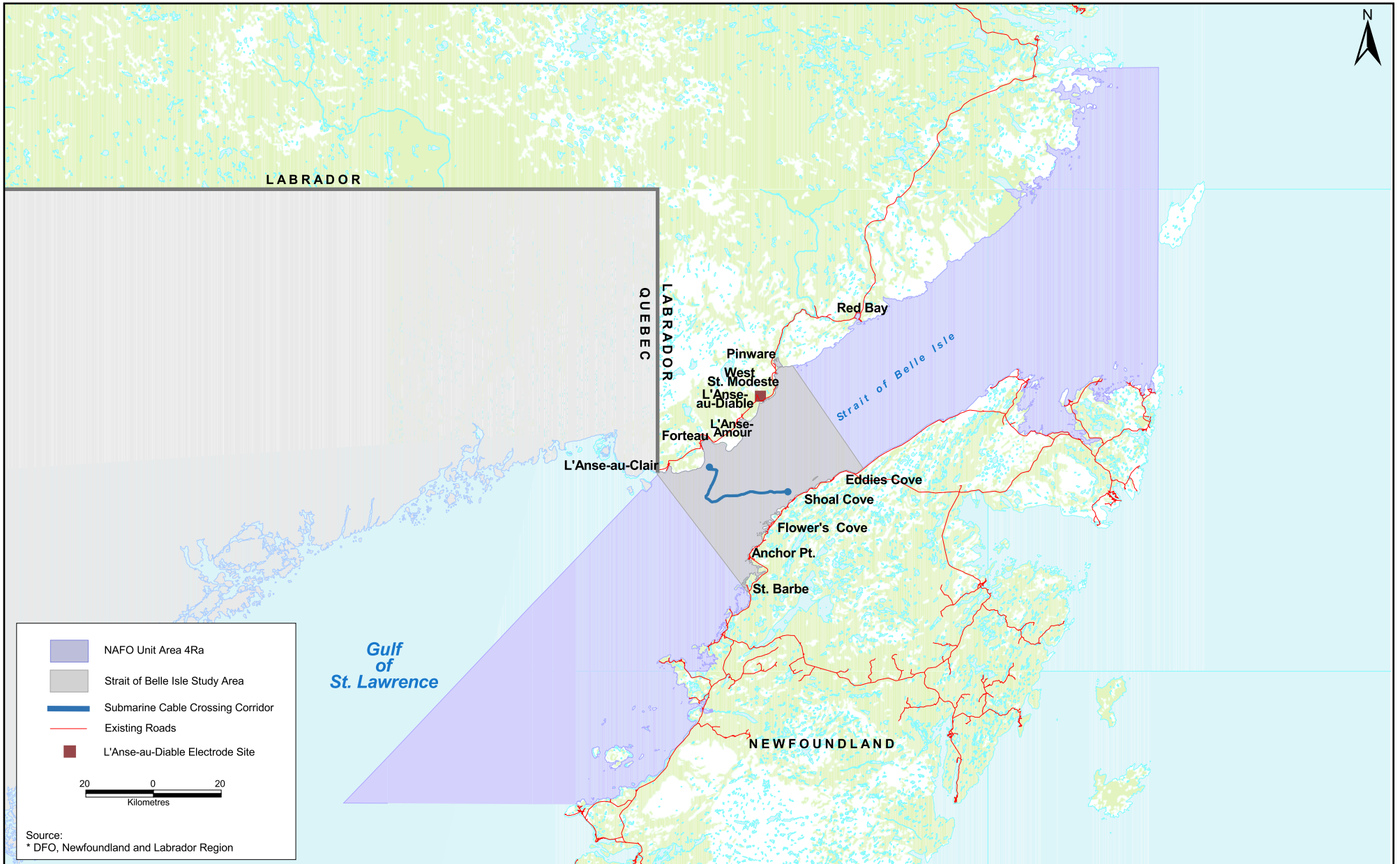


FIGURE 15.6.1-1



Marine Fisheries: Strait of Belle Isle Study Area and NAFO Unit Area 4Ra



FIGURE 15.6.1-2



Marine Fisheries: Dowden's Point Study Area

15.6.2 Information Sources and Data Collection

A variety of sources were used for this section. All are included in the references for this chapter.

5 *Labrador – Island Transmission Link: Marine Fisheries in the Strait of Belle Isle Component Study* (Canning & Pitt Associates Inc. 2010) was prepared during 2009 – 2010 to establish the baseline for marine fisheries in the area of the cable crossing in the Strait of Belle Isle.

10 The statistical information and analysis are based on time-series data from DFO, Newfoundland and Labrador Region Statistics Division, Policy and Economics Branch, which capture the quantity, value, month, and location (by fisheries UA) of fish harvesting, as well as the fishing gear and vessels used (DFO 1990-2009). The dataset was acquired from DFO in digital form, for the period 1990 to 2009 and represent all fish landings in the Newfoundland and Labrador Region. Data analysis and consultations with area fisheries interests (described below) confirm that fishing activities in the Strait of Belle Isle are undertaken almost exclusively by fishers based in Newfoundland and Labrador and are thus captured in these data.

15 The discussion that follows uses data for NAFO fisheries management UA 4Ra (a sub-unit of NAFO Division 4R, which includes the waters off the entire west coast of Newfoundland from Cape Ray to Cape Bauld). These data capture species harvested from UA 4Ra waters (see UA 4Ra boundaries, Figure 15.6.1-1) wherever they were landed or processed within Newfoundland and Labrador Region. Thus, catches by fishers who are not based in the area are included, while catches made by Strait-based vessels are excluded if they were harvested beyond UA 4Ra.

20 While all the data indicate the UA in which the fish was caught, a smaller portion (about 20% of UA 4Ra catch by quantity in recent years) also indicates the specific location of the catch by latitude and longitude, and these data are used to generate the harvesting maps in this section using aggregated 2005-2009 data. It should be noted that the locational information is generally more readily available for offshore harvests and for larger vessels than for fish caught in inshore areas with smaller boats. For instance, in 2008 in UA 4Ra, 0% of the lobster harvest was georeferenced but 73% of the shrimp catch was. Although the georeferenced subset does not provide the location of all relevant harvesting, it establishes a general indication of some important harvesting grounds.

30 Much of the historical data analysis provided in this section presents quantity data – tonnes of fish landed – rather than landed value because quantities are more directly comparable from year to year. This is because value data reflect several factors other than simple resource availability or fishing effort since value differences from year to year may be the result of price changes and external market factors, such as international exchange rates. Prices may even vary within the fishing season.

Additional fisheries information comes from several other DFO sources, such as:

- DFO Science Advisory Reports series;
- DFO Research Documents series;
- 35 • Management Plans; and
- Online quota reports.

Specific references are provided where cited.

40 Because accurate statistical data are only available at the UA (Regional Area) level, the current baseline also draws on information collected during meetings with fishers from both sides of the Strait of Belle Isle (described in Canning & Pitt Associates Inc. 2010). A specific purpose of these meetings was to gather additional knowledge about fish harvesting activities within and near the Study Area.

Much of this section summarizes the baseline information in the Component Study (Canning & Pitt Associates Inc. 2010) and updates the statistical information (i.e., the catch and effort datasets) to include 2009 DFO data which became available after the Component Study was completed. This baseline information represents the most up-to-date data available at the time of writing the EIS.

5 15.6.3 UA 4Ra Commercial Marine Fisheries

10 This section provides overviews of the commercial fisheries (historical and current) within UA 4Ra, which includes the area of the proposed transmission corridor across the Strait of Belle Isle. Commercial fisheries are those licenced and managed by or through DFO under Canada's *Fisheries Act*. The historical overview provides a 20-year (1990 – 2009) retrospective of the commercial fisheries, while the current analysis is for more recent years (2005 – 2009). The 1990-2009 period was chosen for the historical retrospective because it captures landings both before and after the implementation of the groundfisheries moratorium (discussed below) and present-day fisheries. The 2005-2009 data range was chosen because it is representative of more current fisheries. Since fisheries are variable from year to year, a five-year average is more representative than a single year. Both overviews focus on particular species of importance within UA 4Ra and the Study Area.

15 15.6.3.1 Historical Overview, UA 4Ra

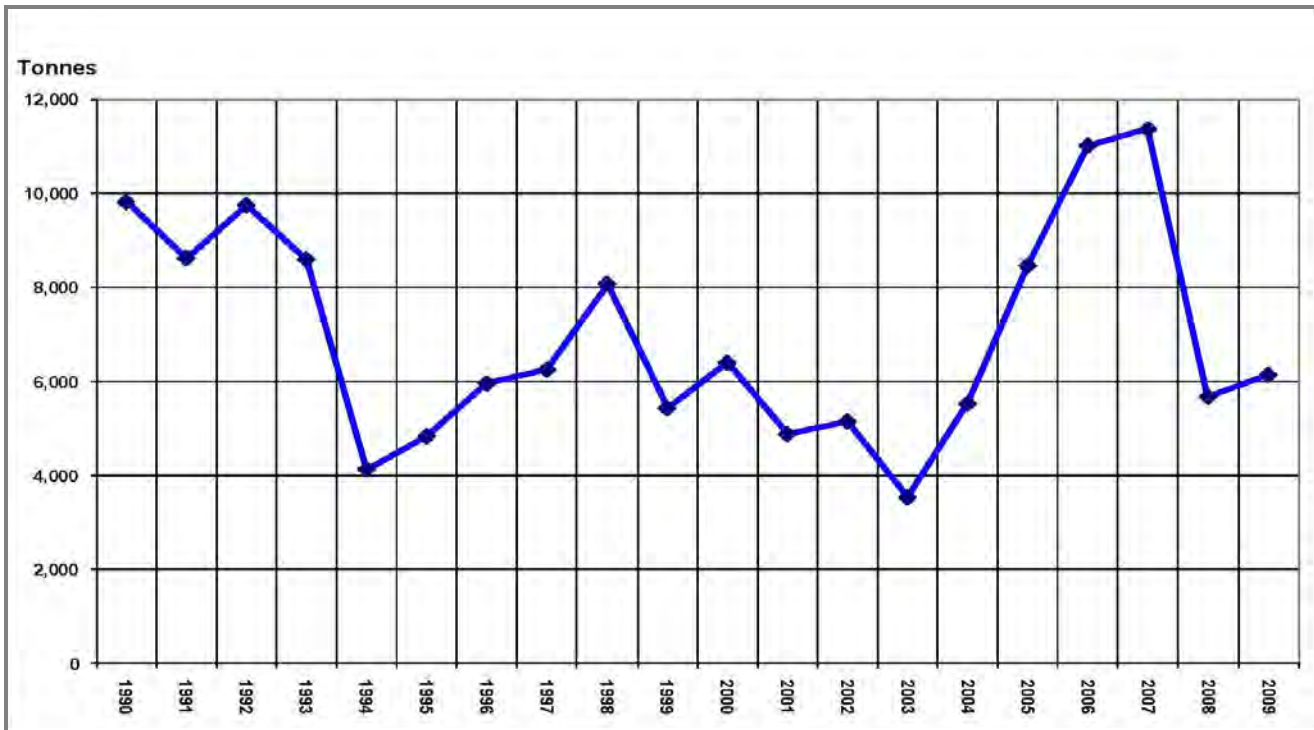
20 Figure 15.6.3-1 shows the trends in overall fisheries in UA 4Ra over the past two decades. During that period, the fisheries in UA 4Ra underwent significant changes, owing largely to the collapse of groundfisheries (mainly Atlantic cod), as shown in Figure 15.6.3-2 and consequent fisheries moratoria and quota reductions within the area after 1993. In 1991, groundfish (nearly all Atlantic cod) made up 75% (by quantity) of the total UA 4Ra harvest of nearly 10,000 t, but dropped to less than 4% in 1994, and to just 1.8% in 1996. Between 1990 and 1993 the harvest from UA 4Ra (average, by quantity) was primarily cod (58%), capelin (12%), scallops (10%), herring (8%), lobster (4%) and mackerel (3%) (DFO 1990-2009).

25 Since the partial reopening of the cod fishery in 1997, groundfish catches have slowly increased and, in the last few years, have represented just over 16% (by quantity) of the overall catch. On average, since 2005, the annual 4Ra (all species) harvest has about 8,500 t although it dropped to below 6,000 t in 2008 owing to a significant drop in the capelin catch in that year (Canning & Pitt Associates Inc. 2010).

The substantial decline since 2006 in the harvest of capelin - one of the mainstays of the area fisheries in recent years - is indicated in Figure 15.6.3-3. Other important 4Ra fisheries within the last 20 years have been scallops, shrimp, herring, snow crab and lobster.

30 Figure 15.6.3-4 to Figure 15.6.3-8 illustrate the harvesting of these species, respectively, over the 1990 to 2009 period (DFO 1990-2009).

Figure 15.6.3-1 UA 4Ra Harvest, All Species, 1990 to 2009



Source: DFO 1990-2009.

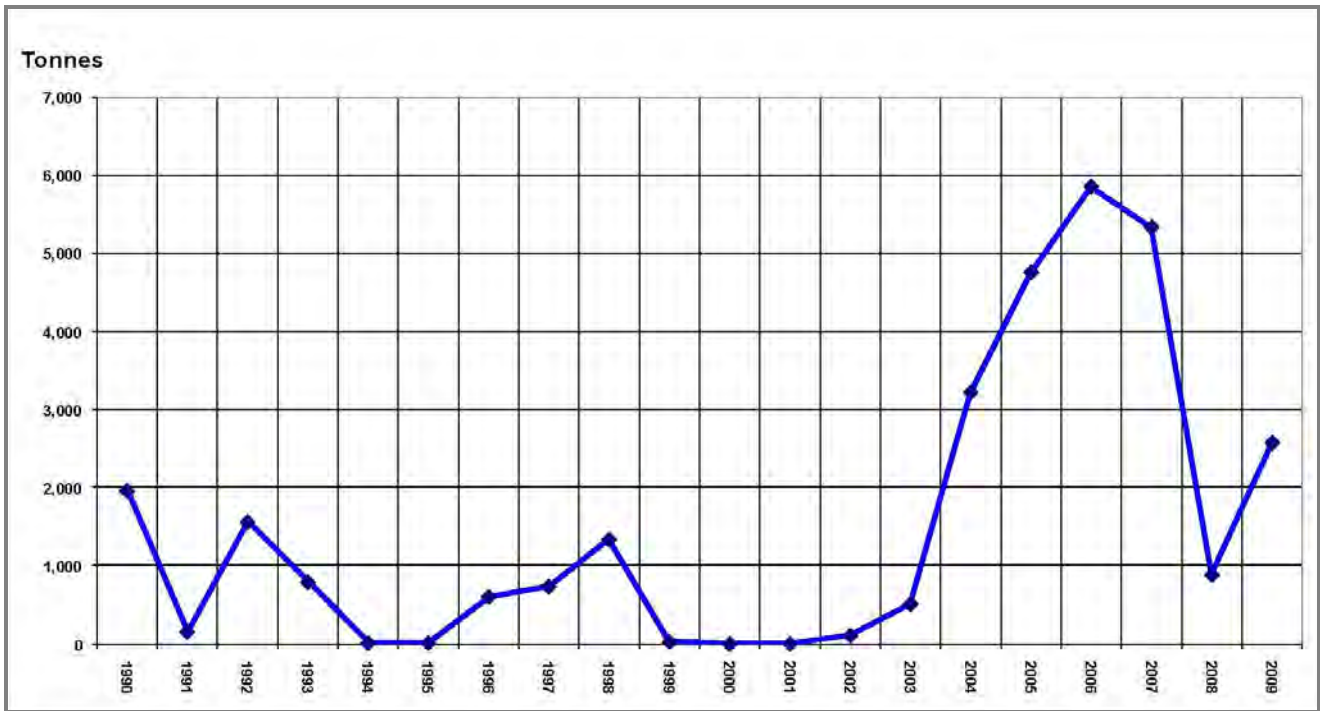
Figure 15.6.3-2 UA 4Ra Harvest, Groundfish Species, 1990 to 2009



Source: DFO 1990-2009.

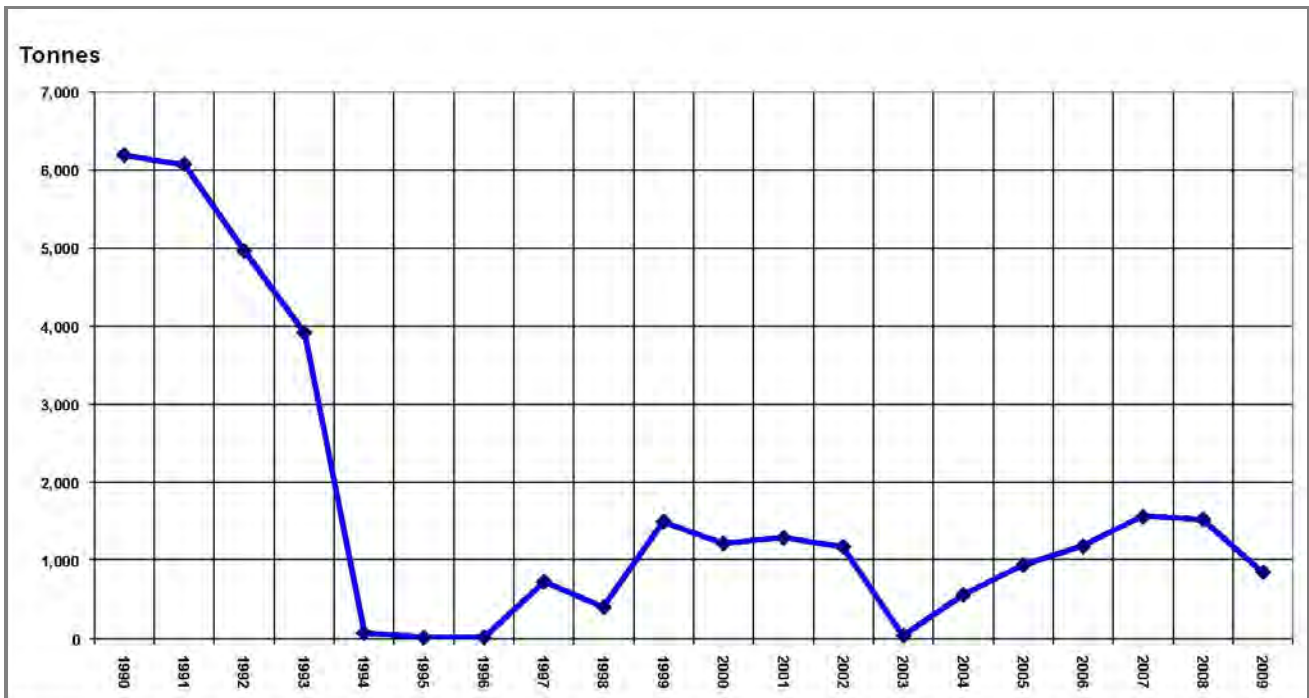
5

Figure 15.6.3-3 UA 4Ra Harvest, Capelin, 1990 to 2009



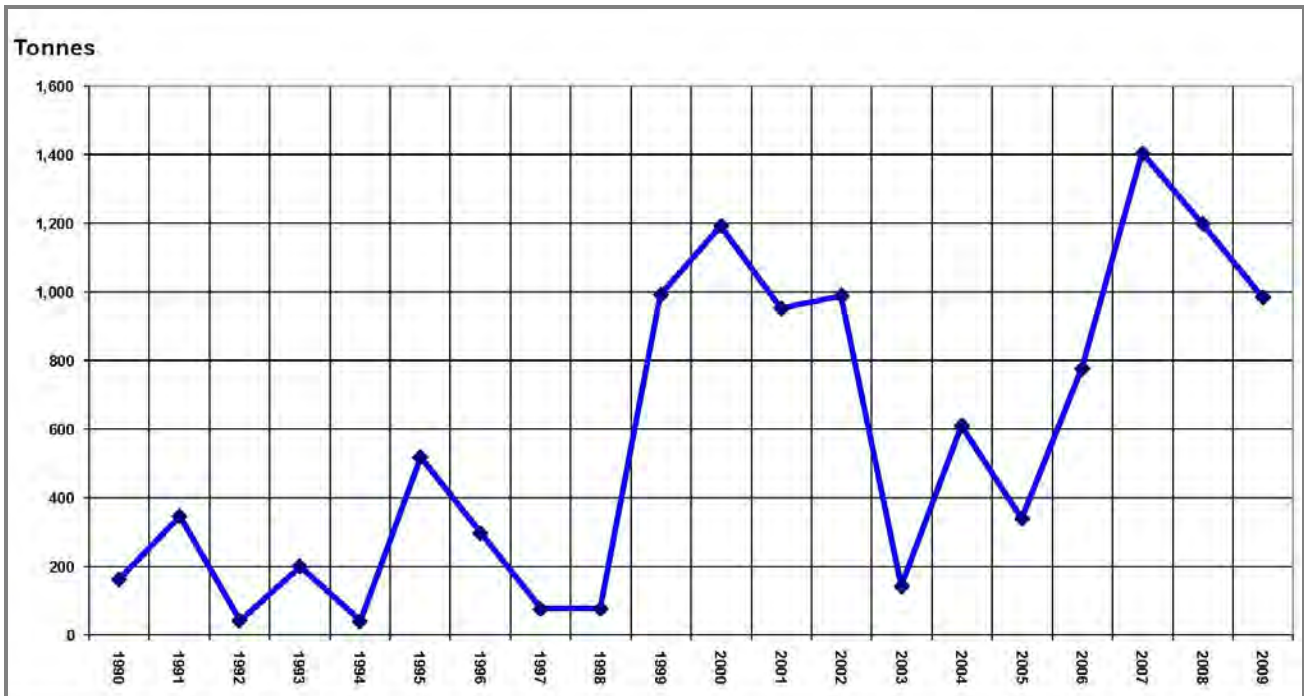
Source: DFO 1990-2009.

Figure 15.6.3-4 UA 4Ra Harvest, Cod, 1990 to 2009



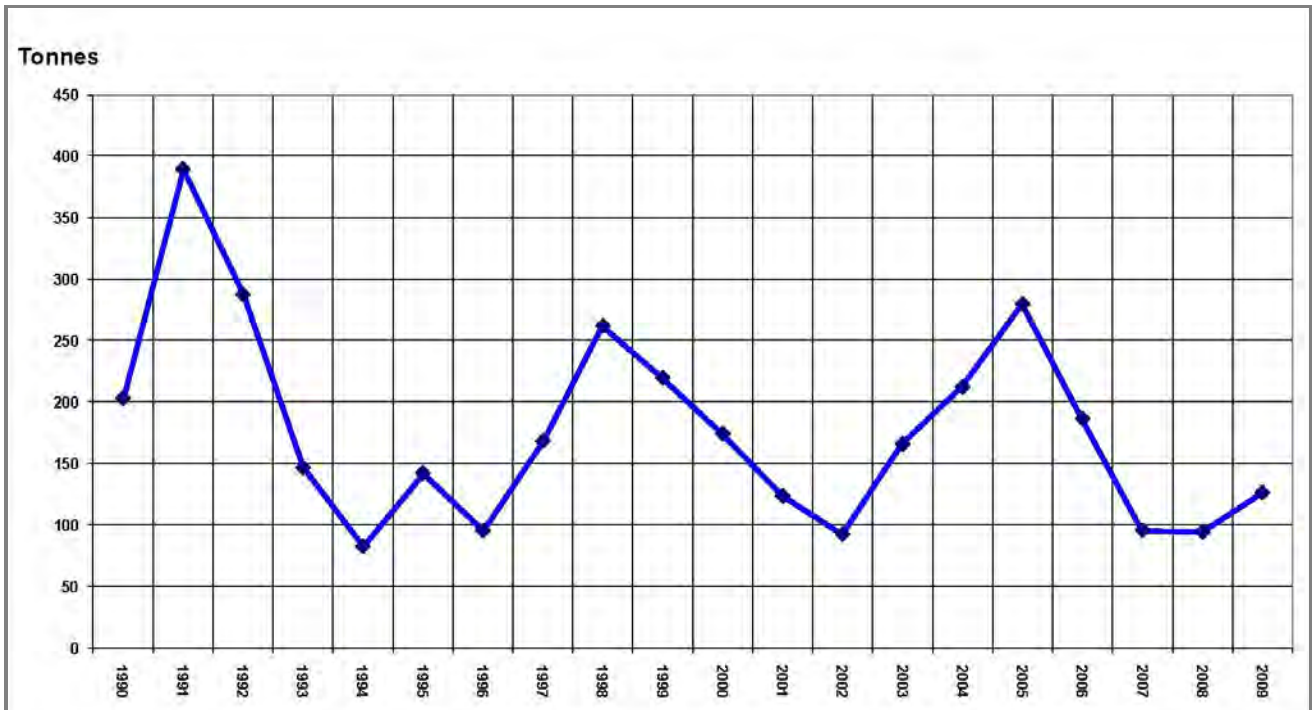
Source: DFO 1990-2009.

Figure 15.6.3-5 UA 4Ra Harvest, Northern Shrimp, 1990 to 2009



Source: DFO 1990-2009.

Figure 15.6.3-6 UA 4Ra Harvest, Herring, 1990 to 2009



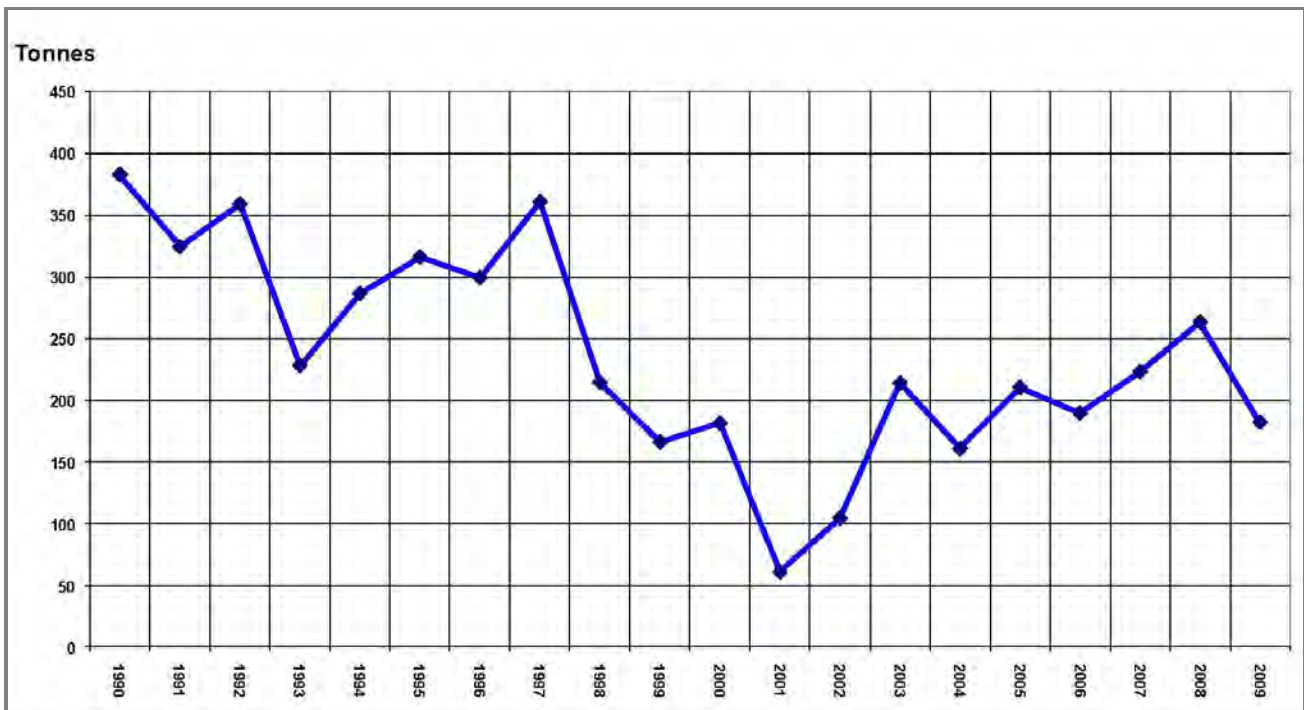
Source: DFO 1990-2009.

Figure 15.6.3-7 UA 4Ra Harvest, Scallops, 1990 to 2009



Source: DFO 1990-2009.

Figure 15.6.3-8 UA 4Ra Harvest, Lobster, 1990 to 2009



Source: DFO 1990-2009.

15.6.3.2 Current Fisheries

5 Table 15.6.3-1 identifies the fish species harvested by fishers from UA 4Ra, averaged over the 5-year period from 2005-2009. The key species fisheries in that area include several of the important species from 20 years earlier (e.g., lobster, cod, capelin, scallop, mackerel and herring), as well as other species that have grown in importance in more recent years, in particular shrimp and snow crab. In addition, some new fisheries are emerging and may have more economic potential in the future, such as rock crab, toad crab and sea cucumber.

Table 15.6.3-1 Commercial Fisheries Harvest from UA 4Ra by Value and Quantity, 2005 to 2009 Average

Species	Tonnes (t)	Percent of Total Tonnage	Value (\$)	Percent of Average Total Value
Capelin	3,875.8	45.6	993,739	13.3
Cod, Atlantic	1,207.7	14.2	1,637,943	22.0
Shrimp, northern	938.8	11.1	887,656	11.9
Herring, Atlantic	801.8	9.4	164,108	2.2
Mackerel	792.6	9.3	266,415	3.6
Scallop, Iceland	378.9	4.5	511,371	6.9
Lobster	213.7	2.5	2,220,777	29.8
Turbot / Greenland halibut	113.4	1.3	199,671	2.7
Roe, lumpfish	51.7	0.6	272,624	3.7
Sea cucumber	44.5	0.5	28,813	0.4
Halibut	30.5	0.4	192,319	2.6
Whelks	11.8	0.1	10,782	0.1
Crab, Queen / Snow	11.5	0.1	32,386	0.4
Winter flounder	7.5	0.1	3,338	0.0
Crab, spider / toad	4.9	0.1	3,317	0.0
Eels	4.6	0.1	19,802	0.3
Crab, rock	1.2	0.0	782	0.0
Total	8,490.8	100.0	7,445,844	100.0

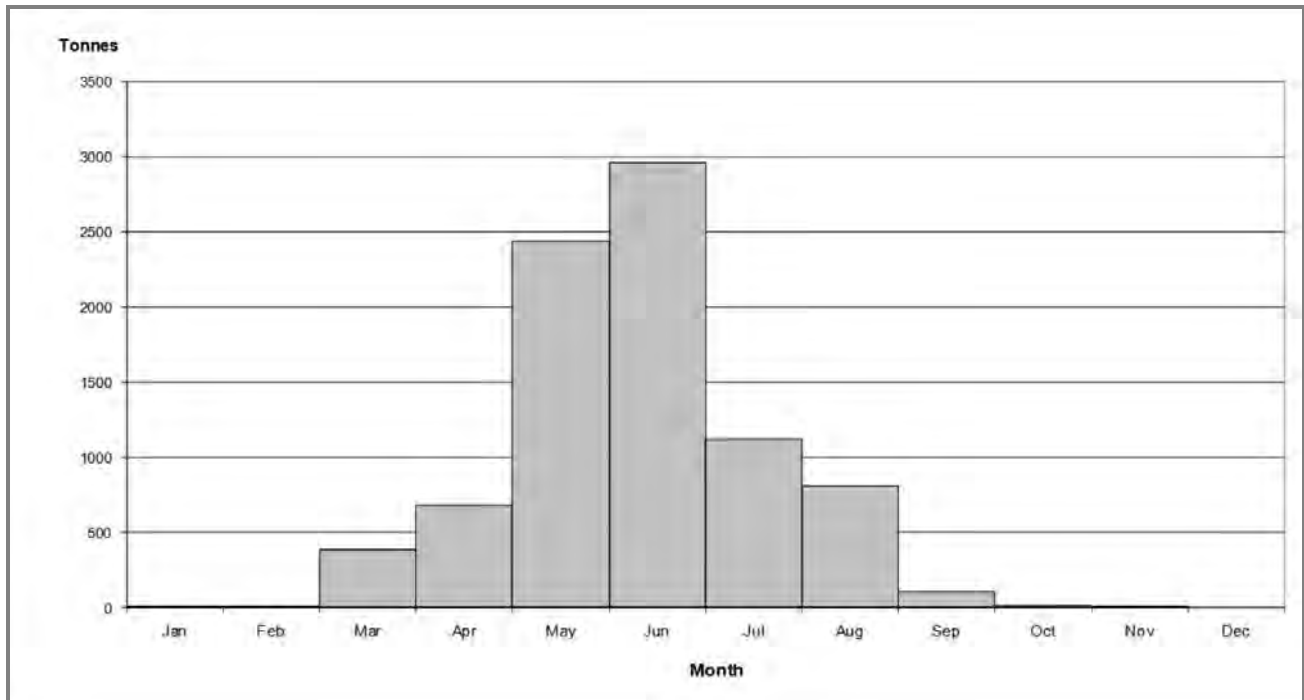
Source: DFO 1990-2009.

10 Seal harvesting in winter on the ice within UA 4Ra (not shown in Table 15.6.3-1) provides supplementary income mainly through the sale of harp skins for some fishers in most years. For instance, within UA 4Ra in 2005, seal skin sales totalled nearly \$700,000.

Seasonality

15 UA 4Ra fisheries generally have different harvesting times, based on regulation, seasonality of fish presence and movements, and / or harvesting strategy (see Canning & Pitt Associates Inc. 2010). Figure 15.6.3-9 shows the overall monthly harvesting pattern for UA 4Ra, averaged for 2005-2009 for all species, by quantity. As Figure 15.6.3-9 indicates, nearly all the harvest occurred between March and August, with a peak in June.

Figure 15.6.3-9 All Species Harvest from UA 4Ra by Month, 2005 to 2009 Average



Source: DFO 1990-2009.

Harvesting Locations

- 5 Approximately 20% of the overall catch data from UA 4Ra is georeferenced with the specific latitude and longitude of the harvesting location. Though this information is typically for larger vessel fleet sectors (e.g., greater than 35 feet) and certain species (e.g., shrimp, but not lobster), it provides a good indication of some important harvesting grounds in the broader regional area.
- 10 Figure 15.6.3-9 and Figure 15.6.3-10 show these data for the entire UA 4Ra, and a smaller-scale view showing the data relative to the Study Area. The data are aggregated for all species, all months and all years from 2005 to 2009.

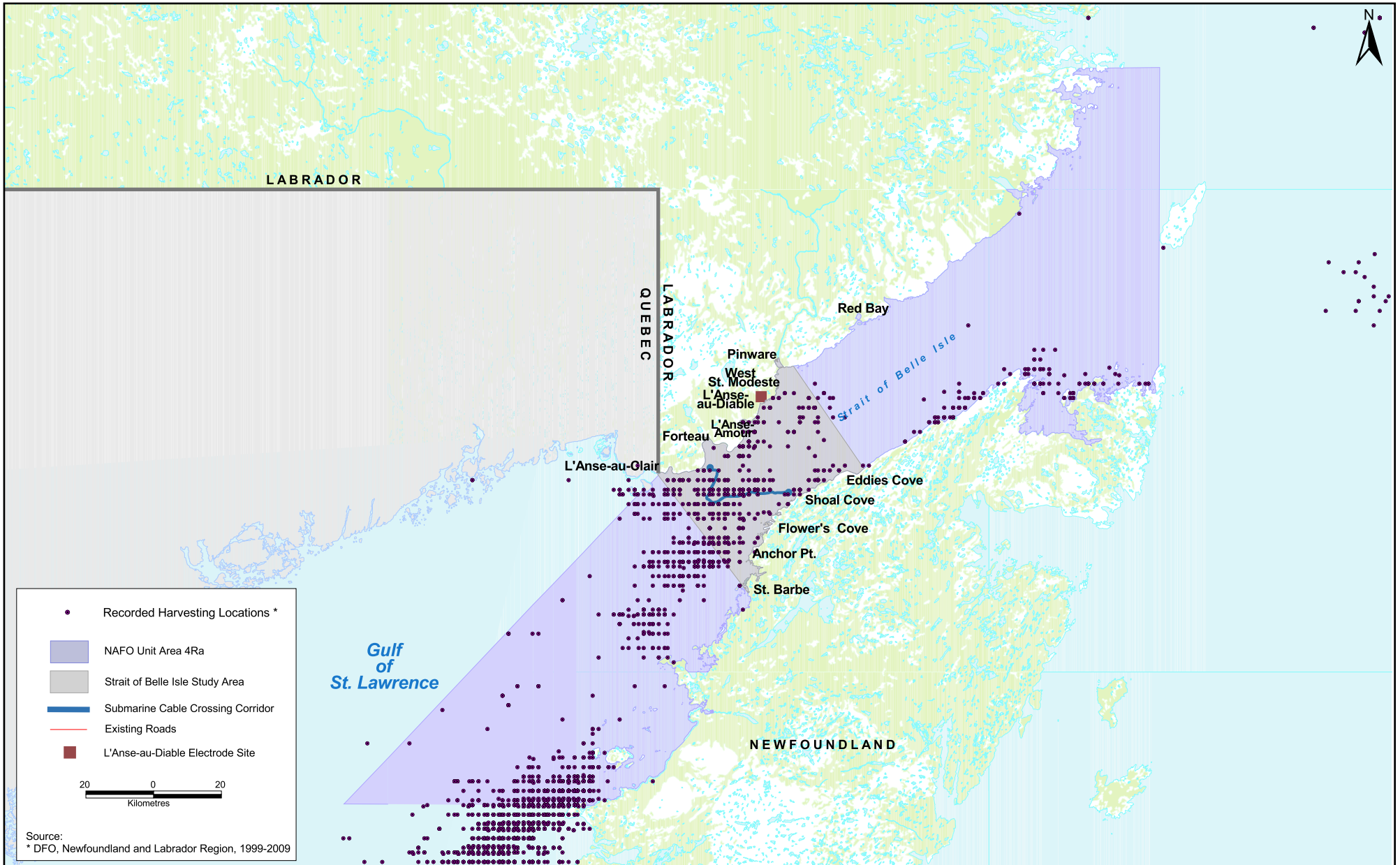


FIGURE 15.6.3-10



Recorded All Species Harvesting Locations, UA 4Ra (Georeferenced Data), 2005-2009 Aggregated

Fishing Gear and Vessels

The fishing gear used typically reflects the species fishery (e.g., pots for snow crab and lobster, or shrimp trawls for shrimp). Most groundfish in UA 4Ra are harvested using either gill nets or longlines. Pelagic species (capelin, herring and mackerel) are harvested using a variety of gear, including seines, gill nets and traps. Most of UA 4Ra harvest is taken by small-boat (under 35 feet) enterprises.

Table 15.6.3-2 and Table 15.6.3-3 quantify the average 2005-2009 harvest from UA 4Ra by fishing gear type and by vessel class (length). The fact that small boats catch the greatest share of the harvest reflects the small-boat, local inshore fisheries that predominate in this area.

Table 15.6.3-2 Harvest from UA 4Ra by Gear Type, Quantity, All Species 2005 to 2009 Average

Gear Code	Gear Type	Tonnes (t)	Percent of Total Average Annual Harvest (%)
19	Shrimp trawl	938.8	11.1
24	Beach and bar seine	29.4	0.3
25	Tuck seine	208.2	2.5
31	Purse seine	2,261.6	26.6
41	Gill net (set or fixed)	1,452.2	17.1
47	Fyke net	2.8	0.0
51	Longline	86.6	1.0
59	Hand line (baited)	185.2	2.2
61	Trap	2,661.7	31.3
62	Pot	243.1	2.9
71	Dredge (boat)	423.6	5.0
84	Eel pots	1.7	0.0

Source: DFO 1990-2009.

Table 15.6.3-3 Harvest from UA 4Ra by Vessel Class, Quantity, All Species 2005 to 2009 Average

Vessel Class Number	Vessel Length (feet)	Tonnes (t)	Percent of Total Annual Harvest (%)
0	1 - 34	4,563.7	53.6
1	35 - 44	1,213.3	14.2
2	45 - 54	500.0	5.9
3	55 - 64	1,385.9	16.3
4	65 - 74	259.3	3.0
5	75 - 99	172.0	2.0
6	100 - 124	426.3	5.0

Source: DFO 1990-2009.

15.6.4 Study Area Fisheries

The marine fisheries near the proposed submarine cable crossing (the Study Area) focus on a few traditional commercially harvested species (mainly lobster, scallops and pelagic species) as well as some newer or emerging fisheries. In this area, the fisheries are pursued by local fishers from homeports on both sides of the Strait within the Study Area, and by fishers from outside the area who come there for specific fisheries

(e.g., herring). This section focuses on key fisheries relative to the cable crossing corridor itself. Most of the locational information is based on consultations with local fishers in 2009 (Canning & Pitt Associates Inc. 2010).

Fishers from these ports fish within the Study Area at different times for different species (as described below). Between L'Anse au Clair and Pinware on the Labrador side of the Strait of Belle Isle there are a total of 56 Core and non-Core fishing enterprises. There are 21 Core enterprise vessels less than 40 feet and 12 greater than 40 feet. All the 23 non-Core enterprises on this side of the Strait of Belle Isle operate vessels larger than 40 feet. On the Newfoundland side, there are a total of 171 Core and non-Core fishing enterprises in the area between Forrester's Point and Eddies Cove East. Most (88) of the Core enterprise vessels are less than 40 feet while 35 have vessels 40 feet or greater. All 48 non-Core enterprises operate vessels less than 40 feet (Canning & Pitt Associates Inc. 2010). Core enterprises are those which are headed by a Core fisher. A Core fisher must be the head of an enterprise, hold key species licences (i.e., for Newfoundland - groundfish, capelin, lobster, snow crab, scallop, shrimp, and all species caught using purse seine), have a demonstrated attachment to the fishery, and be dependent on the fishery (DFO 1996, internet site).

15.6.4.1 Pelagics

Capelin, herring and mackerel, though relatively low in price, are important for the large quantities they contribute to the fisheries within the Study Area. Capelin harvesting activities vary in response to market demand and thus can fluctuate greatly from year to year. As Figure 15.6.3-2 shows, since 1999 there was limited amounts of capelin harvested in the Regional Area until a spike in landings between 2004 and 2007, decreasing again in 2008 and 2009. Herring landings (see Figure 15.6.3-5) experienced a rapid increase in landings during the mid to late 1990s but these levels were not sustained in subsequent years. Mackerel are taken mainly with purse seines, traps and handlines.

Fishers on the Labrador side of the Study Area harvest capelin, herring and mackerel in the same general areas along the shoreline between L'Anse au Clair and Pinware (see Figure 15.6.4-1). These species are harvested mainly with traps there, but may also be taken with nets.

Figure 15.6.4-2 shows the aggregated (2005-2009) georeferenced harvesting locations throughout the Strait of Belle Isle from the DFO catch and effort datasets for capelin, the only pelagic species with georeferenced data in or near the Study Area.

Fishers on the Newfoundland side of the Study Area harvest their capelin and herring on the same grounds used for lumpfish and lobster, but in slightly deeper water (i.e., about 50 m). These grounds are located between Anchor Point and Yankee Point (Figure 15.6.4-3). Most of the capelin are taken by traps and tuck seines; however, this species has also been harvested in some years by purse seines on grounds off Savage Cove that extend out from that location into the deeper water and across the Strait to Forteau Bay. Fishers report that few herring or mackerel are caught on the Labrador side of the Strait of Belle Isle (Canning & Pitt Associates Inc. 2010).

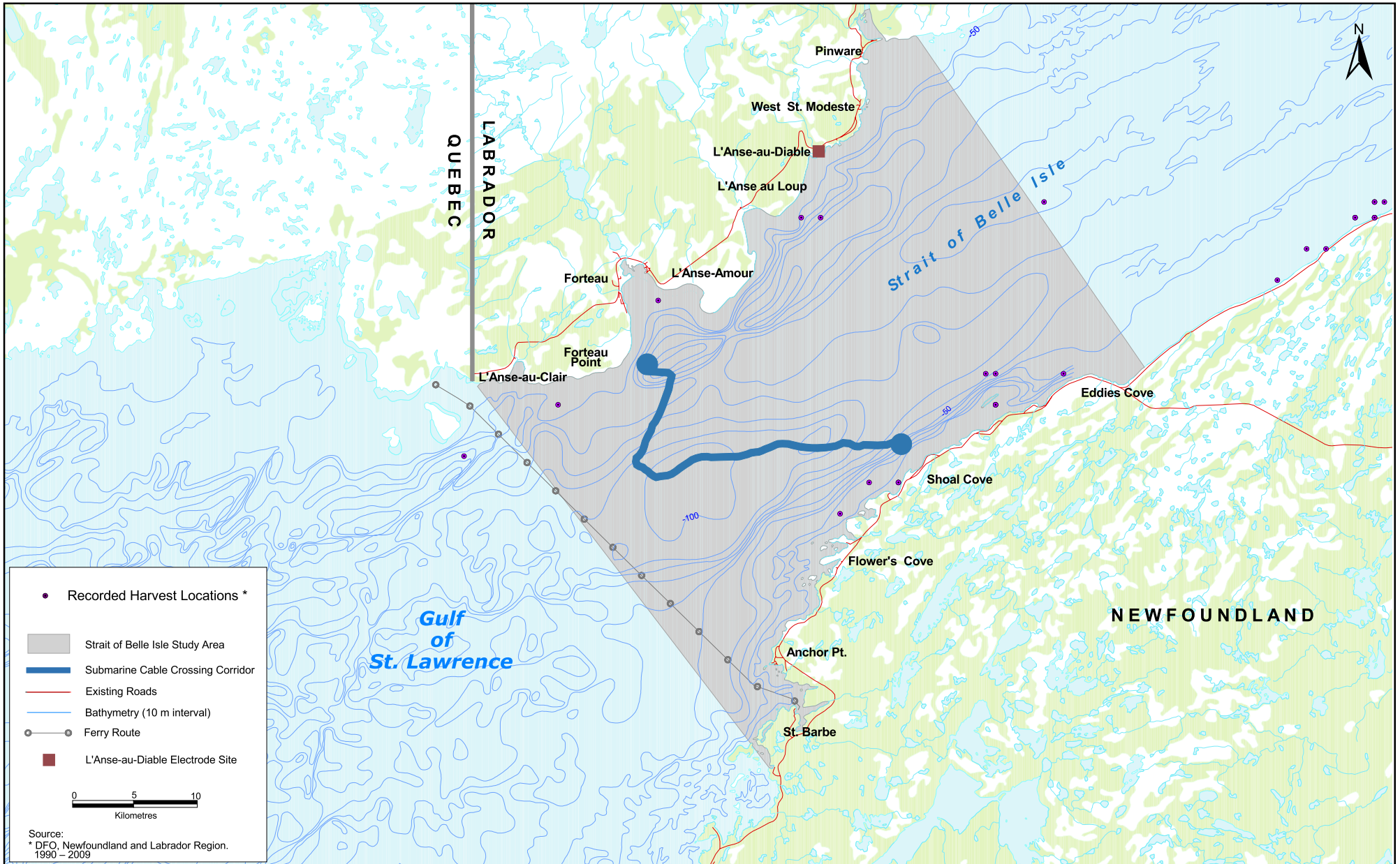


FIGURE 15.6.4-1



Reported Capelin Harvesting Locations, Strait of Belle Isle (Georeferenced Data), 2005-2009 Aggregated

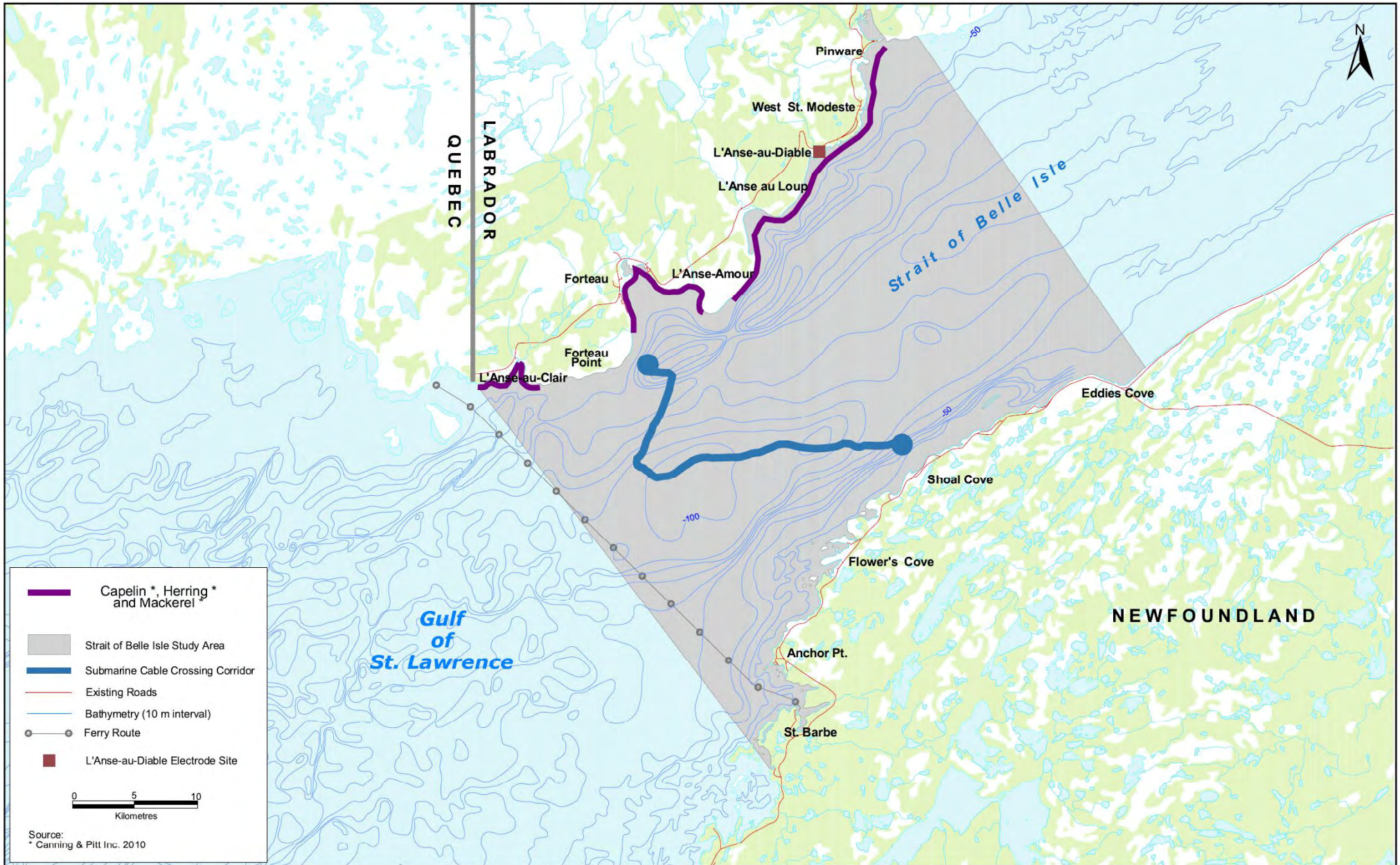


FIGURE 15.6.4-2



Reported Capelin, Herring and Mackerel Harvesting Locations, Strait of Belle Isle Study Area

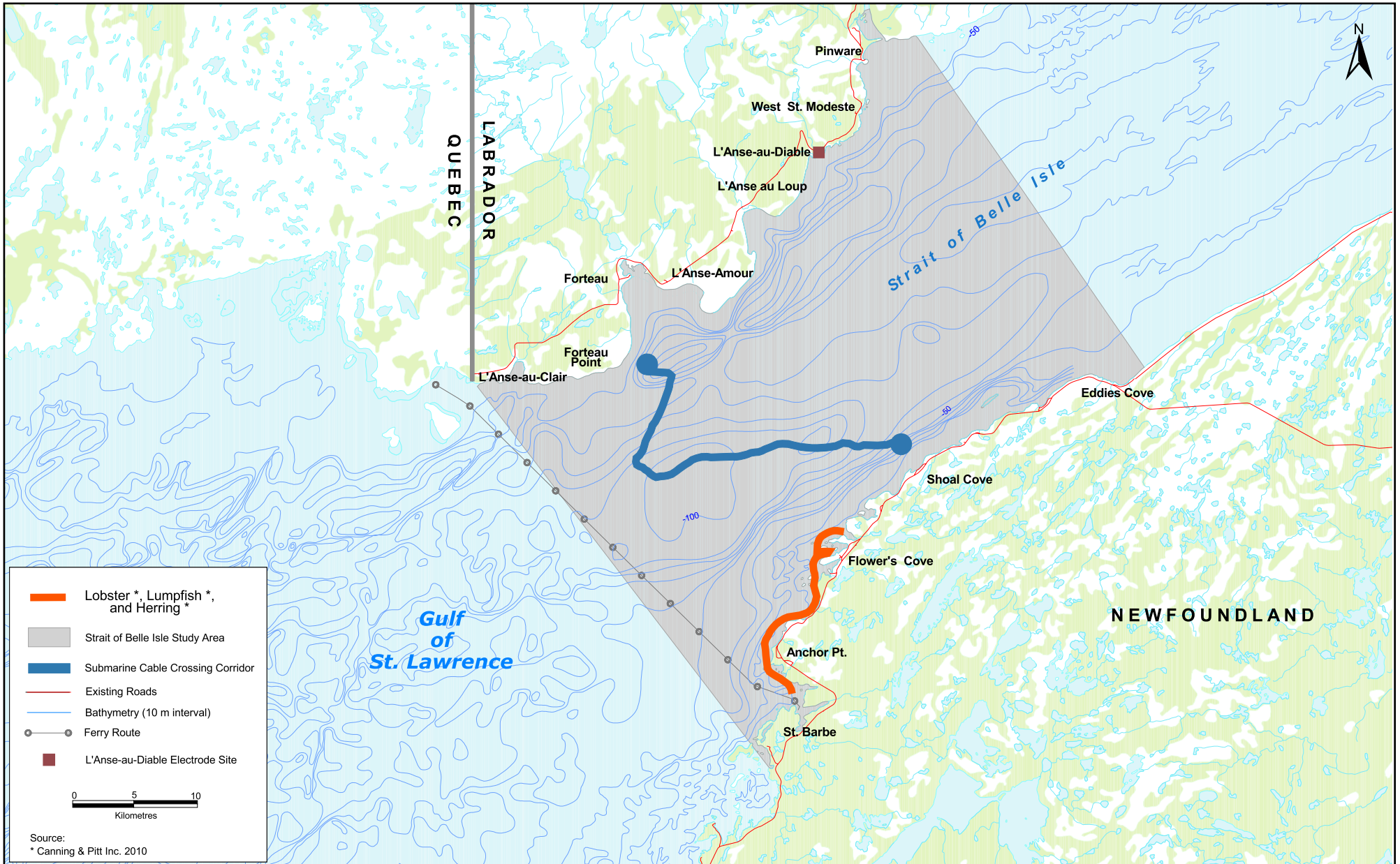


FIGURE 15.6.4-3



Reported Lobster, Lumpfish and Herring Harvesting Locations, Strait of Belle Isle Study Area