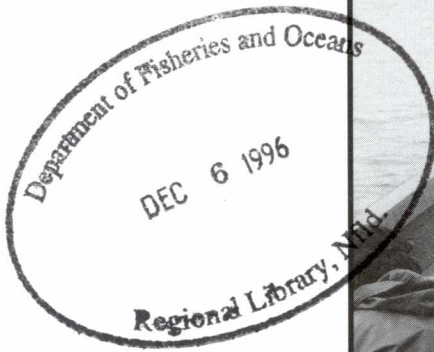


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**PROJECT  
SUMMARY**

*Whelk Harvesting  
and Processing:  
A Status Report*

CAFID #13

1996



### INTRODUCTION

Interest in commercial whelk fishing in Newfoundland began with the development of a fishery on the Quebec North Shore in the early 1980's. Since that time several attempts have been made by a number of Newfoundland fishermen and processors to develop a fishery in this province.

Although these attempts have not been successful, there remains a sense of optimism within the industry that a viable whelk fishery is possible.

### BIOLOGY AND DISTRIBUTION

The common whelk (*Buccinum undatum*) is a marine snail which occurs from the intertidal zone to deep water primarily on bottoms of mud mixed with sand and shells. It is widely distributed from Labrador to New Jersey in the west Atlantic and from the United Kingdom to the Mediterranean in the East Atlantic. It has a spirally coiled shell and color generally ranges from pale green to beige.

Table 1: Summary of whelk fisheries.

	Vessel Size (ft)	# of Pots Per Vessel	Catch lbs/pot
QUEBEC	20 - 25	100	15 - 20
ENGLAND	50 - 70	up to 1200	5 - 6
IRELAND	25 - 30	300 - 400	5 - 6
IRELAND	50 - 70	400 - 700	5 - 6

## HARVESTING

The most efficient method of harvesting whelk is by baited pots. Whelk are harvested commercially along the Quebec North Shore (Sept Isles) and in parts of England and Ireland (see Table 1).

In Quebec, the pots used are generally the iron framed pyramid or conical type covered with netting (see Figure 1). The basic design used in most experimental fisheries in Newfoundland is the conical pot. In England and Ireland the primary pot used is a modified plastic container (see Figures 2 and 3). These containers are weighted at

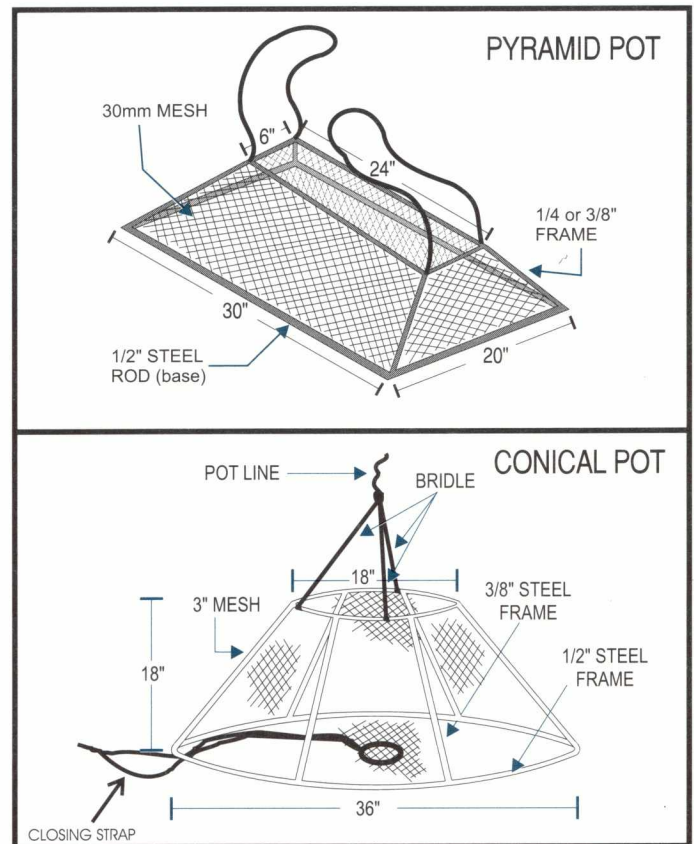


Figure 1: Typical pyramid and conical whelk pots.

the bottom with cement or by other means. A rope bridle is used for lifting and a piece of netting covers the top of the container. A rope or some other mechanism is positioned in the center of the pot to secure the bait.

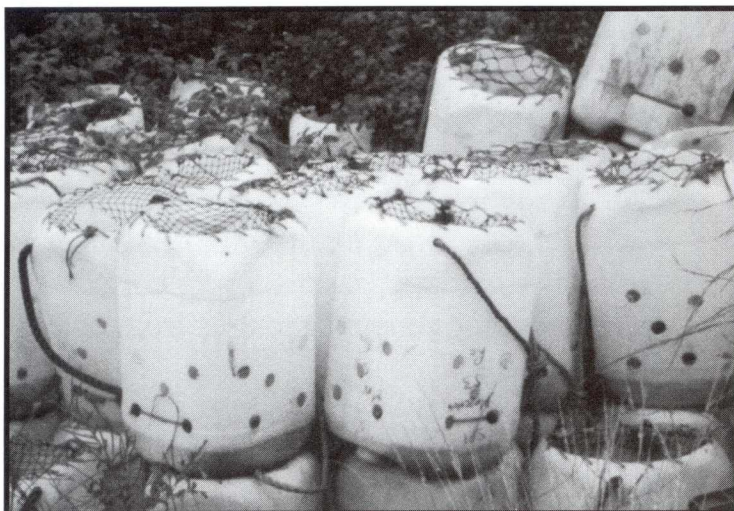


Figure 2: One type of pot used by fishermen in England.

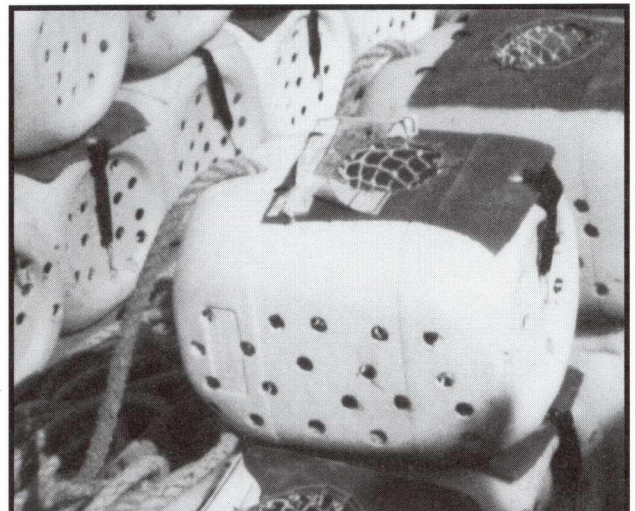


Figure 3: One type of pot used by fishermen in Ireland.

The netting allows large whelks to enter the pot while preventing access to other species such as crab and wolfish that would prey on the bait. The entire container is drilled with holes to allow water to escape and to reduce resistance to tides when setting and hauling. The holes can be sized to serve as an escapement mechanism for undersize whelks adding to the selectivity of the gear. Some of these features have been incorporated into a conceptual pot design shown in Figure 4. The ability to stack these pots is an important handling feature.

A wide variety of baits have been used by whelk fishermen. Salted herring, crab bodies, groundfish frames, etc. are reported to be effective. Some means of protecting the bait from predators such as bait bags or bottles is recommended.

## PROCESSING AND MARKETING

Some basic product forms currently marketed include:

### 1 - Live in the shell

Where there is a demand for fresh live whelk and where product is landed close to the market, whelks may be shipped live in the shell.

### 2 - Cooked in the shell

Meats are manually extracted and frozen, canned, marinated or bottled. Due to the high labour cost, usually only the larger meats are extracted manually.

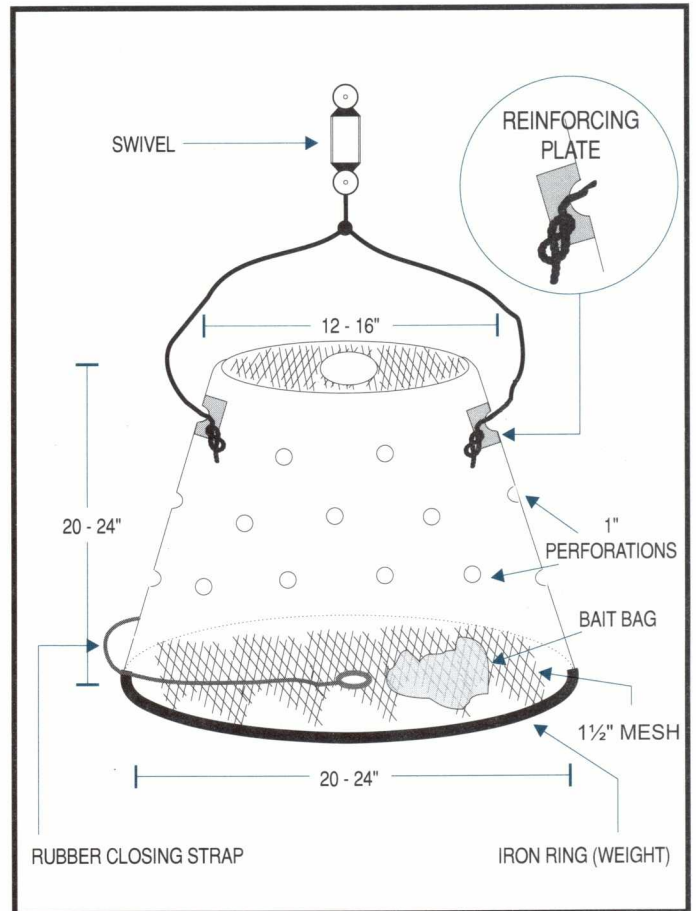


Figure 4: Conceptual design for a container type whelk pot.

### 3 - Frozen Meats

Whelks are processed using mechanical equipment such as shell crushers, specialized washers and shell and gut separators. Extracted raw meats are packed and frozen in blocks. This processing method is used extensively in Quebec, England and Ireland. The major markets for this product form are Korea and Japan.

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## **DEVELOPMENTS IN NEWFOUNDLAND AND LABRADOR**

Encouraged by a successful commercial whelk fishery in Quebec in 1985/86, harvesters and processors in Newfoundland became interested in this resource.

In 1986, DFO personnel conducted a preliminary review of harvesting and processing operations in Quebec and provided the information to the Newfoundland industry.

In 1987, the Fisheries Development Branch of DFO, conducted the first commercial fishing trials in the St. Lunaire, St. Anthony, Lumsden, Bonavista and Little Bay Islands areas. Approx. 4,700 lbs of whelk (live weight) were processed at the S.T. Jones plant in Little Bay Islands. While catches varied, catch rates of up to 17 lbs/pot were reported in some areas. The minimum marketable size at the time was 60mm (shell height). Of the whelk landed 98% were 60mm or greater. Low prices compared to fishermen's expectations combined with a strong traditional groundfish fishery at the time deterred further development until several years later.

In 1991 and 1992, the Labrador Fishermen's Union Shrimp Company with assistance from the Canada/Newfoundland Inshore Fisheries Development Agreement (NIFDA) attempted to establish a whelk fishery in southern Labrador in the l'Anse au Clair to Red Bay areas. Approximately 60,000 lbs of product was landed in 1991 and 100,000 lbs in 1992. Whelk were processed (raw frozen meats) at the Labrador Fishermen Union Shrimp Company's plant in Forteau.

In 1991 two fishermen involved in this fishery, reported catches ranging from 1200-1800 lbs daily from 50 pots. (sometimes hauled twice a day). In 1992, however, catches dropped to 700-800 lbs per day. This may have been due to an increase in the number of fishermen fishing in the relatively small area. Due to a strong cod fishery in the area and low market prices for whelk at the time, efforts did not result in the establishment of a commercial fishery. Fishers and processors opted to pursue other more profitable resources as these opportunities were presented.

Over the past few years some fishermen have been spurred by incidental catches of whelk in other directed fisheries such as crab and lobster. This has led to several attempts by these fishermen to harvest whelks in these areas which include the northwest portion of the Great Northern Peninsula, Fogo Island and Bonavista, Trinity and Conception Bays. Results from these efforts have not been encouraging with catch rates of 1-5 lbs/pot being reported. Lack of success may be attributable to a number of reasons including low fishing effort, areas fished and time of year.

## **CURRENT STATUS** *(Quebec, United Kingdom & Ireland)*

### Quebec

Fishermen along the Quebec North Shore (Sept Isles area) have traditionally fished whelk for domestic consumption, to satisfy a small local market and markets in Montreal.

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In 1985, a commercial fishery was established as a result of an increase in demand from Japan.

Currently there are 311 licenses in the region with vessel sizes ranging from 20-50 ft. Approximately 20 % of the licenses are active, and most enterprises use 20-25 ft vessels. Of the active enterprises, 15-20 rely on the whelk fishery for their primary source of income. These fishermen have reported individual landings up to 75,000 lbs of whelk (live weight) per season (6 - 12 weeks) with catch rates of 15-25 lbs/pot (see Table 2). Each enterprise is restricted to 100 pots and the price paid to fishermen in 1995 for whole whelk was \$0.25/lb.

### England

The whelk fishery in England is over 40 years old. It was initiated by small boats and has evolved to 50-70 ft vessels fishing up to 1200 pots. An average catch rate per pot left to fish for 24 hours is reported to be approximately 5 lbs/pot. It is estimated that annual landings are 5,000-6,000 t (live weight). The main markets are Japan and Korea with smaller markets in western Europe.

### Ireland

This fishery has emerged the past 5 years with landings growing from 49 in 1990 to 5,000 t in 1995. There are approx. 70 vessels involved in the fishery with no restrictions on the number of pots used per enterprise. Vessels vary in size from 25-70 feet fishing anywhere from 300 - 1,200 pots. Catches of 5-6 lbs/pot for a 24 hour soak

Table 2: Quebec shell weight landings for past five years.

	Upper Middle North Shore (East & West of Sept Isles)	Lower North Shore (Blanc Sablon & West)
1991	751 MT	No Buyers
1992	586 MT	No Buyers
1993	546 MT	No Buyers
1994	410 MT	16 MT
1995	467 MT	81 MT

period is average. The best fishing results are usually obtained in 15-40 fathoms in areas with strong tides on sand or mud bottoms.

Irish production for Japan is crushed, washed and frozen raw product. Product destined for Korea is primarily cooked, crushed, washed and frozen. Yields obtained from processing average 18%.

## DISCUSSION

The many attempts to establish a commercial whelk fishery in Newfoundland have not been successful for a variety of reasons including;

**Timing/Prices** - During attempts in 1987 market prices dropped to 50% of that offered in 1986. This was subsequently reflected in prices offered to fishermen resulting in a reduction of fishing effort.

**Alternatives** - Generally, fishermen have had other more established and lucrative fisheries to turn to.

***Continuity of Supply*** - Lack of a steady supply has prohibited the processing sector from optimizing production costs to make operations economically attractive. Lack of supply has negatively affected market presence and penetration.

### ***PRESENT STATUS (1996)***

The increased demand now occurring in Ireland and in the UK has created a renewed interest in whelk fishing in Newfoundland.

The decline of traditional species such as cod, has forced fishermen and processors to seek out alternative fisheries to maintain their respective enterprises. Two local processors started buying whelk during the summer of 1996, offering up to 35¢ per lb for whole whelk. Some 50 fishing enterprises are participating with varying numbers of pots. As of September 30

landings of 325,000 lbs (round weight) have been reported. Based on these results and encouraging reports from individual fishermen fishing activity is expected to increase. A number of development projects have also been initiated to investigate pot design and processing methods to help this new fishery become more efficient and profitable.

### ***THE CAFID PROGRAM***

The Cooperation Agreement for Fishing Industry Development (CAFID) is a multi-year development agreement jointly administered and delivered through the Federal Department of Fisheries and Oceans (DFO) and the Provincial Department of Fisheries and Aquaculture (DFA). The objective of the Agreement is to assist the Newfoundland fishing industry to be self-sustaining and viable in the present resource short environment.

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