1 Introduction

Sea urchin roe, or "uni" as it is known in Japan, has long been considered a delicacy in that country. It is one of the most popular and also most expensive items in sushi bars. Consumption in Japan had been relatively stable due to limited domestic production capability and the high cost of imported product, until the yen hike in late 1985. The strong yen, however, permitted importation of sea urchin roe at much lower prices in yen terms, and this resulted in rapid expansion of imports. Consumer demand for sea urchin, and indeed for all high-quality seafood species, has continued to strengthen in line with increased disposable income.

Canada has been one of the main beneficiaries of the increased demand and is now one of the major suppliers, with exports on c.i.f. basis of C$12.5 million in 1988 and estimated at C$14 million in 1989. Sea urchin represents an excellent growth opportunity for Canada and exports could potentially reach C$50 million in five years.

2 Domestic Industry

There are about a dozen sea urchin species found along the Japanese coast. The major species harvested commercially for human consumption are listed in Table 1.

Table 1

Major Sea Urchin Species

Scientific Name	Commercial Name
Hemicentrotus pulcherrimus	bafun-uni or horse-dung sea urchin
Anthocidaris crassispina	murasaki-uni or purple sea urchin
Strongylocentrotus nudus	kita- (or ezo-) murasaki uni or northern purple sea urchin
Pseudocentrotus depressus	aka-uni or red sea urchin

Of the four species, the most popular and expensive are bafun and the two murasakis. Although these species are found along a large portion of Japan's coastline, commercial harvesting is limited to the areas from Hokkaido to Miyagi Prefecture on the Pacific coast, and from Hokkaido to Akita Prefecture on the Japan Sea coast. To ensure freshness, shipments to major fish markets such as Tokyo (Tsukiji), Osaka, Nagoya, etc. are made by air from these local production centres.

The roe of the purple sea urchin species is light yellow in colour, and as a result this roe is called "white" on the fish markets. The roe of the bafun sea urchin is an orange, red, or pink colour and has a "red" designation. The species called "red" or "purple" on the west coast of North America is similar to the Japanese purple species, while the green sea urchin of North America's east coast is similar to Japan's bafun species. As a general rule, consumers in the Tokyo area favour both "white" and "red" equally, while people in the Kansai (Osaka) and Nagoya areas prefer the "red" species over the "white."

The harvesting period for the major production centres in Hokkaido and northern Japan extends from April to mid-September. During this period, when the market is well supplied by both domestic and imported sea urchin roe, prices tend to be significantly lower than average. During the balance of the year, while there is some harvesting in other areas of Japan, the majority of the market is supplied by imports.

Sea urchin is harvested in various ways, including diving, scooping with a net from a boat, dragging, and using cages (trap with kelp). Of these harvesting methods, diving is the most preferable as it does not damage the sea urchin. Dragging is the least preferred as it can harm not only the sea urchin harvested, but also the seabed.

The main feed consumed by sea urchin is kelp. Therefore, the quality of sea urchin depends, to a certain extent, on the quality of kelp in the harvesting areas. It is reported that high-quality imported sea urchin is harvested in those areas where the kelp is similar to that found in the major sea urchin harvesting areas of Japan.