

# Prospects are promising for Crops from the sea

Although the oceans cover about 70 per cent of the earth's surface and contain vast storehouses of natural wealth, the science of oceanography is still relatively new. But in the face of burgeoning populations and the threat of insufficient food supplies from the land, there is a world-wide surge of scientific interest towards a greater understanding of the oceans and of ways of recovering from them abundances of food.

Canadian scientists share this interest and a variety of research projects are in progress to learn more about the food-producing capabilities of the three oceans on Canada's east, west and north coasts. One of these projects involves studies by the National Research Council of Canada on the application of scientific agriculture to the cultivation of seaweeds.

Extracts from a variety of species of seaweed find more than 40 different uses as gelling or stabilizing agents in the food, pharmaceutical and textile industries. At present these plants are harvested in their wild state. Unless an effort is made at commercial cultivation, there will not be sufficient wild supplies to meet a growing demand for seaweed extractives.

In Western culture, the production of seaweed ash (soda and potash) was important to the economy of the isles

of Scotland in the 18th century, and later Glasgow was a centre for the manufacture of iodine from marine algae. These industries disappeared as products from mineral deposits became available. Three centuries ago, the Japanese began cultivating certain species of edible marine algae on bundles of bamboo placed in intertidal zones. For many years this cultivation was merely a matter of providing a support to which spores of the plants could attach themselves. More recently, it has developed into a science. Today, more seaweed is eaten in Japan than either meat or fish and some 300,000 people are employed in the nori (a food made from cultivated species of red algae) industry.

Canada's interest in seaweeds dates back to the beginning of the Second World War, when Japanese supplies of the gelling agent agar were cut off. Irish moss from Nova Scotia and Prince Edward Island began to fill the bill, and Canada has had an interest in seaweeds ever since.

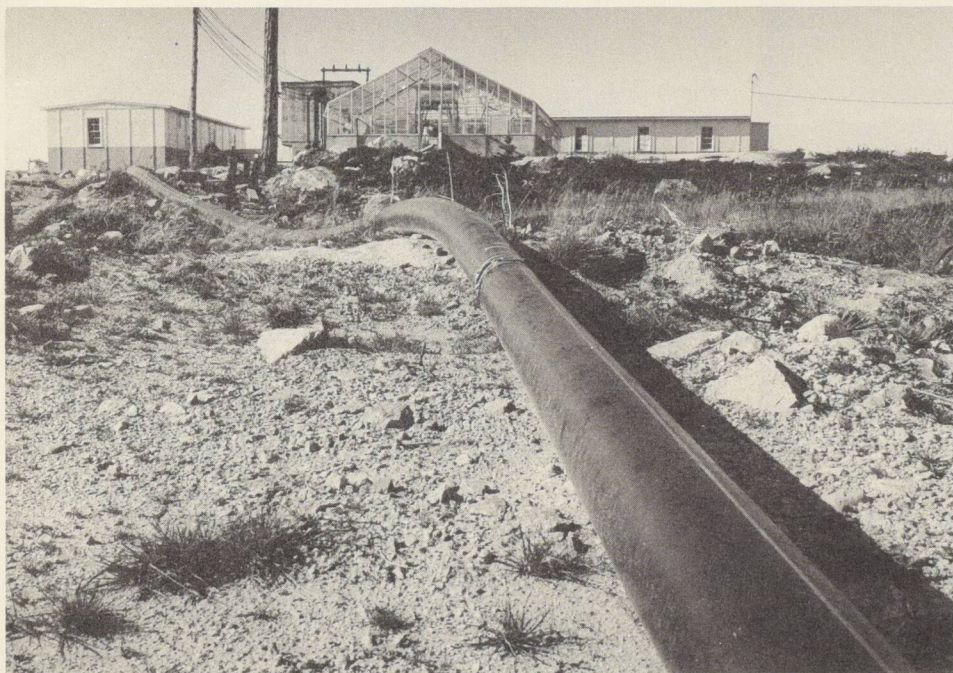
Seaweeds of the Atlantic provinces are of commercial interest mainly as a source of gelling agents. Some, such as Irish moss are collected by fishermen and sold to processors in the United States. These red algae are used as a source of carrageenan, a polysaccharide that finds a number of uses such

as the preparation of jellied meats, or the stabilization of suspensions, including chocolate milk. Alginate, prepared in Nova Scotia, is widely used in the food industry for the preparation of low calorie desserts and to improve the physical properties of prepared foods, including cake mixes.

The seaweed industry in the Atlantic provinces is worth about \$1,000,000 annually. However, the long, convoluted coastline (5,000 miles in Nova Scotia alone) and large areas of shallow inshore waters favorable for growth of extensive beds of marine algae, make this part of Canada ideally suited for expansion of the industry. Marine algae are also sensitive to pollution and can best be cultivated in regions that are not heavily industrialized.

The Council's seaweed research project is being conducted by its Atlantic Regional Laboratory in a special seaweed research station at Fink Cove, 12 miles south of Halifax near Sambro. This site was chosen because it is very exposed, ensuring good mixing of the cove's relatively clean water with the open sea.

The station consists of a combined greenhouse and laboratory, pumping house and filtering house. A constant stream of seawater is pumped to tanks



The seaweed research station at Fink Cove. The pipe in the foreground carries seawater from the cove to the pumping station.

*Le laboratoire de recherche de Fink Cove. Le tuyau qu'on aperçoit au premier plan amène l'eau de mer à la station de pompage.*