69-07

THE NEW ENGLAND YELLOWTAIL FLOUNDER

by

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The yellowtail fishery is second only to sea scallops in economic importance to New Bedford. The 53 million pounds landed here in 1968 put $5.5 million into the pockets of Port fishermen. Countless others in this city, and in New England generally, reaped benefits - directly and indirectly - from the harvest. For this species has arrived - at the dinner table it is a winner.

But the layman frequently has only a vague acquaintance with the fish that comprises this valuable resource. What is the nature of the animal? How has a fishery come about? What has happened in the fishery? More importantly, what is likely to happen in the future? I would like to touch briefly on all of these questions, using some of the information gathered by the Bureau of Commercial Fisheries from various sources over a period of years.

(Photo: -Yellowtail flounder)

Yellowtail, like other flounders and halibut, are flatfish. They live in close association with the bottom, spending much time lying right on the bottom. The yellowtail is found where the bottom is of sand and, usually, some distance off shore where water depth is about 20 to 40 fathoms. This fish is distributed along the Atlantic coast all the way from Newfoundland to Cape Hatteras. But the principal areas

where they are concentrated and fished are shown by the shaded areas in the accompanying chart. About 90 percent of the United States catch comes from the southern New England grounds and Georges Bank. All are caught by otter trawl.

(Photo: Chart of fishing areas)

Newly hatched yellowtail, which are spawned about mid-May, drift about in waters above the bottom and feed on plankton until they reach "postage stamp" size of a little under an inch in length in August. By then they have taken on their adult characteristics and they move to the bottom for the remainder of their lives. Growth is fast, as figures in the following table show. These are average values for the southern New England grounds and Georges Bank, combined.

Age (years)	Length (inches)	Weight (pounds)
1	5.0	0.1
2	10.8	0.4
3	13.5	0.9
4	15.0	1.4
5	16.3	1.8
6	17.2	2.0

Yellowtail start to come into commercial otter trawl landings as 2-year-olds and make their peak contribution to the catch at age 3. By the time they reach ages 4 and 5 their numbers have been diminished greatly because of the high intensity of fishing. Few escape to survive to ages 6 and 7 or over.

Fishing for yellowtail began in the 1930's. Some oldtimers say that a shortage of blackback then, another valuable flounder, led fishermen to seek yellowtail. At any rate, the fishery developed rapidly, for yellowtail were abundant. The second world war, and the impetus it gave to food production, saw landings rocket to nearly 70 million pounds by 1942. (See accompanying graph.) New Bedford became the principal port and held that position: about 75 percent of the U. S. yellowtail catch currently is landed here.

But fish became less plentiful after 1942 and, as the landings graph shows, the catch dropped rapidly. By 1954 it was only 13 million pounds. And fishing effort for the species had dwindled to a fraction of its former level.

From that point on abundance made a fairly steady recovery, finally expressed in all-time high landings of about 80 million pounds in 1963, 1964 and 1965. While abundance and catch have dipped since these peak years, they have not taken the precipitous drop to levels of the 1950's.

(Photo: Graph of landings)

Information and samples that we have collected from commercial yellowtail vessels indicates that wide variations in abundance and catch in this species have stemmed from variations in survival of spawn from year to year. The peak in the landings graph in 1963, for example, stemmed from very good survival to adult size of eggs spawned in 1958, 1959, and 1960. Fish from these strong year classes all contributed to the 1963 catch as 3-, 4-, and 5-year-olds. Valleys in the catch graph are related to periods of below average survival of spawned eggs.

Abundance during the catch upturn of the 1960's has held up quite well because good year classes have come along frequently enough to prevent a sharp decline. This condition, however, is most unlikely to continue indefinitely. The record of the past is our best index to what will happen in the future. This record indicates that we could well get a series of poor year classes, and at the currently high levels of fishing intensity even one poor year class would be serious.

As yellowtail became more abundant in recent years, more boats have fished for them. If enough boats are put to the task, it is clear that they can catch enough fish to deplete the stock no matter what its original abundance level was. There are signs that the level of fishing effort for yellowtail is now about at, or perhaps slightly over, the maximum that the fishery can sustain even with good year classes. Addition of more boats to the fishery would be courting danger.

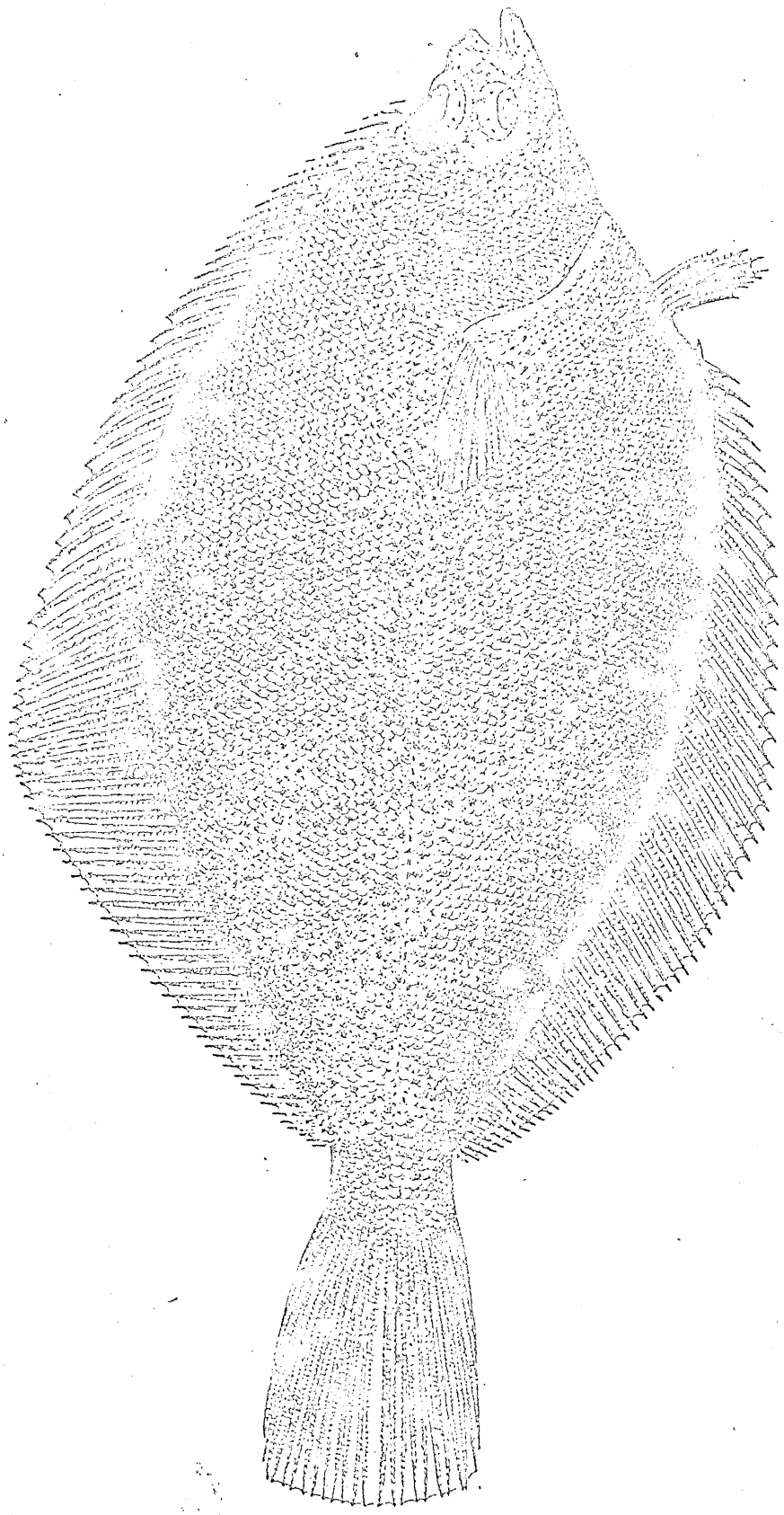
But this is not the entire problem. Yellowtail come in to the catch at young ages when they still are growing rapidly. If the age when they make their peak contribution to the catch could be shifted from age 3 to age 4, and if 2-year-olds were eliminated from the catch, an increase in weight yield from a year class would be obtained as a glance at the growth table will show. The fish more than double their weight between age 2 and age 3. All evidence indicates that few of these young fish would die from natural causes in the meantime, and small fish left behind today could be reserved for harvest at bigger sizes (and perhaps better prices) tomorrow.

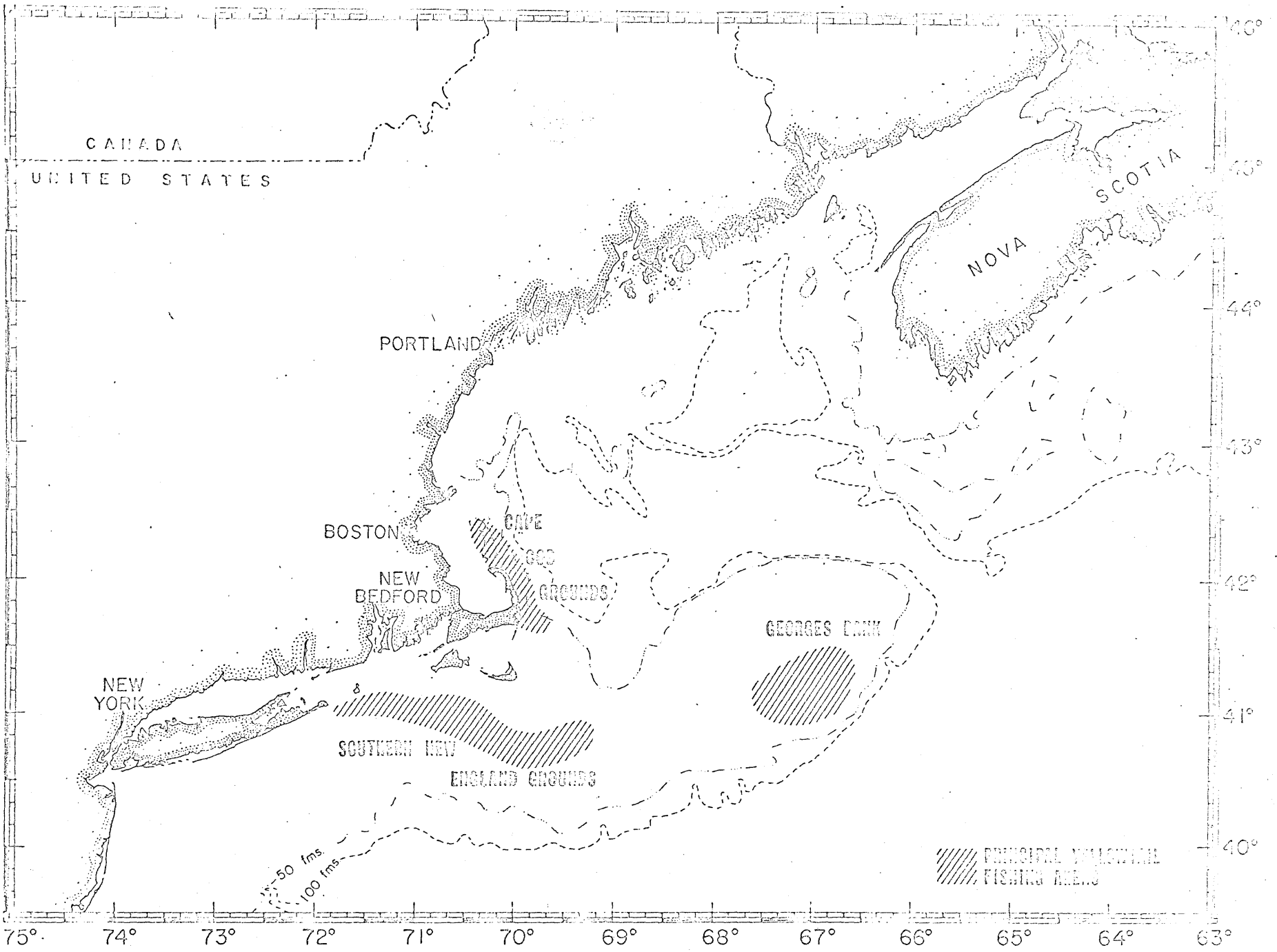
What steps possibly can be taken to avoid repeating the pattern of the past in the yellowtail fishery? There are two management measures that might be applied that I believe could have significant results. The first of these is to protect small fish so that they can be caught at larger sizes later. The second is to limit in some way the fishing effort so that the yellowtail stocks are not overfished.

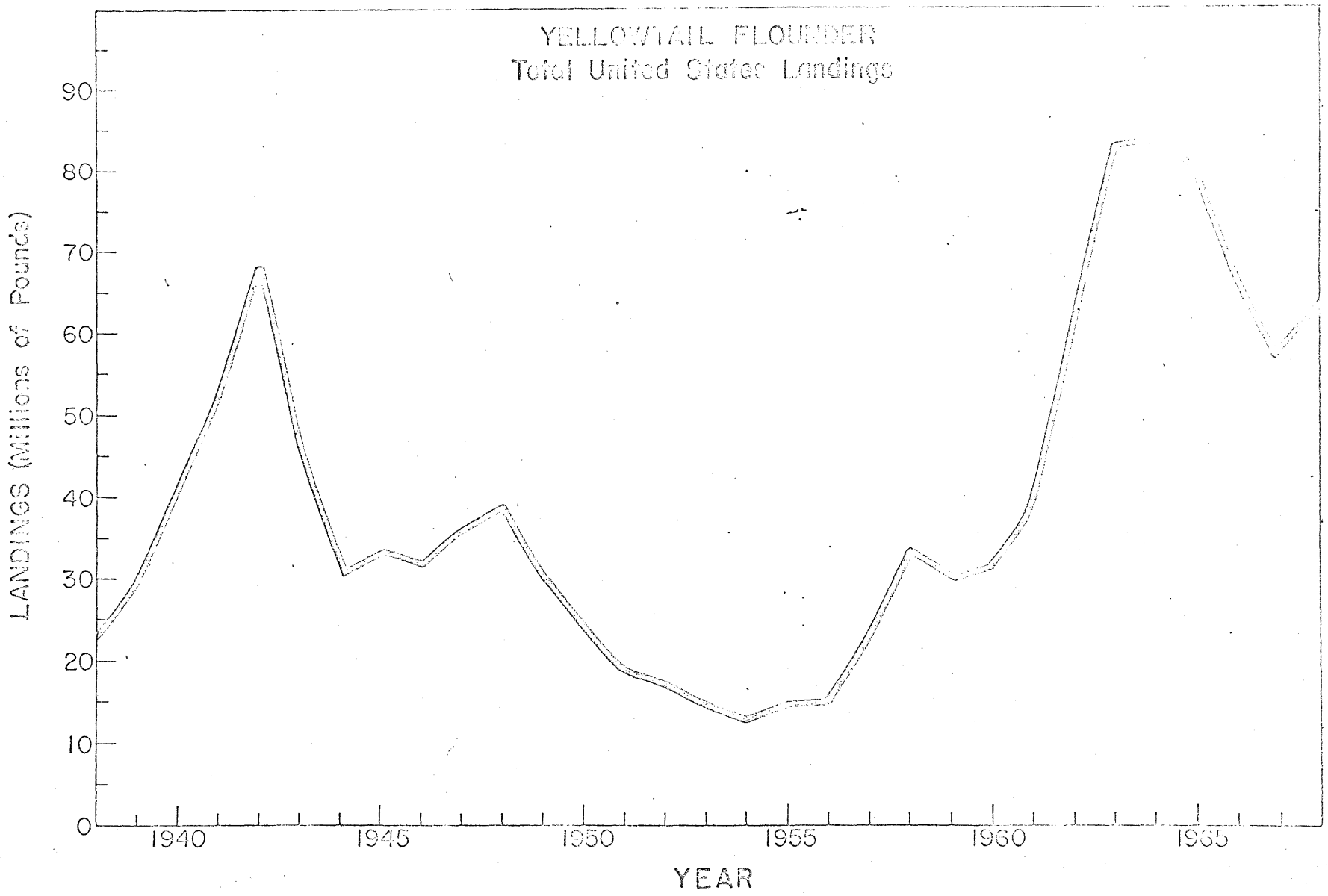
Protection of small fish could probably best be achieved by requiring, through international regulation, that yellowtail vessels use a larger mesh net than the 4-1/2 inches that currently is used. The market requires fish of about 3/4 lb. and over. The 4-1/2 inch mesh retains many fish under this size, and these are discarded, mostly dead, at sea. Our mesh studies indicate that many of the small fish would be released by using a mesh larger than 4-1/2 inches. As I have shown, these small fish grow fast, and if saved they would contribute much to the catch in later years. Also, this could help in damping out the fluctuations in catch if combined with effort limitations.

Limiting fishing effort probably could be most easily accomplished through setting a quota on the catch for each year. When the quota is reached the fishing is stopped. The quota would need to be based on biological information collected from the commercial fleet and by research vessels. If sufficient data are gathered, it is possible to determine the maximum catch that can be permitted each year without hurting the yellowtail stocks. This may be referred to as the harvestable surplus.

While setting a catch quota poses problems such as who is going to get the fish and how can a constant supply be maintained throughout the year, these problems are far from insurmountable. And, in any case, it seems preferable to attempt management measures of this kind now than to repeat endlessly the boom and bust cycles of the past with their accompanying economic effects.




CANADA
UNITED STATES
NOVA SCOTIA
PORTLAND
BOSTON
NEW BEDFORD
CAPE COD GROUNDS
NEW YORK
SOUTHERN NEW ENGLAND GROUNDS
GEORGES BANK
50 fms.
100 fms.
PRINCIPAL COMMERCIAL FISHING AREAS
75°
74°
73°
72°
71°
70°
69°
68°
67°
66°
65°
64°
63°
45°
44°
43°
42°
41°
40°


YELLOWTAIL FLOUNDER
Total United States Landings
LANDINGS (Millions of Pounds)
0
10
20
30
40
50
60
70
80
90
1940
1945
1950
1955
1960
1965
YEAR