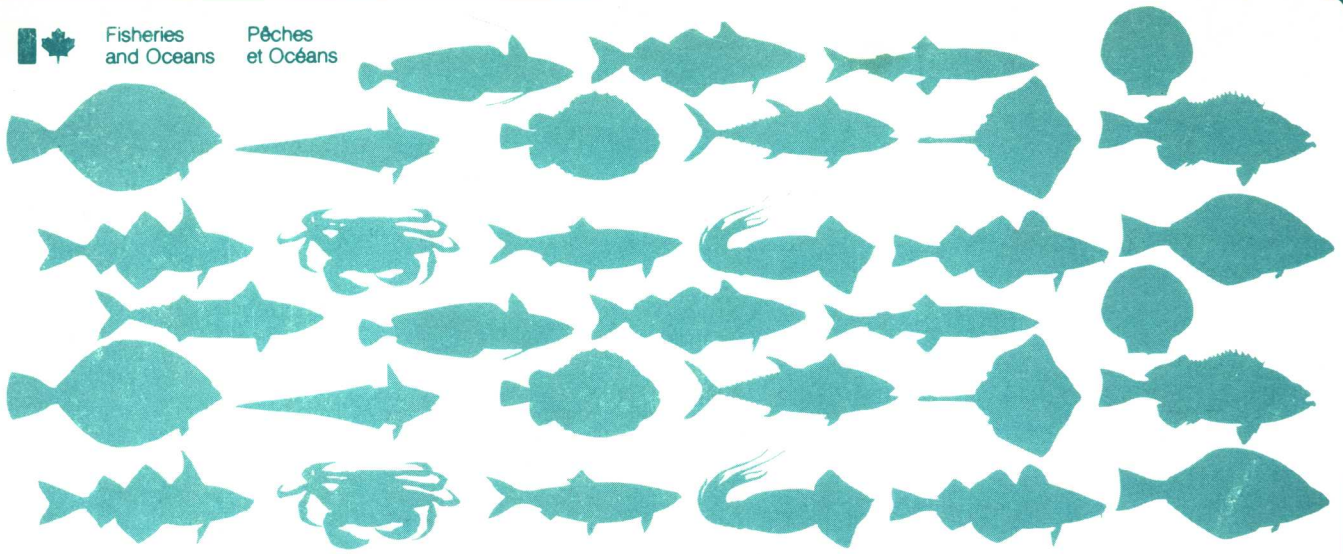


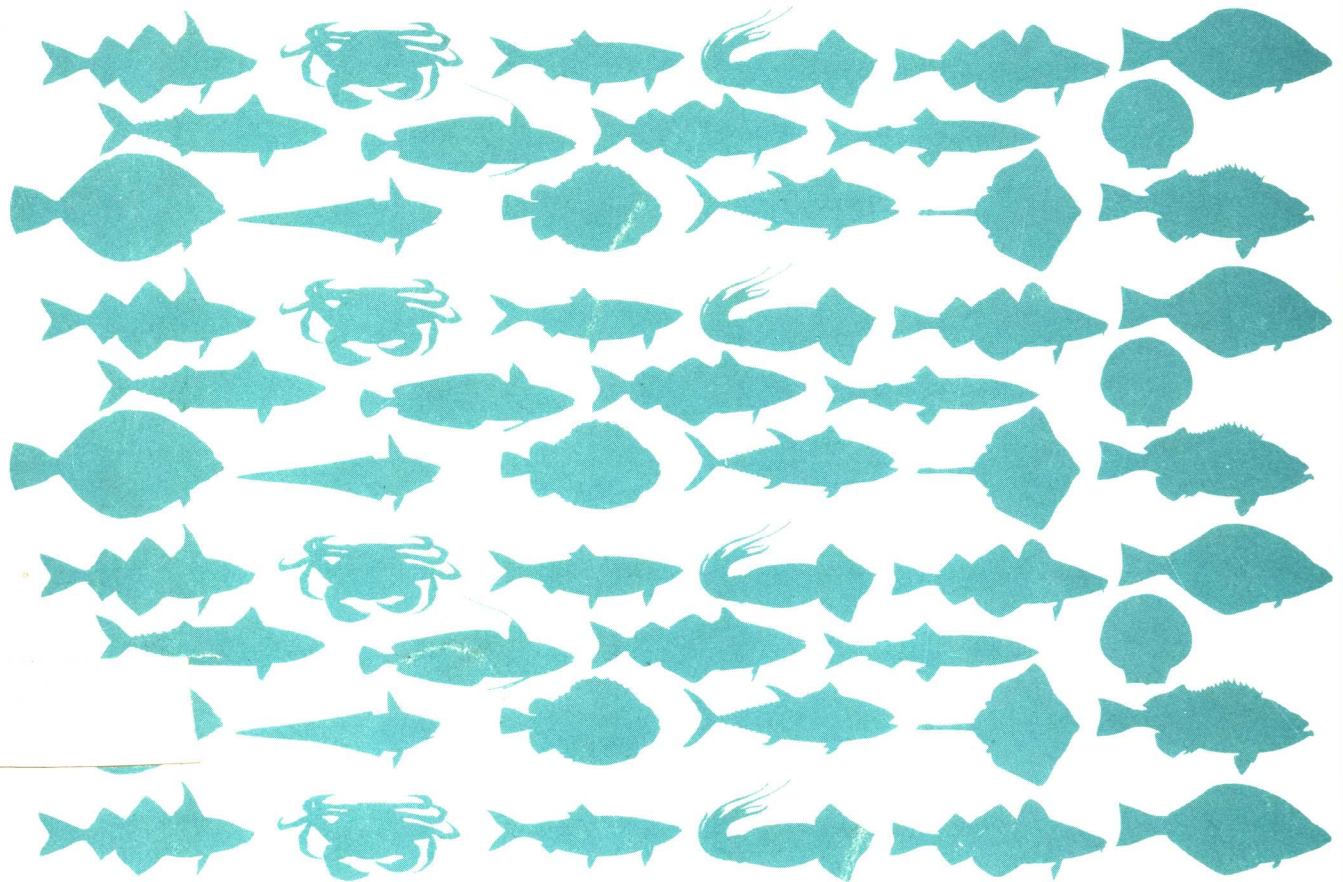


Fisheries
and Oceans

Pêches
et Océans



Resource Prospects for Canada's Atlantic Fisheries 1985-1990



RESOURCE PROSPECTS
for
Canada's Atlantic Fisheries
1985-1990

June 1985

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TABLE OF CONTENTS

	Page
Introduction	1
Changes in the Forecast	4
Species Overview	5
Groundfish	5
Cod	5
Haddock	5
Redfish	5
Flatfish	6
Pollock	6
Roundnose Grenadier	6
Argentine	6
Other Groundfish	7
Groundfish Summary	7
Pelagic Fish	8
Herring	8
Mackerel	8
Capelin	8
Finfish Summary	8
Invertebrates	8
Lobster	8

	Page
Scallops	9
Shrimps	9
Crabs	9
Oysters	9
Squid	10
Clams	10
Marine Plants	10
Marine Mammals	10
Seals	10
Geographic Overview	11
Gulf of St. Lawrence	11
Scotian Shelf	11
Grand Banks-South Newfoundland	11
Northern Newfoundland-Labrador	12
Baffin Bay - Davis Strait	12
Stock-by-Stock Forecast	12
Groundfish	12
Cod: Northern Labrador (2GH)	12
Cod: Southern Labrador-Northern Grand Bank (2J+3KL)	13
Cod: Flemish Cap (3M)	14
Cod: Southern Grand Bank (3NO)	14
Cod: St. Pierre Bank (3Ps)	15

	Page
Cod: North and East Gulf of St. Lawrence (4RS, 3Pn)	16
Cod Stocks in the Western Gulf of St. Lawrence and Eastern Scotian Shelf (4T, 4Vn, 4VsW).	17
Cod: Sydney Bight (4Vn) (May-December)	17
Cod: Southern Gulf (4T) and Sydney Bight (4Vn) (January - April)	18
Cod: Banquereau-Sable Island (4VsW)	18
Cod: Browns Bank (4X)	19
Cod: Georges Bank (5Ze)	20
Pollock: Scotian Shelf and Georges Bank (4VWX+SA5)	20
Silver Hake: Scotian Shelf (4VWX).....	21
Haddock: Browns Bank (4X)	22
Haddock: Scotian Shelf (4VW)	23
Haddock: Georges Bank (5Ze)	24
Redfish: Labrador-N.E. Newfoundland (2+3K)	25
Redfish: Flemish Cap (3M)	25
Redfish: Eastern Grand Bank (3LN)	25
Redfish: Southwestern Grand Bank (3O)	26
Redfish: St. Pierre Bank (3P)	26
Redfish: Gulf of St. Lawrence (4RST)	27
Redfish: Scotian Shelf (4VWX)	28
White Hake: Southern Gulf of St. Lawrence (4T) .	28
White Hake: Scotian Shelf (4VWX)	29

	Page
American Plaice: Labrador-Northeast Newfoundland (2+3K)	29
American Plaice: Grand Bank (3LNO)	30
American Plaice: Flemish Cap (3M)	31
American Plaice: St. Pierre Bank (3Ps)	32
American Plaice: Southern Gulf of St. Lawrence (4T)	32
Witch: Labrador-Northern Grand Bank (2J+3KL) ...	33
Witch: Southern Grand Bank (3NO)	33
Witch: South Newfoundland (3Ps)	34
Witch: Northern and Eastern Gulf of St. Lawrence (4RS)	34
Flatfish: Scotian Shelf (Plaice, Witch, Yellowtail and Winter Flounder) (4VWX)	35
Winter Flounder: Southern and Western Gulf of St. Lawrence (4T)	36
Yellowtail: Grand Bank (3LNO)	36
Greenland Halibut: Davis Strait (0+1)	37
Greenland Halibut: Labrador-Northern Grand Bank (2+3KL)	38
Greenland Halibut: Gulf of St. Lawrence (4S) ...	39
Roundnose Grenadier: Labrador-Grand Bank (2+3) .	39
Argentine: Scotian Shelf and Georges Bank (4VWX)	40

	Page
Other Finfish: Labrador Grand Bank	40
Other Finfish: Gulf of St. Lawrence (4RST)	40
Other Finfish: Scotian Shelf (4VWX)	41
Pelagic Fish	41
Herring	41
Herring: Newfoundland	41
Herring: West Coast Newfoundland (4R)	42
Herring: Southern Gulf (4T)	43
Herring: Scotian Shelf including Bay of Fundy (4VWX)	44
Herring: Gulf of Maine (5Y), and Georges Bank and South (5+6)	45
Mackerel: Northwest Atlantic (3-6)	46
Capelin: Labrador and Grand Bank (2+3)	47
Capelin: Gulf of St. Lawrence (4RST)	48
Bluefin Tuna	48
Swordfish	49
Anadromous and Catadromous Fishes	49
Atlantic Salmon: General	49
Atlantic Salmon: Newfoundland and Labrador	50
Atlantic Salmon: Scotian Fundy	50
Atlantic Salmon: Gulf	51
Arctic Char	52
Gaspereau	52
Eel	53

	Page
Other Anadromous-Catadromous Species	53
Invertebrates	53
Lobsters: General	53
Lobsters: Nova Scotia	54
Lobsters: Southeast Coast (Districts 5, 5A, 6A and 7A)	54
Lobsters: Bay of Fundy, Southwest Nova Scotia District 4A and Offshore (NAFO Divisions 4X and 5Ze)	55
Lobsters: Southern Gulf of St. Lawrence (Districts 7B, 7B1, 7C and 8)	56
Lobsters: Newfoundland	57
Lobsters: Québec	58
Shrimp: General	58
Shrimp: Gulf of St. Lawrence (4RST)	59
Shrimp: Nova Scotian Shelf (4VWX)	60
Shrimp: Ungava Bay, Eastern Hudson Strait, and Baffin Island	61
Shrimp: Davis Strait	61
Shrimp: Labrador (2)	61
Snow Crab: General	62
Snow Crab: Estuary and North Shore	62
Snow Crab: Southwest Gulf (4T)	63
Snow Crab: West Coast of Cape Breton Island (Areas 1 and 7)	63

	Page
Snow Crab: Atlantic Coast of Cape Breton	
Island (Areas 2-6)	64
Snow Crab: Eastern Newfoundland and Labrador...	64
Other Crabs	66
Sea Scallops: General	67
Sea Scallops: Georges Bank (5Z).....	67
Sea Scallops: Bay of Fundy and Southwest	
Scotian Shelf (4X)	68
Sea Scallops: Eastern Scotian Shelf (4VW).....	68
Sea Scallops: Southwest New Brunswick- Grand	
Manan	68
Sea Scallops: Southern Gulf (4T)	69
Sea Scallops: Newfoundland (3Ps)	69
Iceland Scallops: Strait of Belle Isle	70
Squid: Canadian Atlantic (2-4)	70
Oysters	71
Clams	72
Other Inshore Molluscs	73
Marine Plants	73
Irish Moss	73
Rockweed and Kelp	74
Wireweed	74
Dulse	75

	Page
Marine Mammals	75
Harp Seals	75
Hooded Seals	75
Whales	76
 ANNEX I Definitions of Terms Used	 77

LIST OF TABLES

Table 1	Total Catches and Canadian Catches of Traditional Groundfish from 1970 to 1983 with TAC's and Projected TAC's for 1984 to 1990 for Subareas 2, 3, and 4	79
Table 2	Projections 1986-1990 with catches in 1980-1983 and TAC's for 1984 and 1985, Subareas 2, 3, and 4 ('000s t)	81

LIST OF FIGURES

Figure 1	Map Illustrating NAFO's Convention Area and 200-mile Fishing Zone Boundaries.....	84
Figure 2	Map Showing the Limit of Lobster Districts	85
Figure 3	1982 Lobster Landings	86
Figure 4	TOTAL GROUND FISH: Average catch per day obtained by Canadian otter trawlers of tonnage classes 4 and 5 in Subareas 2,3, and 4	87
Figure 5	TOTAL FINFISH: Landings for 1965-1983, TAC for 1984 and 1985, and projected TAC for 1986-1990	89
Figure 6	TOTAL GROUND FISH: Landings for 1965-1983, TAC for 1984 and 1985, and projected TAC for 1986-1990, from NAFO Subareas 2-4	90
Figure 7	MOLLUSCS AND CRUSTACEANS: Landings by Canada, 1960-1983	91
Figure 8	COD: Landings for 1960-1983, TAC for 1984 and 1985, and projected TAC for 1986-1990, from NAFO Subareas 2-4	92
Figure 9	POLLOCK: Landings for 1960-1983, TAC for 1984 and 1985, and projected TAC for 1986-1990, from NAFO Subareas 2-5	93

Figure 10	SILVER HAKE: Landings for 1960-1983, TAC for 1984 and 1985, and projected TAC for 1986-1990, from NAFO Subareas 2-4	94
Figure 11	HADDOCK: Landings for 1960-1983, TAC for 1984 and 1985, and projected TAC for 1986-1990, from NAFO Subareas 2-4	95
Figure 12	REDFISH: Landings for 1960-1983, TAC for 1984 and 1985, and projected TAC for 1986-1990, from NAFO Subareas 2-4	96
Figure 13	FLATFISH: Landings for 1960-1983, TAC for 1984 and 1985, and projected TAC for 1986-1990, from NAFO Subareas 2-4	97
Figure 14	TOTAL HERRING: Landings for 1960-1983, TAC for 1984 and 1985, and projected TAC for 1986-1990	98
Figure 15	CAPELIN: Landings for 1970-1983, TAC for 1984 and 1985	99
Figure 16	ATLANTIC SALMON: Landings by Canada for 1960-1983	100
Figure 17	LOBSTER: Landings by Canada, 1893-1983 .	101
Figure 18	SCALLOP: Landings (round weight) by Canada from NAFO Subareas 1-6, 1965-1983.	102
Figure 19	SNOW CRAB: Landings by Canada for 1967-1984	103
Figure 20	SHRIMP: Landings by Canada from NAFO Subareas 0-6, 1965-1983	104
Figure 21	OYSTERS: Landings by Canada, 1960-1983 .	105
Figure 22	CLAMS: Landings by Canada, 1960-1983 ...	106
Figure 23	SQUID: Landings by Canada, 1960-1983 ...	107
Figure 24	FINFISH, Scotian Shelf: Landings for 1965-1983, TAC for 1984 and 1985, and projected TAC for 1986-1990	109

	Page
Figure 25 FINFISH, Gulf of St. Lawrence: Landings for 1965-1983, TAC for 1984 and 1985, and projected TAC for 1986-1990	110
Figure 26 FINFISH, Newfoundland and Labrador: Landings for 1965-1983, TAC for 1984 and 1985, and projected TAC for 1986-1990 ...	111
Figure 27 GROUND FISH, Scotian Shelf: Landings for 1965-1983, TAC for 1984 and 1985, and projected TAC for 1986-1990	112
Figure 28 GROUND FISH: Gulf of St. Lawrence: Landings for 1965-1983, TAC for 1984 and 1985, and projected TAC for 1986-1990 ...	113
Figure 29 GROUND FISH, Newfoundland and Labrador: Landings for 1965-1983, TAC for 1984 and 1985, and projected TAC for 1986-1990 ..	114
Figure 30 COD, S. Labrador-N.E. Newfoundland (2J-3KL): Landings for 1960-1983, TAC for 1984 and 1985, and projected TAC for 1986-1990	115
Figure 31 COD, Southern Grand Banks (3NO): Landings for 1960-1983, TAC for 1984 and 1985, and projected TAC for 1986-1990	116
Figure 32 COD, North and East Gulf of St. Lawrence (4RS-3PN): Landings for 1960-1983, TAC for 1984 and 1985, and projected TAC for 1986-1990	117
Figure 33 FLAT FISH, Grand Banks (3LNO): Landings for 1969-1983, TAC for 1984 and 1985, and projected TAC for 1986-1990	118
Figure 34 FLAT FISH, Scotian Shelf (4VWX): Landings for 1969-1983, TAC for 1984 and 1985, and projected TAC for 1986-1990	119
Figure 35 LOBSTER: Newfoundland	120
Figure 36 LOBSTER: Maritime Provinces	121
Figure 37 LOBSTER: Québec	122

	Page
Figure 38 SCALLOP, Georges Bank: Landings (scallop meats) for 1960-1983	123
Figure 39 SHRIMP, Gulf of St. Lawrence: Landings for 1965-1983	124
Figure 40 SNOW CRAB: Landings by region for 1975-1984	125

INTRODUCTION

Severe resource declines, falling prices and rapidly escalating costs of catching and processing combined in 1974 to threaten the survival of the Canadian Atlantic groundfish industry. The decision by the Government of Canada to extend fisheries jurisdiction to 200 miles was given emphasis by a fisheries resource crisis off the Canadian Atlantic coast. A major objective of the 200-mile management regime is to rebuild the resource so as to provide increased catches and catch rates for Canadian fishermen.

To provide a basis for planning and development of Canada's east coast fisheries, Fisheries and Oceans scientists prepared in 1977 a comprehensive forecast of resource prospects for Atlantic coast fish* stocks to the mid-1980's. This document represents the revision for the 1985 fishing year.

These projections, which are given in the form of a projected Total Allowable Catch (TAC) for each stock, should be viewed only as a general guide to likely events. While 1985 predictions are based largely on formal calculations, and actual events should not differ widely from those predicted, projections of stock status in later years are to a considerable extent best guesses, based on inadequate knowledge. The precision of these estimates varies greatly depending on whether they are based on known mortality rates and predicted levels of recruitment, or on generalized production models relating overall landings and fishing effort, or on "best estimates from the scientists and managers concerned". Accurate predictions of the strength of year-classes expected to recruit to the various stocks are impossible except for one or two years in advance; these "recruitment" predictions are, however, critical to any projections of catch and catch rates. Despite these uncertainties, an attempt has been made to provide long term resource projections by major species and species groupings in order to provide a framework for fisheries development planning, although it must be borne in mind that the actual TAC for a particular stock in any year may differ widely from those projected here. Indeed forecasts will change from year to year as our information increases and as we take into account the strengths of the succeeding year-classes which are, by the very definition of "average", likely to be different from the average value assumed in previous projections. The significant changes between the forecasts contained in the previous editions of this document are given later in this introduction and illustrate the degree of variability inherent in the projections.

*Including shellfish, marine mammals and marine plants.

To develop these resource projections, certain assumptions have been made about management objectives in the 1980's. There has been a major change in fisheries management approach within the past few years, particularly the abandonment of the maximum sustainable yield (MSY) concept as the basis for establishing levels of harvest. The objective of MSY management was to obtain the maximum sustainable (average) physical yield from the resource, i.e., to get every available ounce of sustainable production from the fish stocks. This approach had serious drawbacks, not the least of which was the cost of getting that production. Pursuit of MSY almost invariably meant low catch rates, relatively small fish, relatively low stock sizes and great variability in supply. Because of inadequacies in the data base, and lack of adherence to TACs, there was also a tendency for the target to be exceeded, resulting in stock decline. Indeed, catches, particularly in the years prior to the establishment of TACs, often exceeded the MSY and accelerated the introduction of management measures such as TACs.

Attention has recently been focussed on an alternative resource management concept called "optimum sustainable yield" or OSY. There will be no universal definition for this concept, since inherent in the phrase are economic and social as well as biological considerations. Thus, optimum sustainable yield will vary among species, over time, and among areas for a given species. Fisheries scientists no longer produce advice based on a lowest common denominator concept such as MSY but give a range of alternative predictions corresponding to a range of possible management strategies. For the moment, a somewhat arbitrary reference point which scientists call " $F_{0.1}$ " is in wide use when data on the age structure of the population is available and a $2/3 F_{msy}$ reference point is used when catch and effort data only is available. In general terms, this corresponds to a level of fishing beyond which increases in total catch relative to increases in fishing effort are marginal. These reference points need not be adopted in the long term for all fish stocks within the Canadian 200-mile zone. Fish stocks can be managed to give stable average catch rates over the long term at various levels within the biological limits of the species, taking into account fishing costs and market prices. Within biological limits, the supply can be managed up or down in response to social and economic factors including market prospects.

Since 1977, most of the major fish stocks within the Canadian Atlantic zone have been managed at the level of fishing corresponding to $F_{0.1}$ or $2/3 F_{msy}$ in order to permit stock rebuilding; the projections assume that this level will be maintained through the 1980's. This strategy can be modified, as for instance has been the case for the northeast Newfoundland-