

STATUS REPORT ON ENDANGERED WILDLIFE IN CANADA



Blueback herring



INTRODUCTION

The Committee on the Status of Endangered Wildlife in Canada, COSEWIC, is an organization of specialists from federal agencies, all provincial and territorial governments, and from nationally-based private conservation organizations. The Committee considers the best available information on wild species and subspecies whose survival in Canada may be in doubt. COSEWIC's job is threefold:

- to decide which species do not have a secure future in Canada,
- to agree on a category which best describes their situation,
- to publish the information on which this decision has been made.

COSEWIC does not act to remove adverse factors affecting wildlife; that is the responsibility of the agency which has legal jurisdiction over the species, under Canadian law.

Status Reports are the complete texts of scientific manuscripts used by Committee members in arriving at their decisions. They are available at cost-plus-handling from:

Canadian Nature Federation
75 Albert Street
Ottawa, Ontario
K1P 6G1

Summary Sheets are single pages of general information summarizing species classed as either "threatened" or "endangered". They are easily reproduced on photocopy machines and this is encouraged so that teachers and others may quickly produce copies for local needs. Summary sheets are free and may be obtained from provincial, territorial and federal wildlife agencies, and from nationally-based private conservation agencies. A central source where quantities may be obtained at cost is:

Canadian Wildlife Federation
1673 Carling Avenue
Ottawa, Ontario
K2A 1C4

The COSEWIC list reflects only those species which have been considered to date.

THE COMMITTEE ON THE STATUS OF ENDANGERED WILDLIFE IN CANADA

APPROVED DEFINITIONS

SPECIES: "Species" means any species, subspecies, or geographically separate population.

RARE SPECIES: Any indigenous species of fauna or flora that, because of its biological characteristics, or because it occurs at the fringe of its range, or for some other reason, exists in low numbers or in very restricted areas in Canada but is not a threatened species.

THREATENED SPECIES: Any indigenous species of fauna or flora that is likely to become endangered in Canada if the factors affecting its vulnerability do not become reversed.

ENDANGERED SPECIES: Any indigenous species of fauna or flora whose existence in Canada is threatened with immediate extinction through all or a significant portion of its range, owing to the action of man.

EXTIRPATED SPECIES: Any indigenous species of fauna or flora no longer existing in the wild in Canada but existing elsewhere.

EXTINCT SPECIES: Any species of fauna and flora formerly indigenous to Canada but no longer existing anywhere.

COMMITTEE ON THE STATUS OF ENDANGERED WILDLIFE IN CANADA

- C O S E W I C -

Status Report on

BLUEBACK HERRING

in Canada
1980

Prepared by M.J. DADSWELL

For DEPT. OF FISHERIES AND OCEANS

Status Assigned to the Species by COSEWIC on APRIL 1980:

NOT IN ANY CATEGORY

NOTES

1. This is not an official publication. It is a working document used by COSEWIC in assigning status according to criteria listed below. This report is released in its original form, in the interests of making scientific information available to the public.
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Status Report on Blueback Herring [Alosa aestivalis, (Mitchill)
1815] to the National Committee on the Status of Endangered Wildlife.

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ABSTRACT

Blueback herring populations occur in all the larger drainage basins of New Brunswick and Nova Scotia. Population estimates made using run composition data indicate bluebacks compose from 20-50% of most "alewife" runs with numbers of adults of up to 5 million in the Saint John and 1-2 million in the Miramichi River. Available data from the Saint John River indicates, in recent years, the number of blueback herring has increased.

Distribution

Blueback herring occur along the east coast of North America from northern Florida to the Miramichi River, New Brunswick (Fig. 1) (Bigelow and Schroeder 1953; Jessop, pers. comm.). They are very abundant in most small and large rivers throughout this range that have free access to the sea. They occur offshore as far as 200 km (Bigelow and Schroeder 1953; Netzel and Stanek 1966) and probably undertake similar winter-summer, offshore-onshore migrations as do shad (Neves and Depres 1979).

Blueback Herring

1. Reviewed by the Sub-Committee on Fish, February 5, 1980
2. Recommended that Report be accepted and circulated
3. Recommended Status: Removal from List

Protection

The Fisheries Act of Canada of 1868 requires protection and management of all commercial fish species. The Amendment to the Act of 1976 provides for habitat protection of all commercial fish species.

Population sizes are not mentioned in the Fisheries Act as catch statistics have not been distinguished from those of alewife until recent years. No subspecies of blueback herring have been described. The wide distribution of this species while in the sea and its semi-pelagic nature have provided protection from the effects of overfishing juvenile fish.

Population size and trend

The absolute number of blueback herring in Canada is presently unknown. Escapement and commercial catch of bluebacks and alewives in the Saint John River, N. B., for the last 11 years are summarized in Table 1 (Reid 1978). Population size would appear to be from 2-5 million adult bluebacks during that period. Run composition data from the Miramichi, Shubenacadie and Margaree Rivers (Table 2) indicates population levels in each of these rivers may be from 200,000 to 1+ million adult bluebacks. In aggregate blueback herring, populations in the Maritimes may fluctuate between 3 and 8 million adults a year with a corresponding greater number of juveniles present in the sea. Data from the Saint John River indicates the blueback population in that River may be increasing at present, but this trend may also be a reflection of more accurate species distinction of "alewife" landings in recent years.

TABLE 1

SAINT JOHN RIVER, NEW BRUNSWICK

ESCAPEMENT AND COMMERCIAL HARVEST OF ALEWIVES AND BLUEBACK HERRING

Year	Mactaquac Fish Lift*					Total Saint John River**
	Spawning Escapement		Commercial			Commercial
	Alewife (No. of fish)	Blueback (No. of fish)	Alewife (No. of fish)	Blueback (No. of fish)	Weight (Metric Tons)	Weight (Metric Tons)
1967	Dam Constr.					
1968	20,100	1,900				
1969	92,800	13,500				
1970	70,400	14,100				
1971	313,200	81,300				
1972	848,000	356,500				
1973	1,158,000	286,600				
1974	597,300	136,100	543,100	65,100	156.709	3,134.176
1975	783,400	174,700	1,326,400	200,200	322.237	1,910.616
1976	615,100	160,600	1,743,300	918,000	571.794	2,020.935
1977	299,300	185,300	2,692,300	1,036,500	876.899	2,450.768
1978	450,000 - 550,000 (est.)		3,356,100 -	3,542,550 (est.)		

Source:

* - B. Jessop, person. commun.

** - Statistics, Districts 48, 49, 44-58, Fisheries and Marine Service, Halifax

Table 2. Run composition, mean commercial catch and estimated populations in Maritime Rivers.

River	Run composition blueback herring %	Alewife 1970-78 mean catch (lbs) x 10 ³	Estimated population size x 10 ³
Miramichi	53	2012.0	2000.0
Shubenacadie	42	393.0	350.0
Margaree	17	2310.0	800.0

Source: B. Jessop, pers. comm.

Habitat

Blueback herring breed in streams along the North American Atlantic coast in regions of fast flowing water with associated hard substrate (Loesch and Lund 1977). In the Maritimes, these conditions are met in almost all coastal streams not obstructed by natural or man-made structures. Breeding populations are known from Nova Scotia and New Brunswick and probably occur in Prince Edward Island. With the demise of most small man-made structures on Maritime watercourses with the decline of water mills and the movement of logs by water, it seems likely that the spawning habitat available to blueback herring has increased during this century. Many obstacles still exist, however, and the Maritime populations could be accordingly larger.

Blueback herring are seldom observed in the sea. Sporadic trawl catches occur, mainly in the region of the 50-fathom line of the Continental Shelf between Georges Bank and New Jersey (Bigelow and Schroeder 1953; Netzel and Stanek 1966).

General biology

The blueback herring makes its growth in salt water but runs into fresh water to spawn. Breeding occurs in regions of fast stream flow with hard substrate. Spawning occurs in spring at water temperatures of 14 to 24°C but tends to peak in intensity at 20 to 22°C or during late June-early July in the Maritimes (Messieh 1977).

Spawning groups consist of one female and several males with an average spawning run sex ratio of 1♀:2♂ (Loesch and Lund 1977). Eggs are 1 mm in diameter, adhesive during the water hardening stage and sink and attach to the bottom. After a few hours, however, they become non-adhesive and are swept downstream (Loesch and Lund 1977). Incubation requires about 72 hours at 20°C. The young are 30-50 mm long within a month and drop back to the sea by September or October. Growth is rapid ($K = 0.50$) and adults attain 200 mm in length and 200 g in weight at first maturity in their third or fourth year (Messieh 1977). Few live past 7 years of age and seldom spawn more than three times. Average fecundity of females is about 200,000 eggs (Loesch and Lund 1977).

Limiting factors

The limiting factor for blueback herring is probably the availability of unpolluted, unobstructed spawning streams. At present, availability of such sites in the Maritimes is relatively high. Man-made obstruction of coastal streams in the Maritimes has declined during this century and severe blockage problems now exist mainly in rivers of the upper Bay of Fundy.

Special significance of the species

No government or individual has attached special significance to the blueback herring. In fact, until recently, it was lumped with "alewives" in the commercial landing statistics and was a poorly-known species. The species does, however, contribute significantly to the river herring landings in the Maritimes at a level of 3-5 million pounds or \$200,000 a year.

RECOMMENDATIONS

The number of blueback herring spawning populations in the Maritimes is not known but there are at least four large and probably numerous smaller ones. The commercial fishery for this species is now coming under the management of the Anadromous Fish Group, Maritimes Resource Branch, and will result in a better understanding of Blueback herring abundance in the future.

One of the options for management of species believed to be endangered has been exercised, that is to seek a report on the current status of the population. There seems no cause for urgent action on the grounds that the Blueback herring population is endangered in Canada.

Evaluation

It appears there is an abundance of blueback herring, widely spread along the Canadian Atlantic coast. Populations appear to be stable and/or increasing. Management and stream rehabilitation programs should be undertaken to increase the abundance of the species and its yield to our commercial fishery. The species cannot be considered rare or endangered in Canada.

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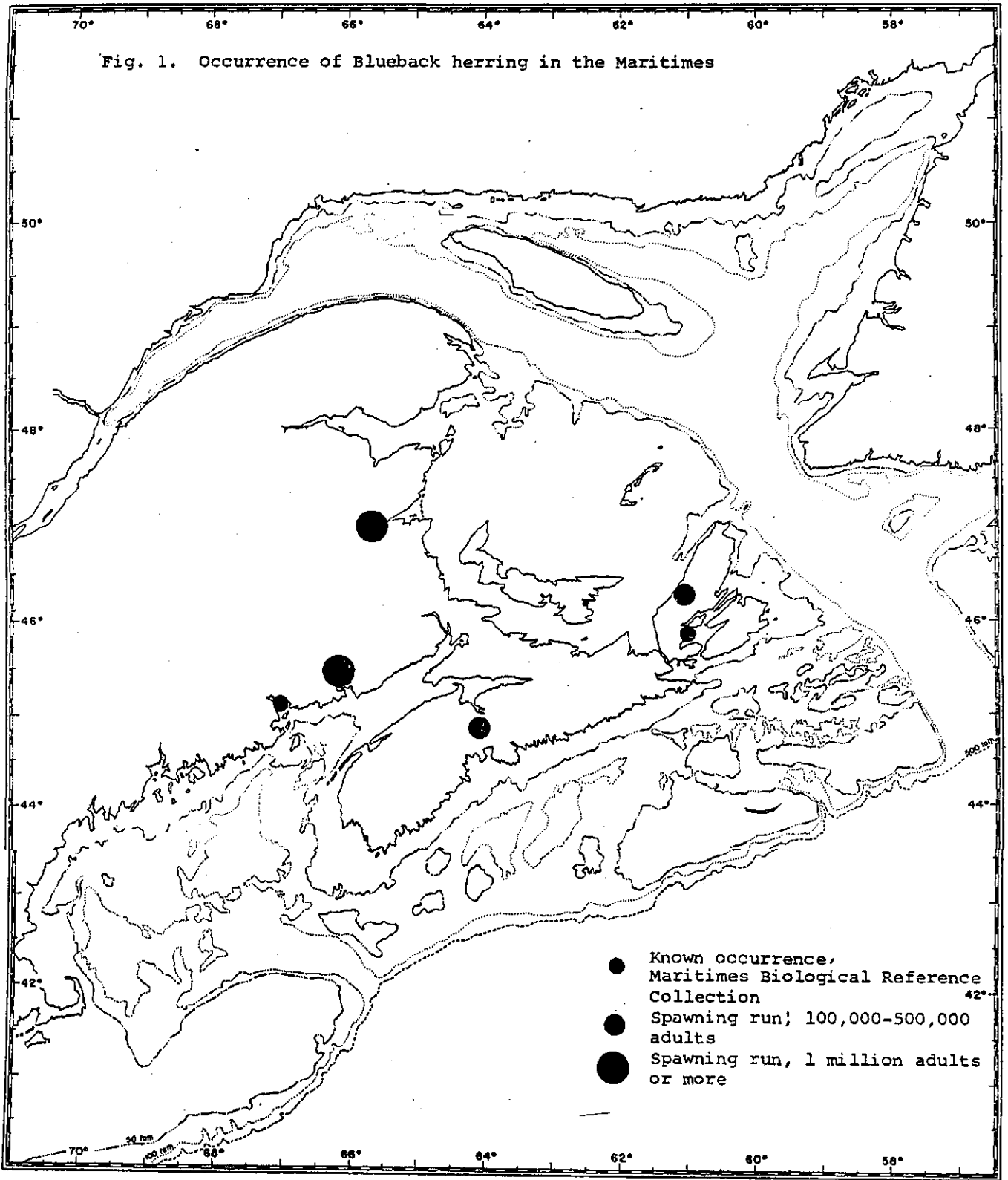


Fig. 1. Occurrence of Blueback herring in the Maritimes

- Known occurrence, Maritimes Biological Reference Collection
- Spawning run; 100,000-500,000 adults
- Spawning run, 1 million adults or more