NAFO Sci. Coun Studies, 37: 135–142

TABLE 1: AVAILABLE DATA

COMMON NAME: HADDOCK

SPECIES: *Melanogrammus aeglefinus*

AREA: NORTHWEST ATLANTIC

STOCK: BAY OF FUNDY/WESTERN SCOTIAN SHELF (NAFO DIV. 4X)

CREATED BY: ED TRIPPEL 2001-07-18

UPDATED BY: ED TRIPPEL 2003-02-03

Data status									
Year	**Stock size**	**Stock composition**	**Age**	**Sex ratio**	**Maturity**	**Fecundity**	**Weight**	**Condition**	**Additional data**
2001									
2000	√	√		(√)		√	√	√	(√)
1999	√	√	√	(√)		√	√	√	(√)
1998	√	√	√	(√)		√	√	√	(√)
1997	√	√	√	(√)		√	√	√	(√)
1996	√	√	√	(√)			√	√	(√)
1995	√	√	√	(√)			√	√	(√)
1994	√	√	√	(√)			√	√	(√)
1993	√	√	√	(√)			√	√	(√)
1992	√	√	√	(√)			√	√	(√)
1991	√	√	√	(√)			√	√	(√)
1990	√	√	√	(√)			√	√	(√)
1989	√	√	√	(√)			√	√	(√)
1988	√	√	√	(√)			√	√	(√)
1987	√	√	√	(√)			√	√	(√)
1986	√	√	√	(√)			√	√	(√)
1985	√	√	√	(√)	√	√	√	√	(√)
1984	√	√	√	(√)	√	√	√	√	(√)
1983	√	√	√	(√)	√	√	√	√	(√)
1982	√	√	√	(√)	√		√	√	(√)
1981	√	√	√	(√)	√		√	√	(√)
1980	√	√	√	(√)	√	√	√	√	(√)
1979	√	√	√	(√)	√	√	√	√	(√)
1978	√	√	√	(√)	√	√	√	√	(√)
1977	√	√	√	(√)	√		√	√	(√)
1976	√	√	√	(√)	√		√	√	(√)
1975	√	√	√	(√)	√		√	√	(√)

Data status									
Year	**Stock size**	**Stock composition**	**Age**	**Sex ratio**	**Maturity**	**Fecundity**	**Weight**	**Condition**	**Additional data**
1974	√	√	√	(√)	√		√	√	(√)
1973	√	√	√	(√)	√		√	√	(√)
1972	√	√	√	(√)	√		√	√	(√)
1971	√	√	√	(√)	√		√	√	(√)
1970	√	√	√	(√)	√		√	√	(√)
1969	√	√	√	(√)	√		√	√	
1968	√	√	√	(√)	√		√	√	
1967	√	√	√	(√)	√		√		
1966	√	√	√	(√)	√		√		
1965	√	√	√	(√)	√		√		
1964	√	√	√	(√)	√		√		
1963	√	√	√	(√)	√		√		
1962	√	√	√	(√)	√		√		
1961			√	(√)	√				
1960			√	(√)	√				
1959			√	(√)	√				
1958			√	(√)					
1957			√	(√)					
1956			√	(√)					
1955			√	(√)					
1954			√	(√)					
1953			√	(√)					
1952			√	(√)					
1951			√	(√)					
1950			√	(√)					
1949			√	(√)					
1948			√	(√)					

TABLE 2: DATA BASIS, FORMAT AND QUALITY

COMMON NAME: HADDOCK

AREA: NORTHWEST ATLANTIC

STOCK: BAY OF FUNDY/WESTERN SCOTIAN SHELF (NAFO DIV. 4X)

REPRODUCTIVE STRATEGY: DETERMINATE SPAWNER **REF. NO.:** 10

TIMING OF SPAWNING: FEBRUARY-APRIL **REF. NO.:** 6,12,13

OPTIMAL TIME FOR MATURITY SAMPLING: JANUARY-FEBRUARY **REF. NO.:** 6,10

Data basis, format and quality

Variables	Year range	Data basis (A/L/W)	Data origin	Sampling frequency	Notes on data, methods and contents	Ref. No.
Stock size	1962-1987	A	C,L,S	Q	VPA estimates	1
	1970-1999	A	C,L,S	Q	VPA (number and biomass at age)	2,3
	1995-1999	L	S	JULY	Industry survey (includes untrawable area)	2,3
Stock composition	1962-1987	L,W	S	JULY		1
	1970-2000	L,W	S	JULY	Bay of Fundy and W. Scotian Shelf separate	2,3
	1995-2000	L,A	S	JULY	Industry survey	2,3
Age determination	1948-1985	A	S,CL	Y,Q		1
	1970-2000	A	S,CL	Y,Q		2,3
Sex ratio	1948-2000	A,L,W	S		Could be extracted from survey data bases	3
Maturity:						
A. Ogives (E)	1959-1979	A,L	S	SPRING	Age and length by sex	4,5
	1970-1985	L	S	SPRING	Length by sex	6
	1979-1985	A,L	S	SPRING	Spring survey terminated in 1985, remaining summer survey not appropriate time to conduct maturity determination.	7
B. Skip of spawning						
C. Spawning probability						

Data basis, format and quality						
Variables	**Year range**	**Data basis (A/L/W)**	**Data origin**	**Sampling frequency**	**Notes on data, methods and contents**	**Ref. No.**
D. Other	1978-1980	W	S	M	Gonadosomatic index (pooled fish from 4X and 4VW)	8
	1983-1985	W	S	Q	Gonad wt-body wt relationships by maturity stage and sex	6
	1998-1999	W	S		Gonad wt-body wt relationships for females	9
			S	Q	Maturity stage description (macroscopic)	6
Fecundity:						
A. Estimation	1978-1980	L	S		Fecundity equations (problem in that fish from 4X and 4VW combined) (n=88)	8
	1983-1985	A,L,W	S	Q,Y	Fecundity equations include changes with season. Browns Bank and Bay of Fundy approaches (n=405)	6
	1997	L,W	EC	6 PAIRS	Seasonal egg production (Bay of Fundy fish)	10
	1998-1999	A,L,W	S		W. Scotian Shelf (1998, n=77; 1999, n=159);	9
B. First time vs. repeat spawners						
C. Atresia						
D. Other						
Weight:						
A. Commercial fisheries data	1962-1987	A,L,W	S,CL	M,Q,B,Y		1
	1970-2000	A,L,W	S,CL	M,Q,B,Y		2,3
B. Survey data	1962-1987	A,L,W	S	JULY	Estimated means	1
	1970-2000	A,L,W	S	JULY	Estimated means	2,3
	1995-2000	A,L,W	S	JULY	Industry survey	2,3
C. Other						
Condition:						
A. Fulton	1998-1999	L,W	S		females	9
B. HSI						
C. Energy						
D. Other	1970-1995	L,W	S	JULY	Weight at 50 cm (Bay of Fundy and W.Scotian Shelf separate)	11
	1970-2000	L,W	S	JULY	Annual L/W equations, estimated weight of 35, 50 cm haddock (Bay of Fundy and W. Scotian Shelf separate)	2,3
Egg viability:						

Data basis, format and quality						
Variables	**Year range**	**Data basis (A/L/W)**	**Data origin**	**Sampling frequency**	**Notes on data, methods and contents**	**Ref. No.**
A. Egg quality	1978-1980		S	Q	Seasonal oocyte diameter changes in relation to maturity stage	8
	1997	L,W	EC	6 PAIRS	Seasonal changes in egg diameter/batch	10
B. Fertilisation success	1997	L,W	EC	6 PAIRS	Seasonal changes in fertilization rate/batch	10
C. Egg mortality						
D. Other	1997	L,W	EC	6 MALES	Seasonal changes in milt volume and spermatocrit	10
Larval viability:						
A. Hatching success						
B. Larvae quality						
C. Mortality						
D. Other						
Spawning time	1920-1997	L,W	X		Fishermen's knowledge through interviews, includes spawning areas (present and lost)	12
	1970-1975	L	S	M	Frequency of different maturity stages (Jan-Nov) Browns Bank females peak Mar-Apr.	6
	1975-1997	S	S	SPRING	Egg and larval surveys (LHP, FEP, SSIP)	13
	1979-1981		S		Egg surveys (SSIP)	14
	1997	L,W	EC	6 PAIRS	Spawning duration/pair	10
Contamination						
Environmental key factors	1948-1980		S	M,Y	Time to hatch in days on Browns Bank in relation to temperature model	15
Other factors or parameters	1964-1995	A,L,W			Body metrics in relation to recruitment	11

TABLE 3: STUDIES OF REPRODUCTIVE POTENTIAL

COMMON NAME:	HADDOCK
AREA:	NORTHWEST ATLANTIC
STOCK:	BAY OF FUNDY/WESTERN SCOTIAN SHELF (NAFO DIV. 4X)

Estimation of reproductive potential			
Subject	**Brief description**	**Year range**	**Ref. No.**
Potential or realised egg production	Fecundity estimates	1978-1980	8
		1983-1985	6
		1997	10
		1998-1999	9
Viable egg and larvae production	Fertilization rates of captive haddock and milt characteristics, spawning duration	1997	10
Critical life stages			
Environmental influences	Temperature model in relation to time to hatch	1948-1980	15
Stock recruitment relations	Spawning stock biomass (constant maturity ogive) and recruitment to age 1	1964-1995	11
	Spawning stock *vs* recruitment	1970-1979	16
	Compensatory responses in recruitment	1970-1995	17
	Spawning stock biomass (age 4+) *vs* recruits	1970-1997	2
Other studies	Body metrics *vs* recruitment (e.g., length at age 4, predicted weigth at 50 cm); year range varies with data availability (10 regressions)	1964-1995	11

TABLE 4: DATA SOURCES

COMMON NAME:	HADDOCK
AREA:	NORTHWEST ATLANTIC
STOCK:	BAY OF FUNDY/WESTERN SCOTIAN SHELF (NAFO DIV. 4X)

Data sources (literature reference or contact person)
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Data sources (literature reference or contact person)
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