

TABLE 1: AVAILABLE DATA

COMMON NAME: WITCH FLOUNDER **SPECIES:** *Glyptocephalus cynoglossus*

AREA: NORTHWEST ATLANTIC **STOCK:** NAFO DIV. 2J+3KL

CREATED BY: JOANNE MORGAN **UPDATED BY:**

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	(√)	√	√	(√)	√		√	(√)	

Data status									
Year	Stock size	Stock composition	Age	Sex ratio	Maturity	Fecundity	Weight	Condition	Additional data
1977	(√)	√	√	(√)	(√)				
1976		(√)	(√)	(√)	(√)				
1975		(√)	(√)	(√)	(√)				
1974		(√)	(√)	(√)	√				
1973		(√)	(√)	(√)	(√)				

TABLE 2: DATA BASIS, FORMAT AND QUALITY

COMMON NAME:	WITCH FLOUNDER	
AREA:	NORTHWEST ATLANTIC	
STOCK:	NAFO DIV. 2J+3KL	
REPRODUCTIVE STRATEGY:	DETERMINATE BATCH SPAWNER	REF. NO.:
TIMING OF SPAWNING:	MAR-JULY	REF. NO.: 7
OPTIMAL TIME FOR MATURITY SAMPLING:		REF. NO.:

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	1977-1999	A,L	S	Y	1977 2J only 3L not until 1981	1,3
	2000	A,L	S	Y		2
Stock composition	1977-1980	A,L	S	Y	See above otoliths collected but no ageing done since 1993	1
	1981-1992	A,L	CC,CL,S	Q,Q,Y		1,3
	1993	A,L	CC,CL,S	Q,Q,Y		1,2
	1994-2000	L	S	Y		1,2
	1978,1983	A,L	S	summer-fall	data from 1973-1977 and 1978-1983 combined	4

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.
Age determination	1977-1980	A	S	Y	Otoliths collected but no ageing done since 1993	3
	1981-1992	A	CC,CL,S	Q,Q,Y		3
	1993	A	CC,CL,S	Q,Q,Y		2
	1994-2000	A	S	Y	2	
	1978,1983	A	S	summer-fall	data from 1973-1977 and 1978-1983 combined	4
Sex ratio	1977-1993	A,L	S	Y	data from 1973-1977 and 1978-1983 combined	2
	1994-2000	L	S	Y		2
	1978,1983	A,L	S	summer-fall		4
Maturity:						
A. Ogives (E)	1974	A,L	S	VARIOUS	Data from 1958-1974 combined	5
	1978,1983	A,L	S	summer-fall	data from 1973-1977 and 1978-1983 combined	4
	1977-1993	A,L	S	Y		
	1994-2000	L	S			
B. Skip of spawning						
C. Spawning probability						
D. Other						
Fecundity:						
A. Estimation	1994-1995, 1997-1998	A,L,W	S	Y	3L only, small sample size	2
B. First time vs. repeat spawners						
C. Atresia						
D. Other						
Weight:						
A. Commercial fisheries data	1981-1992	L	CC,CL	Q,Q	Invariant length weight relationship	2,6
B. Survey data	1978,1983	A,L	S	summer-fall	Data from 1973-1977 and 1978-1983 combined	4 6
	1982	A,L	S	Y		
	1990-1993	A,L	S	Y	otoliths collected but no ageing since 1993	2 2
	1994-2000	A,L	S			
C. Other						
Condition:						

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. Fulton	1978,1983	A,L	S	summer-fall FALL	Data from 1973-1977 and 1978-1983 combined otoliths collected but no ageing since 1993	2
	1982	A,L	S	Y		2
	1990-1993	A,L	S	Y		2
	1994-2000	A,L	S			2
B. HSI	1990-1993	A,L	S	Y	otoliths collected but no ageing since 1993	2
	1994-2000	A,L	S	Y		2
C. Energy						
D. Other	1990-1993	A,L	S	Y	GSI	2
	1994-2000	A,L	S	Y	GSI, otoliths collected but no ageing since 1993	2
Egg viability:						
A. Egg quality						
B. Fertilisation success						
C. Egg mortality						
D. Other						
Larval viability:						
A. Hatching success						
B. Larvae quality						
C. Mortality						
D. Other						
Spawning time	1990	A,L	S	VARIOUS	All available data combined	7
Contamination						
Environmental key factors						
Other factors or parameters						

TABLE 4: DATA SOURCES

COMMON NAME:	WITCH FLOUNDER
AREA:	NORTHWEST ATLANTIC
STOCK:	NAFO DIV. 2J+3KL

Data sources (literature reference or contact person)
1. BOWERING, W. R. MS 2000. Stock status update of witch flounder in Divisions 2J, 3K and 3L. <i>NAFO SCR Doc.</i> , No. 13, 14 p.
2. UNPUBL. DATA: W.R. BOWERING, DFO, P.O. Box 5667, St. John's, NF, A1C 5X1, Canada (boweringr@dfo-mpo.gc.ca).
3. BOWERING, W. R., D. POWER, and W. B. BRODIE. MS 1993. The status of the witch flounder stock in Division 2J, 3K, and 3L. <i>DFO Atlantic Fish. Res. Doc.</i> , No. 49.
4. BOWERING, W. R. 1987. Distribution of witch flounder, <i>Glyptocephalus cynoglossus</i> , in the southern Labrador and eastern Newfoundland area and changes in certain biological parameters after 20 years of exploitation. <i>Fish. Bull.</i> , 85 : 611-629.
5. BOWERING, W. R. 1976. Distribution, age and growth, and sexual maturity of witch flounder (<i>Glyptocephalus cynoglossus</i>) in Newfoundland waters. <i>J. Fish. Res. Board Can.</i> , 33 : 1574-1584.
6. BOWERING, W.R. and D.E. STANSBURY. 1984. Regressions of weight on length for witch flounder, <i>Glyptocephalus cynoglossus</i> , of the eastern Newfoundland area. <i>J. Northw. Atl. Fish. Sci.</i> , 5 : 105-106.
7. BOWERING, W. R. 1990. Spawning of witch flounder (<i>Glyptocephalus cynoglossus</i> L.) in the Newfoundland-Labrador area of the northwest Atlantic as a function of depth and water temperature. <i>Fish. Res.</i> , 9 : 23-39.

