

Japanese proposal for the ABC of 2005 in the Convention area

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At the May 2003 Pollock Workshop in Busan, it was agreed that an intermediary step of establishing an ABC should be conducted to prior to discussion of AHL. And at the last Convention Meeting, ABC for 2004 (ABC₂₀₀₄) was set at 2,401 mt. In this estimation, the following protocol was adopted to estimate ABC₂₀₀₄, and we believe that the same calculation should be conducted to estimate ABC₂₀₀₅. However, in this year, we do not have direct biomass estimate of 2004 (B₂₀₀₄), because no acoustic survey was conducted in the last spawning season in the convention area.

Japan tried to calculate the ABC in the Convention area for the year 2005, without direct biomass estimation of 2004. In this paper, we propose some possible ways to estimate the B₂₀₀₄ and B₂₀₀₅.

Base of estimation of ABC

Operational definition: Summary of the Bering Sea and Aleutian Islands Groundfish Fishery Management Plan 1997, published by North Pacific Fishery Management Council.

ABC estimates in the Specific Area were calculated by using Tier 3.

Tier 3

(1) The values of B_{40%}, and F_{40%} were estimated 2,000,000 t, and 0.27, respectively.

$$F_{ABC} = F_{40\%} \times (B_{2005}/B_{40\%} - 0.05)/(1-0.05)$$

(2) ABC for 2002 in the Specific area is

$$ABC_{2005} = B_{2005} \times (1 - e^{-F_{ABC}})$$

Table 1. Historical biomass estimates and proposed scenarios for B₂₀₀₄.

$$B_{2005} = B_{2004} \cdot \text{Exp}(-M); M = 0.2 \quad (\text{10 thousands tons})$$

	Biomass	M=0.2	Recruitment
1988	239.6		
1989	212.6	196.2	16.4
1990			
1991	128.9		
1992	64.0	105.5	(41.5)
1993	63.5	52.4	11.1
1994	49.0	52.0	(3.0)
1995	110.4	40.1	70.3
1996	68.2	90.4	(22.2)
1997	39.2	55.8	(16.6)
1998	49.2	32.1	17.1
1999	47.5	40.3	7.2
2000	30.1	38.9	(8.8)
2001	23.2	24.6	(1.4)
2002	22.7	19.0	3.7
2003	19.8	18.6	1.2

Scenario 1

Biomass 2004 equals Biomass average 2001-2003

$$B_{2004} = 21.9 \quad (\text{Bト})$$

Scenario 2

Biomass 2004 estimated linear regression last 3 years

$$B_{2004} = 18.5$$

Scenario 3

Biomass 2004 estimated from M=0.2 and average recruitment 2001-2003

$$R_{2004} = 1.2$$

$$B_{2004} = 17.4$$

Scenario 4

Biomass 2004 estimated from M=0.2 and no recruitment

$$B_{2004} = 16.2$$

Table 2. Estimated ABC₂₀₀₅ (t) under each scenario.

	Scenario 1	Scenario 2	Scenario 3	Scenario 4
B ₂₀₀₄	219000	185000	173697	162109
B _{2005 (no recruit.)}	179302	151465	142211	132723
F _{40%}	0.27	0.27	0.27	0.27
B _{40%}	2000000	2000000	2000000	2000000
F _{ABC} =	0.011	0.007	0.006	0.005
Catch ratio=	0.011	0.007	0.006	0.005
ABC in specific area	2009	1104	850	616
ABC in convention area	3349	1839	1417	1026