IMPACT OF ENVIRONMENT AND EXPLOITATION ON THE INTERANNUAL VARIABILITY EASTERN BERING SEA POLLOCK ABUNDANCE AND DISTRIBUTION

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Fig. 1. Estimated of numbers for the 1997-2005 year classes at age 1+ (by echo-integration and bottom trawl surveys)

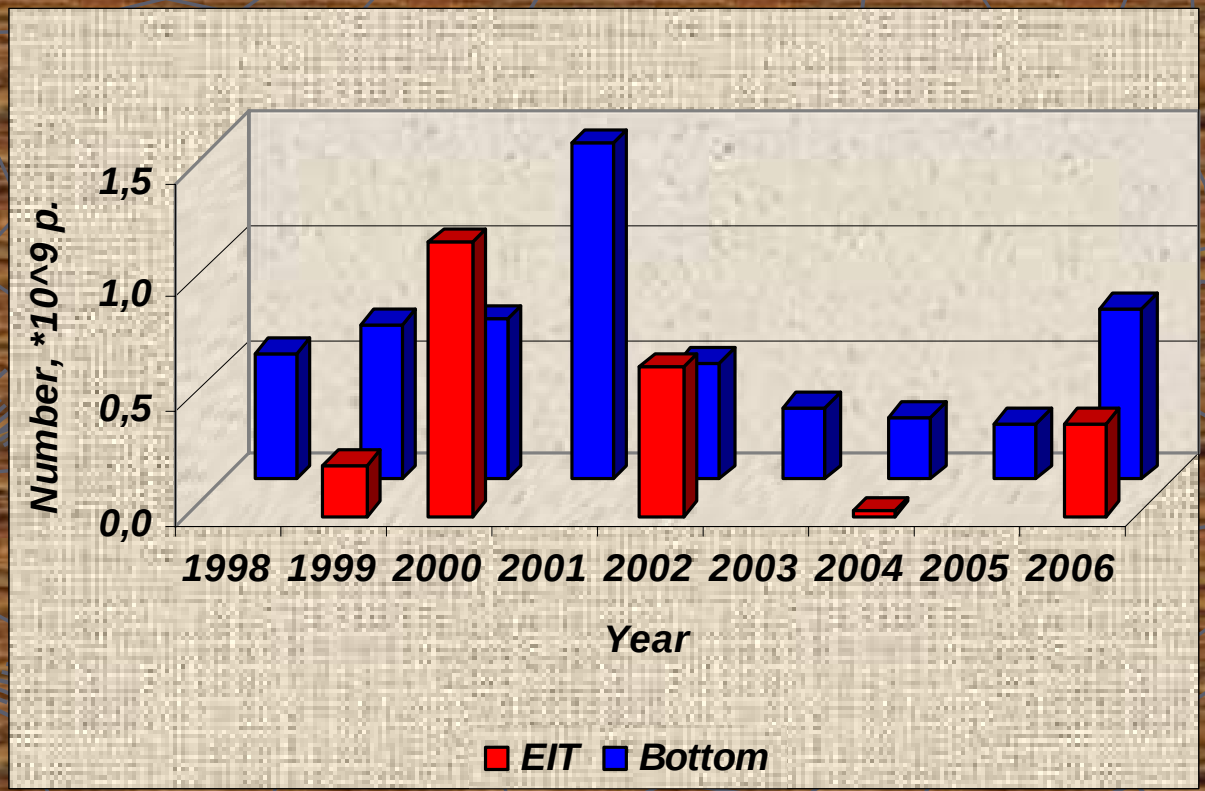


Table 1

Abundance (N) of the eastern Bering Sea pollock by year classes in 1998-2005 (according to AFSC bottom trawl surveys)

* - red numbers indicated abundant year classes

Year	Age	1+	2+	3+	4+	5+	6+	7+	8+	9+	10+	11+	12+	13+	14+	15+	16+	17+	18+	N $x10^9$
1998	N, %	12.9	14.1	4.7	14.2	20.1	12.9	8.0	6.4	3.3	1.0	0.5	0.5	0.6	0.4	0.3	0.2	0.1	0.0	4.29
1999	N, %	10.3	11.0	8.4	14.5	17.6	16.0	9.7	5.9	3.0	1.1	0.5	0.5	0.5	0.4	0.2	0.2	0.1	0.1	6.59
2000	N, %	8.6	3.3	5.1	18.6	19.5	17.6	13.1	7.5	3.2	1.1	0.5	0.5	0.5	0.4	0.2	0.2	0.1	0.0	8.12
2001	N, %	19.3	11.7	4.2	9.8	14.2	13.3	11.5	8.4	3.8	1.2	0.6	0.5	0.6	0.4	0.2	0.2	0.1	0.0	7.61
2002	N, %	7.2	3.9	6.8	13.5	15.0	16.9	16.3	11.9	5.0	1.4	0.5	0.5	0.5	0.3	0.2	0.1	0.0	0.0	7.05
2003	N, %	3.0	1.5	2.1	11.6	15.5	19.0	20.2	17.3	6.8	1.5	0.5	0.4	0.3	0.2	0.1	0.1	0.0	0.0	10.38
2004	N, %	5.2	3.7	1.7	10.4	21.6	20.9	17.0	11.5	4.8	1.3	0.5	0.4	0.4	0.2	0.1	0.1	0.0	0.0	5.28
2005	N, %	3.5	1.5	2.5	10.6	20.6	21.2	15.9	12.2	6.7	2.6	0.5	0.4	0.4	0.2	0.1	0.1	0.0	0.0	6.98
2006	N, %	17.3	1.4	1.2	3.4	11.2	18.0	18.7	13.2	8.6	5.2	0.5	0.4	0.4	0.2	0.1	0.1	0.0	0.0	4.31

Table 2

Abundance (N) and biomass (B) of the eastern Bering Sea pollock by year classes in 1996–2006 (according to AFSC EI MWT surveys)

* - red numbers indicated abundant year classes

Year	Age fish…..	1+	2+	3+	4+	5+	6+	7+	8+	9+	10+	11+	12+	13+	14+	15+	Total
1996	N x 10^9	0.97	0.44	0.52	2.68	0.72	0.5	0.43	0.084	0.016	0.006	0.005	0.012	0.000	0.000	0.002	6.52
	B, ths t	36.7	35.3	118.6	888.8	395.9	341.7	359.9	72.4	16.2	6.5	6.9	17.0	1.5	7.0	3.8	2310.7
1997	N x 10^9	12.4	2.7	0.38	0.49	1.9	0.38	0.2	0.14	0.03	0.003	0.004	0.002	0.002	0.002	-	18.7
	B, ths t	418.0	364.6	98.5	186.8	912.2	233.5	160.7	139.3	34.1	4.4	6.1	3.4	4.5	3.8	2.9	2573.6
1999	N x 10^9	0.22	0.88	1.35	0.30	0.37	0.54	0.31	0.099	0.013	0.007	0.001	0.000	0.000	-	-	4.09
	B, ths t	8.83	128.4	388.3	130.6	198.1	332.0	231.9	89.7	15.2	10.4	2.5	1.5	0.21	-	-	1537.6
2000	N x 10^9	1.19	1.87	1.19	2.09	1.59	0.46	0.22	0.034	0.008	0.004	0.001	-	-	-	-	8.65
	B, ths t	85.4	332.4	375.1	887.5	835.7	301.9	179.9	33.5	9.1	6.1	1.3	3.0	-	-	-	3050.9
2002	N x 10^9	0.65	5.36	3.82	0.65	0.69	0.92	0.84	0.43	0.09	0.04	0.007	0.002	0.000	0.003	-	13.5
	B, ths t	31.7	761.5	1112.	309.5	393.3	640.8	734.2	457.8	114.0	63.7	12.2	4.5	0.001	0.81	-	4637.0
2004	N x 10^9	0.018	0.79	1.94	3.11	2.13	1.08	0.48	0.23	0.065	0.012	0.003	0.002	0.002	0.001	-	9.862
	B, ths t	0.7	110.4	575.4	1443.3	1289.0	784.0	430.9	244.6	76.1	16.0	5.6	4.3	3.7	1.3	-	4985.9
2006	N x 10^9	0.40	0.15	0.34	0.74	0.52	0.57	0.56	0.35	0.11	0.017	0.004	0.007	0.001	-	-	3.81
	B, ths t	8.4	14.9	80.3	280.6	264.9	368.2	416.6	322.5	119.0	22.2	6.6	12.2	3.0	-	-	1920.0

Fig. 2. Eastern Bering Sea pollock catch by age (%) in the northwestern and eastern Bering Sea, 2002-2006

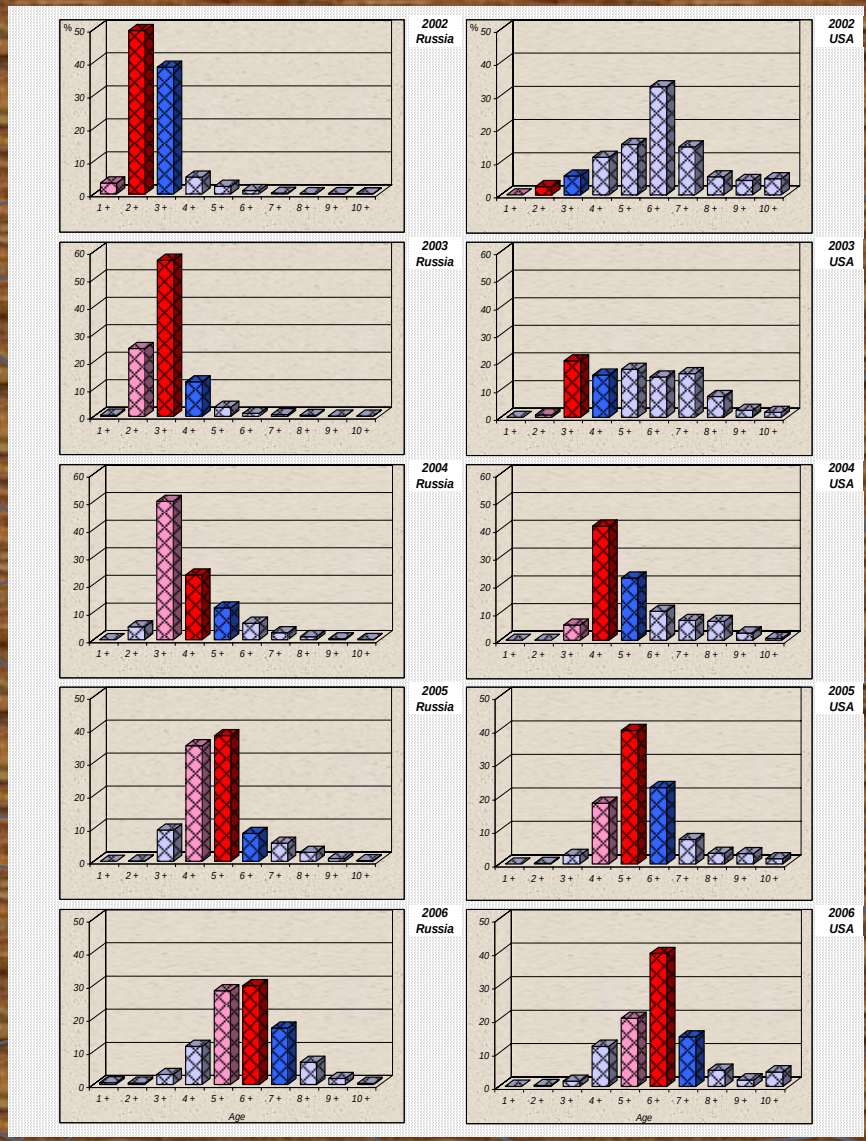


Fig. 3. Pollock distribution in the eastern Bering Sea shelf and continental slope, summer 2004

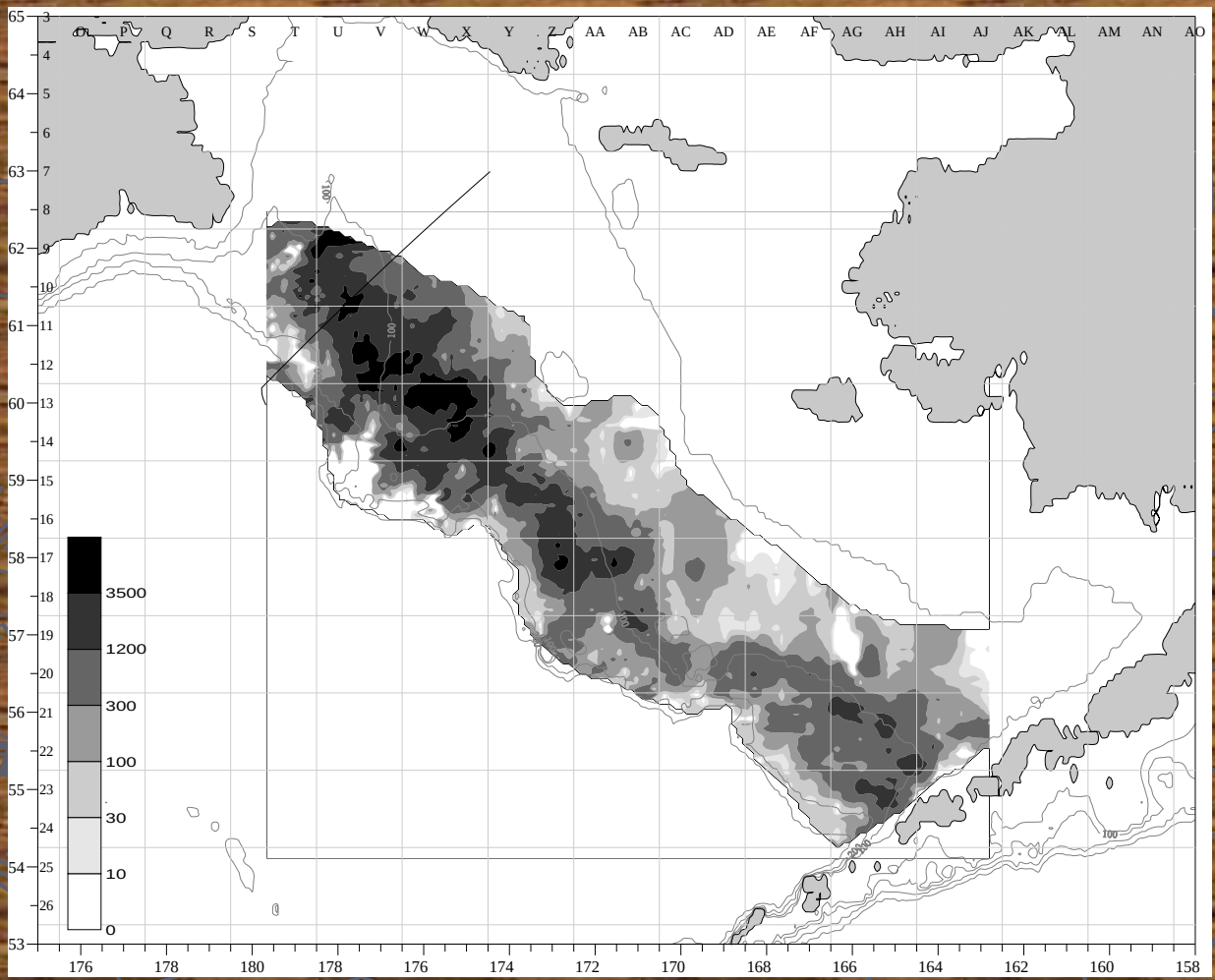


Fig. 4. Pollock distribution in the Bering Sea shelf and continental slope, summer 2006

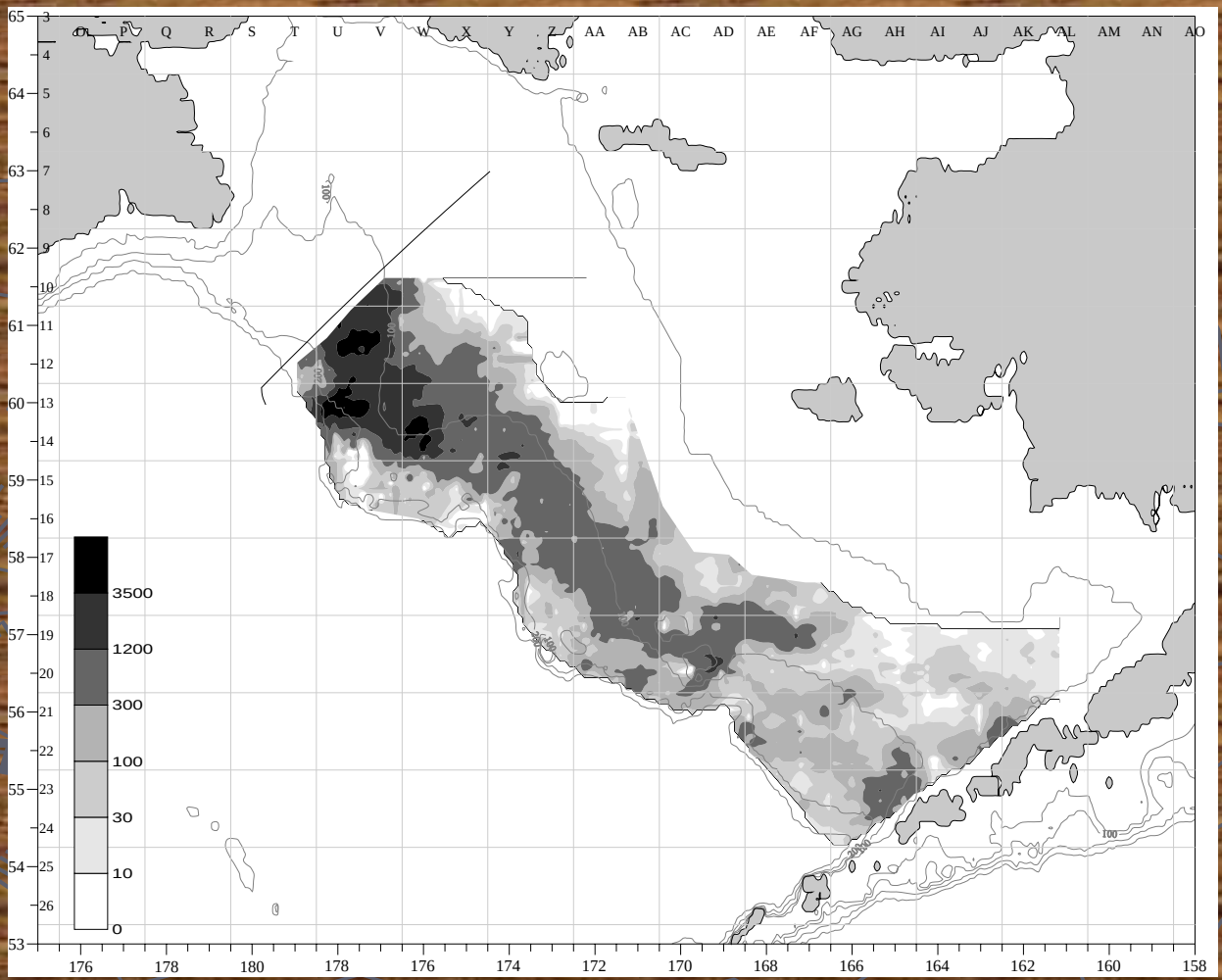
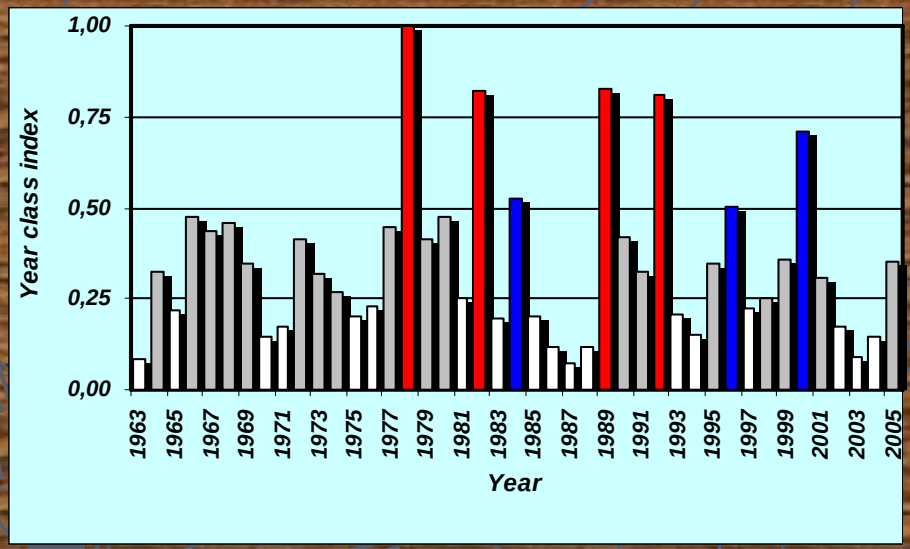


Fig. 5. Interannual variation of the EBS walleye pollock year class index (left: 1-year-old and right: 4-year-old)



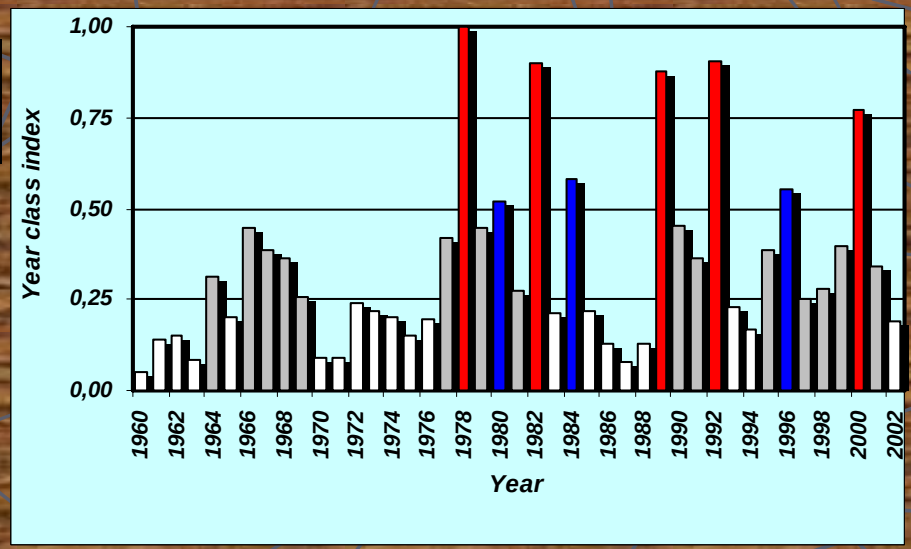
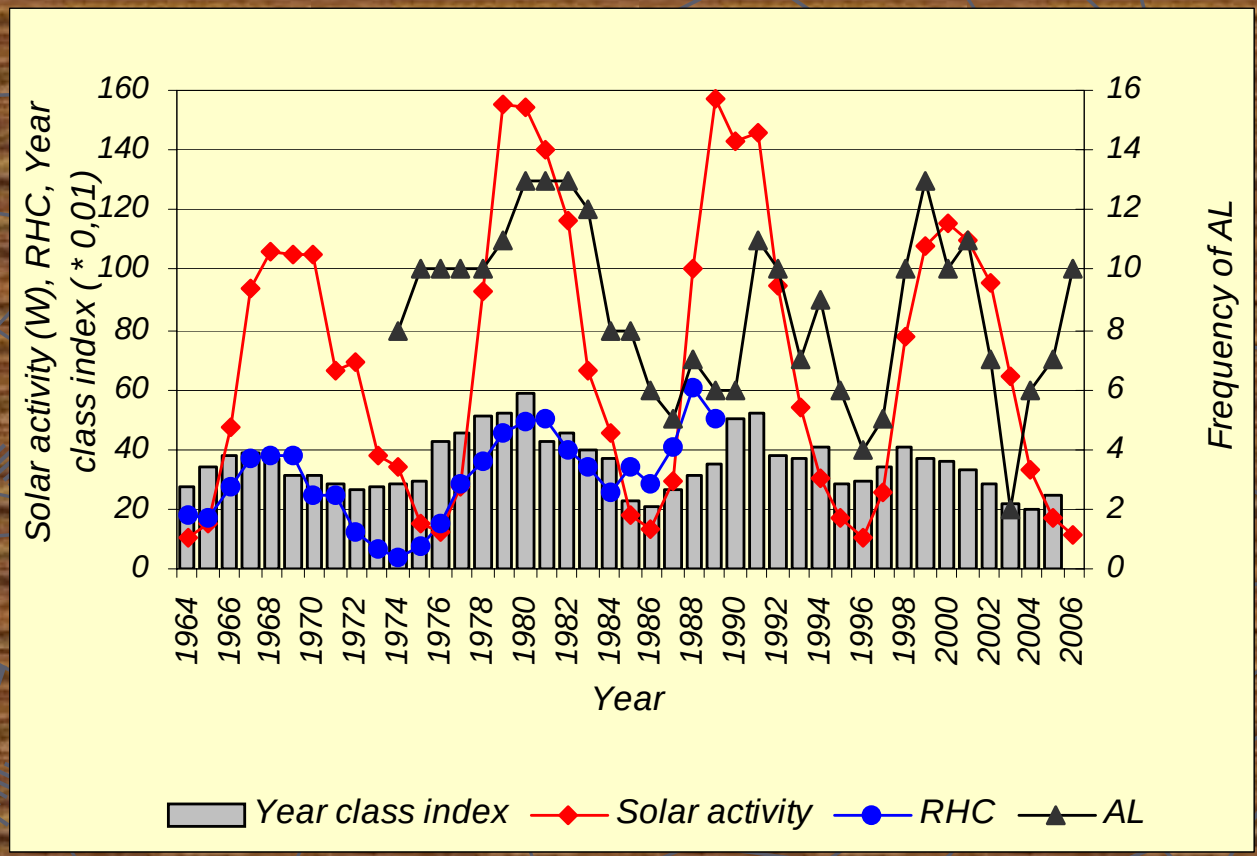


Fig. 6. Interrelationship between position of winter «cold type»Aleutian Low (AL), relative heat content of the Bering Sea waters (RHC), solar activity (W) and index of EBS walleye pollock year classes



THANK YOU!