

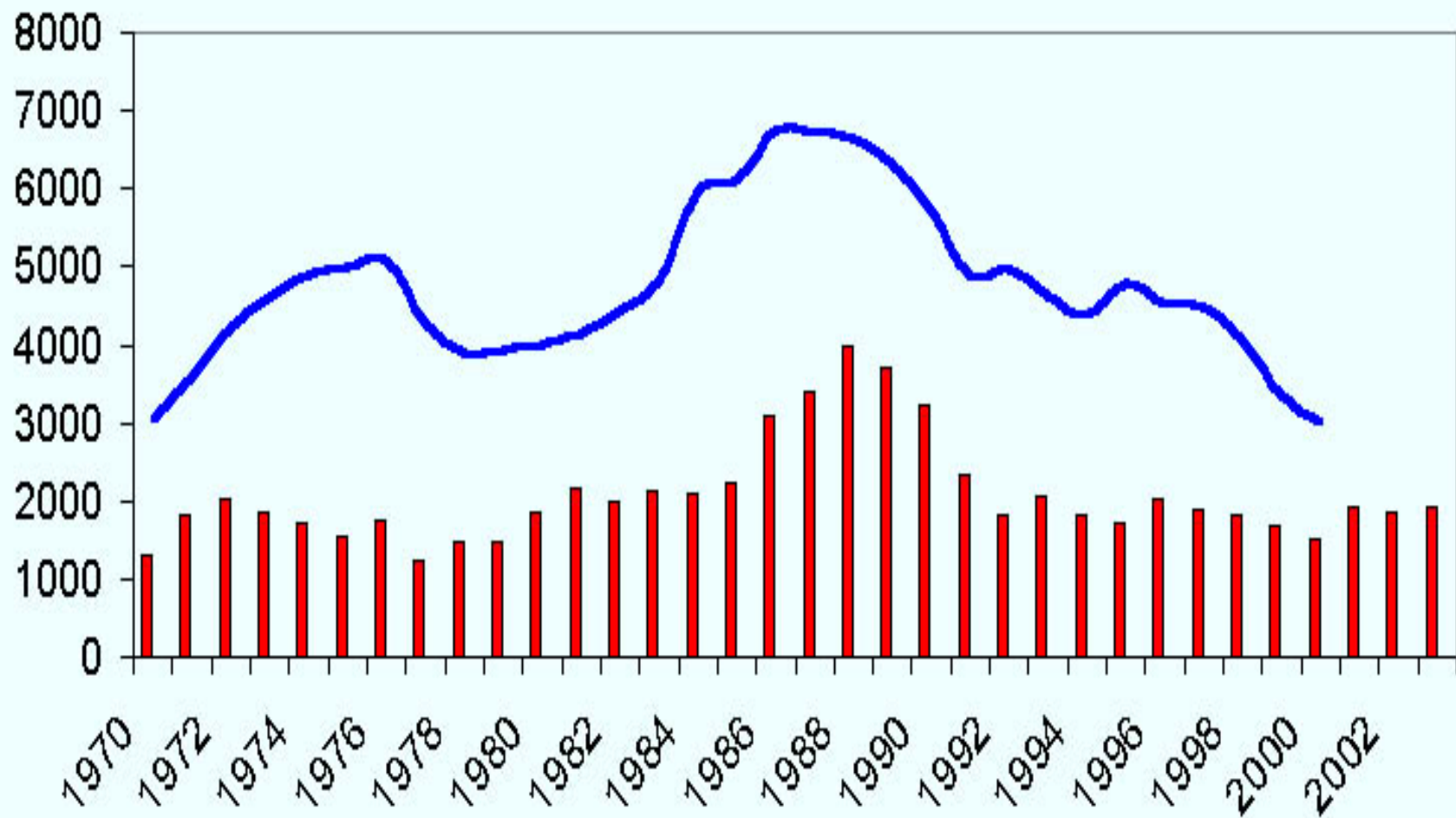
POLLOCK FISHERY AND TOTAL ALLOWABLE CATCH IN THE BERING SEA

OLEG BULATOV

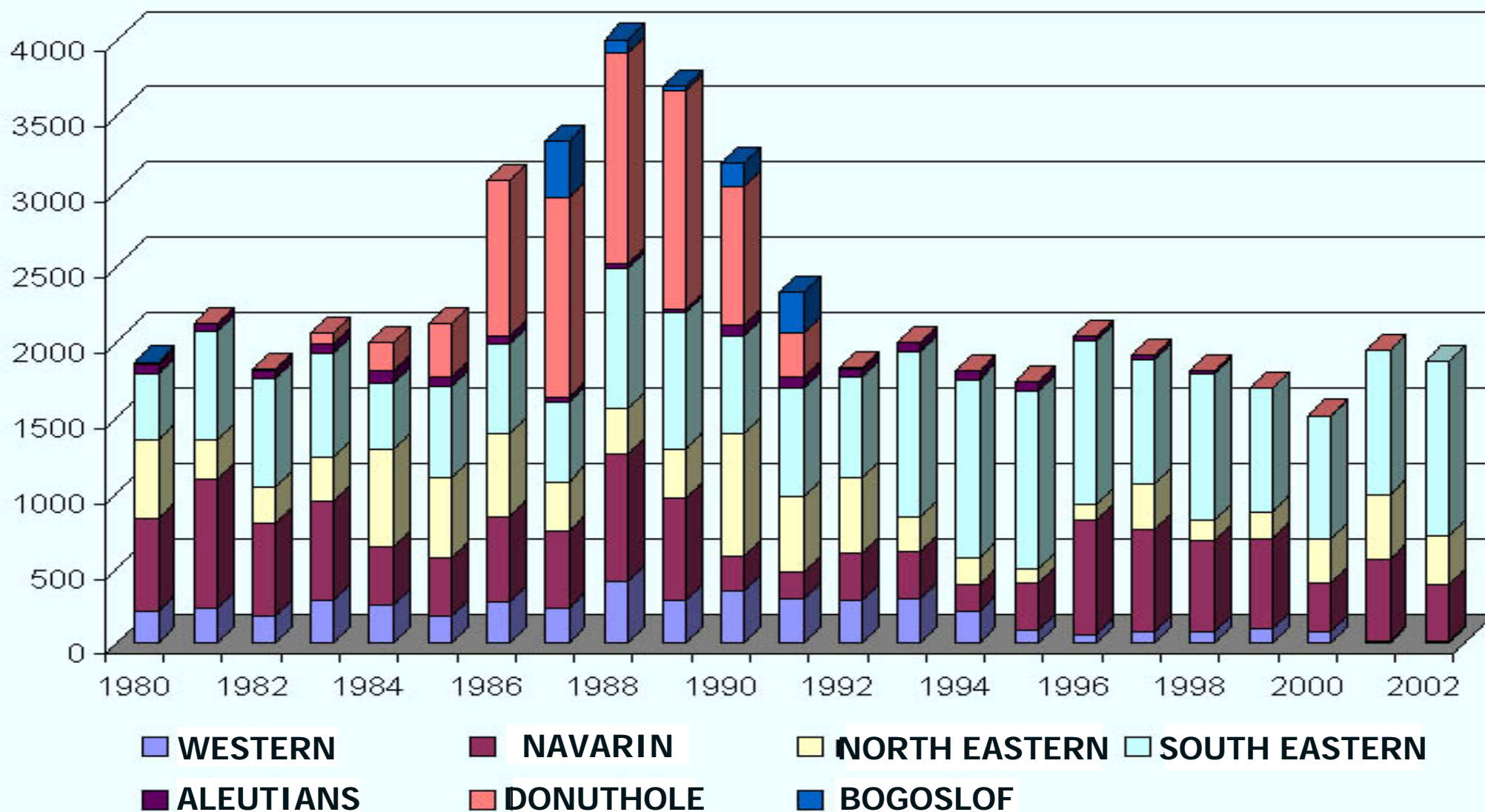
**Russian Federal Research Institute of Fisheries and
Oceanography (VNIRO)**

Moscow, Russia

WORLD AND BERING SEA CATCH OF WALLEYE POLLOCK IN 1970-2003, 1000 MT



WALLEYE POLLOCK CATCH IN THE BERING SEA, 1000 MT



FISHERY MANAGEMENT SYSTEM

- **EASTERN BERING SEA/ALEUTIAN ISLANDS :**
“MAGNUSSON FISHERY CONSERVATION AND MANAGEMENT ACT” - TAC - “A”+“B” FISHERY SEASONS (US EEZ)
- **DONUTHOLE AREA:** “CONVENTION ON THE CONSERVATION AND MANAGEMENT OF POLLOCK RESOURCES IN THE CENTRAL BERING SEA” - MORATORIUM (enacted in 1993) (INTERNATIONAL ZONE)
- **NORTHERN BERING SEA:** “FISHERY RULES” – TAC – 4 SEASONS (RUSSIAN EEZ)
- **WESTERN BERING SEA:** “FISHERY RULES” – TAC - MORATORIUM (enacted in 2001) (RUSSIAN EEZ)

TOTAL ALLOWABLE CATCH (TAC)

$$\text{TAC} = \text{FB} \times \text{ER}$$

FB – FISHABLE BIOMASS (3+ age)

ER – EXPLOITATION RATE

STOCK ASSESSMENT METHODS

EASTERN BERING SEA: (US RESEARCH)

BOTTOM TRAWL SURVEYS (SINCE 1975), ECHO-INTEGRATION TRAWL SURVEYS (SINCE 1979), ANALITYC APPROACH (SINCE 1964)

DONUTHOLE AREA: (INTERNATIONAL RESEARCH)

ECHO-INTEGRATION TRAWL SURVEYS (SINCE 1978), MIDWATER TRAWL SURVEYS (SINCE 1987) ANALITYC APPROACH (SINCE 1979)

NORTHERN BERING SEA: (RUSSIAN RESEARCH)

ECHO-INTEGRATION TRAWL SURVEYS (SINCE 1974), BOTTOM TRAWL SURVEYS (SINCE 1980), MIDWATER TRAWL SURVEYS (SINCE 1979) ANALITYC APPROACH (SINCE 1996), ICHTHYOPLANKTON SURVEYS (SINCE 1984)

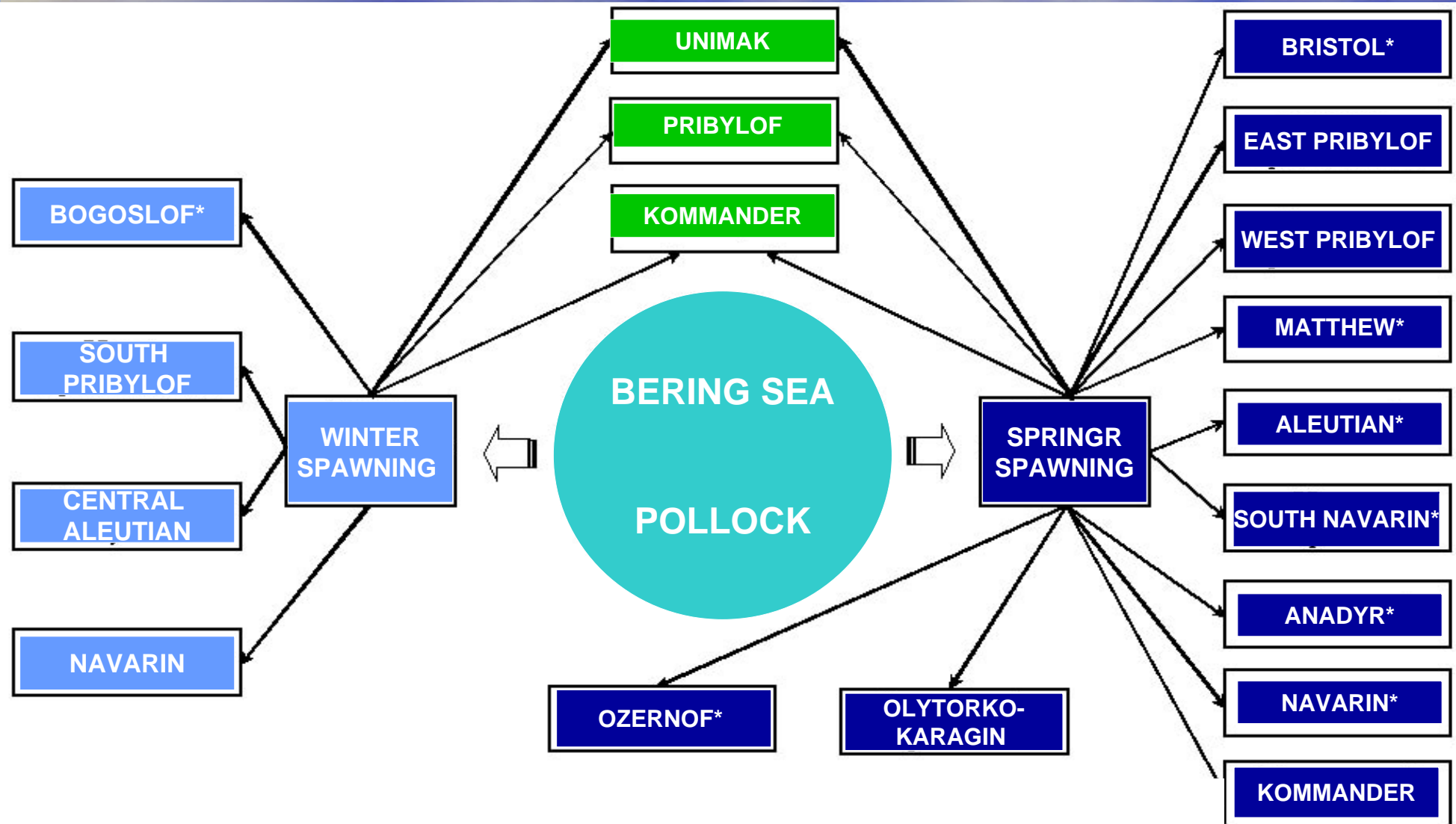
WESTERN BERING SEA: (RUSSIAN RESEARCH)

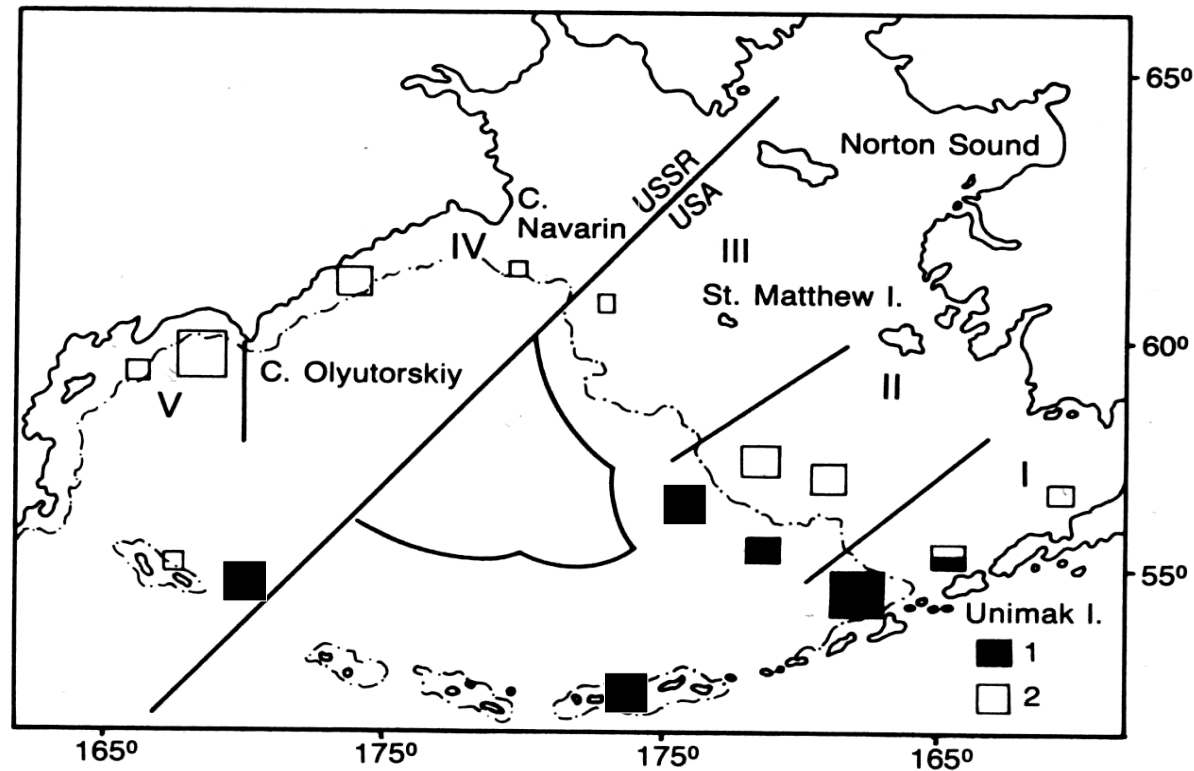
ECHO-INTEGRATION TRAWL SURVEYS (SINCE 1986), BOTTOM TRAWL SURVEYS (SINCE 1970), MIDWATER TRAWL SURVEYS (SINCE 1974) ANALITYC APPROACH (SINCE 1970),

BERING SEA POLLOCK STOCK STRUCTURE

Sources	Region	Structure	Major stocks
Grant et al., 2003	Bering Sea	2 stocks	Eastern and western
Ianelli et al., 2003	US EEZ	3 stocks	Eastern shelf, Aleutians, Bogoslof - Donuthole
Datskyi, 2000	Northern Bering Sea	4 stocks	Anadyr Gulf, Navarin, Eastern, Dezhnyov
Balykin, 1996	Western Bering Sea	1 stock	Western

SPAWNING UNITS OF ALASKA POLLLOCK





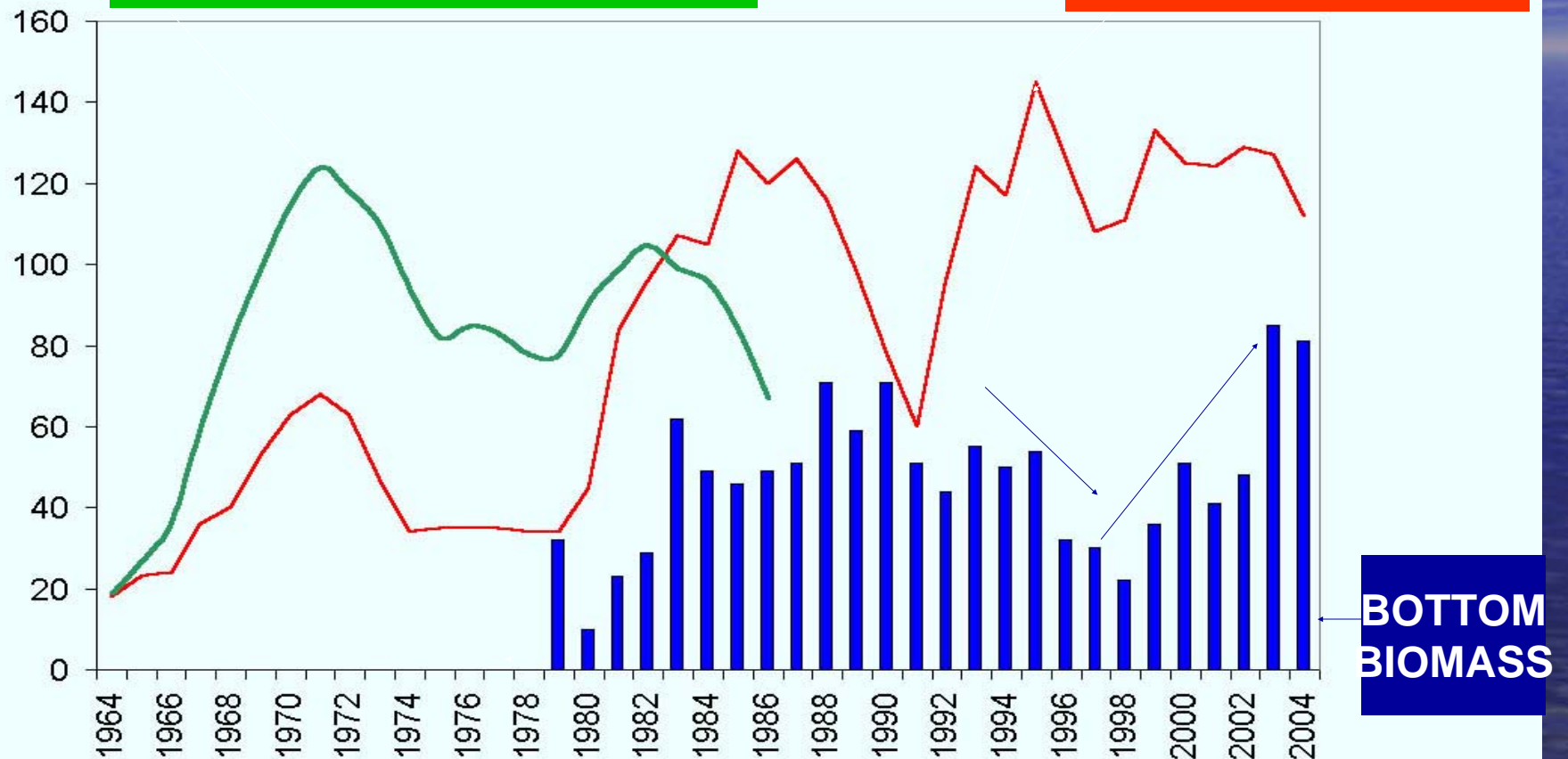
**THE MAIN SPAWNING GROUNDS OF ALASKA
POLLOCK IN THE BERING SEA IN 1980'S
(GENERALIZED)**

**I – UNIMAK, II-PRIBYLOF, III-ST.MATTHEW,
IV-OLYUTORSKI-NAVARINSKIY, V-WESTERN
1-WINTER SPAWNING, 2-SPRING SPAWNING
GROUNDS (BULATOV, 1989, 2004)**

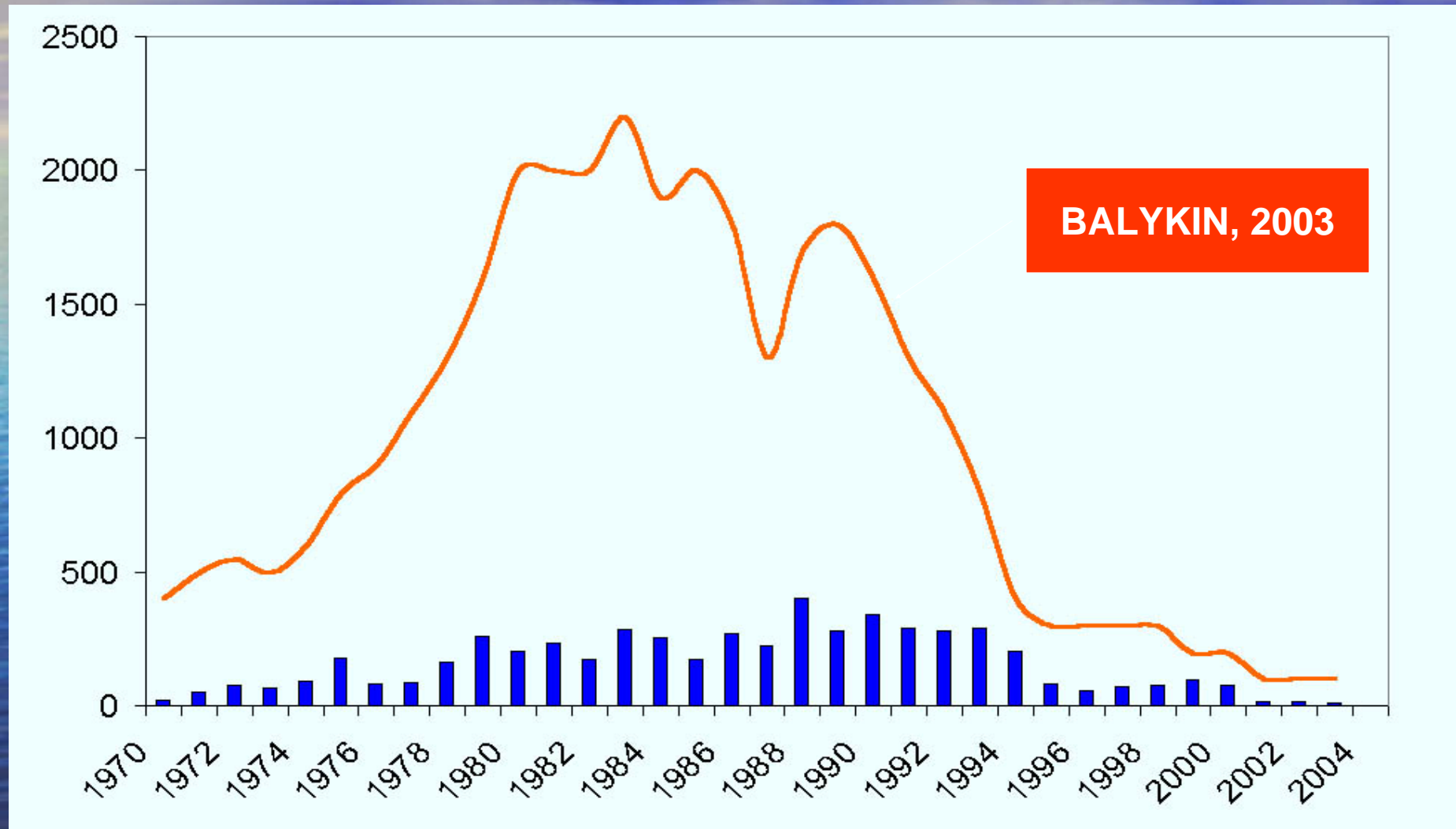
BIOMASS OF POLLOCK IN THE EASTERN BERING SEA, 100 000 MT

WESPESTAD, TRAYNOR, 1988

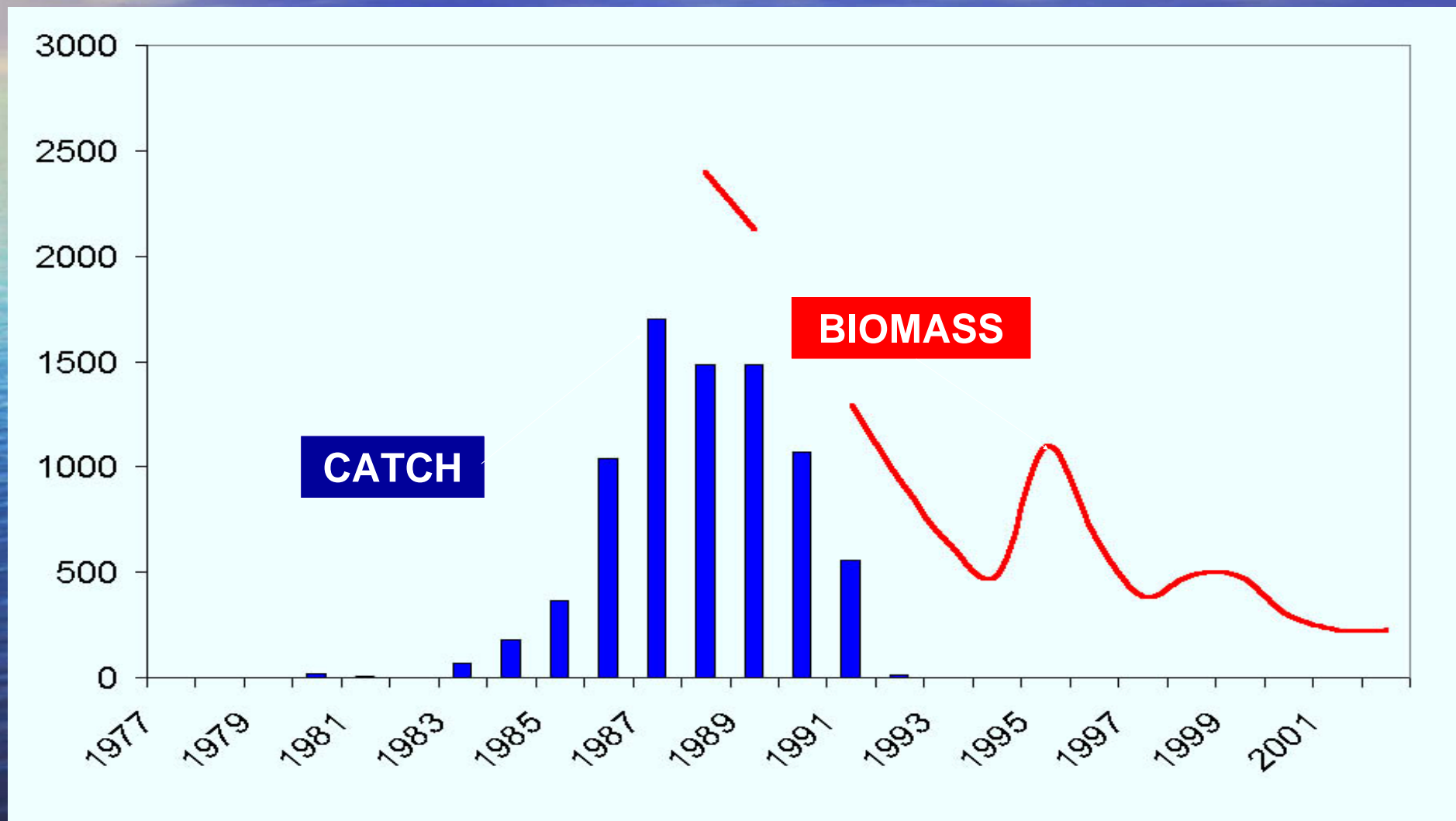
IANELLI ET AL., 2003



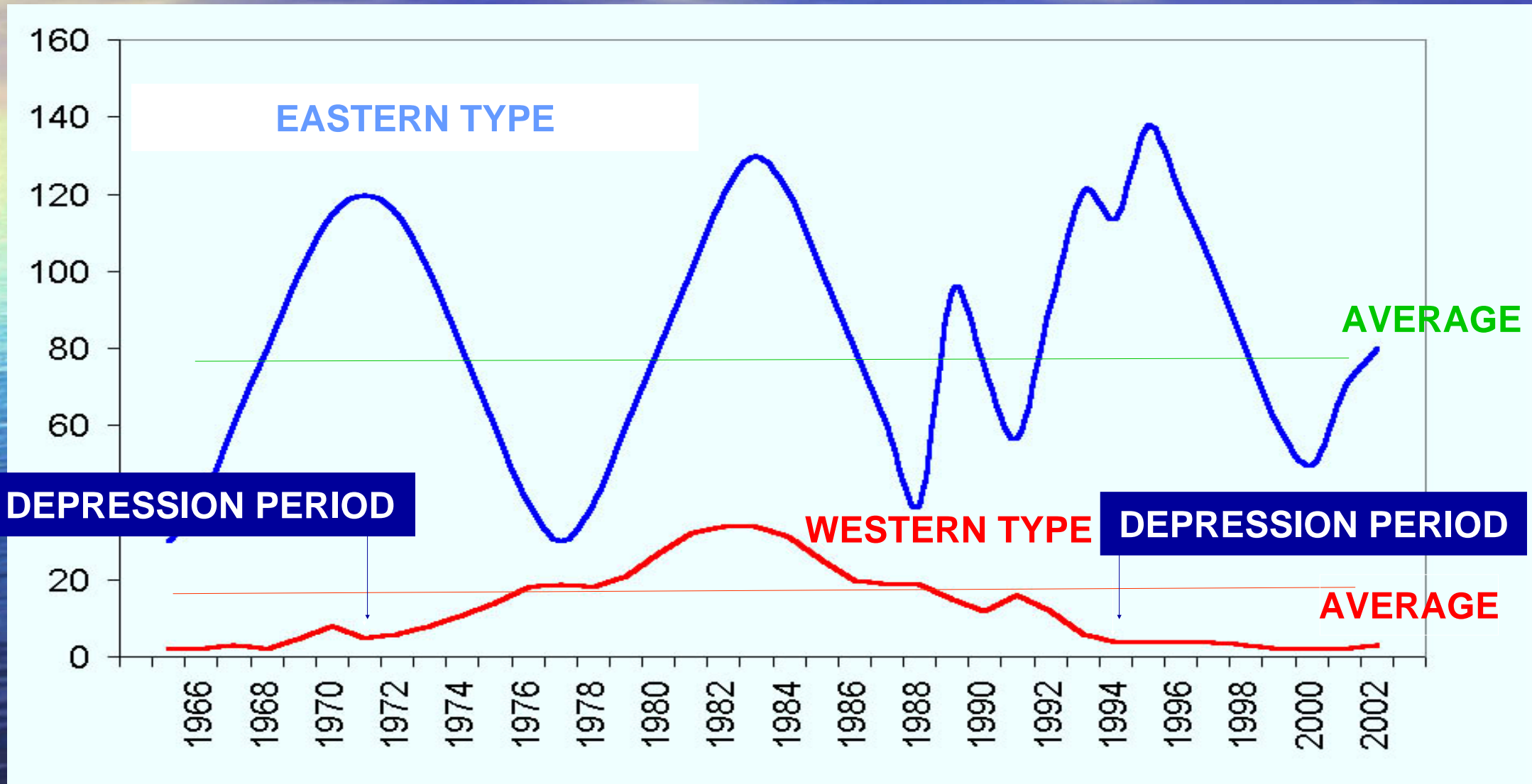
POLLOCK BIOMASS AND CATCH IN THE WESTERN BERING SEA, 1000 MT



POLLOCK BIOMASS ESTIMATED BY ECHO-INTEGRATION- TRAWL SURVEYS IN THE BOGOSLOF AREA AND CATCH IN DONUTHOLE AND BOGOSLOF AREA, 1000 MT



DIFFERENT TYPES OF POLLOCK STOCK DYNAMICS



EXPLOITATION RATE OF WALLEYE POLLOCK IN THE BERING SEA

REGION	TYPES OF STOCK DYNAMICS	MANAGEMENT STRATEGY	STOCK LEVEL	EXPLOITATION RATE, %
EASTERN BERING SEA	SUSTAINABLE WITHOUT DEPRESSION	TRADITIONAL APPROACH	HIGH	26,6
			AVERAGE	26,6
			LOW	23,4
			EXTREMELY LOW	23,4
WESTERN BERING SEA	UNSTABLE WITH DEPRESSION	PRECAUTIONARY APPROACH	HIGH	23,4
			AVERAGE	23,4
			LOW	20,7
			EXTREMELY LOW	MORATORIUM

CONCLUSIONS

- NEED TO IMPROVE THE METHODS OF STOCK ASSESSMENT
- NEED TO TAKE INTO ACCOUNT THE TYPE OF STOCK DYNAMICS UNDER SELECTION OF FISHERY MANAGEMENT TYPE
- IN THE EASTERN BERING SEA FISHERY MANAGEMENT SHOULD BE BASED ON TRADITIONAL APPROACH, IN THE WESTERN BERING SEA – ON PRECAUTIONARY APPROACH
- FISHERY MANAGEMENT SHOULD CONSIDER NOT ONLY THE STATISTICAL REGIONS, BUT ALSO THE NUMBER OF THE SPAWNING STOCK UNITS



THANK YOU

FOR YOUR ATTENTION