Variability of the Eastern Sakhalin Walleye Pollock Stock and Offshore Oil and Gas Development - is there a Relation?

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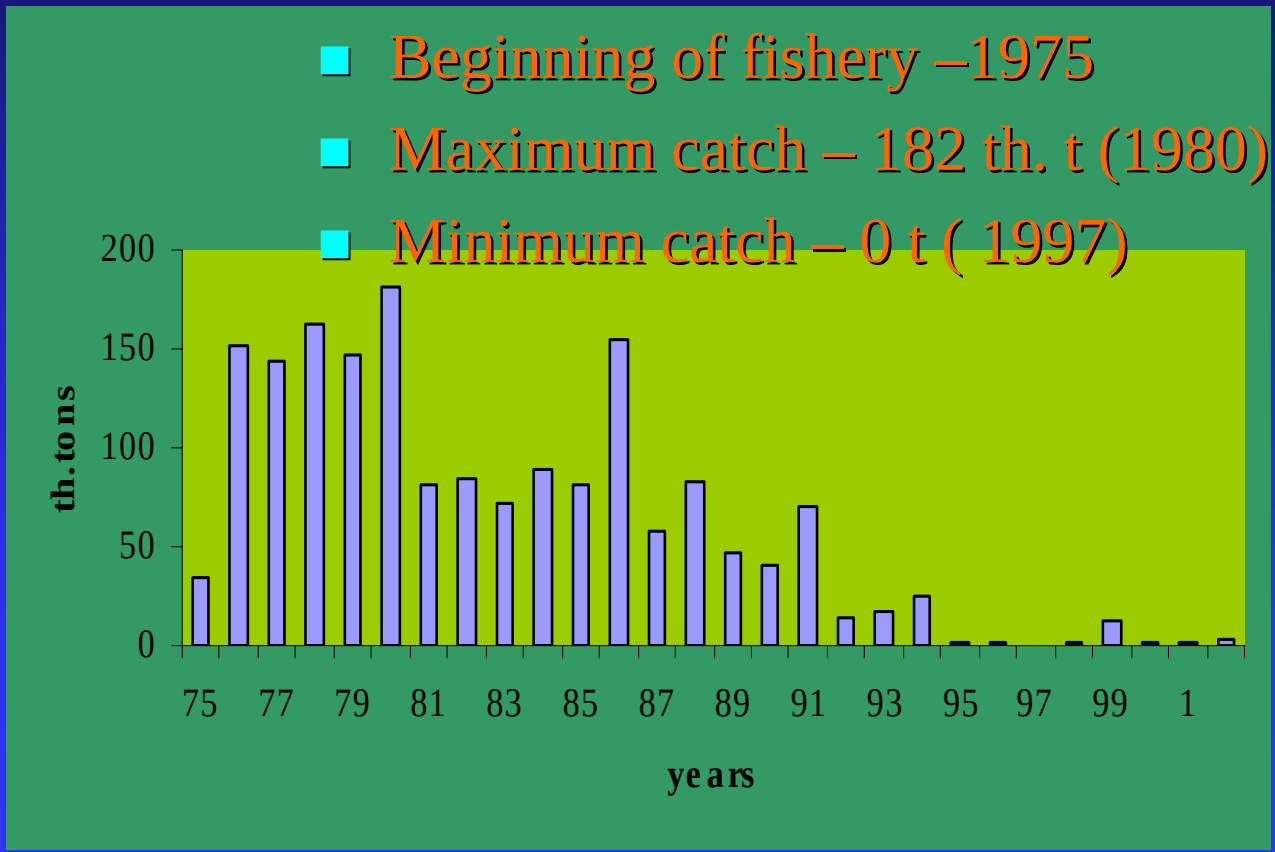
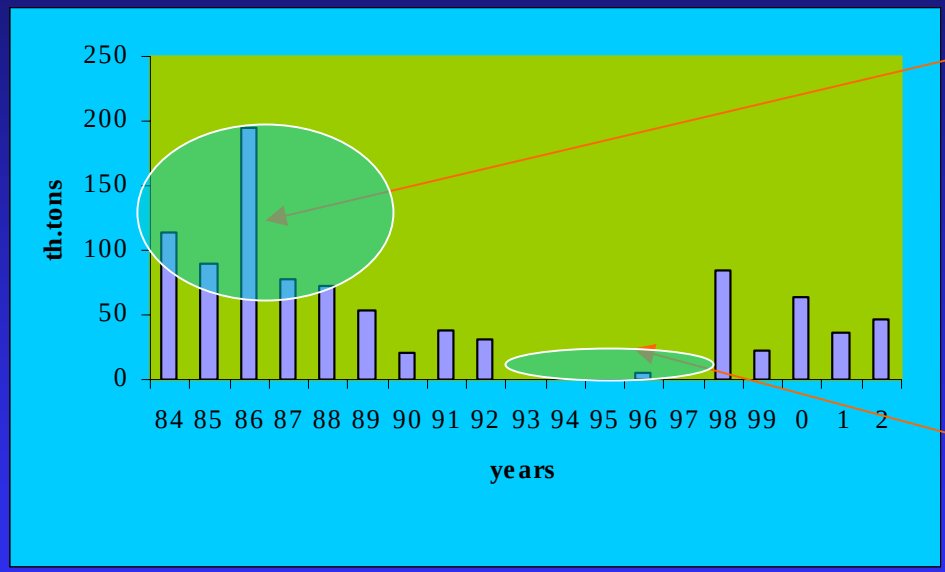
Origin of the item

- Commercial oil development started in the Eastern Sakhalin shelf in the late 1990s.
- By the late 1990s, pollock stock abundance dropped considerably in that area.
- What was the reason for such a sharp decline?

Walleye pollock catches in the Eastern Sakhalin region, 1975-2002.

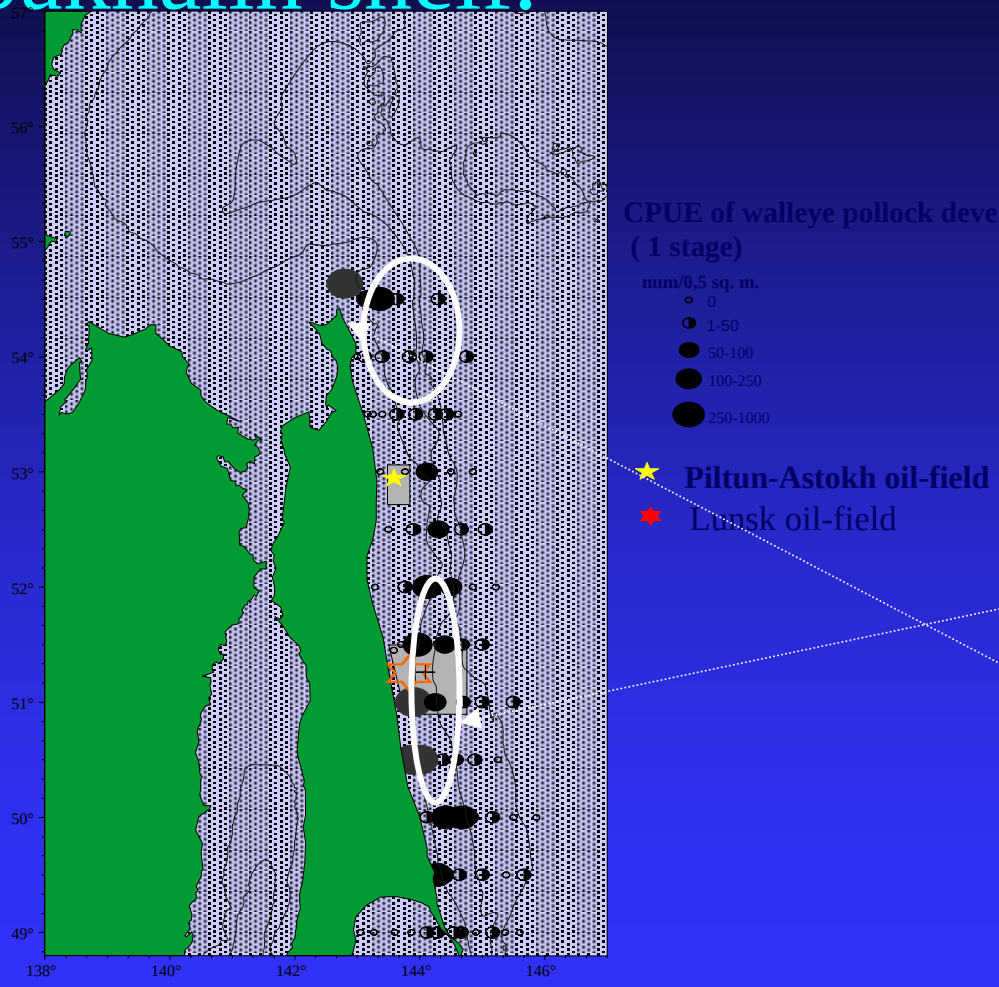


Estimated spawning biomass of walleye pollock in the Eastern Sakhalin shelf based on ichthyoplancton surveys (1984-2002)



- In the 1980s, spawning biomass was 80-180 th.t,
- by the mid-1990s it declined down to 5-10 th.t

Location of walleye pollock spawning ground and the oil-fields in the Eastern Sakhalin shelf.

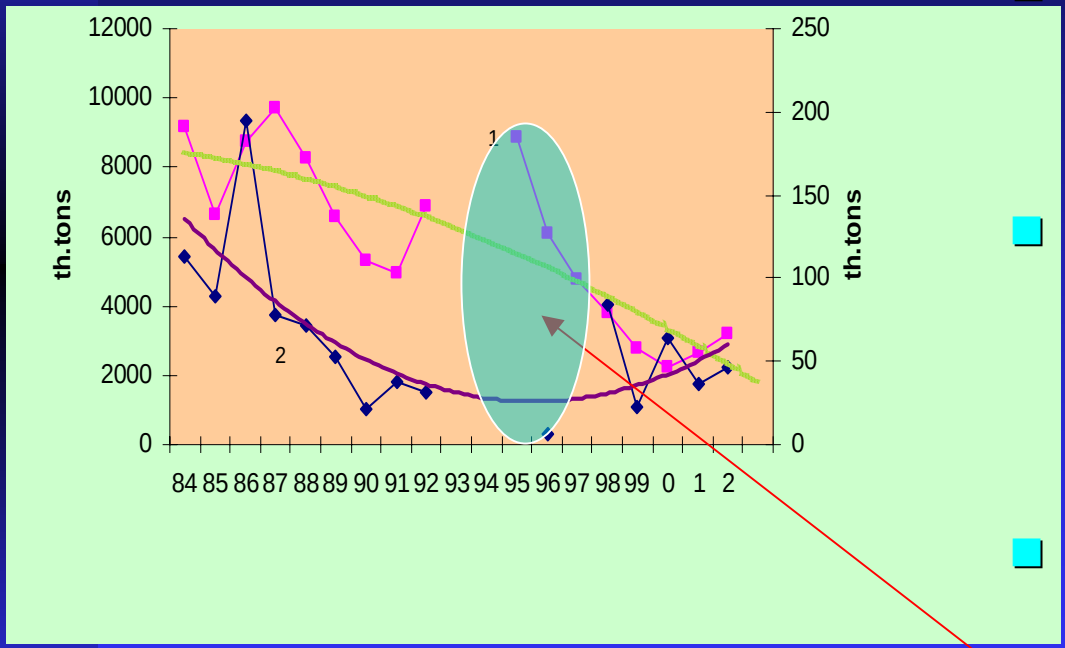


Two spawning grounds are found in the Eastern Sakhalin shelf

(1) southern

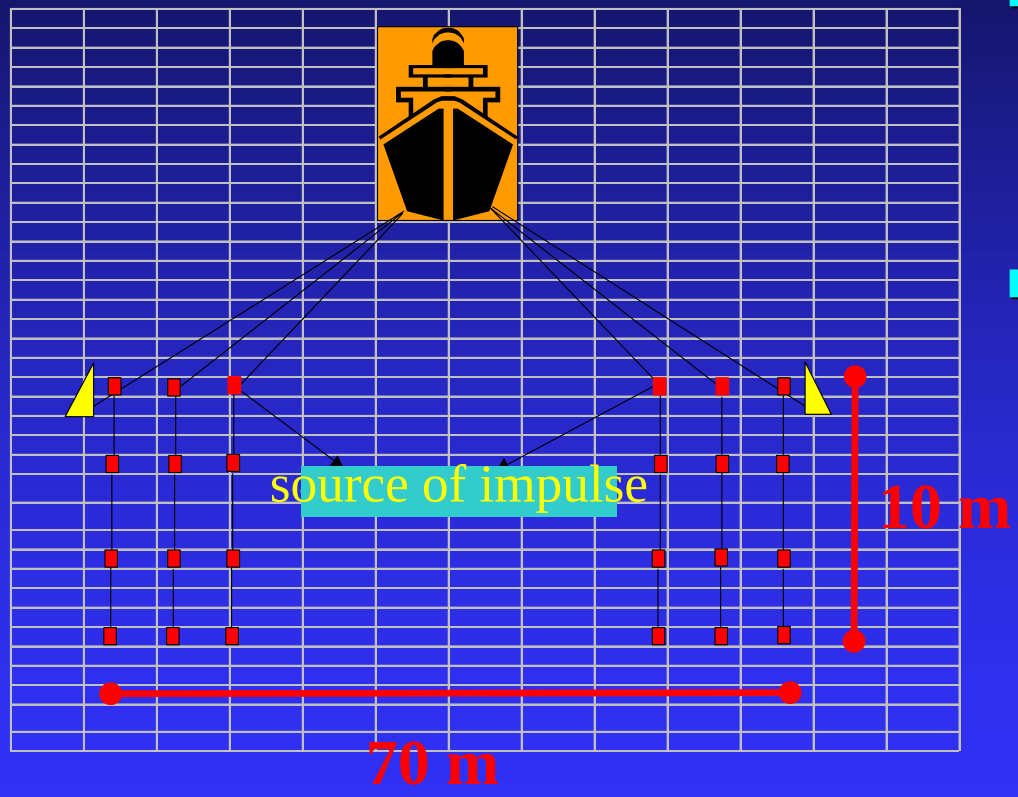
(2) northern.

Spawning stock of walleye pollock in the north Okhotsk Sea (1- left scale) and in the Eastern Sakhalin shelf (2- right scale) in 1984-2002.



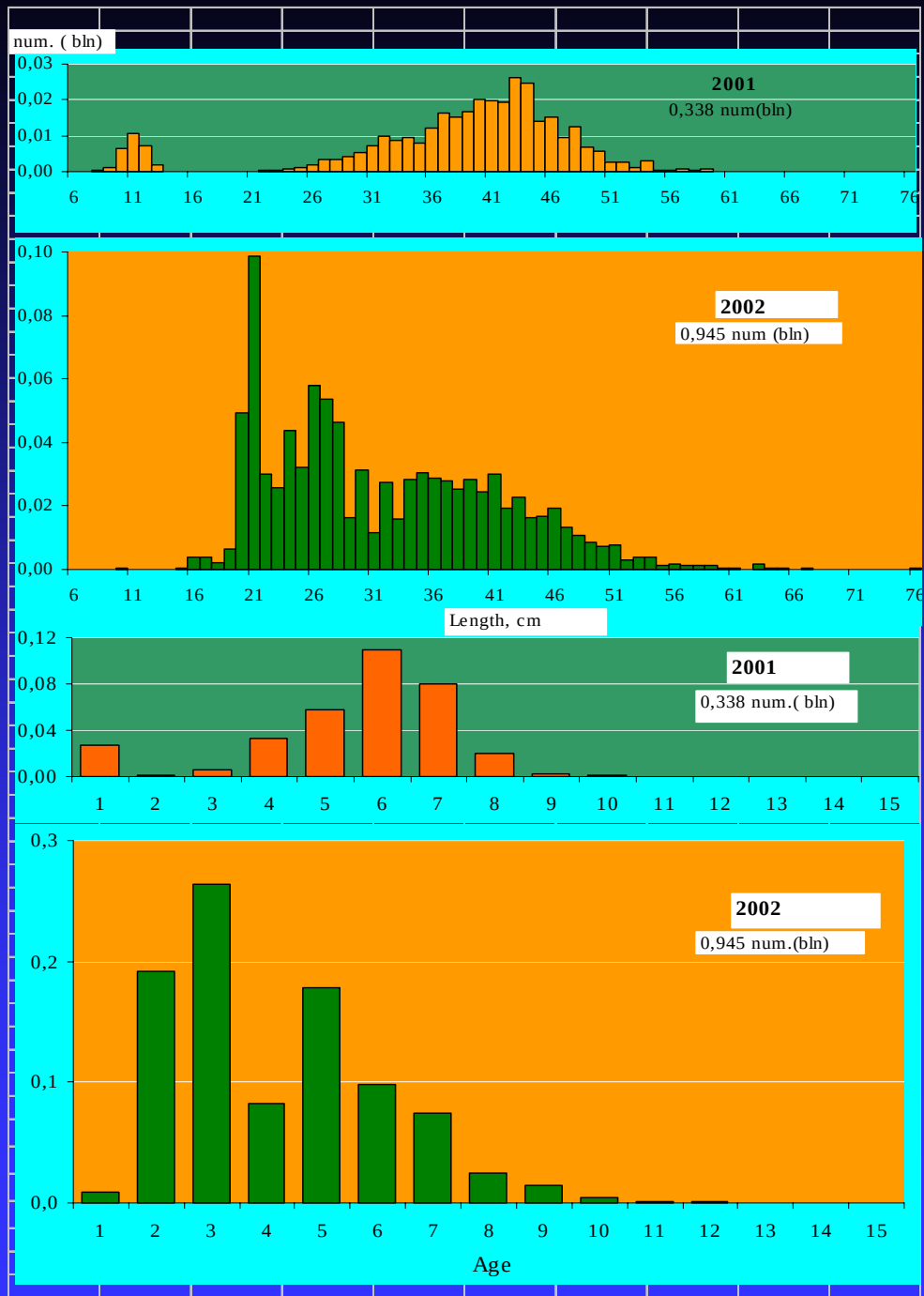
- In the 1980s, both stocks fluctuated in a similar manner
- In the northern Okhotsk Sea strong year classes appeared in 1988 and 1989, and the stock abundance increased
- In the Eastern Sakhalin shelf the stock continued to decrease

The scheme of towing echosounder appliances for seismic detection of oil fields.



- 1- power of each impulse averages approximately 150 atmospheres
- 2- from 5-8 mln. impulses are made in the surveyed area of 100x100 sq.km

(Matishov, 1991)



Size-age composition of walleye pollock in the Eastern Sakhalin shelf in 2001-2002

Basic results

- Intensive **search of oil deposits** in the Eastern Sakhalin shelf in the mid-1990s - **pollock stock and reproduction rate is low**
- Decrease in fishery pressure on the Eastern Sakhalin pollock in the mid-1990s due to low stock abundance
- Begining of **commercial oil extraction** in the late 1990s - early 2000s - **pollock stock and reproduction rate is encreasing**
- There is still no serious reason to suspect significant impact of ***oil extraction*** on pollock abundance, though ***seismic influence*** during the **search process** might have an **impact on the early life stages of pollock**