Influence of ecological factors on Pacific herring reproduction efficiency

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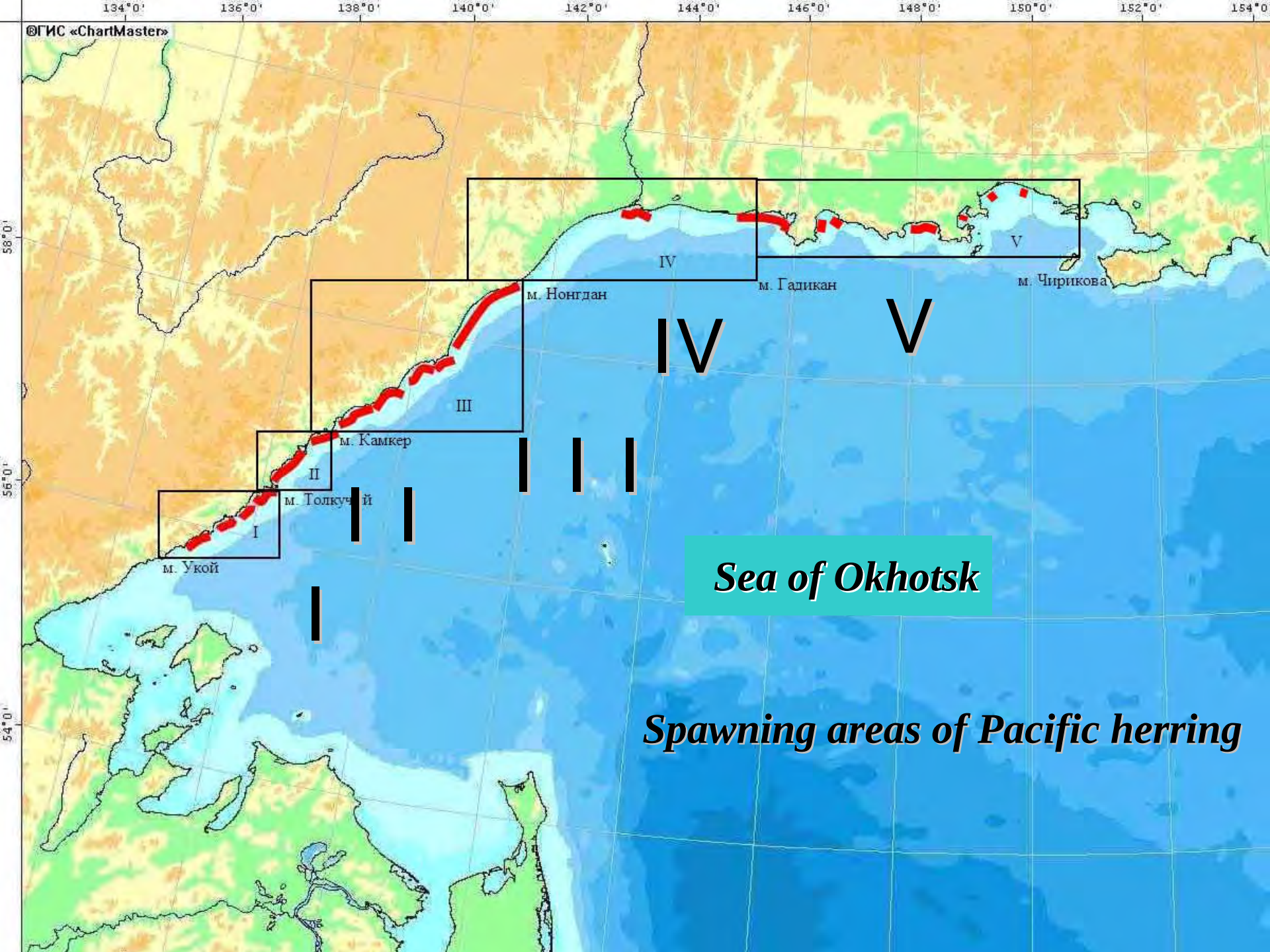
Main determinative factors on spawn efficiency:

- Type and dynamic of ice cover in spawning area before and during spawning period.
- Distribution of herring breeders at the spawning area
- Storms at time of herring early ontogenesis
- Water temperature before spawning
- Spawners density and substrate type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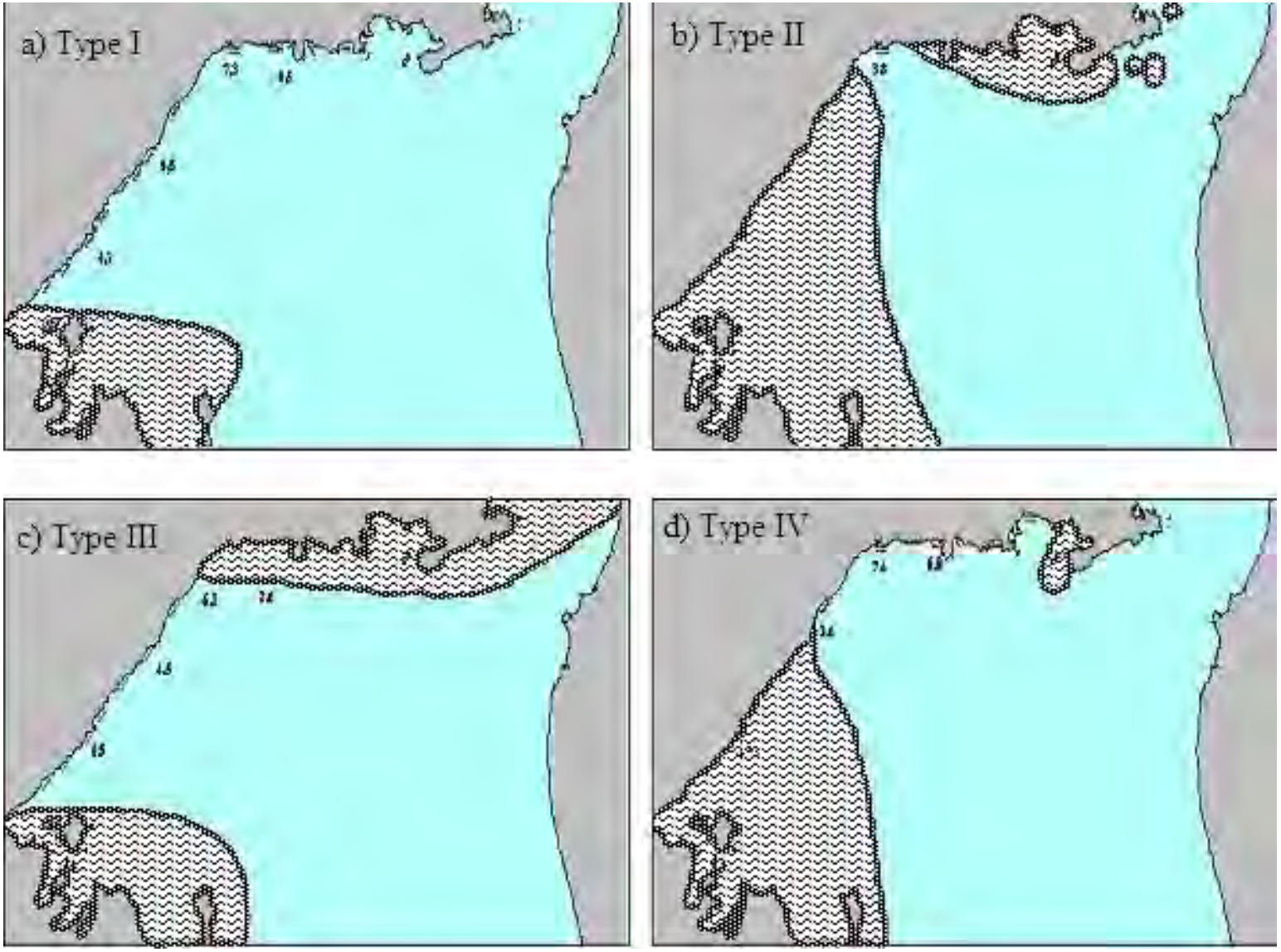
м. Камкер
м. Толкуч й
м. Укой
Sea of Okhotsk
Spawning areas of Pacific herring

Closed type of spawning area (Aldoma Bay)

Open type of spawning area (Khanyangda Cape)

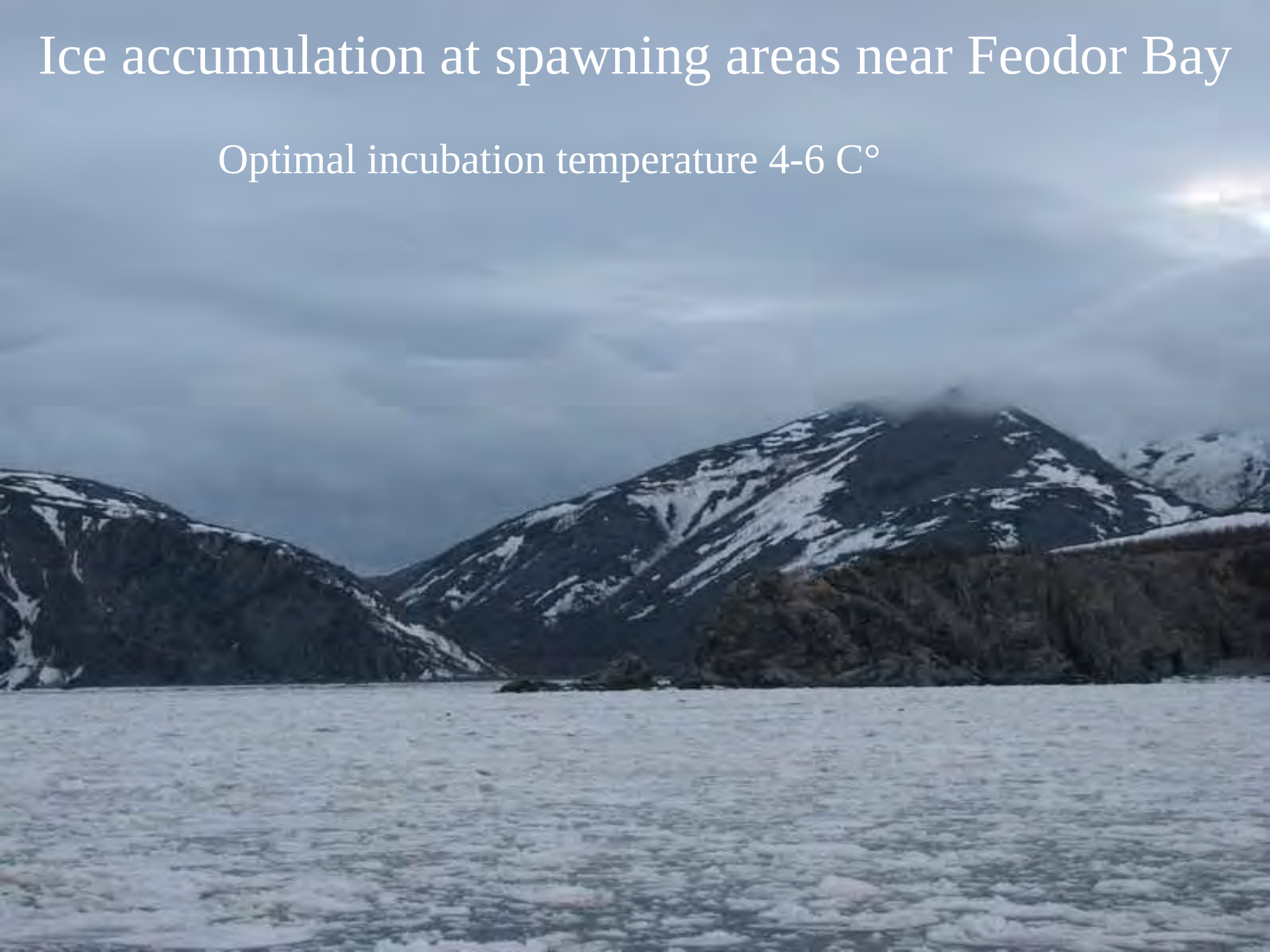


Types of spawning area (Tyurnin, 1973)

Type II
Ice barrier of spawning areas of Kruglaya Bay
(5 June 2001)

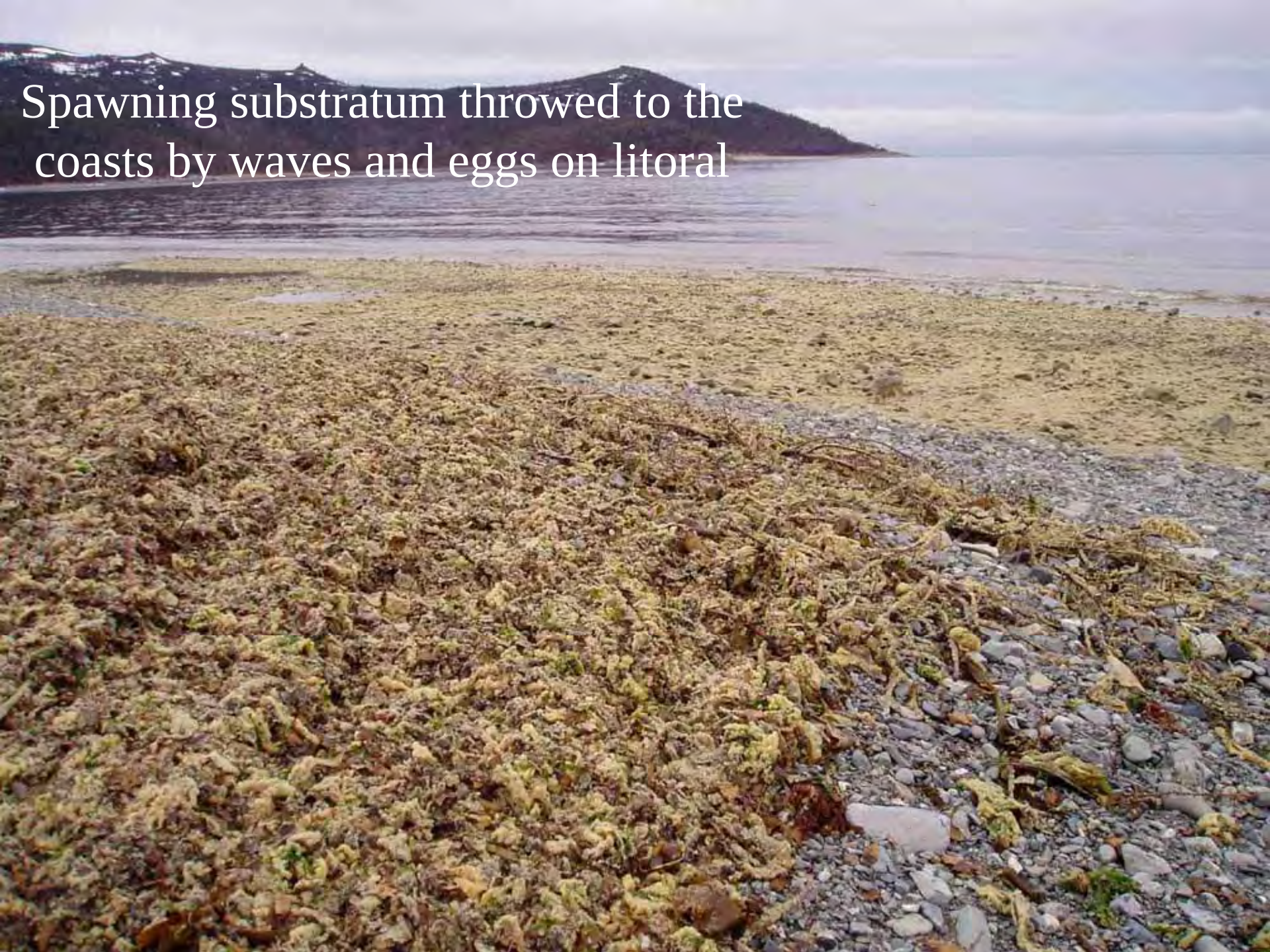
Ice accumulation at spawning areas near Feodor Bay

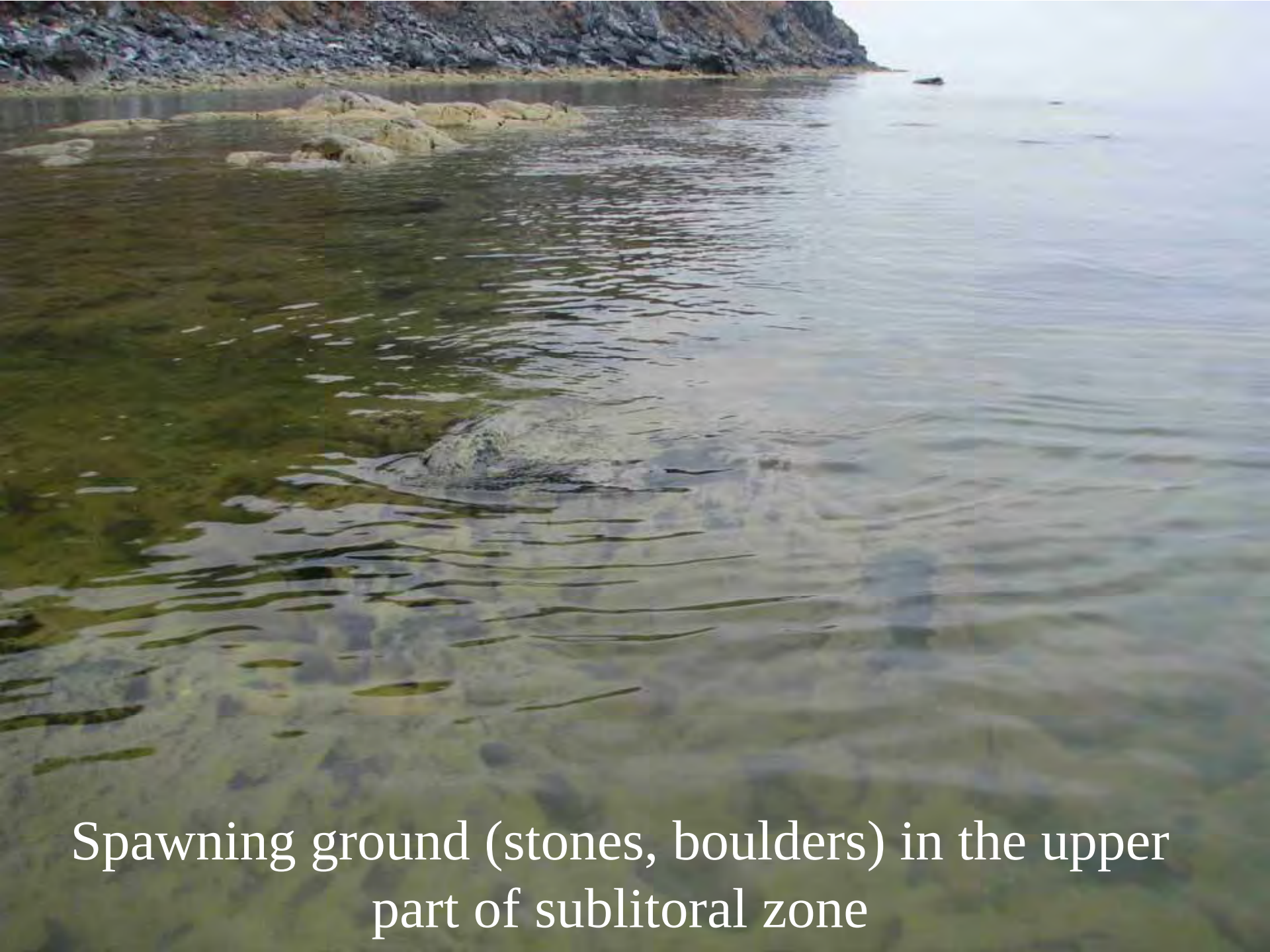
Optimal incubation temperature 4-6 C°




Herring spawning in ebb tide pools

Herring spawn at shore tideland


Spawning substratum throwed to the coasts by waves and eggs on litoral



Spawning ground (stones, boulders) in the upper part of sublitoral zone

Normal development of herring embryo


7th stage of herring embryo development

Yerineyskaya bay, mixed algae: *Cystoseira*, *Rhodophyta*, *Laminaria*





Sea mammals and birds

Fish and invertebrates


Ice-strangled herring in Feodot Bay, 2001.

Ice-strangled herring in Aldoma Bay, May 2011.