Modern status and objectives of ecosystematic research into biological resources of the Russian Far-Eastern seas.

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Basic directions of research activities

- Investigation of pelagic and bottom communities including qualitative and quantitative characters for all species
- Investigation of trophic relationships
- Estimation of bioproductivity within each trophic level of plankton, nekton, benthos

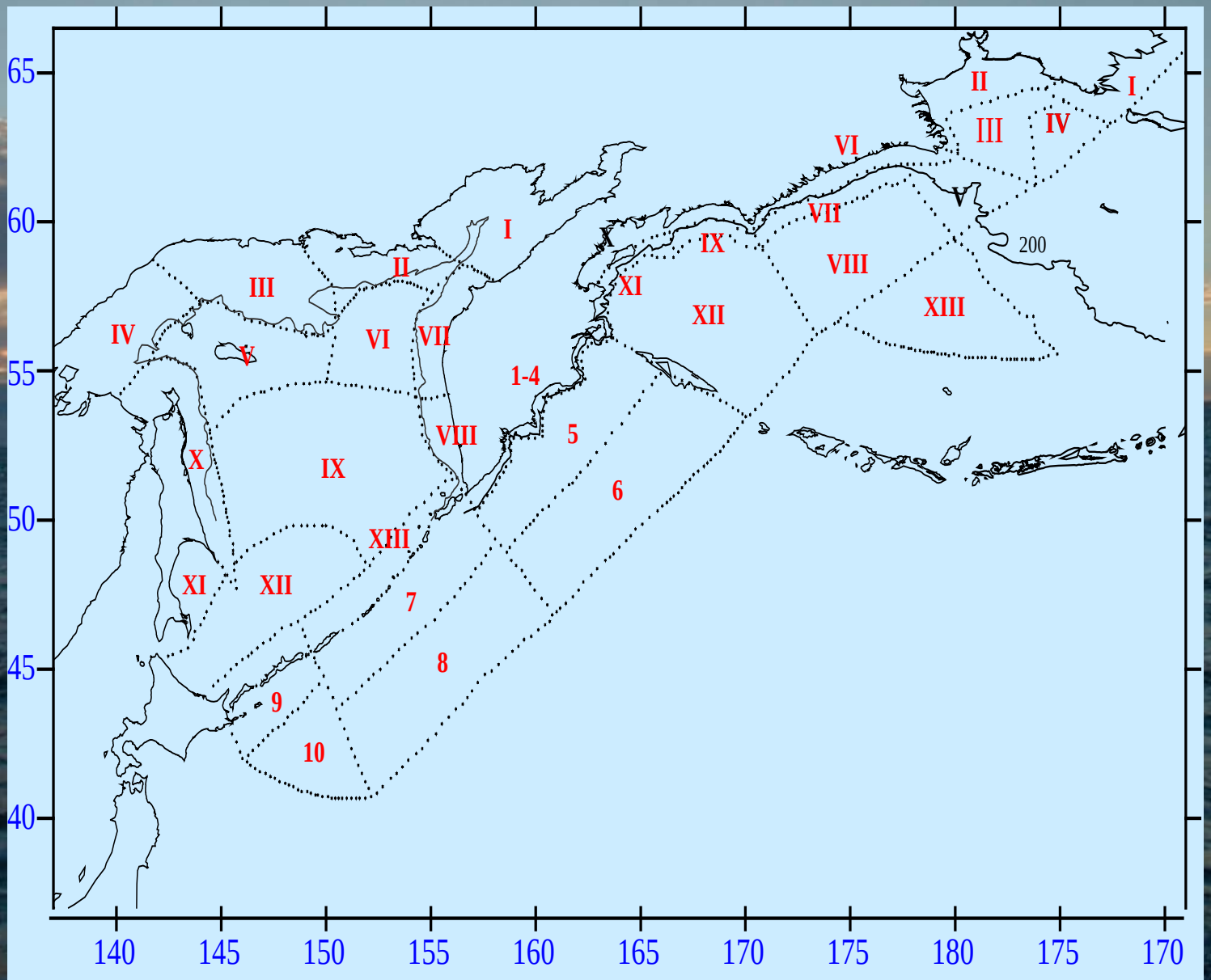
Research activity

Plankton communities

Benthos communities

Feeding habits of fishes and invertebrates

Boundaries and numbers of biostatistical regions in the Okhotsk, Bering seas, and adjacent waters of the north Pacific Ocean



Bering Sea

1984-2001

31 large scale expeditions

6552 trawlings

Okhotsk Sea

- 1982-2002

48 large scale expeditions

10370 trawlings

Pacific ocean

1980-2002

126 large scale expeditions

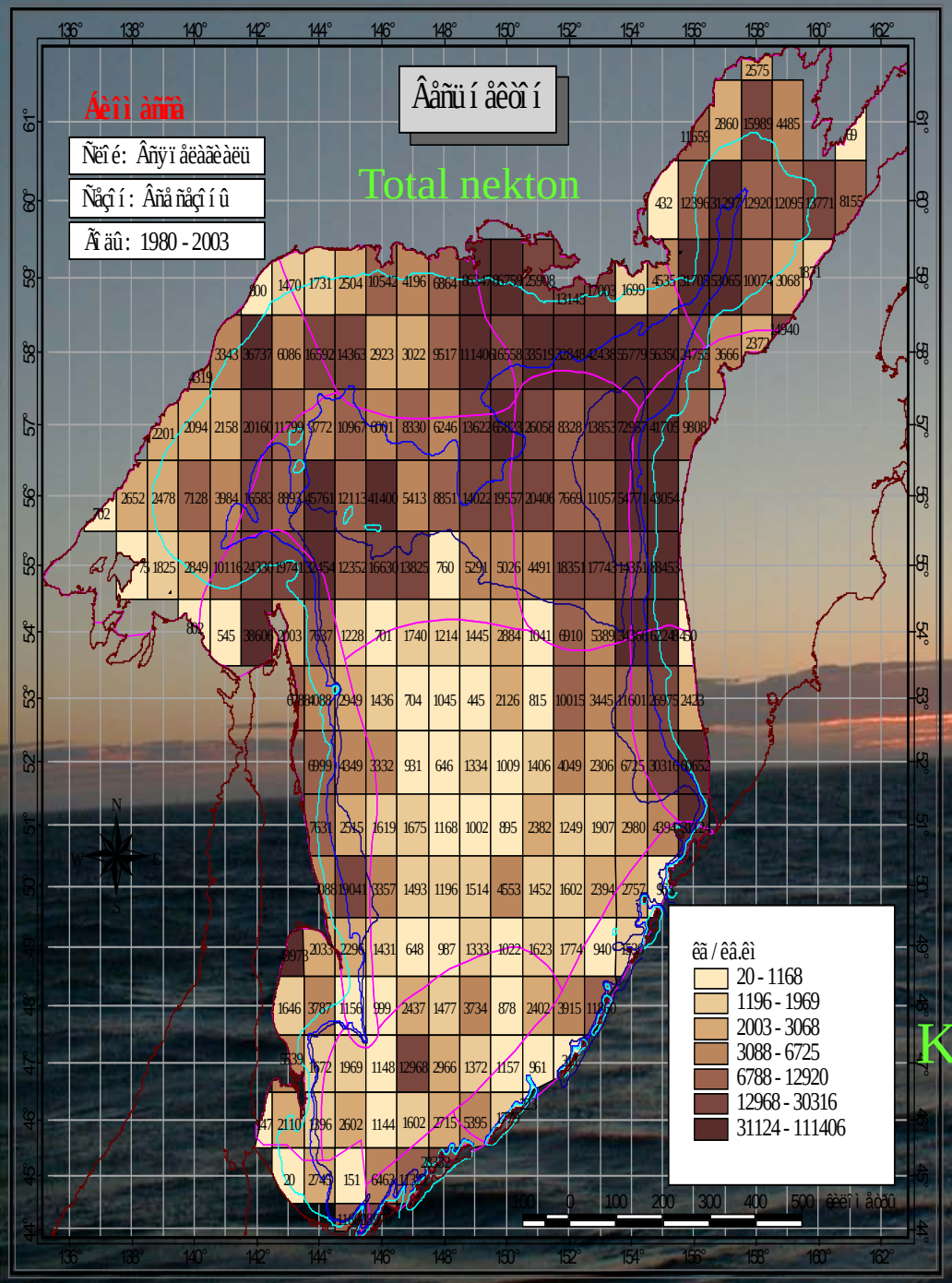
23780 trawlings

Japan Sea

- 1981-2002

92 large scale expeditions

12177 trawlings



Total biomass of nekton (fish, cephalopods and crustaceans) *Pisces+Cyclostomata+ Cephalopoda+Decapoda* in the pelagic zone for all seasons. Data are averaged over 1980-2003

Kg per km^2

Biomass of basic components of the Russian Far-Eastern ecosystems during 1980-s

Catch:

historical maximum in 1988 – 5 million tons

Biomass:

fish and large invertebrates -90-100 million tons

macrobenthos – 408 million tons

meso- and macroplankton -1206 million tons

Number:

whales -100-120 thousand

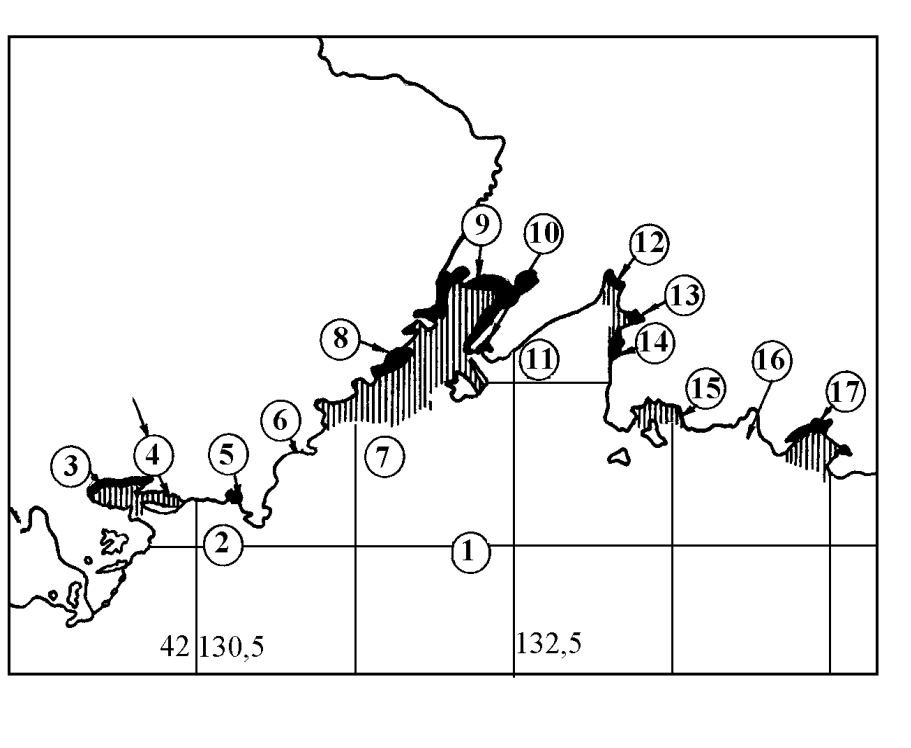
dolphins – 250 thousand

sea birds – 40-50 million

Periods of ecosystematic changes in the Russian Far-Eastern Seas

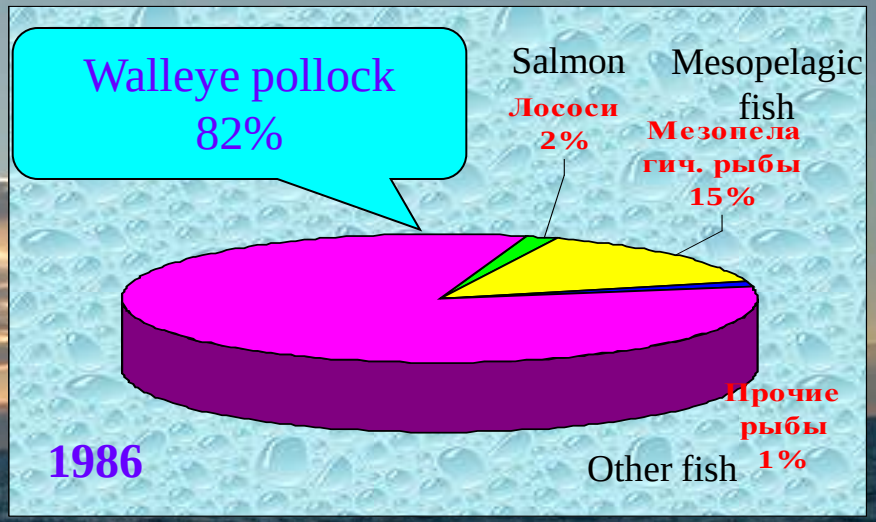
- 1 – early 1990-s. Decrease in total biomass of fish in the pelagic zone (drastic drop in abundance of Japanese sardine and 3-4-fold decrease of walleye pollock abundance) and increase in abundance of predatory zooplankton (up to 50-60% of the meso- and macroplankton total biomass)
- 2 – late 1990-s. Biomass of fish, including bottom fish, continues to decrease, while zooplankton communities becomes stable and acquires characters typical for 1980-s.

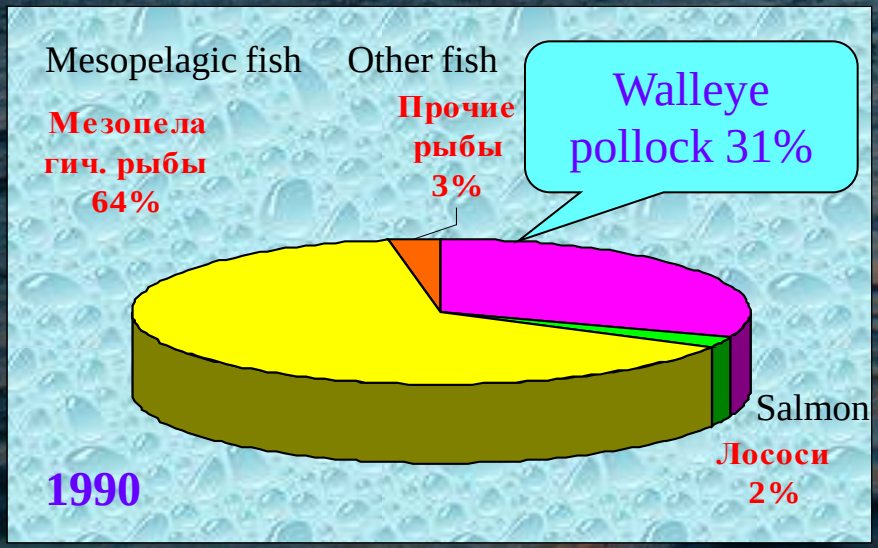
Ecologic condition of the Peter the Great Bay (expressed in specific index of damage and index of total increase for pollution maximum allowable level, MAL, from coastal spill)

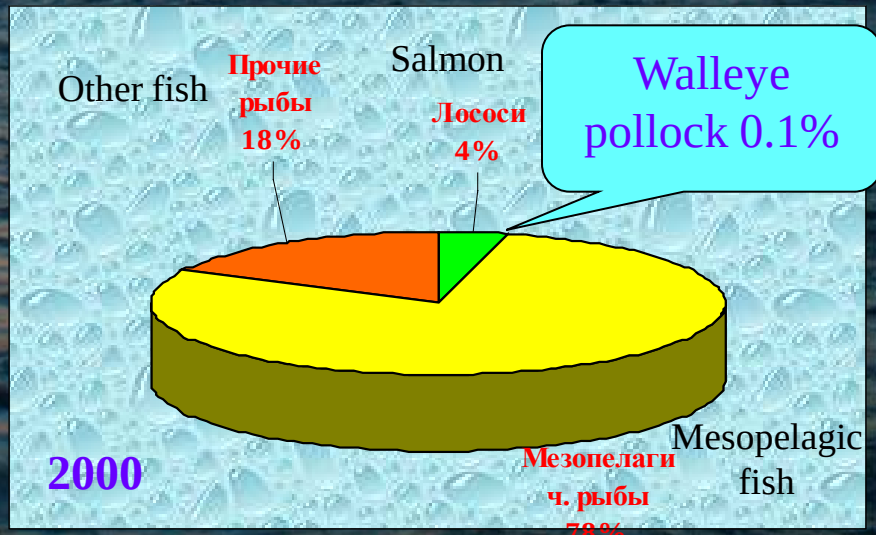


	Coastal place	Damage	MAL increase
	Водный объект	Уд. показатель, долл./м^3*10^{-3}	Показатель превышения ПДК
1	Зал. Петра Великого	0,58	0,4
2	Зал. Посьета	1,56	0,13
3	Бухта Экспедиции	19,16	1,55
4	Бухта	3,6	0,29
5	Новгородская	35,6	2,89
6	Бухта Троицы	7,64	0,62
7	Бухта Бойсмана	20,62	4,5
8	Амурский залив	15,2	3,3
9	Открытая часть	46,82	10,18
10	Кутовая часть	65,64	41
11	Бухта Золотой Рог	0,18	0,2
12	Уссурийский залив	2565	2943
13	Бухта Муравьиная	1170	1345
14	Бухта Суходол	720	827
15	Бухты Большой	2,27	1,4
16	Камень, Андреева	0,71	0,4
17	Зал. Стрелок	7,1	4,4
	Зал. Восток		
	Зал. Находка		

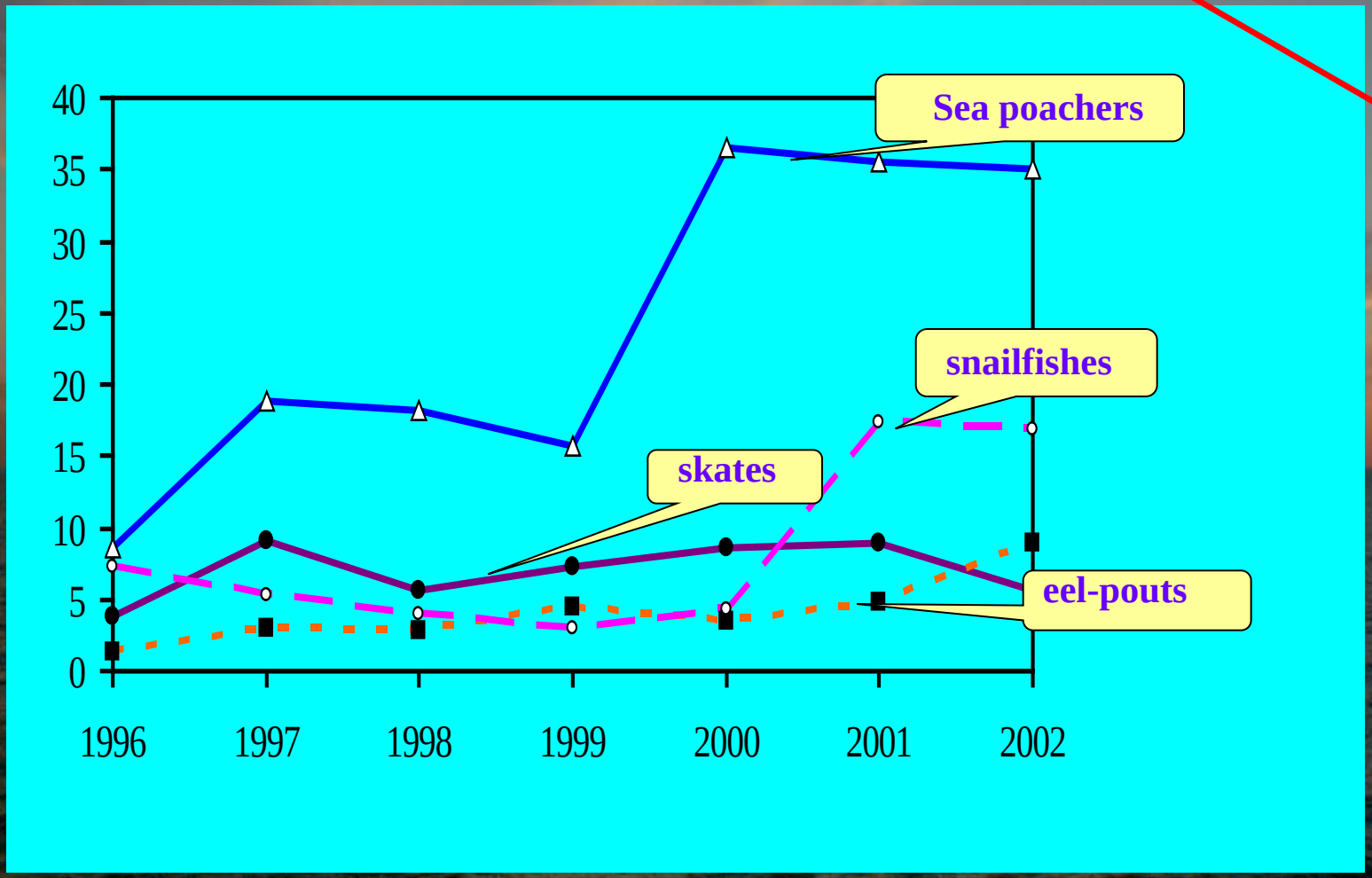
Dynamics of fish community composition in the off-shore epipelagic layer of the south-western Bering Sea in autumn 1986-2000

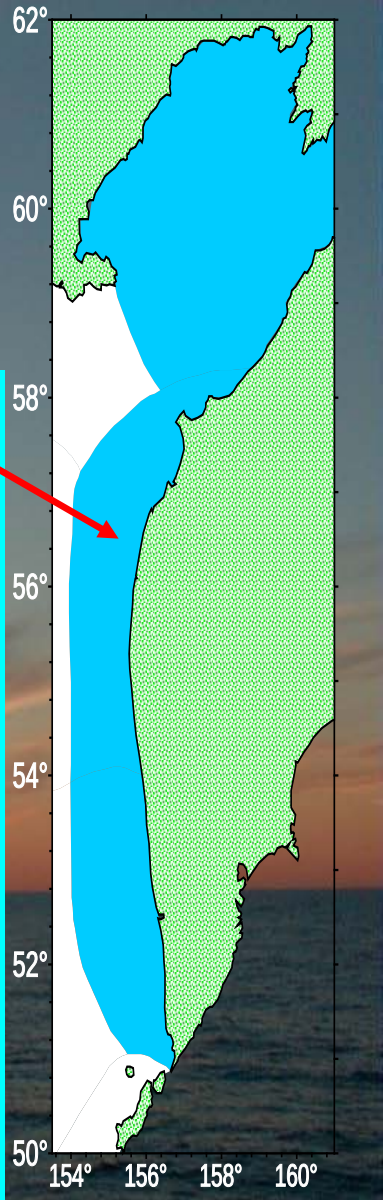




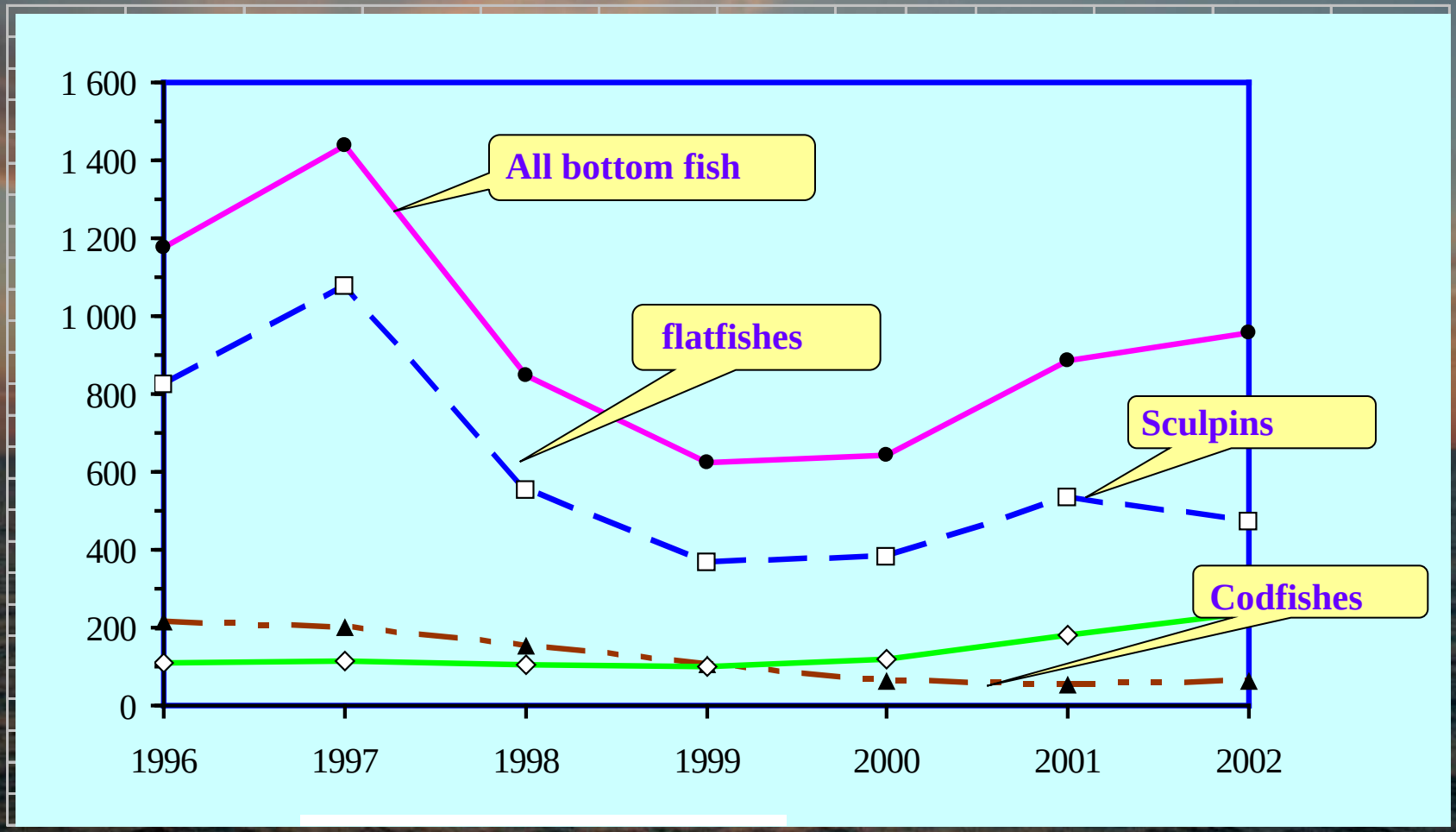


Dynamics of estimated biomass (thousand tons) for low abundant families of demersal fish on the western Kamchatka shelf

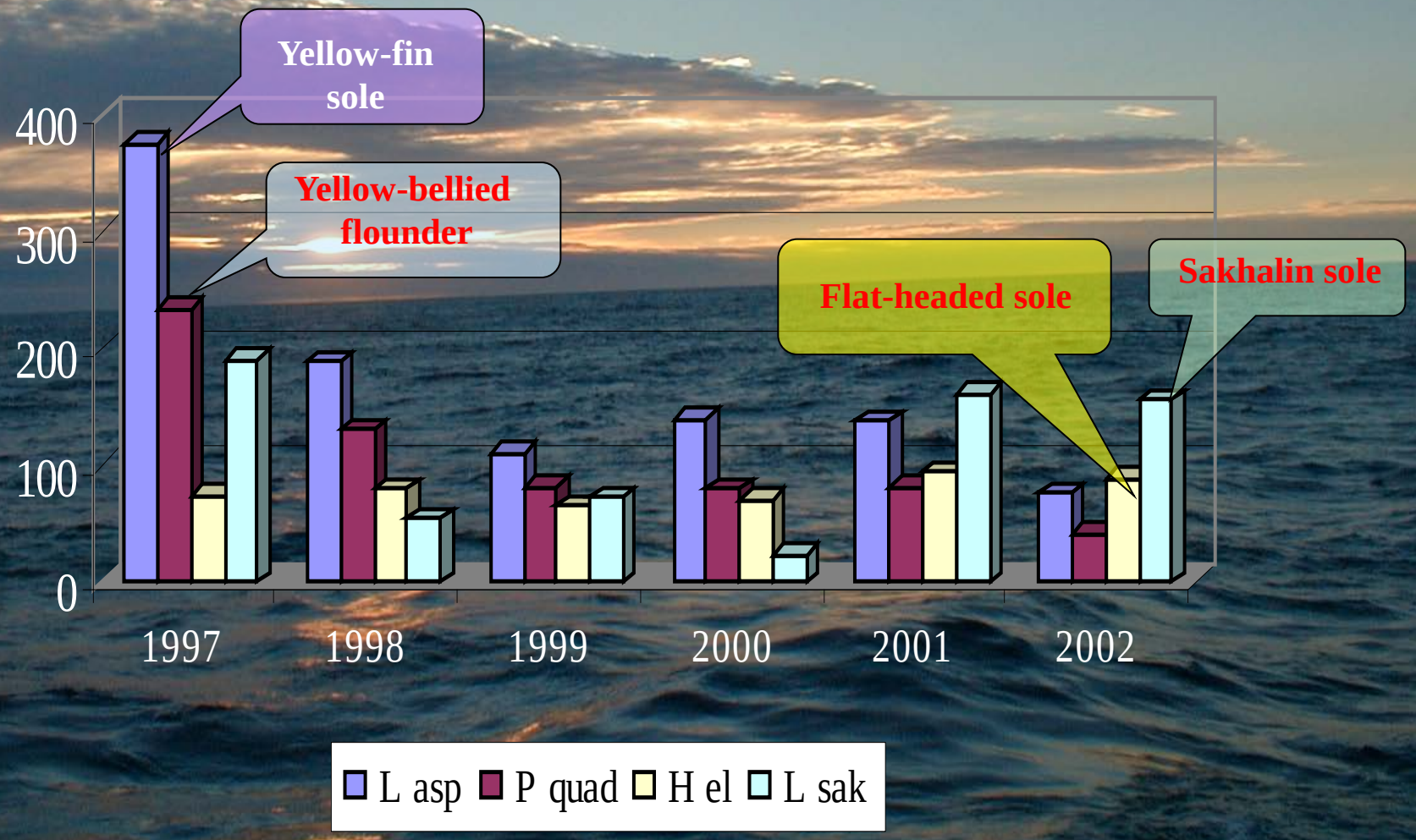




Dynamics of biomass for dominant families of bottom fishes on the western Kamchatka shelf

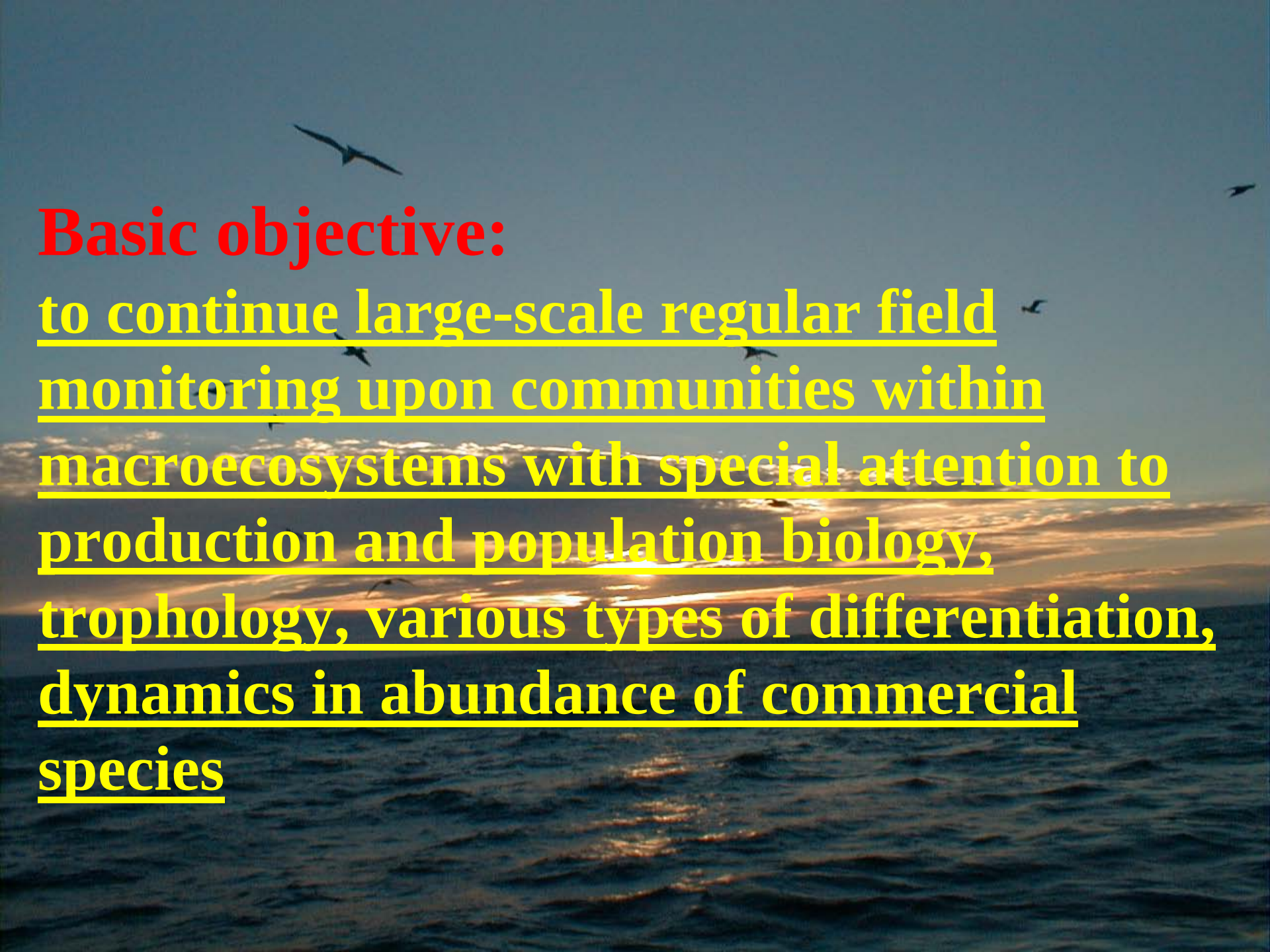


Dynamics of main flatfish species on the western Kamchatka shelf



Correlations between basic biotic components in the Bering and Okhotsk seas during 1980-s

Production ratio	Bering Sea	Okhotsk Sea
Non-predatory plankton / phytoplankton	0.152	0.177
Predatory plankton / non-predatory plankton	0.30	0.218
Predatory zoobenthos / non-predatory zoobenthos	0.058	0.070
Commercial nekton / zooplankton	0.0105	0.0099
Commercial nektobenthos / zoobenthos	0.0167	0.0076



Basic objective:

to continue large-scale regular field monitoring upon communities within macroecosystems with special attention to production and population biology, trophology, various types of differentiation, dynamics in abundance of commercial species