

# Seasonal distribution of commercial concentrations of saffron cod (*Eleginus gracilis* (Til.) on the shelf of West Kamchatka

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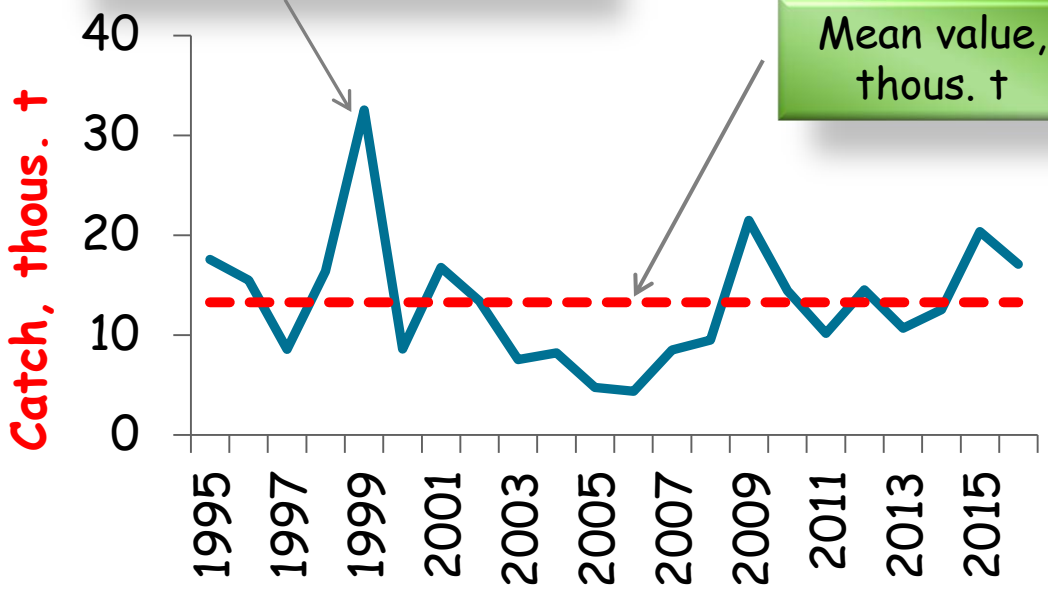


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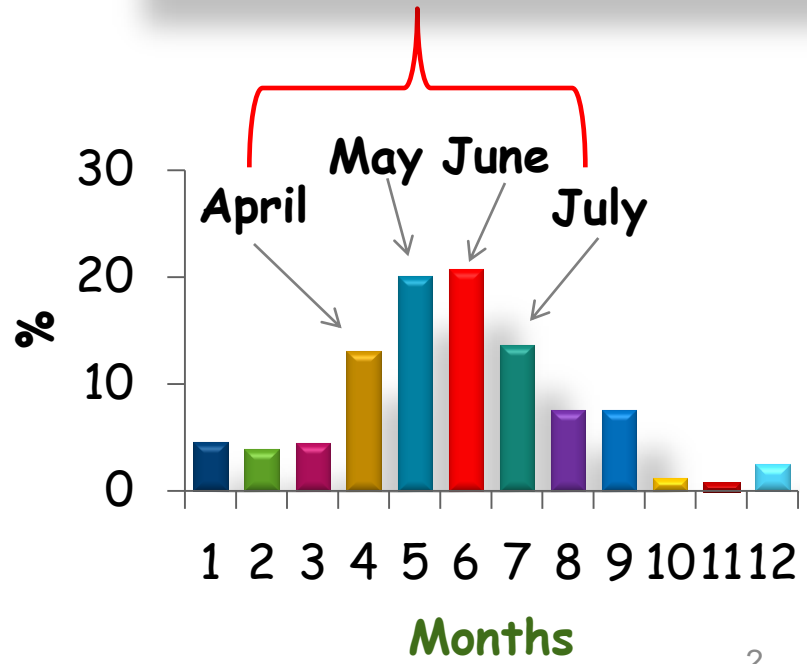


The catch in the sea of Okhotsk on West Kamchatka, thous. t



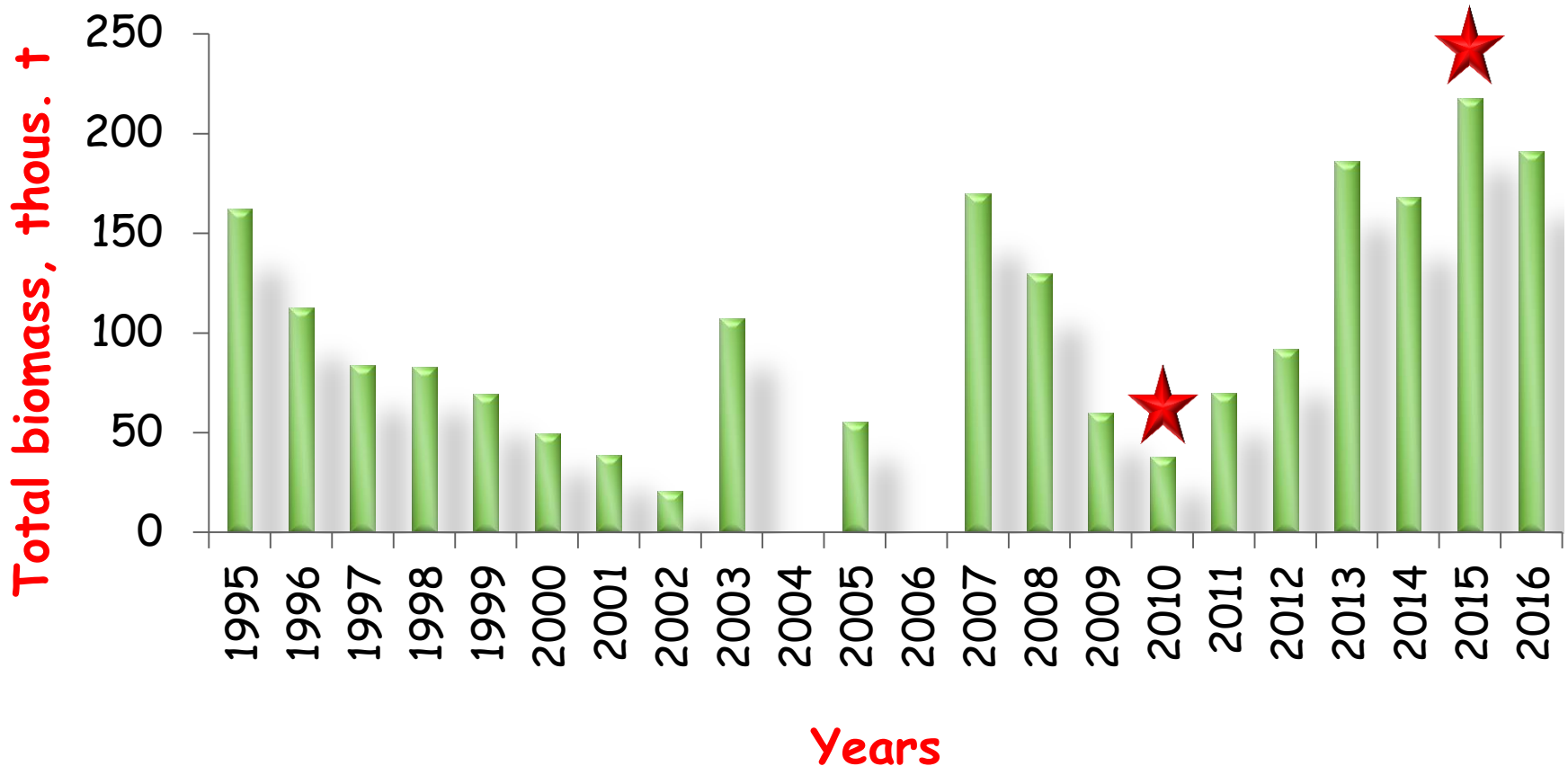
Catches by month, %

67,6% of the annual catch



In 1995-2016 the catch of saffron cod in the Sea of Okhotsk on West Kamchatka fluctuated in range 4,4 - 32,6 thous tons, 13,3 thous tons averaged.

The dynamics of the saffron cod total biomass in the eastern part of the Okhotsk Sea in 1995-2016 on the data of the bottom trawl surveys, thousand tons  
(the longterm annual average — 132,3 thousand tons).





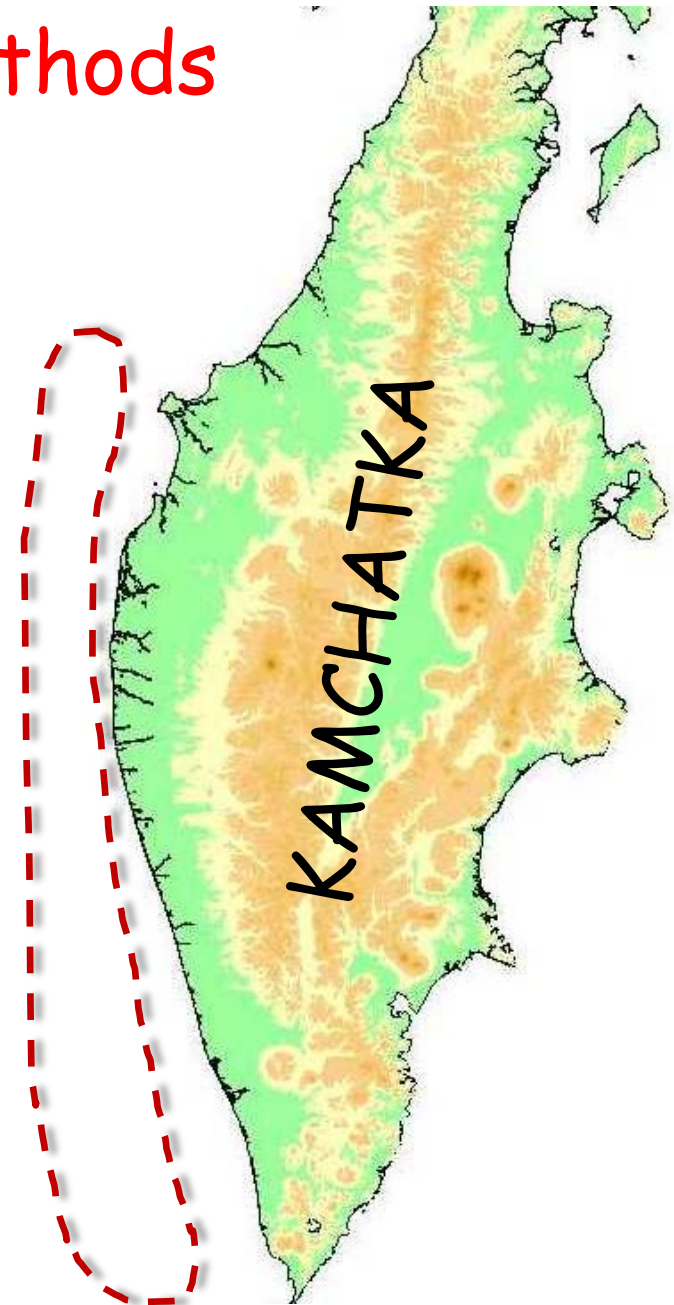
# Materials and methods

The data about the catches and the seasonal dynamics of saffron cod distribution during the year were collected for analysis from instant reports of the fishery monitoring system, what was the data pool on **30053 Danish seine fishing ship-days** on shelf of West Kamchatka.

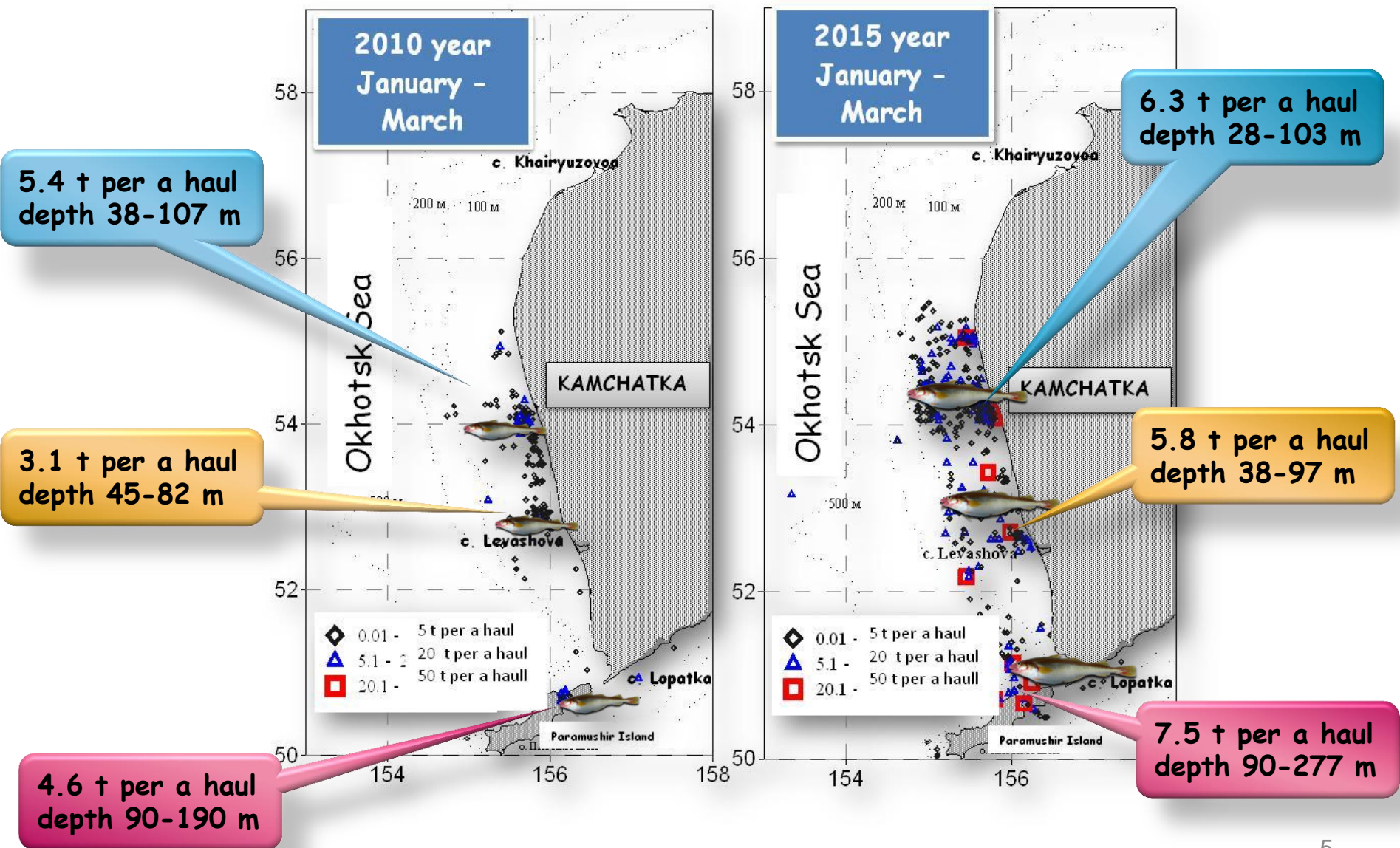
The values on the catches of saffron cod were recalculated per a haul of Danish seine.

The biomass was estimated on the data of trawl surveys with using the GIS «CartMaster».

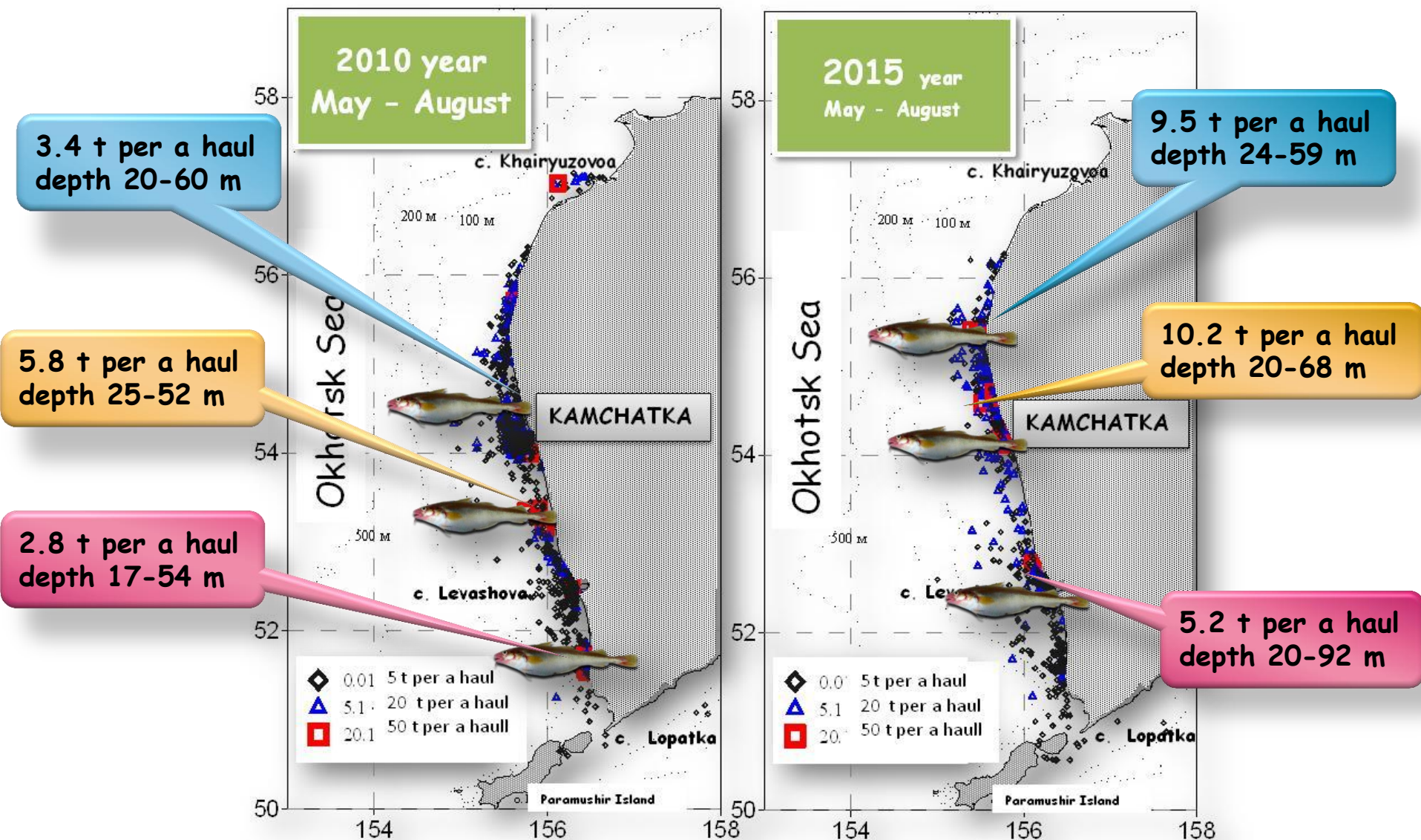
The total sample size analyzed included the data from **19 surveys** and **3746 trawlings** from 1995 to 2016.



# The distribution of spawning saffron cod commercial fishery aggregations on the shelf of West Kamchatka in 2010 and 2015, t/haul.



# The distribution of feeding saffron cod commercial fishery aggregations on the shelf of West Kamchatka in 2010 and 2015, t/haul.

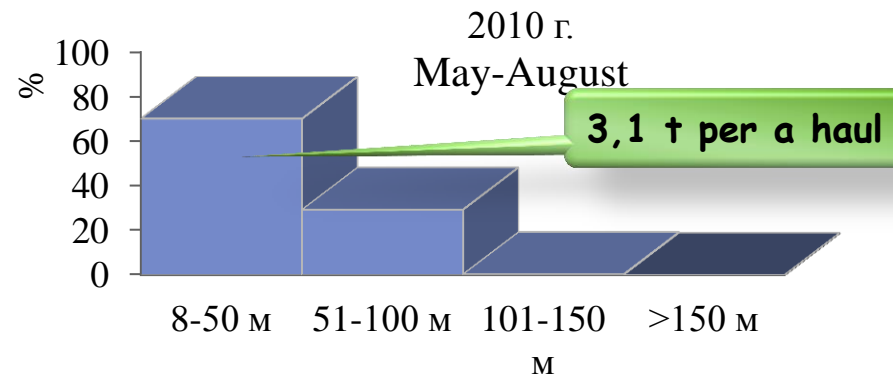
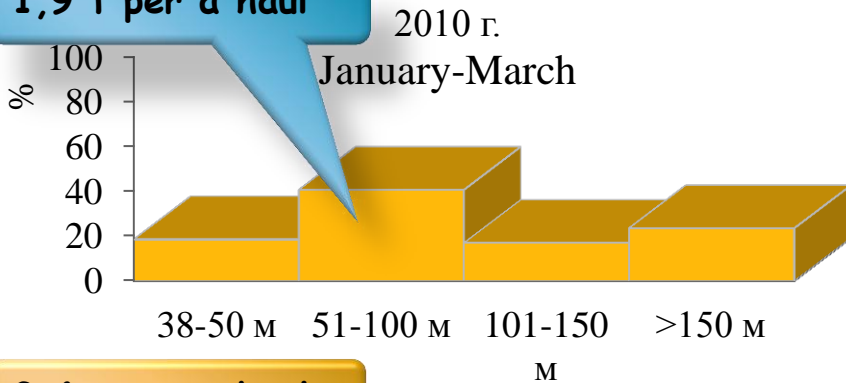


# The seasonal bathymetric distribution of the catches of West Kamchatkan saffron cod in 2010 and 2015, %.

In January-March, when water cooling was maximal, in 2010, like in 2015, the major part of the annual catch was obtained from the depth horizon 51-100 m.

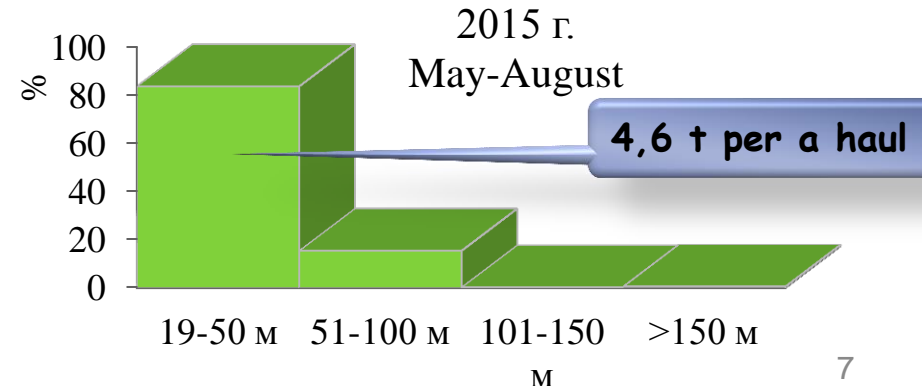
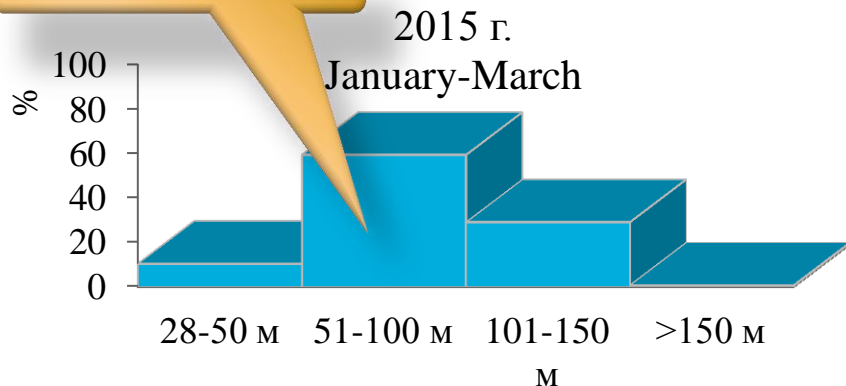
In spring-summer period, when warming the waters, the main part of the annual catch was obtained at the depth <50 m.

**1,9 t per a haul**



**3,1 t per a haul**

**3,4 t per a haul**

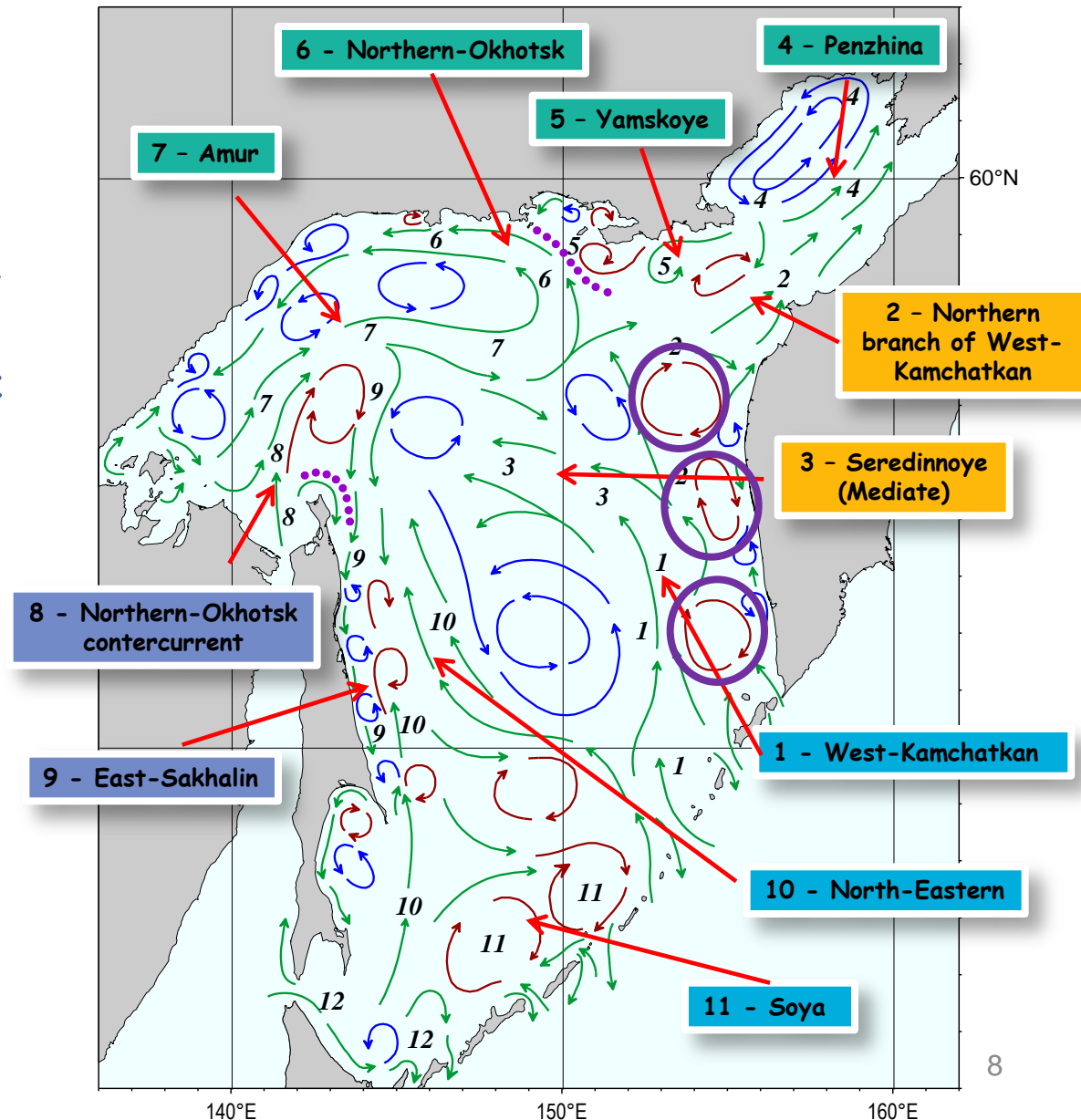


**4,6 t per a haul**

# The scheme of the surface currents of the Okhotsk Sea (Markina, Chernyavsky, 1984; Sapozhnikov et al., 2001)

❖ There are several districts of stable commercial density of saffron cod on West Kamchatkan shelf with the boundaries coinciding with the edges of three aquatic cycles in the south-western, central and northern parts of shelf.

❖ In summer period saffron cod also is distributed by the districts of the Sea of Okhotsk, where upwelling and river flows create conditions for the high productive zones.





# Conclusion



- The results of the research indicate, that no matter the level of biomass is, there are several districts of stable commercial density of saffron cod on West Kamchatkan shelf with the boundaries coinciding with the edges of three aquatic cycles in the south-western, central and northern parts of shelf.



- The data on the bathymetric distribution of the catches of West Kamchatkan saffron cod demonstrate systemic character of the dense aggregations at the depth from 50 to 100 m in winter and at the depth less more 50 m in spring and summer.





**Thank you  
for your  
attention!**