

The recent years investigations of PINRO (Titov et al., 2006) show that the frontal zones of the Barents Sea have a great impact on both the distribution and abundance of commercial fishes. The consequence of changing of cycling of climatic processes in the last decade is the fact that at the background of climate warming up the contracts between the Arctic and Atlantic oceanic systems became weaker, and the frontal zones in the Barents Sea became correspondingly fuzzier. This was fixed with the use of calculated parameters based on observations of PINRO expeditions. In connection with that one can assume that the climate warming up could have a certain negative impact on the abundance of such important commercial species as cod and capelin, the habitats of which are densely connected with frontal zones.

Thus, even now it is necessary to switch the task of studying of implications of the climate change from theory to practice. To our opinion one of the first steps in investigations of implications of the global warming up for the fishing bioresources can be a program of studying of fishing bioresources in the Kara Sea. Stable climatic changes can lead to the reconstruction of ecosystems of the Barents, White and Kara Seas, to changes in migration and distribution of fishing objects or to the appearance in the nearest future of independent self-reproductive population. It is relevant also to explore the dependence and interrelation between components of stocks in the Barents and Kara Seas. The absence of these data can lead to stock underestimation of fishing objects in traditional areas of their distribution, where the standard surveys are carried out.

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СЕЗОННЫЕ ИЗМЕНЕНИЯ ЦИРКУЛЯЦИИ ВОД ЮГО-ЗАПАДНОЙ ЧАСТИ БАРЕНЦЕВА МОРЯ И ИХ ПОСЛЕДСТВИЯ ДЛЯ РАСПРЕДЕЛЕНИЯ РЫБ

На основе многолетних наблюдений за распределением океанографических, метеорологических, ихтиологических и промысловых данных в Баренцевом море выполнена настоящая работа. Цель работы – обратить внимание на те процессы, которые выпадали из поля исследователей или не были интерпретированы должным образом. В первую очередь речь идет о возникающих в конце зимы течениях, направленных на запад, работы ученых ПИНРО еще в 60-е годы (Кисляков, Пенин, Кудлю) указывали на это, но не получили ни объяснений, ни развития. В конце прошлого века по инициативе автора в РГГМУ были выполнены работы по моделированию указанных процессов, и был получен положительный результат, а норвежские коллеги получили и экспериментальное подтверждение. Автор изложил свой взгляд на эти процессы в своих работах 1989-2005 гг., в настоящее время появились новые данные и аргументы в пользу существования потоков, в весенний период направленных на запад, в этой части моря.

Основные виды рыб: треска, мойва, пикша, сельдь и др. используют эти течения при нерестовых миграциях. Описаны ситуации, поведение и распределение: мойвы, трески, сельди.

На основе этих данных объясняется катастрофическое снижение запасов мойвы в 1986 г. Указывается на особенности сохранения запасов сельди и возобновление про-

мысла сельди в начале 90-х годов XX столетия, благодаря серии мероприятий советской и российской рыбохозяйственной науки и властей.

Предлагаются меры по обеспечению более эффективного управления запасами, делаются некоторые прогнозы и рекомендации.

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SEASONAL VARIATIONS IN WATER CIRCULATION IN THE SOUTHWESTERN BARENTS SEA AND THEIR CONSEQUENCES FOR FISH DISTRIBUTION

This paper is based on the long-term observations of hydrographic, meteorological, ichthyological and fishery data distribution in the Barents Sea. The paper is aimed at paying attention to the processes which were outside the investigations or have not been presented in a proper way. In the first place, meant are the currents appearing in the late winter and directed westward which the papers by scientists from PINRO considered as early as the 1960s (Kislyakov, Penin, Kudlo), but there were neither explanation nor development. In the end of the last century, on the author's initiative, in the Russian State Hydrometeorological University (RGGMU), the mentioned processes were modelled with a positive result and the Norwegian colleagues also got the corroboration through the experiments. The author presented his point of view regarding those processes in his papers of 1989-2005. At present, the new data and arguments for the existence of currents, in spring directed westward in this sea area, have appeared.

The main fish species, cod, capelin, herring et al., use the currents in spawning migrations. Situations, behaviour and distribution of capelin, cod and herring are described.

Based on these data a catastrophic reduction in capelin stocks in 1986 is explained. The character of herring stock conservation and the recommencement of that species fishery in the early 1990s due to the number of activities by Soviet and Russian fishery science and governing structures are presented.

Measures to provide for more efficient management of the stocks are suggested, some forecasts are made and recommendations are given.