

Interannual diversity Bering Sea pollock spatial distribution due to ocean warming in continental shelves of the Bering and southern Chukchi Seas

Mikhail A. Stepanenko, Elena V. Gritsay

Pacific branch of VNIRO («TINRO»), 4 Shevchenko Alley, Vladivostok, 690091, Russia

e-mail: mikhail.stepanenko@tinro-center.ru elena.gritsay@tinro-center.ru

Bering Sea ecosystem has undergone large change due to decadal-scale fluctuations in climate. Large interannual shift to warming had strong effects on plankton community structure and clear effects on the pollock behavior, migrations and spatial distribution in feeding period. Understanding of environmental driven changes in pollock distribution can be used to development of environmental-enhanced strategy of management explore. Seasonal pollock migrations and distributions in the northwestern Bering Sea have high annual variability depends on bottom temperature and plankton (euphausiids and large copepods) abundance. The climate warms impacts to reduction abundance to large crustacean plankton with high lipid. In 2016-2018 bottom temperature was very high and small copepods with low nutritional value predominated entire Bering Sea. Resilience strategy of pollock behaviour in periods with low trophic level due low abundance of large plankton are big scale, early and fast active northward feeding migrations from winter habits and spawning grounds. Biomass pollock in the northwestern and northern Bering Sea in summer 2017 and 2018 was much higher as previous years. Some part of (as preliminary 0.5-1.0%) older pollock (7-10 year old) migrated northward and distributed through Bering Strait into southern Chukchi Sea based on TINRO summer 2018 bottom trawl survey. Some juvenile pollock was advected from northwestern Bering Sea into southern and central Chukchi Sea by general currents.