Coastal Ocean Program

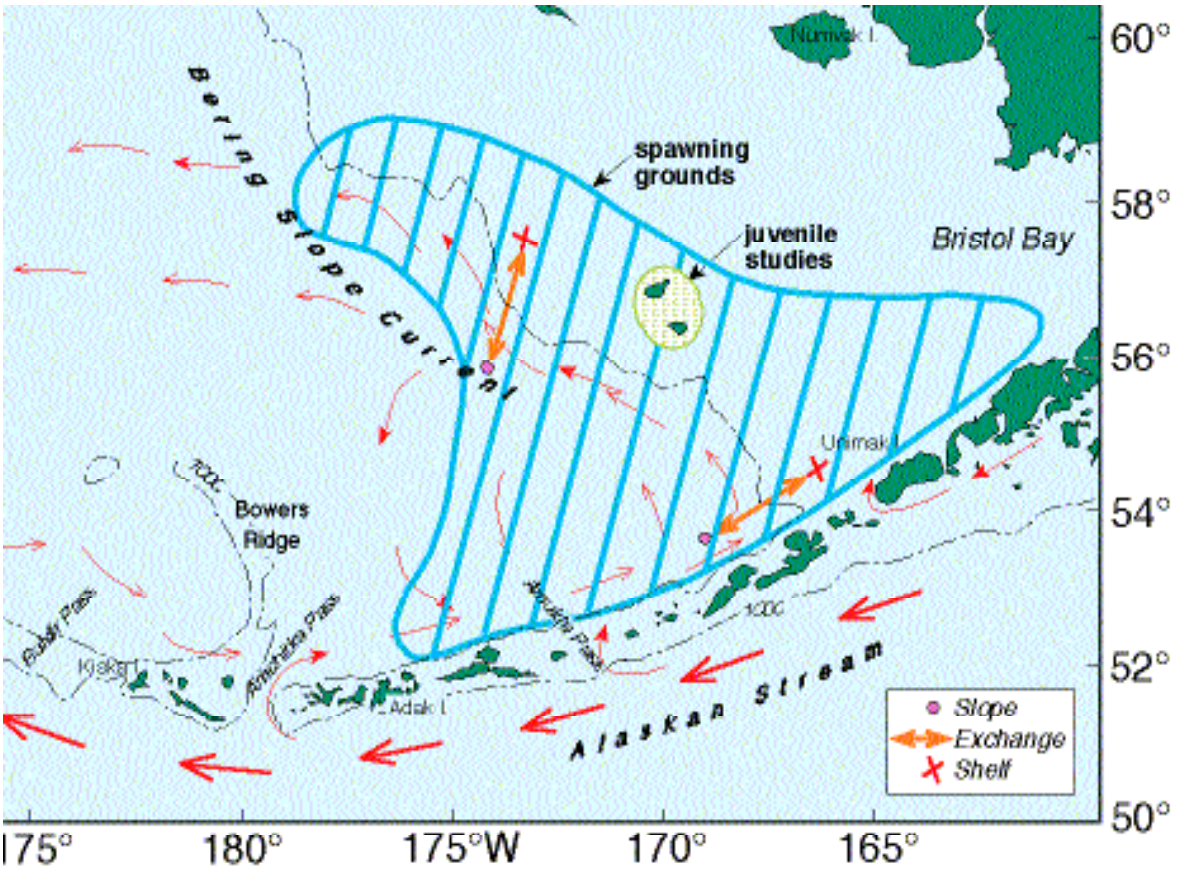
BERING SEA ECOSYSTEMS

ISSUE

Approximately forty percent of the total U.S. commercial fisheries landings by weight comes from the Bering Sea. Pollock abundance in the southeast Bering Sea has declined significantly since the mid- l980's with population levels fluctuating widely since the 1960's. This multi-billion dollar U.S. fishery is fully utilized and fluctuations in abundance are immediately felt in the industry.

Past studies have indicated that pollock larvae are a key component in the food web, and that the deep basin of the Bering Sea may not be able to maintain the abundance of larval fish needed to sustain the fishery and the feeding of predators, such as marine mammals and seabirds. Fisheries scientists and managers require better information to determine the integrated role of fishing pressure and changing environmental factors on Bering Sea resources, or to understand key ecosystem linkages. A management system tuned to the ecosystem "as a whole" is needed to manage resource levels, resolve utilization conflicts, and sustain this valuable ecosystem. COP's research is responding to this need by increasing our understanding of the underlying physical

Spawning Grounds of Bering Sea Walleye Pollock



and biological processes that regulate this ecosystem.

APPROACH

COP research has focused on pollock distribution and physical processes in the Bering Sea, and has evolved to support an integrated multi-disciplinary program of modeling, process studies, observations, and environmental valuation to improve the understanding and management of coastal and living resources, particularly in the context of integrated resource management. Current research efforts are focusing on understanding the linkages among environmental factors, recruitment, growth rates, predation and distribution of key fisheries, and other components of the Bering Sea ecosystem, with a special emphasis on the southeastern Bering Sea shelf.

ACCOMPLISHMENTS

COP researchers over the past several years have greatly advanced the stock structure definition of Bering Sea pollock through determination of basin circulation, analysis of recent and historical survey data, and development of genetic testing methods. The research findings have shown that there are significant differences in genetic structure between fish from the eastern and western portions of the Bering Sea, which has helped support improved stock allocations and international agreements.

MANAGEMENT AND POLICY IMPLICATIONS

Results of these studies have indicated that pollock in the Central Bering Sea are not a self-sustaining population and that there exists distinct American and Asian populations. This information has assisted resource agencies such as the International Convention on Conservation and Management of Pollock Resources and the U.S. North Pacific Fishery Management Council in managing pollock resources in the Central Bering Sea.

COP's Bering Sea research is emphasizing an ecosystem approach in providing a pollock recruitment index to be incorporated into NMFS stock assessments for more accurate recommendations on allowable biological catch estimates.

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