Alaska’s king crab fisheries were once the envy of the world. From Southeast Alaska to the Bering Sea, Alaska waters supported a king crab bonanza, and thriving fisheries to harvest them.

For decades, Kodiak Island fishermen enjoyed bountiful harvests of red king crab. At the peak of the fishery in 1965, fishermen caught 94 million pounds of the giant crustacean, valued at $12.2 million. In Bristol Bay, fishermen caught 130 million pounds of red king crab, worth $115 million during the 1980 season. And in the frigid Bering Sea waters of the Pribilof Islands and St. Matthew Island, 14 million pounds of blue king crab, worth about $10 million, filled the pots of the region’s fishermen during the 1981 season.

But the king crab boom was not to last. By the early 1980s, king crab stocks had begun a precipitous decline across the Alaska fishing grounds. The collapse of the Kodiak red king crab stock took with it a significant portion of the island’s economy. And despite more than two decades of fishery closures, the Kodiak stock has shown no sign of recovery. In the Bering Sea, two distinct stocks of blue king crab also have not fared well. Today, the stocks remain depressed, and the fishery has been closed since 1999.

Grassroots call to action

At the request of Kodiak and Pribilof Island fishermen, Alaska Sea Grant convened a workshop in March 2006 that brought fishermen together with scientists and managers to discuss hatchery enhancement as a way to rebuild red and blue king crab. Experts from around the world explained that enhancement of wild crab stocks is scientifically feasible. During the workshop, fishermen endorsed enhancement as a tool for restoring king crab stocks and revitalizing the fisheries. Stock enhancement involves raising crab larvae in a hatchery and releasing juveniles into the wild to increase the size of existing wild crab stocks.

Partnership formed to rebuild red and blue king crab stocks

Alaska Sea Grant has joined with regional fishermen’s groups, NOAA Fisheries, the Alutiiq Pride Shellfish Hatchery, Chugach Region Resources Commission, and the University of Alaska Fairbanks (UAF) School of Fisheries and Ocean Sciences (SFOS), to launch a research program aimed at hatching and rearing red and blue king crabs in a large-scale hatchery setting. The ultimate goal of the project is to restore and rehabilitate depressed king crab populations near Kodiak Island and the Pribilof Islands. The program is supported by the City of Kodiak, Kodiak Island Borough, State Rep. Paul Seaton (Homer), State Sen. Gary Stevens (Kodiak), Rep. Gabrielle LeDoux (Kodiak), Alaska Crab Coalition, and a handful of regional fisherman’s groups.
United Fishermen’s Marketing Association, Pribilof Islands Collaborative, Central Bering Sea Fishermen’s Association, the Aleutian Pribilof Island Community Development Association, and other organizations and individuals. A steering committee guides the overall program, while a science team and a distinguished scientific advisory panel conduct and support research.

What’s happened so far?

AKCRRAB’s research team has made great progress toward advancing the science and technology necessary to support hatchery production of juvenile king crab. The group has successfully launched a host of scientific studies that should result in greatly improved information about Alaska’s king crab stocks, technology, and research that can be used to help restore king crab populations around Kodiak and the Pribilofs, and potentially elsewhere in the state.

Biologists successfully spawned red and blue king crab, producing 40,000 juveniles in 2008 and 100,000 juveniles in 2009. Survival rates of the hatched larvae increased from 10% in 2008 to 21% in 2009. For comparison, a successful hatchery program for Chesapeake Bay blue crab produced 5% survival to juveniles in its first few years. Other AKCRRAB research projects are examining larval nutrition, rearing densities and rearing temperatures, predation by rock sole and Pacific cod, juvenile crab nutrition and substrate preferences, enhancement release strategies, tagging experiments, and the interaction between wild and hatchery-produced juveniles. Another king crab study is searching for unique genetic markers that could help distinguish hatchery-produced crab from wild stocks.

What’s needed to make this effort succeed?

Funding is needed to support operations at the hatchery and for genetic and ecological studies and monitoring that will be required before, during, and after the release of juvenile crabs during the pilot restoration phase. We estimate the total costs to be approximately $2.5 million over the next three years.

For more detailed information about AKCRRAB go to http://seagrant.uaf.edu/research/projects/initiatives/king_crab/general/.