

NPAFC
Doc. 1218
Rev. 1

Rev. Date: 2010-Mar-24

Korean Research Plan for Salmon in 2011-2015

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submitted to the

North Pacific Anadromous Fish Commission

by

Republic of Korea

March 2010

THIS PAPER MAY BE CITED IN THE FOLLOWING MANNER:

Seong, K.B. 2010. Korean research plan for 2011-2015. NPAFC Doc. 1218,
Rev 1. 2 pp. (Available at www.npafc.org).

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Salmon are political resources due to the characteristics of transboundary distribution and economic importance. The interest in chum salmon biology in Korea was much increased since the establishment of the Cold-water Fish Research Center (formerly Yangyang Inland Hatchery) of National Fisheries Research and Development Institute during mid 1980s. The enhancement program of chum salmon has been expanded thereafter, so that chum salmon were transplanted 18 streams in the coast of the Korean Peninsula. On the other hand, however, the ecological research on salmon species was very limited until recently due to the lack of research program. Though the involvement to the North Pacific Anadromous Fisheries Commission (NPAFC) requires scientific investigation on salmon research of each member nation, the conspicuous increase in research funding was not achieved. Oceanic environments have been rapidly altered by climate change during the last a few decades and ocean ecosystems including salmon populations will be modified under the global warming situation. Especially, a special intention is needed for stocks in southern boundary of distribution such as Korean chum salmon.

1. Adult salmon attached to disc type tag will be carried out to investigate the coastal migration route and timing of Korean chum salmon. Salmon will catch from set net fisheries at eastern coastal areas of Korea.

2. To reveal the mechanisms of mass mortality of chum salmon during their early life in rivers and coastal areas in conjunction with the fluctuation of return rates, we will carry out the researches as follows;
 - (1) Identification of prey and predator species for juvenile salmon in the rivers and coastal areas,
 - (2) Stage-by-stage estimation of survival rate after releasing in the rivers and coastal areas,
 - (3) Monitoring of environmental factors in the river and coastal areas,
 - (4) Examination of growth rate during the early life history using otolith and compare the growth rate between released juvenile salmon and wild juvenile salmon, and
 - (5) Investigation on the optimal releasing period for juvenile salmon.

3. Climate change effects on salmon distribution, migration route, and abundance will be investigated. This research includes

- (1) Continuous monitoring activities on environmental conditions in the Korean waters and the western Pacific Ocean, and
- (2) Climate change effects on the biological characteristics of chum salmon returned to the Korean waters.

4. Korea has released CWT tagged juvenile chum salmon since 2003 and CWT chum salmon were recovered at Namdae-cheon and harbor of coastal area(set net) during the spawning seasons . Otolith thermal marking on Korea chum salmon will be carried out to provide information about growth, survival during the early ocean life stage, and hatchery origins from 2005 brood.

5. For the stock identification, we will study on the parasitic fauna as a biological tag for the returned chum salmon to Namdae-cheon(stream). Also, genetic variations through mitochondrial DNA control region sequence analysis and microsatellite DNA analysis will be continued to reveal the relationship between Korean and other countries chum salmon.

6. We plan to expand cherry salmon releasing program, and as the first step of cherry salmon research, we will examine stomach contents to know the prey items of cherry salmon and the competitions for preys with other fish species in the coastal area and ocean.

7. International cooperative research (eg. Republic of Korea and U.S. panel Conference on Fisheries Sciences) in the North Pacific will be continued.