APPLICATION OF GENETIC STOCK IDENTIFICATION IN OCEAN SALMON FISHERIES

Scientists at the National Marine Fisheries Service (NMFS) Southwest Fisheries Science Center (SWFSC) are investigating techniques to estimate stock and age composition of salmon for use in management of ocean harvest. The use of genetic stock identification (GSI) is now well validated, has become relatively inexpensive, and can be accomplished very rapidly. In addition, current methods require only small amounts of tissue that require no special storage and can be obtained non-lethally. The SWFSC has recently started a pilot program by sampling recreational ocean salmon fisheries in the Monterey Bay area and has developed estimates of stock composition for this fishery in the month of April (Agenda Item G.3.a, Attachment 2).

GSI has several advantages over traditional tag recovery methods, the most important of which is that sample size can be increased as much as needed, because all fish are "tagged" genetically, whereas <20% of fish typically receive coded-wire-tags (CWTs). In addition, GSI allows unambiguous identification of most wild stocks, whereas few wild stocks receive CWTs. These attributes make GSI particularly useful for estimating stock composition in small or poorly sampled fisheries, in test fisheries and observer programs employing catch and release or mark-selective techniques, and for sub-legal and other non-landed catch. While GSI generally only provides stock of origin, it can be combined with scale analysis to provide age information as well. A novel technique recently developed by the SWFSC, full parental genotyping (FPG), will also provide both stock of origin and age for every hatchery-spawned fish by establishing a pedigree that identifies its exact parents. FPG also offers the promise of highly cost-efficient "tagging", since genetic data for broodstock fish provides tags for 100% of their offspring.

The SWFSC is organizing several workshops to discuss and evaluate both technical and practical aspects of using genetic techniques in management of West Coast salmon fisheries. The first of these will be held in conjunction with the biennial Coastwide Salmon Genetics Meeting which is being hosted by the SWFSC in Santa Cruz on June 22-24.

Council Task:

Discussion implications and use of genetic stock identification techniques.

Reference Materials:

1. Agenda Item G.3.a, Attachment 1: Genetic Stock Identification and Full Parental Genotyping for Management of California's Chinook Salmon Fisheries
2. Agenda Item G.3.a, Attachment 2: Chinook Salmon Genetic Stock ID-Monterey Bay Sport Fishery 2006

Agenda Order:

a.	Agenda Item Overview	Chuck Tracy
b.	NMFS SWFSC Presentation	Churchill Grimes, Carlos Garza
c.	Reports and Comments of Advisory Bodies	
d.	Public Comment	
e.	Council Discussion and Guidance	

PFMC
05/23/06