

NEW FINDINGS

Most California chinook hatchery-reared says new study

Up to 90% of ocean-caught fish of hatchery origin

A study conducted at the University of California's Santa Cruz campus indicates that in recent years as many as 90% or more of the chinook salmon caught in the state's coastal fishery were very likely of hatchery origin.

The suggestion is made by Dr. Rachel Barnett-Johnson, a scientist working with the National Oceanic and Atmospheric Administration's marine fisheries service (NOAA), following the results of a recent ground-breaking study she led.

Barnett-Johnson acknowledged a few weeks ago that the number is based on figures she and her colleagues discovered in a study looking at fish in 2002.

Barnett-Johnson said though that she doesn't think much has changed in hatchery operations over the last five years.

The precedent-setting part of the work, she said, was the method she and her colleagues used to distinguish untagged hatchery fish from fish spawned and raised in the wild, using a mass spectrometer to look at the microstructure of the fishes' otoliths (ear-bone structures).

She said that like trees, the fish lay down rings in the otolith structures as they grow. The faster the fish grow, the wider the rings they develop in the otolith; and the team was able to use that to distinguish the better-fed and faster-growing hatchery fish from the less well fed and slower-growing wild ones.

Having developed the technology and techniques for doing that the team is now moving ahead with refining them still further in order to begin building a data base to help agencies identify exactly which hatchery or river the individual fish come from.

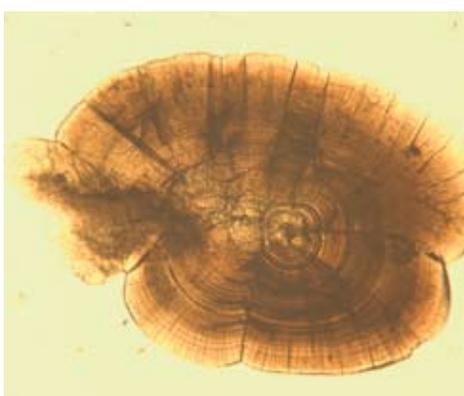
That will assist in assessing exactly how far many of the hatchery-raised fish in different river systems have strayed from their river of origin.

As things stand at present, said Barnett-Johnson, many of the state's hatchery-produced fish aren't tagged, so it's virtually impossible to say what proportion of the returning adults stray from their river of origin.

And Barnett-Johnson said it's also becoming increasingly important to



Dr. Rachel Barnett-Johnson (above) and her team use a mass spectrometer to look at the microstructure of the fishes' otoliths (ear-bone structures (right)).



understand the effects of the increasing tendency of hatcheries to truck their chinook smolts to tide-water in river estuaries.

Speculation has been raised, she said, that the trucked chinook juveniles do not get nearly as much opportunity to imprint on the home river as their non-trucked wild cousins.

All of that, said Barnett-Johnson, has some people suggesting that many of the trucked hatchery fish may "stray" much more than either non-hatchery fish or fish from hatcheries that are released into rivers to migrate to sea.

She's also concerned that while the hatcheries seem to be doing a good job of producing fish to augment chinook-salmon stocks in the state, the hatchery fish may also be helping to mask the exact status of different rivers' stocks and returns of wild fish.

- Quentin Dodd

LoligoSystems develop new innovative products for fish biology, physiology and aquacultural research and teaching.

Products are mainly chambers, sensors, instruments and software for fish research and water quality control.

- Fiber-optic DO and pH instruments and sensors
- Lab regulator systems for control of water pCO₂, temp and DO
- Handheld DO, Cond, Flow, Temp, CO₂ and pH instruments and sensors
- Micro chambers and measurement systems for eggs/larvae/juveniles
- Larval size swim tunnels • Wire-less DO transmitter
- PIT tags and underwater USB reader

www.loligosystems.com
mail@loligosystems.com

DOLPHIN
 FIBERGLASS PRODUCTS, INC.

**Manufacturer of Aquaculture Tanks
 Water Cisterns • Aquariums • Fish Ponds**

We have more than 300 standard sizes and shapes, and specialize in custom fabrications. See our price list at www.aquaculturetanks.com • Phone: 305-247-1748 • Homestead, Florida

WaterTek MB3 Moving Bed Media

Watertek MB3
 The moving bed process is ideal for COD and BOD reduction as well as nitrification and denitrification.

WMT's MB3 polyethylene media is robust, durable and bacteria friendly. MB3 has a specific density that fluidizes easily with air. It also has a self cleaning outer surface with plenty of protected inner surface area.

MBR (Moving Bed Reactors)
 WMT also offers complete MBRs inclusive of rectangular or round tanks, media screens, air blower with air distribution manifold and MB3 media. Pictured to the left is a 5ft. diameter MBR with inlet annulus for even hydraulic inlet distribution.

Water Management Technologies, Inc.
WMT Baton Rouge, LA USA
 Phone: (225) 755-0026
 Fax: (225) 755-0995
 E-mail: info@w-m-t.com
 Web: www.W-M-T.com

Quality Products, Reasonable Prices