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Spiny Lobster Tag Project

By Christina Johnson

On behalf of the California Department of Fish and Game, California Sea Grant is administering a set of research projects supported through the Marine Life Protection Act. Some of these projects now have preliminary findings. One on lobsters is described below. Future issues of this newsletter will publish results from other projects.

Shelter Use, Movement, and Home Range of Spiny Lobsters in San Diego County, R/MLPA-04, Jan. 05 - Dec. 06

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Lobsters hide under rock ledges and in crevices.

Photos by Thien Maie of San Diego State University



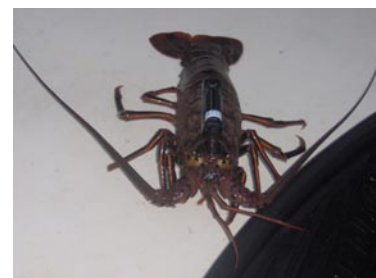
By tagging and acoustically tracking spiny lobsters, investigators have preliminary results suggesting that California spiny lobsters' nighttime movements and "homing instincts" are different from those of spiny lobsters in Australia and the Caribbean. Their findings' add detail to what is known about this commercially important species' habitat requirements and thus may assist in efforts to protect, or even enhance, key lobster habitat areas.

In particular, California spiny lobsters seem to move from deep-water shelters in the kelp forest (10 - 15 meters deep) to shallow surfgrass beds (2 - 3 meters), where they remain for several days, hiding in tunnel-like grass burrows, often in groups. On their nighttime journeys back and forth, they usually walk beneath the protective canopies of short "understory" algae – the algae that grow beneath the kelp canopy.

They do not return to the same shelters but instead "home" to certain "neighborhoods" in each habitat area. On average, each lobster moves about 600 meters a night, at an average speed of 75 meters. In contrast, Australian and Caribbean spiny lobsters make circuitous nighttime journeys and tend to return to specific home shelters.

The investigators' preliminary findings are based on tracking data from 12 California spiny lobsters tagged in the Point Loma kelp forest off San Diego, California in the summer of 2005. Each lobster was tracked from dusk until shortly after dawn from one to four nights. Daytime shelter-use was recorded for a subset of lobsters on four additional dates.

Their ongoing research will look more closely at why certain "landscapes" attract lobsters.



A tagged California spiny lobster.

Photo by Brian Cheng, San Diego State University



Russian River Coho Recovery Project Seeing First Hopeful Signs of Success

By John Stumbos

Surveys of three streams in the Russian River watershed show the first encouraging signs that a ground-breaking recovery effort is making headway rescuing coho salmon from the brink of extinction in part of its historic California range.

Recently completed snorkeling and electrofishing surveys estimate survival of more than 12,000 young fingerlings released last spring into Palmer, Sheephouse and Gray creeks at 54, 60 and 71 percent, respectively.

Young coho have been planted in Russian River tributaries by personnel from the California Department of Fish and Game (CDFG) three times since October 2004, when 6,160 fingerlings were first released. Winter survival estimates for the first batch of young fish ranged as high as 56 percent. They migrated out to the ocean last spring and are expected to make their return as adult spawners about a year from now. An additional 14,000 coho fingerlings were released into the creeks in the fall of 2005. Those spring- and fall-planted fish that survive the winter will migrate to the ocean next spring.

Not unlike the effort to save the California condor from extinction, the effort to save Russian River coho is a "captive broodstock" program. Individual members of a species are taken from the wild and reared in captivity. Winter-run chinook salmon in the Sacramento River are experiencing a dramatic return from near extinction following a similar recovery effort. Other efforts to restore coho populations exist elsewhere in California and the Pacific Northwest, but the Russian River project is one of few attempts to resurrect viable coho populations with a captive broodstock program. Fisheries managers had little choice. These fish were on the verge of extinction in the Russian River.

Biologists believe coho numbers dropped in the late 1990s to a mere 100 adult fish in the entire Russian River system, a precipitous decline caused by factors such as loss and degradation of freshwater habitat and changing ocean conditions. Surveys of prime coho streams found no returning spawners several years in a row. Throughout

its entire California range, coho numbers have dropped to between 6 percent and 15 percent of their abundance during the 1940s.

In 2001 CDFG biologists captured about 200 juvenile coho from Russian River tributaries. The fish were carefully gathered in the wild, vaccinated to prevent disease and reared

to adulthood in specially designed circular tanks at the Don Clausen Warm Springs Hatchery near Geyserville. After two years these adult fish were spawned at the hatchery and their progeny subsequently reared to restock Russian River tributaries where coho have historically ranged.

The first group of juvenile coho collected in 2001 was raised in rectangular troughs or raceways. But the raceways stunted growth at a critical period for successful reproduction. The second group of spawners spent a limited amount of time in the raceways and was then moved to large dome-covered, circular tanks that dot the hatchery grounds like turquoise and black igloos. Inside the tanks, small schools of silvery adult coho swim against a gently swirling current until they're ready to be harvested for eggs and milt during December.

Advanced genetics are playing a critical role in ensuring a wild future for coho salmon. Fin tissue samples are collected from juvenile fish when they are tagged for future identification. These samples are shipped to scientists at a National Marine Fisheries Service laboratory in Santa Cruz. Through genetic fingerprinting a "spawning matrix" is developed so hatchery personnel can determine which male and female coho are optimal mating partners.

Another key element of the coho recovery project has been educating landowners, vineyard managers and equipment operators about salmon biology and managing streamside vegetation for maximum shading of the deep pools where coho find summer sanctuary. Approximately 90 percent of the Russian River watershed is in private hands.

Between 1998 and 2004, multiple free workshops were offered to local landowners throughout the Russian River watershed.



*Stocking of Mill Creek
Photo by John Stumbos*

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They were attended by 428 people representing 73 tributaries and more than 1,000 miles of streams. The restoration portion of the program resulted in more than 40 completed stream enhancement and habitat restoration projects on targeted tributaries. Wall-sized woven willow baffles were installed to shore up eroding stream banks. Invasive plant species were ripped out and replaced with natives. Roads were regraded. Vineyards added permanent cover crops. New cattle fences kept cows out of sensitive in-stream spawning habitat. Redwoods were planted to help keep water cool on hot summer days.

Landowner interest and participation continues through the granting of access to streams for the release of fingerlings and t

River,” said David Lewis, the region’s Univeristy of California Cooperative Extension (UCCE) Watershed Management Advisor. “Without the landowners and their stewardship, this would not be possible.”

One of the aims of the recovery effort is to maximize the amount of time coho are raised in the wild to allow for adaptations that will enhance fitness. Monitoring survival rates for spring- and fall-released coho will help determine the stocking strategy that has the highest chance of restoring coho to the Russian River.

Next spring the coho planted this year will undergo a physiological transformation to prepare them for life in the saline waters of the ocean. These “smolts” will begin a downstream migration that UCCE biologists will be monitoring, with in-stream

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New Zealand Tour 2006 Update

By Chris Dewees

By the time you read this, a group of marine fisheries stakeholders from around the country will have participated in a Sea Grant Extension Program-organized study tour examining New Zealand’s quota management system. The purpose of the March 11-19 tour is to learn about New Zealand’s 20-year experience with individual quotas and explore dedicated access privilege issues relevant to North America. Below is a list of the tour group. They are expected to share what they learned with others after their return.



*New Zealand
fishing boats.
Photo by
Christopher Dewees*

1. Mr. David Krebs,
Ariel Seafoods, Florida
2. Mr. Rodney Avila
Trident Seafoods, New England
Fisheries Management Council
3. Mr. David Goethel
New England Fisheries
Management Council
4. Mr. Jim Marshall, diver,
California Urchin Commission
Representative.
5. Mr. Tommy Ancona, trawler,
California
6. Mr. Donald Waters, Reef fisherman,
Florida
7. Mr. Peter Leipzig,
Fishermen’s Marketing Association,
Eureka, California
8. Mr. Glenn Martin,
Gulf of Mexico sport fisheries
9. Mr. Rodney Moore,
West Coast Seafood Processors,
Pacific Fisheries Management Council,
Oregon
10. Mr. Craig Pendleton, fisherman,
Northwest Atlantic Marine Alliance,
Maine
11. Mr. Charlie Hanson, fisherman,
Pacific Marine Conservation Council
12. Ms. Leesa Cobb,
Port Orford Ocean Resources Team,
Oregon
13. Mr. Robert Baines, fisherman,
Maine Lobstermen’s Association
14. Mr. Phillip Lara, shrimp fisherman,
Texas
15. Dr. Pam Baker,
Environmental Defense, Texas
16. Mr. Jan S. Margeson,
Cape Cod Comm. Hook Fishermen
Association
17. Kelly Smotherman, trawler,
Oregon
18. Dr. John Magnuson, observer,
Sand County Foundation, Wisconsin
19. Larry Collins, crab/salmon
fisherman, Pacific Coast
Federation of Fishermen’s
Association, San Francisco,
California
20. Mark Holliday,
Head of Policy, NOAA Fisheries,
Washington D.C.

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Sea Grant Fisheries

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traps, to generate a coho head count and provide information about the other species that share their nursery waters. They will also be monitoring other factors, such as stream temperature and flow and the make-up of aquatic insects (natural fish food) to search for clues to coho survival.

The recovery effort includes many additional public and private groups that have contributed financial assistance, staff and equipment. The Department of Fish and Game heads up the hatchery and broodstock efforts with support from the Army Corps of Engineers and NOAA Fisheries. The Sonoma County Water Agency aids in the monitoring efforts led by UCCE and Sea Grant. Other partners include the University of California's Bodega Marine Laboratory, Point Reyes National Seashore, Americorps Watershed Stewards Project, Russian River Watershed Council, Trout Unlimited, City of Santa Rosa, Marin Municipal Water District and the Institute for Fisheries Resources.

What happens with this project could have long-term ramifications in other areas. Healthy populations of coho salmon remain scarce throughout their Central California Coast range - an area extending from the Mattole River in Humboldt County to the San Lorenzo River in Santa Cruz County.

This quarterly newsletter was supported by the National Sea Grant College Program of the U.S. Department of Commerce's National Oceanic and Atmospheric Administration under NOAA Grant #NA04OAR4170038, project number A/P-1, through the California Sea Grant College Program. The views expressed herein do not necessarily reflect the views of any of those organizations.

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