

# Tiny zooplankton may be key to salmon survival

NEWPORT, Ore. (AP) — Tiny sea creatures known as zooplankton may be the key to juvenile salmon survival in the ocean, a new study says.

A species of zooplankton called copepods that thrive in cold water in the northeast Pacific Ocean have a high level of lipids — or fats — possibly boosting the food chain and allowing salmon to grow fast enough to survive their first year at sea.

The copepods store high amounts of the fats in order to hibernate during the winter, much like bears, according to Oregon State University researchers.

The copepods, in turn, are eaten by juvenile anchovies, herring, smelt and krill, boosting the fat content of those species and making them highly nutritious for young coho and chinook salmon, as well as other preda-

tors. "A fat salmon is a happy salmon," said William Peterson, an oceanographer at the university's Hatfield Marine Science Center in Newport.

For years, scientists and the fishing industry have known that "good ocean conditions" are critical to salmon survival and are linked with strong upwelling that brings nutrient-rich deeper waters to the surface. But studies by Peterson and his colleagues shed new light on what makes those conditions favorable for juvenile salmon.

One of the keys to survival is rapid growth for salmon once they enter the ocean, said Peterson, a NOAA Fisheries scientist who also teaches at the university.

"The salmon are roughly 6 or 7 inches long when they enter the ocean and are about the

same size as adult herring and anchovies that make them ideal prey for birds and larger fish," Peterson said.

"But salmon have the ability to grow tremendously fast — and they have to," he said.

The salmon also must store enough fat to prevent starvation during their first winter.

Researchers say the cold-water copepods are most abundant during La Nina years when the ocean cools slightly.

When the waters off Oregon are warmer, as in the strong El Nino year of 1997-98 and during much of the 1990s, salmon struggle to survive.

Conditions can change rapidly. In 1998, the northern Pacific experienced a rapid transition to a cooler La Nina phase that brought strong upwelling and cold-water copepods to the region.

As a result, Peterson said, the number of adult chinook salmon returning to the Columbia River system a few years later were the highest since the 1950s.

In the fall of 2002, conditions reversed again and warmer waters have been dominant since. The copepod biomass has shrunk, and salmon and steelhead runs have decreased significantly.

Robert Emmett, another NOAA researcher, says another factor related to temperature may affect juvenile salmon survival. When ocean conditions are warm, Pacific hake tend to come onto the continental shelf at night and prey on young salmon that may be small because of the lack of food, he said. Conditions may be changing again. "There are signs that it is getting cold again, which is encouraging," Peterson said.

## Howlak Tichum

### Lawrence J. Shike

Lawrence J. Shike passed away February 5, 2006 at St. Charles Medical Center in Bend. He was 42.

Mr. Shike was born on April 10, 1963 at Redmond to parents Raymond Sr. and Charlotte (Brown) Shike. Mr. Shike was a lifetime resident of Warm Springs.

He is survived by his children Lawrence Jr., William and Lana Shike, all of Warm Springs; brother Ray Shike Jr. of Warm Springs; sisters Helena Jackson, Mina Shike, Sandra Danzuka, and Lana (Shike) Leonard, all of Warm Springs.

## Births

### Wyatt Earl Bemrose

Chester and Anita Bemrose are pleased to announce the birth of their son Wyatt Earl Bemrose, born February 7, 2006.

The mother's parents are Vern and Blanche Kinney of Washington.

### Camryn Renee Shawaway

Phyllis Shawaway is pleased to announce the birth of her daughter Camryn Renee Shawaway, born February 7, 2006. Camryn joins sisters Kali, Dominique and Toya.

The grandparent is Myra Johnson, and great grandparent is Raymond Johnson Sr.

### Charlene White

Dennis John White and Nidya Burgos are pleased to announce the birth of their daughter Charlene White, born February 3, 2006. The father's parents are Dennis and Charlene White of Warm Springs.

The mother's parents are Carmello and Euhlia Burgos of Madras.

## Plaza: many benefits

(Continued from page 1)

There were problems with the idea, though. There was some concern, for instance, about police vehicles leaving the parking lot at high speed during emergencies, while youth might be walking nearby to or from the technology center.

There was also concern about a lack of parking; also, the size of the proposed structure was not very large.

Under the new plan the technology center and coffee shop would be located in the 3,500 square feet of space that used to house the Indian Trail Restaurant.

The interior will need to be remodeled, which will be less expensive than building a new

structure, said Phillips.

He said the Workforce Development Department could be used for the remodel work.

The new technology center plan also envisions providing a number of computers at locations around Warm Springs, such as the library and the Community Center. These computers would provide easier access for young people who want to use the Internet but might

not have a ride to the technology center.

Phillips said the technology center could open at the Plaza as soon as this summer, much earlier than would have been possible had the project relied on construction of a new building.

Once the center is open, the Plaza will again be at full occupancy.

## Biomass: major project

(Continued from page 1)

The aim of the project, he said, is the restoration of the forest's health and promoting fire protection.

The issue of employment, particularly of employing Warm Springs tribal members, was a topic during Friday's discussion.

The employment estimate

was 75 new jobs at the mill alone, not counting contract employees for functions connected to the project.

With three years invested in Warm Springs' effort to initiate biomass energy generation, WSFPI manager Potts expressed confidence that he and the biomass energy group could make it work and make it profitable to the tribes.

He added that he had helped

guide a sawmill on the Colville Indian Reservation in Washington to profitability after it was bankrupt and saw a struggling biomass project to profitability today. Potts said that Warm Springs' biomass plant has the No. 1 position with Wellons, Inc., the firm constructing the plant.

"We need to let Wellons know that we're willing to make that next step as far as engineering," he said.

## Casino

(Continued from page 1)

In other recent gaming news:

The Confederated Tribes of Warm Springs are paying close attention to proposed federal legislation that would make significant amendments to the Indian Gaming Regulatory Act

(IGRA) of 1988. Sen. John McCain, R-Ariz., is sponsoring proposed legislation that would eliminate the two-part test in siting casinos off-reservation.

The two-part test under IGRA looks at the effect of bringing land into trust toward development of an Indian casino.

The test looks, for instance,

at the effect of developing a casino on the community surrounding the development site.

The Confederated Tribes are currently following the two-part test standard in planning the Bridge of the Gods casino.

The McCain bill includes language that would make an exception for existing land-to-trust applications by tribes.

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## Hoops tourney April 14-16

The Second Annual Squiempheh-Yazzie Co-Ed Youth Basketball Tournament will be held April 14-16 at Warm Springs. Divisions of the all-Indian tournament are sixth and seventh grades; eighth and ninth grades; and tenth through twelfth grades.

Awards for all age divisions are: first place, windbreaker jackets; second place, hooded sweatshirts; and third place, crew sweatshirts. Other awards are MVP, Mr. and Ms. Hustle, and sportsmanship for all age divisions. There will also be a 3-point contest, time and date to be announced. As part of the weekend event, on Saturday, April 15 there will be a youth dance in the Social Hall at the Community Center.

Entry fee for all divisions is \$125. Limit of eight players per team, all divisions. Players must show proof of enrollment in school.

For more information contact Priscilla Yazzie at (541) 553-5817, or (451) 980-9060. E-mail: tyazzie@bendnet.com. Mail address is Priscilla Yazzie, P.O. Box 734, Warm Springs OR 97761.

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