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**COVER**



California's Central Valley is too hot for salmon in the summer, but winter-flooded fields work well.

**Rice Fields for Fry** *continued from cover*

The solution, says Katz, "are fundamental changes in the way water flows across the California landscape." He adds that we spend a lot of emphasis on salmon habitat and spawning and little time on how the small fish behave and survive.

Fish are raised in rice fields across Asia, usually when the rice is growing through the summer months. California's Central Valley is too hot for salmon in the summer, but winter-flooded fields seem to work quite well.

Fall run Chinook from the Feather River hatchery as well as naturally spawned fish, are used in the program.

The Nigiri project plants out 45 mm long juveniles. "That's the minimum size where tags can be implanted and the fish are several weeks old at that point," says Katz. The fish are moved into flooded rice fields in February and in 3-6 weeks they swim out to the river as the fields are drained and the farmers continue with their spring rice plantings. Katz says that the same water infrastructure that is used to irrigate the fields in the summer is used for flooding and draining.

**CHANNELS AND DYKES**

Over the past 200 years the Sacramento River has been systematically channeled and dyked to control flooding, and wetlands have been drained to provide arable land for farming. But that process has destroyed some two million acres of wetlands that used to provide habitat for waterfowl and a nursery for salmon. The remaining 5% simply cannot do the job.

Reclaiming the land to its original state is not an option and water and land managers look for ways to further utilize the existing agriculture footprint.

**RICH HABITAT**

The salmon benefit from a rich habitat that forms when water covers the fields. Carson Jeffres, field and laboratory director for the Center of Watershed Sciences at UC Davis calls it a "dehydrated food web" - just add water. It creates, as Katz says, "An incredible engine of productivity"

Fish in the river channels (an environment that essentially starves fish) also benefit. When the flood plains are drained, they carry out nutrients for food on the other side of the levee.

**MAJOR CROP**

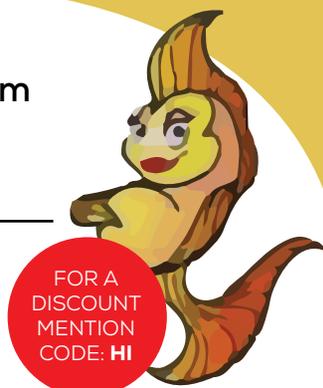
Rice is a major crop on the Sacramento flood plains. Since the early 1990s rice farmers have been flooding their fields in winter, as an alternate means of decomposing straw that clean air legislation prevents them from burning. That's been a bonus for waterfowl that now use the "reconstituted" wetlands. Four years ago these man made-wetlands took on a second traditional role. They became a nursery for Chinook salmon juveniles.

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