F W A FISH FORUM

Family Water Alliance

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FWA WORKS TO SAVE FISH!

The Family Water Alliance has taken the position that we must have fish in the river. As long as there are fish in the river, there will be farmers on the land, and the two can coexist. The fish screen project is only one of many attempts of the FWA to support salmon recovery. They started the Spring Run Committee to help in salmon recovery planning, and are developing other working coalitions that address specific issues, and identify common sense solutions with agriculture, fisheries, and environmental interests.

The FWA have supported such things in the past as experimental screw pumps, spawning bed restoration, and the restoration of the Chico Creek. They have attended the State River Conference, and other conferences to keep themselves informed on numerous fish issues. They have outreached to build coalitions and facilitate meetings between farmers, fishermen and forester for Coho salmon recovery - FFFC process. FWA hopes that these efforts will help them one day reach their goal that fishermen, farmers, and environmentalists can all work together, so that farmers can farm, and fishermen can fish.

FWA Helps Fish And Farmers

To help farmers and save salmon, Family Water Alliance has embarked on a long term proactive project to assist farmers with the screening of small agricultural diversions on the Sacramento River. Sue Sutton, FWA President, notes, "We have always been committed to the resource, and feel that on-the-ground projects such as this one, reinforce the FWA philosophy that 'If there are fish in the river, there will be water on the land."

This year, FWA will assist in the screening of up to six diversions. Currently, all screens are located in Colusa County. However, the scope of this project will expand to assist farmers from Sacramento north to Shasta Dam, with plans to involve nearby rivers, and tributaries in the future. An outreach, and educational component is also part of the over - all program.

Currently, five farmers are voluntary participants in the screening program, and will also take part in the cost sharing, installation, and monitoring elements of the program. The farmer will contribute approximately one-third of the cost, and the balance will be shared by California Department of Fish and Game, the Farm Service Agency, and National Fish and Wildlife Foundation. This is an opportunity for farmers to screen a diversion ahead of the NMFS requirement.

PUMPS AND SCREENS

This project is dedicated to screening small agricultural diversions on the Sacramento River. The size and type of pump varies with each project. Pumps range in size from 1 cfs to 37.6 cfs and include vertical, slant, and submersibles. Since no two pumps or sites are the same, engineering specifications will vary to meet the need of the design criteria. All screens will comply with

the Department of Fish and Game's "Fish Screening Criteria," all applicable Fish and Game Code Sections, and other applicable laws, and regulations. All state and federal permits will be obtained prior to installation.

COOPERATIVE EFFORT

This effort is a cooperative one with farmers, Family Water Alliance and numerous State and Federal agencies that include: California Department of Fish and Game, Colusa County Farm Service Agency, Colusa County Natural Resource Conservation Service, National Marine Fisheries Service, U.S. Army Corp of Engineers, California State FSA, and NRCS as well as the National Fish and Wildlife Foundation, and the Mary Crocker Trust.

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General Life History Of The Chinook Salmon

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The chinook salmon, or king salmon as it is commonly referred to in California, has the broadest geographic range of any of the Pacific salmon species. Runs of chinook salmon are found throughout the northern Pacific Ocean and tributary drainages around the Pacific Rim from northern Japan to southern California. In spite of its wide distribution, the chinook salmon is the least abundant of all the Pacific salmon species. The chinook salmon as a species is distinguished by it highly variable life history, and many rivers have more than one distinct stock identifiable by their unique life history patterns.

The life span of chinook salmon may range from 2 to 7 years. Chinook salmon will spend from 1-1/2 to 5 years feeding and roaming in the ocean before maturing and returning to their natal streams to spawn. Both life span and the timing of spawning migrations are primarily genetically controlled. All chinook salmon die upon completion of spawning.

The eggs are laid in nests, referred to as redds, excavated by the female in uncompacted gravel. Appropriate gravel beds selected by female chinook salmon consist mainly of gravel ranging in size from 1 to 6 inches in diameter. Optimal survival of eggs and pre-emergent fry occurs when the largest fraction of the redd is composed of the smaller-sized gravel. The female will seek out gravel beds with water depths and velocities sufficient for spawning activities and egg incubation. Depths where chinook salmon redds may be located range from shallow riffle areas (0.5 to 2 feet deep) to deep runs or glides (5 to over 20 feet deep). Spawning depth is a function of physiological requirements, available habitat, and specific preferential differences between stocks of salmon, probably under genetic influence. For instance, some winter-run chinook salmon have been observed to spawn on gravel in deeper water than the other three Sacramento River salmon runs. Preferred spawning velocities are generally in the range of 1.5 to 2.5 feet per second just above the surface of the gravel bed.

As the female lays the eggs in the redd, one or more male salmon fertilize the eggs. The female subsequently buries the eggs in the redd by displacing gravel upstream of the redd onto the eggs.

Eggs hatch after a variable incubation period dependent on water temperature, but is generally about 40 to 60 days. Maximum survival of incubating eggs and pre-emergent fry occurs at water temperatures between 40°F and 56°F. The newly hatched larvae, or pre-emergent fry, will remain in the redd and absorb the yolk stored in their yolk-sac to grow into fry. This period of larval incubation will last approximately 2 to 4 weeks depending on water temperatures. The fry then wiggle their way out of the redds, up into the water above. The fry will seek out shallow nearshore areas with slow current and vegetative and/or boulder cover nearby where they begin to feed on insects and crustaceans drifting in the current. As they grow, the juvenile salmon (approximately 50 to 75 mm in length) move out into deeper, swifter water for rearing, but continue to remain near boulders, fallen trees, and other such cover to reduce chances of being preyed upon and minimize energy expenditure. Juvenile salmon may emigrate downstream toward the estuary at any time from immediately after they emerge from the redd to after spending over one year in freshwater. The length of juvenile residence time in freshwater and estuaries varies between salmon runs and depends on a variety of factors including season of emergence, riverflow, turbidity, water temperature, and interactions with other species.

Excerpt from report: U.S. Bureau of Reclamation Central Valley Project, Guide to Upper Sacramento River Chinook Salmon Life History, July 1991, prepared by David A. Vogel & Keith R. Marine.

FWA Works—

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PARTICIPATION

Any farmer or diverter wishing to participate in this program should contact Family Water Alliance at (916) 438-2026, or send a letter of interest to Family Water Alliance, P.O. Box 365, Maxwell, CA 95955.

Special Thanks!

Ken Woods, Tedd Mehr, Jerry Crippen, Rich Lorenz, Rich Bottini, Gary Sousa, Carl Harral, Ryan Broderick, Dave Vogel.