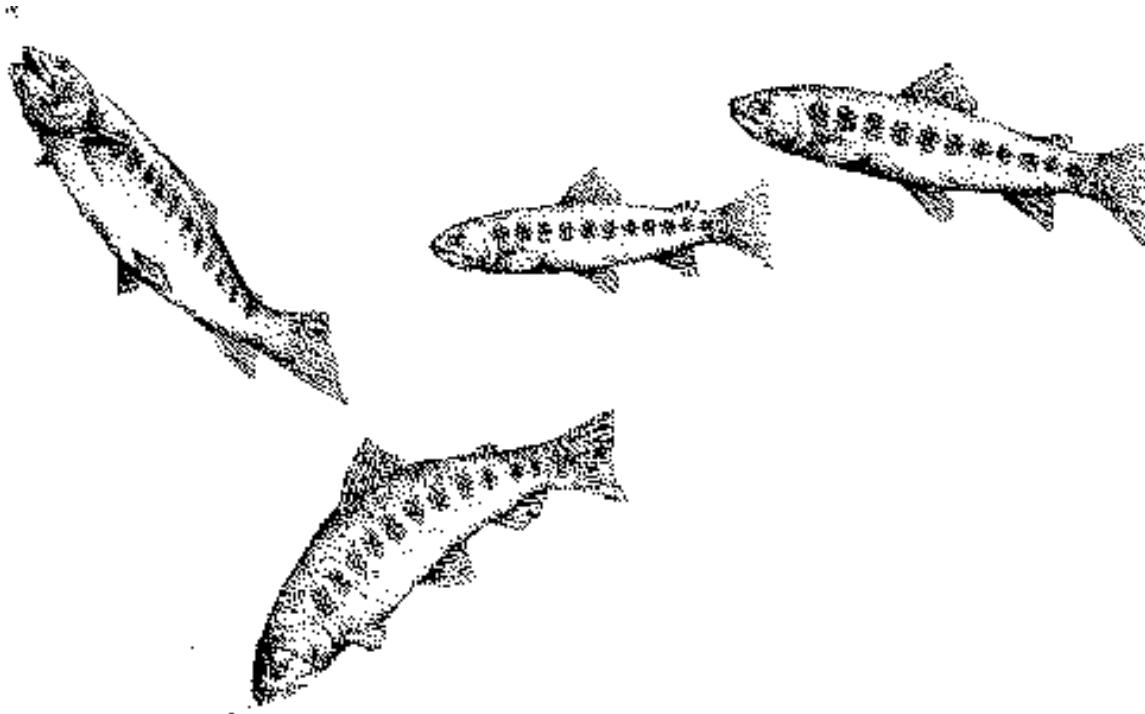


Steelhead Restoration and Management Strategies

Fish experts are calling for a new way of managing steelhead and rainbow trout in our streams. “Historically, there’s been a big gap in the way we manage resident rainbow trout and anadromous steelhead,” says Department of Fish and Game steelhead biologist Dennis McEwan, one of the State's greatest authorities on salmonids. “The old paradigm was to separate resident and anadromous fish and manage them separately. But genetic testing has shown no differences between resident and anadromous fish occupying the same stream—geography is the most important factor.” In other words, native resident and anadromous fish from the same stream are closer genetically than steelhead from one stream are to steelhead from another.



McEwan says we should be managing steelhead - resident and anadromous - based on their unique biology. Steelhead do not form discrete populations within streams, says McEwan. Instead, they freely interbreed, and adults can produce young that behave differently than they do: migratory fish can produce resident trout and vice versa. While some steelhead migrate to the ocean, others

just move down to the estuary, while still others merely move up and downstream. This flexibility allows the population to survive in the upper reaches of a stream during extreme conditions, such as droughts, when the lower reaches dry up and lose their connection to the ocean.

These survival strategies also enable “sink” populations - those that may exist only for a few decades - to act as a buffer against the wholesale extinction of a particular population, says McEwan. While source populations - those that persist for millennia - are found in the larger river systems, sinks are often found in smaller, sometimes seasonal streams. Although local extirpations (or extinctions) of sink populations are a natural phenomenon, so is re-colonization from the source population, says McEwan. But with the extensive human plumbing of rivers - dams, flood control structures, diversions, etc. - limiting fish passage, extirpations have been greatly accelerated and opportunities for fish to re-colonize severely reduced. Contrary to the traditional view that to be protected, steelhead must be a “permanently reproducing population,” a better way of managing steelhead, says McEwan, would recognize that resident rainbow trout help maintain the larger population by adding genetic diversity and diverse survival strategies, and would offer them the same protection given to their more mobile cousins - or brothers. Unlike migratory steelhead, rainbow trout are not protected under the Endangered Species Act.

Recovery plans for steelhead should also focus on reestablishing links within populations - and genetic flow between resident rainbow trout and steelhead - by restoring access to the upper reaches of streams. Says McEwan, “Since California rainbow trout have evolved in the face of extreme habitat conditions, they are tremendously resilient to man-made disturbances. But this resilience absolutely depends on having access to the upper reaches of our rivers, where habitat conditions are more stable and conducive for fish for surviving the ‘bad’ years.”

- courtesy of author Lisa Viani (*A version of this article first appeared in the April 2001 issue of ESTUARY, published by the San Francisco Estuary Project.*)