

Summary

AFS Policy Statement #9:
Effects of Altered Stream Flows
on Fishery Resources (Revised)
(Abbreviated)

Alteration of the quantity and timing of river or streamflow can significantly affect fisheries resources. There are few river basins in North America where natural flow regimens have not been altered. Dams built by public and private agencies regulate impounded water supplies by storing and releasing water for power, flood control, irrigation, navigation, and municipal and industrial uses.

Effects of flow alterations include blockage of fish migrations, alteration and loss of stream habitat, introduction of competing non-native fishes, degradation of water quality, alteration of nutrient cycles, disruption of food webs, destruction of fish eggs, decreased fish abundance, size, and condition, increased hybridization of closely related fishes competing for spawning sites, and decreased nutrient availability.

Unless streamflows are established, implemented, and protected, the following impacts can be expected to accelerate:

- Replacement of unique regional fauna by fishes adapted to more regulated stream environments. This would result in more listings of endangered species. Stream fishes currently considered as endangered would disappear in nature.
- Reductions in localized stream flooding will continue to degrade bottomlands, reduce stream productivity, and adversely affect stream fishes.
- Riparian habitat will continue to be degraded, adversely affecting stream quality.
- Reductions of streamflows will reduce and degrade stream habitat, increase summer water temperatures, reduce oxygen, and concentrate pollutants.
- Fluctuating flows associated with power generation will reduce stream resources by promoting unstable channels. Such flows will alternately scour, then promote downstream siltation of stream habitats.
- Loss of spring peak flows below dams will result in perennial armoring of stream bottoms, with downstream effects of wider, shallower channels due to loss of stream power to move sediments. Alteration of natural hydrographs will result in changed species composition.

The AFS policy regarding the effects of altered streamflows on fishery resources is to:

1. Encourage states and provinces to legally identify stream resources and water needs, and to give formal recognition of instream fishery needs as a beneficial use in their water resource programs.
2. Encourage AFS members, at all levels, to become involved in legal and legislative processes related to obtaining protection of instream flows.
3. Support the identification, equal consideration, and implementation of enhanced instream fishery flows at both new and existing water storage projects.

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4. Promote development of better habitat evaluation procedures, and support research efforts to obtain more comprehensive information about stream fish habitat requirements.
5. Support research to better understand the seasonal amounts, location, and timing of water needed for reproduction, recruitment, growth, and other stream fish life history needs.
6. Promote the formation of national and international programs to evaluate stream ecosystems, with emphasis on conservation of fisheries resources.
7. Encourage governments to adopt "no net loss" policies for conserving the remaining stream ecosystems in North America.