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Recent Developments

The Salmon Hatchery Myth: When Bad Policy Happens to Good Science

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Salmonid management based largely on hatchery production, with no overt and large-scale ecosystem-level recovery program, is doomed to failure. Not only does it fail to address the real causes of salmonid decline, but it may actually exacerbate the problem and accelerate the extinction process.[1]

INTRODUCTION

The history of Pacific salmon hatcheries has little to show for its 120 years of effort and hundreds of millions of dollars in expenditures.[2] Throughout that time, we have blindly depended upon hatcheries to compensate for overfishing and habitat destruction, even though science and historical trends indicate that hatcheries fail to meet this intended function. Despite widespread hatchery development, over 100 major Pacific salmon runs have gone extinct, and many of the remaining 200-plus runs are at risk of disappearing.[3] Even though studies indicate that hatchery fish may accelerate the extinction of salmon runs, faith in hatcheries continues.

The National Marine Fisheries Service (NMFS) is the federal agency responsible for listing and regulating

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1. Gary K. Meffe, *Techno-arrogance and Halfway Technologies: Salmon Hatcheries on the Pacific Coast of North America*, 6 CONSERVATION BIOLOGY 350, 351 (1992).
2. *See* JIM LICHATOWICH, SALMON WITHOUT RIVERS 123, 219 (1999).
3. *Id.* at 204.

endangered and threatened salmon populations.[4] When NMFS promulgated its first hatchery policy,[5] it designated an Evolutionarily Significant Unit (ESU) for each autonomous run of salmon.[6] Some ESUs included hatchery populations that contributed to the species' "evolutionary legacy."[7] In classifying particular salmon runs as endangered or threatened, NMFS excluded the hatchery component because none of the hatchery populations were relied upon to contribute to recovery.[8] A 2001 federal district court decision invalidated the listings, however, holding that if NMFS included hatchery populations in an ESU, NMFS must include those same populations in the listing determination.[9] The Ninth Circuit dismissed the appeal from the district court's ruling,[10] and NMFS' new listing determinations now include those genetically similar hatchery fish.[11] The twenty-seven ESUs considered in the new listing proposals include 162 artificial propagation programs.[12] This treatment of hatcheries belies scientific evidence and could lead to a greater risk of extinction.

I. BACKGROUND AND THE HISTORY OF HATCHERIES

Before reviewing the history of hatcheries, a brief explanation of salmon biology and hatchery operation is needed. All Pacific salmon are anadromous. This means that

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4. *See* 16 U.S.C. § 1533(a)-(c) (2000) (granting the Secretary of Commerce authority to determine whether any species is endangered or threatened and to implement protective regulations and granting the Secretary of Interior the authority to publish the list of endangered and threatened species).

5. *See* Interim Policy on Artificial Propagation of Pacific Salmon Under the Endangered Species Act, 58 Fed. Reg. 17,573 (Apr. 5, 1993).

6. *See id.* at 17,574.

7. *Id.* at 17,575.

8. *See* Endangered and Threatened Species: Proposed Listing Determinations for 27 ESUs of West Coast Salmonids, 69 Fed. Reg. 33,102, 33,106 (proposed June 14, 2004) (codified at 50 C.F.R. pts. 223, 224) (summarizing NMFS's previous listings and how it treated hatchery populations).

9. *See* Alsea Valley Alliance v. Evans, 161 F. Supp. 2d 1154, 1163-64 (D. Or. 2001).

10. *See id*. at 1186 (holding that the remand order was not a final decision with respect to the appealing agencies and therefore the court lacked jurisdiction to hear the appeal).

11. *See* Endangered and Threatened Species, *supra* note 8, at 33,106.

12. *Id.* at 33,102.

they spend their first days or even years of life in freshwater streams or lakes.[13] Eventually the salmon migrate to the ocean where they spend the next one to four years.[14] Salmon ultimately return to their natal stream or lake to spawn and die.[15] Although only five species of salmon inhabit the western coast, hundreds of distinct populations exist. Populations of the same species can differ in dramatic ways. For example, they may spawn in different places or during different seasons.[16] Salmon within the same species may migrate at different ages, differ in size, and have dissimilar feeding habits.[17] The diversity of a species may manifest in numerous other respects as well.[18] Each population, or run, has its own set of unique adaptations for optimizing survival in its particular area.[19]

Declines in salmon populations from overfishing, habitat degradation, and dam building led to the development of hatcheries in the hope that wild populations could be restocked.[20] Hatcheries create their stocks by killing returning adult females, harvesting their eggs, and fertilizing them with sperm from returning males.[21] After incubation and hatching, the offspring are then raised in a captive environment, often until they are ready to migrate to the ocean.[22]

The history of salmon hatcheries provides a stunning example of the extent to which policy, law, and government can ignore science. James Lichatowich's book, *Salmon Without*

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13. Carl V. Burger, *The Needs of Salmon and Steelhead in Balancing Their Conservation and Use, in* SUSTAINABLE FISHERIES MANAGEMENT: PACIFIC SALMON 15, 17-18 (E. Eric Knudsen et al. eds., 2000).

14. *Id*.

15. *Id*.

16. *See id.* at 22-23 (providing examples of the movement cycles of different populations).

17. *See id*.

18. *See id*.

19. *See* Burger, *supra* note 13, at 22.

20. *See* LICHATOWICH, *supra* note 2, at 112.

21. For a step-by-step photographic description of hatchery operations, see StreamNet, *Take a Virtual Tour of Salmon Spawning at a Hatchery*, *at* http://www.streamnet.org/pub-ed/ff/VirtualTour/SalmonHatchery.html (last visited Oct. 11, 2004). By comparison, "captive rearing" involves removing juvenile salmon from their native habitat and raising them to adulthood. B.A. Berejikian, et al., *Male Competition and Breeding Success in Captively Reared and Wild Coho Salmon (*Oncorhynchus kisutch*)*, 58 CAN. J. FISHERIES AND AQUATIC SCI. 804, 804 (2001).

22. *See* StreamNet, *supra* note 21.

Rivers,[23] describes in detail how fishery managers have ignored evidence that suggests hatchery practices should be changed or ceased altogether. In 1939, when scientists first demonstrated that salmon runs breed as discrete populations, it took NMFS more than fifty years to recommend that hatcheries take this fact into account and eliminate the practice of transferring salmon between runs.[24] In fact, throughout the long history of hatcheries, fishery managers never evaluated whether salmon populations actually increased as a result of the hatcheries.[25]

Lichatowich attributes such willful blindness to the agricultural approach of hatcheries—fishery managers have historically viewed salmon as another "cash crop" that can be domesticated and propagated for human benefit.[26] This attitude assumes that, like a field of corn, humans can concentrate salmon to reap a higher level of production than natural systems would normally provide.[27] This approach not only assumes that salmon harvest can continue or increase while wild populations decline, but it also allows for greater exploitation of freshwater habitats through hydropower, logging, water diversions, and river pollution.[28]

Although scientific studies and historical trends have shown that the complex life history and varying habitat needs of individual salmon populations requires specialized management, the simplified agricultural approach continues to dominate.[29] The optimism underlying hatchery development has continued despite compelling evidence that hatcheries have not contributed to historical increases in salmon,[30] may have negative impacts on wild salmon populations, and may even

23. *See* LICHATOWICH, *supra* note 2.

24. *See id.* at 167-68.

25. *See id.* at 117, 128.

26. *See id.*

27. *See id.* at 117-18.

28. *Id.* at 131 ("Salmon managers believed that hatcheries would compensate for the damaging effects of" timber industry activities and hundreds of dams being built).

29. *See* LICHATOWICH, *supra* note 2 at 221 ("[H]abitat degradation . . . has been the direct result of the large-scale ecosystem simplification that is a central and guiding vision of [our industrial] economy . . . .").

30. *See generally* R.J. Beamish, C. Mahnken & C.M. Neville, *Hatchery and Wild Production of Pacific Salmon in Relation to Large-Scale, Natural Shifts in the Productivity of the Marine Environment*, 54 ICES J. MARINE SCI. 1200 (1997).

reduce the overall yield of harvestable fish.[31] With many salmon runs at record lows and listed as endangered or threatened, the impact of hatchery fish on wild populations has received increased attention from the scientific and policy communities in the last fifteen years.

II. RECENT STUDIES

Despite increased attention from researchers, the effects of hatchery salmon on wild populations are clouded by uncertainty.[32] This uncertainty is largely a product of the infancy of the science and the complexity of the salmon's life cycle.[33] Therefore, depending upon the experiment type and the populations studied, findings related to aggression, competition, and juvenile displacement may yield ambiguous or conflicting results.[34] Furthermore, published studies that do provide insight regarding the effects of hatcheries on wild salmon populations require caution because they may exhibit bias towards reporting negative effects of introducing hatchery fish.[35] Despite these concerns, the scientific literature as a

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31. *See, e.g.*, LICHATOWICH, *supra* note 2, at 213-14 (asserting that one of Canada's salmon management programs experienced an overall increase in salmon harvest, but the catches for species targeted by hatchery efforts actually decreased during the same time period).

32. *See, e.g.*, Barry A. Berejikian, Stephen B. Mathews & Thomas P. Quinn, *Effects of Hatchery and Wild Ancestry and Rearing Environments on the Development of Agonistic Behavior in Steelhead Trout (*Oncorhynchus mykiss*) Fry*, 53 CAN. J. FISHERIES AND AQUATIC SCI. 2004, 2005 (1996) (stating that science has only a limited understanding of how environmental factors influence fish behavior); Thomas Nickelson, *The Influence of Hatchery Coho Salmon (*Oncorhynchus kisutch*) on the Productivity of Wild Coho Salmon Populations in Oregon Coastal Basins*, 60 CAN. J. FISHERIES AND AQUATIC SCI. 1050, 1054 (2003) (noting that "[f]ew studies have provided ecological interactions between hatchery and wild fish.").

33. *See* Gordon F. Hartman ET AL., *Science and Management in Sustainable Salmonid Fisheries: The Ball is Not in Our Court, in* SUSTAINABLE FISHERIES MANAGEMENT: PACIFIC SALMON 31, 32-33 (E. Eric Knudsen et al. eds., 2000) (describing the vast complexity and resulting vulnerability of distinct salmon runs).

34. *See* Neil B. Metcalfe, Sveinn K. Valdimarsson & Ian J. Morgan, *The Relative Roles of Domestication, Rearing Environment, Prior Residence and Body Size in Deciding Territorial Contests Between Hatchery and Wild Juvenile Salmon*, 40 J. APPLIED ECOLOGY 535, 536 (2003) (stating that competition studies comparing hatchery and wild salmon have produced "ambiguous results").

35. *E.g.,* Sigurd Einum & Ian A. Fleming, *Implications of Stocking: Ecological Interactions Between Wild and Released Salmonids*, 75 NORDIC J. FRESHWATER RES. 56, 65 (2001). Einum and Fleming do not explain their

whole provides a stunningly consistent message: hatchery fish could drive salmon populations closer to extinction.[36] The following is a summary of recent scientific literature that specifically addresses the impact of hatchery salmon upon their wild counterparts.

Many studies find that juvenile hatchery salmon show more aggression and exhibit different predator avoidance behaviors than their wild counterparts.[37] When one considers the captive rearing environment, characterized by artificial diets, confinement, and lack of migration opportunity,[38] these traits seem logical. Both greater aggression and larger body size help determine dominance and access to the most energetically profitable stream areas.[39] Although some studies have found that juveniles from hatchery or wild origin do not significantly differ in growth[40] or aggression,[41] the experiment type can often influence outcomes.[42] Furthermore,

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suggestion that a negative bias may exist. Perhaps because hatcheries have existed for so long and still remain the status quo for salmon management, those studies that contradict the status quo have a greater appeal for publication.

36. *See, e.g.*, L.A. Weitkamp et al., *Status Review of Coho Salmon From Washington, Oregon and California*, NOAA-NWFSC Technical Memorandum 24 (Sept. 1995) (citing hatchery and artificial propagation as significant factors for concluding some Coho runs were likely to become endangered), *available at* http://www.nwfsc.noaa.gov/publications/techmemos/tm24/tm24.htm.

37. Einum & Fleming, *supra* note 35, at 59.

38. *See* B.A. Berejikian et al., *Reproductive Behavioral Interactions Between Wild and Captively Reared Coho Salmon (*Oncorhynchus kisutch*)*, 54 ICES J. MARINE SCI. 1040, 1040 (1997); *see also* W.W. Crozier, *Genetic Implications of Hatchery Rearing in Atlantic Salmon: Effects of Rearing Environment on Genetic Composition*, 52 J. FISH BIOLOGY 1014, 1022 (1998) (stating that lack of predation, intensive feeding, and grading by size cause hatchery juveniles to reach migration stages earlier).

39. *See* Berejikian et al., *supra* note 32, at 2004; *see generally* Ian A. Fleming, et al., *Effects of Domestication on Growth and Physiology and Endocrinology of Atlantic Salmon (*Salmo salar*)*, 59 CAN. J. FISHERIES & AQUATIC SCI. 1323, 1328 (2002).

40. *See, e.g.*, Einum & Fleming, *supra* note 35, at 62 (finding that a summary of literature does not show consistent growth rate differences between hatchery and wild fish).

41. *See* Metcalfe et al., *supra* note 34, at 541-42 (finding that prior residence had significant influence over competition outcomes between wild and domesticated salmon, and not necessarily inherent aggression); *see generally* Ian A. Fleming, et. al., *supra* note 39.

42. *See, e.g.*, *id.* at 536.

comprehensive literature surveys have concluded that hatchery juveniles often show faster growth and more aggression.[43] If indeed these differences do exist, releasing young hatchery fish into a wild stream could result in their domination of wild fish, leaving wild fish with less favorable rearing habitats.[44]

Even if hatchery juveniles did not demonstrate dominance over wild juveniles, the sheer number of released fish may result in heightened competition and reduced survival of young native fish.[45] This potential outcome may not cause alarm, if hatchery and wild salmon had similar rates of survival to the adulthood and reproductive stages. Unfortunately, the scientific literature shows almost without exception that hatchery salmon have lower overall survival rates[46] and significantly lower breeding success rates.[47] In support of these findings, recent studies reviewing historical adult return migration rates show that runs with hatchery augmentation produced offspring at a significantly lower rate than purely

43. *See* Einum & Fleming, *supra* note 35, at 59 [but nothing mentioned about faster growth].

44. *See* Berejikian et al., *supra* note 32, at 2012 (describing numerous studies that provide evidence that hatchery fish displace wild juveniles); P. McGinnity et al., *Genetic Impact of Escaped Farmed Atlantic Salmon (*Salmo salar *L.) on Native Populations: Use of DNA Profiling To Assess Freshwater Performance of Wild, Farmed, and Hybrid Progeny in a Natural River Environment*, 54 ICES J. MARINE SCI. 998, 1006 (1997) (stating that non-native fish can displace wild salmon). *But see* Christopher A. Peery & Theodore C. Bjornn, *Interactions Between Natural and Hatchery Chinook Salmon Parr in a Laboratory Stream Channel*, 66 FISHERIES RES. 311, 323 (2004) (reporting little evidence that addition of hatchery fish increases emigration of wild fish).

45. Shizhen Wang, Jeffrey J. Hard & Fred Utter, *Salmonid Inbreeding: A Review*, 11 REVIEWS IN FISH BIOLOGY & FISHERIES 301, 307 (2002) ("[M]assive releases and resulting high returns create the potential for the displacement of wild populations by hatchery fish.").

46. *See* Einum & Fleming, *supra* note 35, at 62 (explaining that the available literature shows hatchery fish consistently have reduced survival when compared to wild fish); Edward D. Weber & Kurt D. Fausch, *Interactions Between Hatchery and Wild Salmonids in Streams: Differences in Biology and Evidence for Competition*, 60 CAN. J. FISHERIES & AQUATIC SCI. 1018, 1031 (2003) (concluding that studies indicate hatchery fish negatively affect wild fish and have overall low survival).

47. *See* B.A. Berejikian, et al., *supra* note 21, at 808 (finding that wild males dominated captively reared males in 79% of breeding trials, which is directly related to breeding success); Ian A. Fleming & Mart R. Gross, *Breeding Success of Hatchery and Wild Coho Salmon (*Oncorhynchus Kisutch*) in Competition*, 3 ECOLOGICAL APPLICATIONS 230, 231 (1993) (reporting that hatchery salmon are competitively inferior and exhibit lower breeding success rates when compared to wild salmon).

wild runs did.[48] Therefore, while hatchery juveniles released into natural streams have a competitive advantage over wild fish due to increased aggression, size, or sheer number, their impaired ability to survive to adulthood and breed successfully can translate into an overall reduction in salmon population size. Like a bad fix, hatchery augmentation may require that increasing numbers of fish be released just to sustain the population.

While some may consider continued reliance on hatchery fish to be an acceptable management option,[49] such a plan could fail disastrously for at least two reasons. First, habitat conditions and niches——*not* the numbers of young produced——regulate the abundance of salmon.[50] In other words, releasing greater numbers of hatchery juveniles will not compensate for their reduced ability to survive, and populations will decline despite the number of juveniles released.[51] Second, hatchery practices result in a loss of diversity and adaptive traits. Supportive breeding unavoidably over-represents a limited set of phenotypes and tends to result in traits such as early maturity, aggressiveness, and reduced response to predators.[52] The resulting homogeneity of the

48. *See* Mark W. Chilcote, *Relationship Between Natural Productivity and the Frequency of Wild Fish in Mixed Spawning Populations of Wild and Hatchery Steelhead (*Oncorhynchus mykiss*)*, 60 CAN. J. FISHERIES & AQUATIC SCI. 1057, 1064 (2003) (finding that an equal mix of hatchery and wild fish produces 63% fewer new individuals per spawner than a pure wild population); Nickelson, *supra* note 32, at 1053 (demonstrating that productivity for wild Coho salmon is negatively correlated with the number of hatchery juveniles released).

49. *See, e.g.*, Alsea Valley Alliance v. Evans, 161 F. Supp. 2d 1154 (D. Or. 2001) (indicating plaintiffs apparently support greater focus on hatcheries because they brought suit to compel NMFS to include hatchery fish in Endangered Species Act listings), *appeal dismissed*, 358 F.3d 1181 (9th Cir. 2004).

50. *See* Beamish et al., *supra* note 30, at 1212.

51. *See id.* (stating that hatcheries may accelerate the extinction process); Einum & Fleming, *supra* note 35, at 65 (citing theoretical models as support for the hypothesis that long-term stocking may lead to extinction of the wild population); P. McGinnity et al., *Genetic Impact of Escaped Farmed Atlantic Salmon (*Salmo salar *L.) on Native Populations: Use of DNA Profiling To Assess Freshwater Performance of Wild, Farmed, and Hybrid Progeny in a Natural River Environment*, 54 ICES J. MARINE SCI. 998, 1006 (1997) (describing the "extinction vortex" resulting from the displacement of wild fish by non-native fish).

52. *See* S. Einum & I. A. Fleming, *Genetic Divergence and Interactions in the Wild Among Native, Farmed and Hybrid Atlantic Salmon*, 50 J. FISH

hatchery population can severely threaten the wild population if interbreeding occurs. Long-term salmon conservation "depends on a rich store of genetic variation because of the complex life histories and extensive metapopulation networks of these species."[53] Preserving genetic diversity is vital if salmonids are to have the ability to adapt to changing environmental pressures.[54]

The scientific studies covering issues from juvenile aggression to genetic diversity in salmon populations come to very similar management recommendations. They repeatedly suggest conserving natural habitat and limiting or even ceasing the use of hatcheries. Some studies suggest that different hatchery practices could ameliorate the previously discussed negative effects of hatcheries by adding habitat complexity,[55] limiting releases to carrying capacity levels,[56] and planting eggs or young fry instead of "helping" hatchery fish through the early life stages.[57] These practices would create a more natural environment and selection process within hatcheries. However, conserving natural habitat will always be the superior biological alternative[58] and could cost far less in the long-term.[59] The preservation of habitat may be the most cost-effective option, even when taking economic losses from foregone development into account. For example, where domesticated salmon are found to be a separate species[60] or

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BIOLOGY 634, 648 (1997); Einum & Fleming, *supra* note 35, at 58-62; Ian A. Fleming, et al., *supra* note 39; *cf.* Crozier, *supra* note 38, at 1022 (1998) (stating that hatchery rearing can alter genetic composition to favor early migrating fish in as little as one generation).

53. Wang et al., *supra* note 45, at 302.

54. *See id.* at 313.

55. *See* Einum & Fleming, *supra* note 35, at 65.

56. *See id.* at 65.

57. *See* Metcalfe et al., *supra* note 34, at 543.

58. *See* Fleming & Gross, *supra* note 47, at 241 ("[A]rtificial propagation is unlikely to be as effective in reviving wild populations as will the reduction of human impacts and restoration of lost habitats."); *see also* Nickelson, *supra* note 32, at 1054 (asserting that hatchery programs must be modified to reduce the interactions of hatchery and wild fish)); Wang et al., *supra* note 45, at 307 ("[I]nbreeding may arise at every operational step of hatchery or captive broodstock programs."); *cf.* Einum & Fleming (2001), *supra* note 35, at 66 (suggesting the differences between hatchery and wild fish can never be completely avoided).

59. *See* LICHATOWICH, *supra* note 2, at 219 (suggesting that millions of dollars have been spent on hatchery operations with little apparent success in preserving salmon populations).

60. *See generally* Mart R. Gross, *One Species With Two Biologies: Atlantic*

where the resulting population decline is simply unacceptable,[61] habitat conservation is likely the only viable option for preservation of the population.

III. LAW AND POLICY

As a review of the current scientific literature indicates, including hatchery fish in endangered or threatened listings seems absurd. At least two flawed consequences flow from such a policy. The more important consequence is protection of genetic varieties of hatchery fish that may drive salmon species towards extinction, violating the overall purpose of the Endangered Species Act (ESA).[62] Second, such a policy exaggerates the health of salmon species by greatly increasing the abundance the listed populations.[63]

The new hatchery policy qualifies as yet another blindly optimistic salmon management approach in a legacy of willfully ignorant approaches. Science has warned against investing in hatcheries, yet even the threat of extinction has not convinced policy makers to look seriously at reform. While eliminating hatcheries altogether may not be necessary, misguided assumptions must be discarded. Hatcheries cannot replace wild populations and must remain secondary to habitat conservation as a recovery strategy for salmon populations. Nature simply does the job better. NMFS' proposed listings[64] continue to protect salmon populations, even though hatchery

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*Salmon (*Salmo salar*) in the Wild and in Aquaculture*, 55 CAN. J. FISHERIES & AQUATIC SCI. 131 (1998) (proposing a separate species, *Salmo domesticus*, for escaped domesticated salmon).

61. *See, e.g.*, Chilcote, *supra* note 48, at 1066 (stating that the addition of hatchery fish to depressed wild populations may be counterproductive).

62. *See* 16 U.S.C. § 1531(b) (2000) (the ESA was enacted "for the conservation of such endangered species and threatened species"); 16 U.S.C. § 1531(c) (2000) (stating that it is the policy of federal government agencies to further the conservation of threatened and endangered species).

63. *See* Endangered and Threatened Species: Proposed Listing Determinations for 27 ESUs of West Coast Salmonids, 69 Fed. Reg. 33,102, 33,102 (proposed June 14, 2004) (codified at 50 C.F.R. pts. 223, 224) (preserving listing status for most of the reviewed species).

64. *See* Endangered and Threatened Species: Proposed Listing Determinations for 27 ESUs of West Coast Salmonids, 69 Fed. Reg. 33,102, 33,102 (proposed June 14, 2004) (codified at 50 C.F.R. pts. 223, 224); Proposed Policy on the Consideration of Hatchery-Origin Fish in Endangered Species Act Listing Determinations for Pacific Salmon and Steelhead, 69 Fed. Reg. 31,354, 33,355 (June 3, 2004).

fish are included.[65] Although most of the salmon populations have continued to enjoy protected status under the ESA, these listings can have additional adverse effects because they threaten to constrain governmental decisions to close ineffective or even harmful hatcheries.[66] Further, requiring changes in hatchery operations to lessen impacts on wild fish could constitute a "taking" if numbers of private hatchery fish stocks are thereby reduced.[67] Environmental groups will likely challenge the policy, while industry groups will likely challenge the listings.[68] If science had standing, it could challenge the entire history of hatchery practice.

65. *See* Proposed Policy on the Consideration of Hatchery-Origin Fish in Endangered Species Act Listing Determinations for Pacific Salmon and Steelhead, 69 Fed. Reg. 31,354, 33,355 (June 3, 2004) (proposing to change four out of the twenty-seven listings reviewed).

66. *See* Defendant-Intervenor-Appellants' Opening Brief at 22, Alsea Valley Alliance v. Evans, 358 F.3d 1181 (9th Cir. 2004) (No. 99-6265-HO).

67. *See id.*

68. *See NMFS Hatchery Policy Angers ESA Critics; Enviros Remain Cautious*, GREENWIRE, June 1, 2004 ("Interest groups on all sides of the issue said they will sue if the policy is adopted after a 90-day public comment period."), *available at* http://www.westernroundtable.com/news/article.asp?id=918.