

Final Regulatory Flexibility Analysis for the Final Rule Defining
"Harm" in the Definition of "Take" in the ESA

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1. Introduction

The National Marine Fisheries Service (NMFS) is issuing a final rule defining the term "harm" contained in the definition of "take" under the Endangered Species Act of 1973 (ESA). This rulemaking will codify NMFS' interpretation of "harm" is that habitat modification can result in a take under the ESA.

The Regulatory Flexibility Act (RFA), 5 U.S.C. 601 et seq. requires the preparation of an initial and final Regulatory Flexibility Analyses unless an agency determines that a rule, if promulgated, will not have a significant economic impact on a substantial number of small entities.

In the May 1, 1998 Federal Register Notice for the proposed rule to define harm (63 FR 24148-24150), NMFS opined that the proposed rule, if adopted, would not have a significant economic impact on a substantial number of small entities, as described in the Regulatory Flexibility Act, and that therefore, a Regulatory Flexibility Analysis would not be required for adoption of the final rule. However, numerous public comments were received in response to the Federal Register Notice and accompanying draft EA requesting that a Regulatory Flexibility Analysis be performed. This document constitutes NMFS' Final Regulatory Flexibility Analysis.

2. Need for and Objectives of the Rule

The U.S. Fish and Wildlife Service (FWS) issued a regulation further defining the term "harm" to include "significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering." In 1995 the Supreme Court upheld this definition as supported by the broad purpose of the ESA to conserve endangered and threatened species. NMFS' definition mirrors that of FWS' definition, except for minor modifications to include fish as well as wildlife.

This rule will further define and clarify the term "harm" to help resolve uncertainties regarding actions that may result in "take" of a listed species. NMFS' definition of harm includes "significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding and sheltering." This rulemaking will

codify NMFS' position that habitat modification can result in a take under the ESA and makes clear that NMFS' interpretation of harm is consistent with that of the U.S. Fish and Wildlife Service (FWS).

Adoption of this regulation is important particularly on the west coast because of the increasing number of salmonid listings and the role habitat destruction has played in their decline. A credible enforcement program is essential to deter those acts that are likely to "take" listed species through habitat destruction or modification. Adoption of this regulation is an important step in that program.

3. Economic Issues Raised During Public Comment

The following is a summary of the issues regarding economic impacts raised during the public comment period in response to the Federal Register Notice and the accompanying draft Environmental Assessment:

Comment 1: Some commenters suggested that the proposed rule, if adopted, would constitute an uncompensated "taking" in violation of the Fifth Amendment of the U.S. Constitution.

Response: This final rule does not deny any person economically viable use of their property.

As stated elsewhere in this final rule under "Incidental Take Exceptions", the ESA authorizes NMFS to exempt parties from its take prohibitions under certain circumstances. Under the terms of ESA section 7(b)(4) and section 7(o)(2), taking of listed species that is incidental to, and not intended as part of, an otherwise lawful activity is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of an incidental take statement issued by NMFS. In addition, the 1982 ESA amendments to section 10(a) authorize NMFS to issue incidental take permits allowing the incidental take of listed species in the course of otherwise lawful activities, provided the activities are conducted according to an approved Conservation Plan which to the maximum extent practicable, minimizes and mitigates the impacts of such taking and avoids jeopardy to the continued existence of the affected species. These mechanisms provide landowners with a means of continuing to use their property while addressing possible incidental take of listed species.

As the Solicitor General explained in the federal government's reply brief in Sweet Home (Gov't Reply Br. at 17), "[t]he prohibition on the taking of species, in conjunction with the program for authorizing incidental takes, . . . rationally and

flexibly addresses the inherent difficulties involved in defining prohibited conduct in light of the wide diversity of species and the range of circumstances in which they live."

Comment 2: Several commenters disagreed with NMFS' certification that the proposed rule will not impact a significant number of small businesses and urged NMFS to prepare a Regulatory Flexibility analysis.

Response: This Final Regulatory Flexibility Act analysis was prepared in response to those comments.

4. Description of Small Entities Affected by the Rule

This rule applies to any individual, government entity, or business entity which undertakes or wishes to undertake any activity altering the habitat of species listed as threatened or endangered under the Endangered Species Act, where such species are listed by the NMFS, and where such habitat alterations have the potential to kill or injure individuals of those species. It is not possible to define precisely or enumerate these entities because of uncertainty concerning their plans for future actions, uncertainty concerning which species will be listed or de-listed in the future, and incomplete scientific knowledge of which habitat alterations in specific cases will harm fish or wildlife. However, based on the species which NMFS has already listed or proposed for listing, and the scientific evidence for the factors for decline of those species, it is possible to describe the types of small entities which would be most likely to engage in activities where the risk of harm to listed species is significant, and which therefore would be most likely to alter their behavior to avoid the risk of this kind of take.

Most of the habitat alteration issues NMFS has had to deal with under the ESA have been in relation to anadromous fish species. A number of salmonids which spawn in west coast rivers, streams, and lakes, and two sturgeon species which spawn in east coast and Gulf of Mexico rivers have been listed or proposed for endangered or threatened status. Because these species spawn and reside for part of their lives in inland rivers and waterways, their habitats are particularly vulnerable to significant alteration or destruction by activities undertaken for purposes other than the direct take of the fish (NMFS 1996; NMFS 1998a; NMFS 1998b). Many of these activities are engaged in by small businesses and small government organizations.

In west coast river drainages supporting anadromous salmonids, farming and livestock ranching make up the majority of small businesses which might be affected by the rule. Crop cultivation and livestock grazing involve activities which disturb the soil, leading to the possibility of erosion, flooding, and siltation of streambeds. Chemical fertilizers and pesticides are used on cultivated crops and pastures while livestock may produce concentrations of animal waste. These products may be toxic to salmonids and other members of the riverine ecosystems on which the salmonids depend. Crops and pasture are often irrigated, requiring diversion of water from rivers or streams by individual land users. Diversions pose the risk of entraining fish, disrupting water flows which help the fish in their migration to and from the ocean, and diminishing the volume of water flowing throughout the drainage.

All aspects of forestry, from site preparation to final harvest, have the potential to damage salmonid habitat in ways which may kill or injure fish in their fresh water life stages. Flooding and siltation may occur as well as elevated water temperatures in watersheds subject to indiscriminate forest practices. In addition, poorly built logging roads and culverts may cause landslides or block stream passage for upstream and downstream migration. Large woody debris important for pool formation is reduced when logging removes large trees from part of a watershed. Though not nearly so numerous as the small farms and ranches, there are a large number of small businesses engaged in forestry and logging in watersheds utilized by listed or proposed listed salmonids.

Various kinds of mining operations pursued by small businesses in salmonid habitat also have the potential of harming listed species. Mine wastes which reach streams or rivers, either through direct discharge or through water runoff, may be toxic to salmonid eggs, alevins, or fry. Gravel mining and placer mining disturb the stream bed and produce sediments which fill deep pools and impact spawning gravel.

Many small businesses are engaged in construction of residential and commercial developments, and in road and highway construction within the drainages which support anadromous salmonids. Construction activities may produce sediment runoff and possibly alter streambeds, potentially degrading spawning, rearing, or migration conditions.

Small governments and small organizations engaged in construction, construction planning, waste management, and water management

(including diversion) in the drainages which support listed species have the potential of harming them. These may include tribal governments, town and community governments, water districts, irrigation districts, ports, parks and recreation districts, and others.

The greatest threat to the listed sturgeon species from activities of small entities is from discharges (including thermal discharges) and nonpoint source pollutants, which decrease dissolved oxygen levels or increase heavy metals and other toxic chemicals in sturgeon habitat. Pulp mill discharges, silvaculture, agriculture, and municipal sewer discharges may all contribute to this problem (Jeff Brown, NMFS, personal communication).

Many of the listed species under NMFS jurisdiction are unlikely to be subject to illegal take resulting from "harm", as defined by NMFS, especially harm produced by small entities. Modifications to cetacean open ocean habitat, for example, are unlikely to have a significant effect on individual animals. Major disasters like the Exxon Valdez oil spill might constitute "harm," but they are typically caused by large corporations. Sea turtles are subject to harm when their nesting beaches are altered by human activity, but their terrestrial habitat is under the jurisdiction of the FWS. Listed pinnipeds such as the Hawaiian monk seal may die as the result of entanglement in discarded fishing gear, but this amounts to a take under ESA in the sense of killing or wounding, so the definition of "harm" does not change anything in this case.

In the case of the western population of Steller sea lions, NMFS issued a Biological Opinion on December 3, 1998, which concluded that the pollock fisheries of the Bering Sea and Aleutian Islands Management Area (BSAI) and of the Gulf of Alaska (GOA) could jeopardize the continued existence of the population by reducing the food supply available to the sea lions at critical points in their life cycle. Removal of prey required by the listed species is one of the examples of "harm" cited in the preamble to the proposed rule. However, this "harm" is the direct result of a federally managed fishery, which is regulated through the Fishery Management Plans for the groundfish fisheries of the GOA and the BSAI. Elimination of this source of "harm" has been accomplished by adoption of rules which apply to anyone engaged in the fishery. Since these rules resulted from adoption of reasonable and prudent alternatives under Section 7 of the ESA, the definition of "harm" did not have any role in this action (NMFS, 1999).

The listing of Johnson's seagrass as threatened in September, 1998 raises the possibility of applying the Section 9 take prohibition to activities which adversely modify the shallow lagoon habitat of this species on the southeast Florida coast. Activities identified as probably resulting in habitat degradation or elimination are: dredging; construction of piers; docks, or other structures which extend over parts of the habitat; small boat traffic; anchoring over seagrass beds; and more intensive urban or agricultural land use leading to increased runoff of nutrient laden fresh water. Small businesses which may engage in these activities include the following: 1) marinas, which dredge, directly destroying or negatively impacting seagrass beds, and which construct docks and other structures, cutting off sunlight essential for seagrass survival; and 2) aquaculture, with its potential to increase nutrients in the shallow water habitat (Layne Bolen, NMFS, personal communication). Since dredging and construction in navigable waters are activities which must be permitted by the US Army Corps of Engineers, they will generally be regulated by NMFS through Section 7 consultation with the Corps rather than through enforcement of Section 9 take prohibitions.

5. Description of Reporting, Recordkeeping, and other Compliance Requirements

The rule defines the term "harm" which is contained in the definition of "take" in the ESA. The definition is consistent with NMFS' interpretation of "harm" and this interpretation will remain unchanged regardless of whether this rule is implemented. This codification of NMFS' definition of "harm" does not change existing law, and therefore does not impose any new reporting, recordkeeping, or other compliance costs on any small entities.

6. Expected Impact on Small Entities

At the outset it must be noted that the rule merely codifies the definition of "harm" already in use by NMFS. Accordingly, it does not make any action illegal or subject to prosecution which would not be so without the rule. Any adverse economic impacts upon small entities caused by the promulgation of this rule would probably imply that the small entities failed or would fail to comply with the ESA. Regardless of the accuracy of such a characterization, NMFS has nonetheless elected to conduct a Regulatory Flexibility Analysis.

6.1 Scope of Analysis

It is likely that the cost to small entities would vary according to their degree of compliance with the ESA. Under the worst case scenario, assuming that small entities currently engage or will engage in activities that harm listed species in contravention of the ESA, the cost of compliance with this rule will be high. However, it is probably more appropriate to describe the incremental effect of this rule in light of other applicable law, industry practices, and current NMFS ESA policy. Such analysis indicates that this regulation may pose some incremental cost for some small entities; however, it remains uncertain whether these costs constitute a significant economic impact on a substantial number of small entities.

The analysis will be largely limited to the adverse effects of small entities upon anadromous or migratory species, as such species seem to have the most potential to affect the activities of small entities. As noted elsewhere in this document, significant interactions between small entities and other listed species are either absent or unlikely.

Finally, due to the considerable uncertainty associated with identifying entities affected by this rule, a quantitative analysis is largely impracticable. It is extremely difficult to enumerate all the small entities affected by this rule and ascertain the economic effects a priori. Instead, this analysis will qualitatively examine representative small entities that may engage in activities falling under the list of "Activities that May Constitute a Take" contained in the final rule. Although admittedly not an exhaustive enumeration, a list of such representative entities can include those engaged in agriculture, timber harvesting, construction, mining, and the municipal provision of sewer and water services.

6.2 Qualitative Analysis of Economic Impacts

Agricultural concerns are most likely to be directly affected by this rule. Cultivating crops and raising livestock often disturb the soil, and thus increase the likelihood of habitat damage stemming from erosion, flooding, and stream siltation. Agricultural runoff may carry large concentrations of nutrients and pesticides into waterways. Diversion of water for irrigation may create physical barriers to migration, reduce stream flow, and entrain fish.

Farmers and ranchers, many of whom are small entities, may have to implement measures to mitigate possible adverse effects to habitat. Such measures may include establishing riparian buffers,

changing tilling practices, reducing the use of agricultural chemicals, or finding alternative sources of water. Although the cost of these measures can be considerable, some such as switching to contour tilling, incrementally reducing agricultural chemicals, and establishing small riparian buffers may come at minimal cost; however, such measures may reduce crop yields and therefore affect the profitability of small entities. Limiting the diversion of irrigation water may be more problematic; water is difficult and expensive to transport and alternative sources may even be unavailable. However, incidental take exceptions may mitigate this cost.

Forestry is also very likely to be affected by this rule. Indiscriminate forest practices, poorly constructed logging roads and culverts, and the removal of large woody debris can have adverse effects on habitat. Mitigation measures such as restricting the construction of logging roads and prohibiting clear cuts on steep grades may render the harvest of some tracts of forest land uneconomical to small entities. However, measures such as the use of riparian buffers, engineered erosion controls, and better road planning and construction may come at low additional cost and may adequately address these concerns. Furthermore, given that state and local law often restrict timber harvests and in and around waterways, employing control measures to limit erosion and siltation may have little additional cost.

The rule may limit residential or commercial construction in some sensitive areas. However, in light of the fact that alternative building sites and low cost erosion/runoff control measures during construction are often available, the impact of this rule is expected to be minimal on the small entities involved in this activity.

Although mining has the potential to adversely affect habitat, mining and mine waste point discharges are regulated by other statutes and most likely fall under section 7 consultations. Accordingly it is unlikely that this rule will have an affect on such activities. If necessary, runoff from mine activities may be mitigated through low cost engineering solutions such as retention ponds and erosion nets. Riparian buffers may also prove to be low cost solutions.

Like mining, municipal water, sewer and waste management concerns will most likely be addressed through section 7 consultations, and thus will not fall within the scope of this rule. Limitations on municipal water diversion however, may prove costly.

Nevertheless, incidental take exceptions are available on a case by case basis.

7. Description of Steps NMFS has Taken to Minimize the Economic Impact of the Rule on Small Entities

The ESA authorizes NMFS to exempt parties, including small entities, from its take prohibitions under certain circumstances. Under section 7 of the ESA, NMFS conducts consultations on proposed Federal actions and determines whether the proposed action is likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of its critical habitat. If the proposed action does not do so, or would not if specified reasonable and prudent alternatives were followed, NMFS may then issue a biological opinion and incidental take statement. The incidental take statement estimates the expected incidental take of a listed species resulting from the action and specifies those terms and conditions required to implement the reasonable and prudent measures necessary or appropriate to minimize this incidental take. If the proposed action is conducted in accordance with these terms and conditions, the incidental take is exempted from the ESA's take prohibitions.

Under section 10(a)(1)(B), NMFS may permit non-Federal parties to take a listed species if such a taking is incidental to, and not the purpose of, an otherwise legal activity. Prior to receiving an incidental take permit pursuant to 10(a)(1)(B), a non-Federal party must prepare a permit application and conservation plan. A conservation plan must contain a description of (1) the impact that will likely result from the taking; (2) what steps the applicant will take to minimize and mitigate to the maximum extent practicable, the impacts and how these steps will be funded; (3) what alternative actions to the take were considered and why they are not being utilized; and (4) any measures the Secretary of Commerce (Secretary) may require as being necessary or appropriate for the purposes of the plan (16 U.S.C. 1539(a)(2)(A)). If the Secretary finds that the applicant will minimize and mitigate to the maximum extent practicable the impacts of any incidental take, and will meet other requirements of section 1539(a)(2)(B), the Secretary may issue a permit, legally binding the applicant to the conservation measures set forth in the conservation plan. The conservation planning process can reduce conflicts between listed species and private development and to provide a framework that would encourage "creative partnerships" between the private sector and local, state, and Federal agencies in the interest of endangered and threatened species and habitat conservation. NMFS encourages the development of conservation plans and intends to

continue pursuing such agreements in the future with willing parties.

NMFS has considered two alternatives to this final rule through its NEPA process. The first alternative NMFS considered was maintaining the current policy of applying the FWS definition of harm (50 C.F.R. 17.3). NMFS also considered an alternative definition of "harm" that would exclude habitat modification as a form of "take" under the Endangered Species Act. While to an unknown degree either of these alternatives would likely have fewer economic impacts on small entities than the final rule, the final rule best accomplishes the purposes of the ESA to conserve listed species.

Alternative 1--Status Quo--Continuation of use of the definition as policy

NMFS currently interprets "harm" to mean modification of habitat in such a way to injure a listed species. This would include both intentional modification of habitat such as draining a pond in which listed species resided or unintentional activities such as construction of a bridge that silts a stream impairing the ability of fish to spawn.

NMFS would continue to determine "harm" as it currently does but not publish a final interpretive rule. The economic impacts on small entities of maintaining the status quo would be very similar to the final rule because both NMFS' policy and the definition published by the FWS define "harm" to include habitat modification (50 CFR §17.3).

The difference between this alternative and the final rule would be in notice and information to landowners and others who may engage in activities that may adversely affect listed species. A principle purpose of this rule is to provide clear notification to parties that habitat modification or degradation may harm listed species and, therefore, constitute a "take" in violation of Section 9 of the ESA. Such persons and entities would be less informed about the need for permits and guidance in conducting their activities in a manner to avoid harm to listed species. Less compliance in the initiation of activities that may harm listed species, is likely to result in increased need for enforcement activities. Enforcement activities are expensive for NMFS, and penalties in addition to requirements for compliance are more expensive for entities that could have complied had they known the effects their activities may have on listed species.

Alternative 2 - Define "Harm" without habitat modification

NMFS would issue a rule defining "harm" to include any act which actually kills or injures fish or wildlife without inclusion of habitat modification. This alternative would allow landowners and other entities to undertake activities with minimal consultation with NMFS to discern whether listed species could be injured or killed in the conduct of their activities. This alternative would probably reduce costs and economic impacts of compliance with the Endangered Species Act to some entities to an unknown extent.

However, this definition would be inconsistent with FWS, create confusion among the public and would adversely affect listed species by failing to protect the aspects of habitat on which they depend for survival and recovery, thus failing to meet the purposes of the ESA.

Alternative 3 (Preferred Alternative) - Define "Harm" for clarity and consistency among Federal agencies

This final rule further defines and clarifies the term "harm" to help resolve uncertainties regarding actions that may result in "take" of a listed species. NMFS' definition of harm includes "significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding or sheltering." This rulemaking codifies NMFS' position that habitat modification can result in a take under the ESA and clarifies that NMFS' interpretation of harm is consistent with that of FWS.

This rulemaking is not a change in existing law, but serves to help resolve uncertainties regarding actions that may result in "take" of a listed species, codify NMFS' position that habitat modification can result in a take under the ESA and clarify that NMFS' interpretation of harm is consistent with that of FWS, with minor modifications to include fish as well as wildlife.

Not all impacts to the habitat of listed species will result in significant impairment of the essential behavioral patterns of listed species. A causal link between the habitat modification and the injury to listed species must be demonstrated. The fact that only a percentage of activities will result in harm is a mitigating factor in the impact of this rule on small entities.

The implementation of this rule will benefit the species and environment in at least two ways: 1) it will clarify the definition of "harm" to persons whose actions may affect listed species and their designated critical habitats; 2) it will increase protection of listed species and critical habitat by making NMFS' definition of harm consistent with that of FWS, thus removing confusion and any resulting adverse affects to listed

species and the aspects of habitat on which they depend for survival and recovery, thus meeting the intent of the ESA.

Ultimately better notice to members of the public that engage in activities with the potential to injure or kill listed species through habitat modification, will result in better planning and better consultation with NMFS to avoid harm to listed species and the negative economic consequences of NMFS' enforcement activities.

8. References

NMFS. 1996. Factors for Decline: A Supplement to the Notice of Determination for West Coast Steelhead under the Endangered Species Act.

NMFS. 1998a. Factors Contributing to the Decline of Chinook Salmon: An Addendum to the 1996 West Coast Steelhead Factors for Decline Report.

NMFS. 1998b. Final Recovery Plan for the Shortnose Sturgeon: *Acipenser brevissporum*.

NMFS. 1999. Draft Environmental Assessment/Regulatory Impact Review for an Emergency Rule to Implement Reasonable and Prudent Steller Sea Lion Protection Measures in the Pollock Fisheries of the Bering Sea and Aleutian Islands Area and the Gulf of Alaska.