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Final Rulemaking to Establish Take Prohibitions for the Threatened Southern Distinct Population Segment of North American Green Sturgeon:

Final Regulatory Flexibility Analysis

Final Draft | May 2010

prepared for:

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FINAL REGULATORY FLEXIBILITY ANALYSIS

1. This analysis considers the extent to which the impacts resulting from the Final Rulemaking to Establish Take Prohibitions for the Threatened Southern Distinct Population Segment (DPS) of North American Green Sturgeon (green sturgeon) could be borne by small businesses and the energy industry. The analysis presented is conducted pursuant to the Regulatory Flexibility Act (RFA) as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996. Information for this analysis was gathered from the Small Business Administration (SBA), U.S. Census Bureau, and Dun & Bradstreet, Inc.

INTRODUCTION

2. First enacted in 1980, the RFA was designed to ensure that the government considers the potential for its regulations to unduly inhibit the ability of small entities to compete. The goals of the RFA include increasing the government's awareness of the impact of regulations on small entities and to encourage agencies to exercise flexibility to provide regulatory relief to small entities.

3. When a Federal agency proposes regulations, the RFA requires the agency to prepare and make available for public comment an analysis that describes the effect of the rule on small entities (i.e., small businesses, small organizations, and small government jurisdictions).[1] For this rulemaking, this analysis takes the form of a final regulatory flexibility analysis (FRFA). Under 5 U.S.C., Section 604(a) of the RFA, an FRFA is required to contain:

   i. A succinct statement of the need for, and objectives of, the rule;

   ii. A summary of the significant issues raised by the public comments in response to the initial regulatory flexibility analysis, a summary of the assessment of the agency of such issues, and a statement of any changes made in the final rule as a result of such comments;

   iii. A description of and an estimate of the number of small entities to which the rule will apply or an explanation of why no such estimate is available;

   iv. A description of the projected reporting, recordkeeping and other compliance requirements of the rule, including an estimate of the classes of small entities which will be subject to the requirement and the type of professional skills necessary for the preparation of the report or record; and

[1] 5 U.S.C. 601 et seq.

v. A description of the steps the agency has taken to minimize the significant economic impact on small entities consistent with the stated objectives of applicable statues, including a statement of the factual, policy, and legal reasons for selecting the alternative adopted in the final rule and why each one of the other significant alternatives to the rule considered by the agency which affect the impact on small entities was rejected..

REASONS WHY ACTION IS BEING CONSIDERED

4. NOAA's National Marine Fisheries Service (NMFS) listed the Southern DPS as a threatened species under the ESA on April 7, 2006. Several factors were identified as threats to the Southern DPS, including the loss of spawning habitat, concentration of spawning into a single spawning river (the Sacramento River in California), entrainment by water project operations, commercial and recreational fisheries harvest, and poor water quality conditions. Unless these threats are addressed, the Southern DPS may face further declines in population numbers and be at risk of extinction.

5. NMFS evaluated the status of the Southern DPS and existing efforts to protect the species to determine whether or not a 4(d) rule is necessary and advisable. NMFS concludes that the threatened Southern DPS of North American green sturgeon are at risk of extinction primarily because their populations have been reduced by human "take," through activities that include, but are not limited to:

   (1) commercial and recreational fisheries activities that directly target or incidentally catch Southern DPS fish;

   (2) tribal fisheries activities that directly target or incidentally catch Southern DPS fish;

   (3) poaching;

   (4) collecting or handling Southern DPS fish for activities such as research, monitoring, and emergency rescues;

   (5) habitat-altering activities that result in the elimination, obstruction or delay of passage of adult Southern DPS fish to and from spawning areas, or otherwise result in the inability of adult Southern DPS fish to migrate to and from spawning areas;

   (6) habitat-altering activities that result in the destruction, modification or curtailment of spawning or rearing habitat for egg, larval or juvenile stages;

   (7) habitat altering activities that result in the elimination, obstruction or delay of downstream passage of larval or juvenile stages of Southern DPS fish;

   (8) entrainment and impingement of any life stage of Southern DPS fish during the operation of water diversions, dredging or power generating projects;

(9) application of pesticides adjacent to or within waterways that contain any life stage of Southern DPS fish at levels that adversely affect the biological requirements of the Southern DPS;

(10) discharge or dumping of toxic chemicals or other pollutants into waters or areas that contain Southern DPS fish; and

(11) introducing or releasing non-native species likely to alter the Southern DPS' habitat or to compete with the Southern DPS for space or food.

6. NMFS has determined that additional regulations in a 4(d) rule are necessary and advisable to protect and conserve the Southern DPS. In this RIR, we describe and evaluate five alternative actions, or alternative 4(d) rules, including a no action alternative, a full action alternative (application of all ESA section 9 prohibitions), a full action alternative with exceptions, and two additional alternatives that would apply the take prohibitions to specific categories of activities, with and without exceptions.

NEED FOR AND OBJECTIVES OF, THE RULE

7. The ESA provides several means for the protection of threatened or endangered species. Section 7 of the ESA requires Federal agencies to consult with NMFS to ensure that any activity they authorize, fund, or carry out (called the "agency action") does not jeopardize the continued existence of an endangered or threatened species, or destroy or adversely modify its critical habitat. The protections under ESA section 7 are automatically adopted when a species is listed as endangered or threatened. Section 9 of the ESA prohibits any person subject to the jurisdiction of the United States from the following activities, with respect to endangered species:

- Import any such species into, or export any such species from the U.S.;
- Take any such species within the U.S. or the U.S. territorial sea;
- Take any such species upon the high seas;
- Possess, sell, deliver, carry, transport, or ship, by any means whatsoever, any such species taken in violation of (2) and (3) above;
- Deliver, receive, carry, transport, or ship in interstate or foreign commerce, by any means whatsoever and in the course of commercial activity, any such species;
- Sell or offer for sale in interstate or foreign commerce any such species; or
- Violate any regulation pertaining to such species or to any threatened species of fish or wildlife.

8. All of the ESA section 9 prohibitions automatically apply when a species is listed as endangered but not when listed as threatened. For threatened species, section 4(d) of the ESA authorizes the Secretary to establish protective regulations if the Secretary, on the advice of NMFS, determines that they are necessary and advisable for the conservation of the threatened species. The set of protective regulations is called a 4(d) rule and may

include any of the ESA section 9 regulations, or other regulations. NMFS determines what is necessary and advisable based on the biological status, conservation needs, and potential threats to the threatened species.

9. The primary purpose of a 4(d) rule is to govern take and provide for the conservation of the threatened species. To achieve this purpose, the 4(d) rule may include exceptions from the take prohibitions for activities that may cause take, but overall help conserve or protect the threatened species. Exceptions may also be included for activities where measures have been adopted to minimize take to an acceptable level. The 4(d) rule would specify the criteria that must be satisfied to qualify for an exception. These 4(d) rule "programs" would assure entities that their activities are consistent with ESA requirements and with the protection of the species.

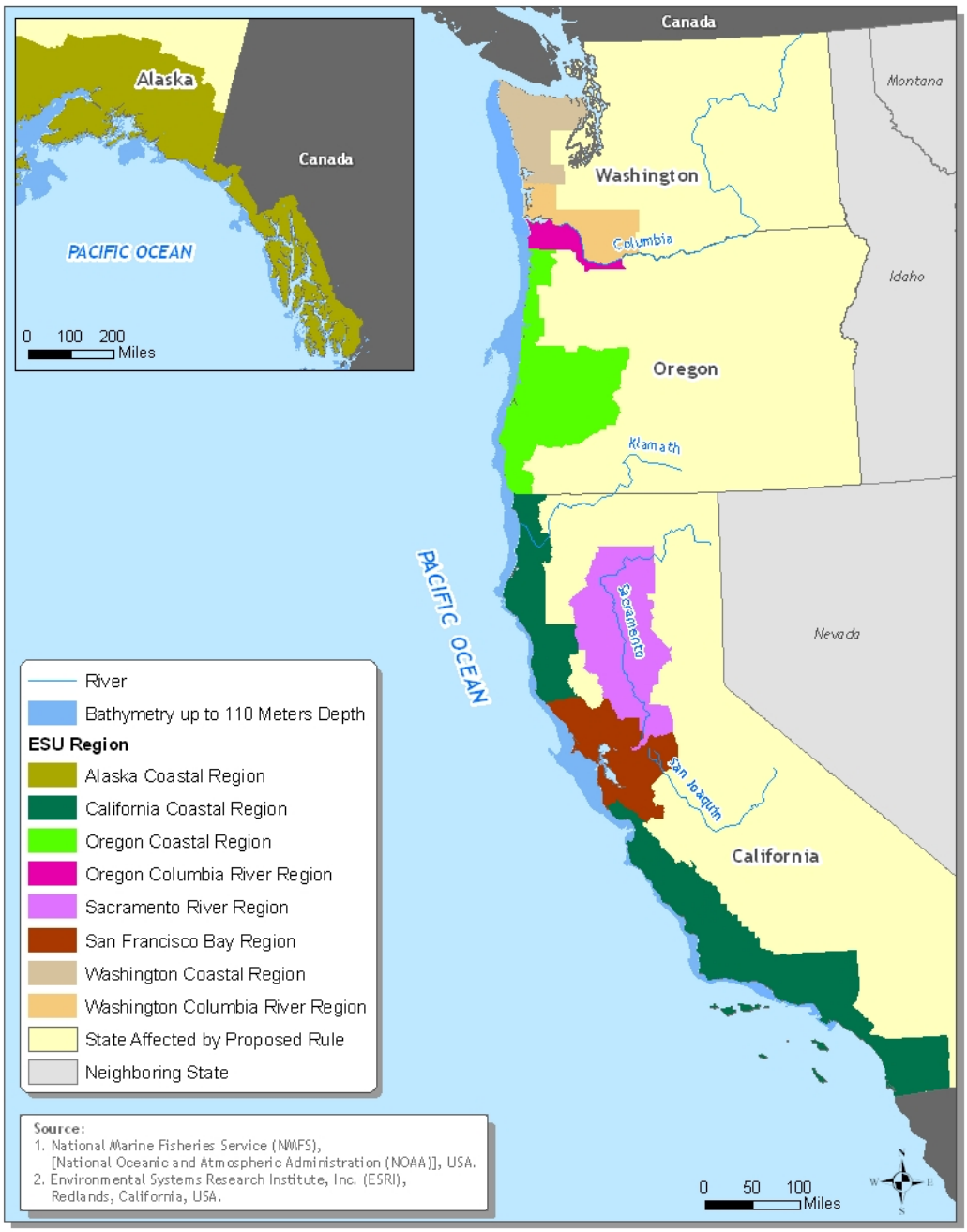
GEOGRAPHIC SCOPE OF THIS ANALYSIS

10. This FRFA analysis attempts to capture all small entities that could potentially be affected by the preferred action, i.e., any entities conducting economic activities that may change to accommodate green sturgeon due to the 4(d) rule. The alternatives would apply to freshwater river systems, coastal watersheds, bays, estuaries, and marine waters where Southern DPS fish are known to occur, including, but not limited to:

- The Sacramento River, lower Feather River, lower Yuba River, the Sacramento-San Joaquin Delta, San Francisco Bay, San Pablo Bay, Suisun Bay, and Humboldt Bay in California;
- Coastal bays, estuaries, and freshwater rivers in Oregon and Washington including: Coos Bay, Winchester Bay, Yaquina Bay, the lower Columbia River estuary, Willapa Bay, Grays Harbor, and Puget Sound; and
- Coastal waters within 110 meters depth from southern California (excluding the southern California Channel Islands) to Alaska, including the Strait of Juan de Fuca.

The study area defined for the purpose of this analysis is presented in Exhibit 1. Because the rule is not bound to geographic regions, the study area identifies areas where the Southern DPS have been known to occur to date. We solicit additional data and comments from the public regarding potential geographic areas where the section (4)d rule may have economic impacts.

EXHIBIT 1. REGIONS AFFECTED BY THE FINAL RULE



A SUMMARY OF THE SIGNIFICANT ISSUES RAISED BY THE PUBLIC COMMENTS IN RESPONSE TO THE INITIAL REGULATORY FLEXIBILITY ANALYSIS

The IRFA was made available to the public on May 21, 2009. No comments were received that pertained specifically to the IRFA or the draft economic analysis.

DESCRIPTION AND ESTIMATE OF THE NUMBER OF SMALL ENTITIES TO WHICH THE RULE APPLIES

DEFINITION OF A SMALL ENTITY

11. Three types of small entities are defined in the RFA:

    i. **Small Business.** Section 601(3) of the RFA defines a small business as having the same meaning as small business concern under section 3 of the Small Business Act. This includes any firm that is independently owned and operated and is not dominant in its field of operation. The U.S. Small Business Administration (SBA) has developed size standards to carry out the purposes of the Small Business Act, and those size standards can be found in 13 CFR 121.201. The size standards are matched to North American Industry Classification System (NAICS) industries. The SBA definition of a small business applies to a firm's parent company and all affiliates as a single entity.

    ii. **Small Governmental Jurisdiction.** Section 601(5) defines small governmental jurisdictions as governments of cities, counties, towns, townships, villages, school districts, or special districts with a population of less than 50,000. Special districts may include those servicing irrigation, ports, parks and recreation, sanitation, drainage, soil and water conservation, road assessment, etc. Most tribal governments will also meet this standard. When counties have populations greater than 50,000, those municipalities of fewer than 50,000 can be identified using population reports. Other types of small government entities are not as easily identified under this standard, as they are not typically classified by population.

    iii. **Small Organization.** Section 601(4) defines a small organization as any not-for-profit enterprise that is independently owned and operated and not dominant in its field. Small organizations may include private hospitals, educational institutions, irrigation districts, public utilities, agricultural co-ops, etc. Depending upon state laws, it may be difficult to distinguish whether a small entity is a government or non-profit entity. For example, a water supply entity may be a cooperative owned by its members in one case and in another a publicly chartered small government with the assets owned publicly and officers elected at the same elections as other public officials.

DESCRIPTION OF SMALL ENTITIES TO WHICH THE RULE WILL APPLY

12. Any small entity that causes the take of green sturgeon has the potential to be affected by the 4(d) rule. Based on the language of the rule, as well as a review of existing section 7 consultations for the green sturgeon and co-existing salmon and steelhead species, this

analysis identifies 13 major economic activities expected to include small entities that may be affected by the rule.

13. The following paragraphs describe how entities in potentially affected industries may change their activities in response to the 4(d) rule for the green sturgeon. A great deal of uncertainty exists with regard to how potentially regulated entities will attempt to avoid take for green sturgeon. This is caused by two factors: relatively little data exist on green sturgeon abundance and behavior, and NMFS has a short history of managing for green sturgeon. In addition, the habitat for green sturgeon overlaps nearly entirely with habitat for salmon and steelhead species. Several key variables, such as whether current fish passage facilities and fish screens designed to protect salmon species will be considered adequate to provide passage for green sturgeon over the long term remain undetermined at this time. Thus, while a great deal of baseline protections are expected to be afforded to green sturgeon on behalf of salmon and steelhead species, the degree to which incremental measures will be required for green sturgeon has not been determined. As such, this analysis does not provide estimates of total costs of conservation measures likely to be undertaken for green sturgeon. Instead, the analysis characterizes potential impacts on affected industries.

Commercial, Recreational, and Tribal fisheries

14. Impacts on the fishing industries in affected states will depend on the particular responses by managing agencies, but could include the following, given the additional measures described in the Rule:

- Loss of fishing days/value of catch due to fishing area closures, or altering the length of fishing seasons. Depending on the extent and duration of closures, impacts could vary from zero to a large proportional value of these fisheries. Fishing closures are anticipated to result in the largest economic impacts on the fishing industry of potential impacts.
- Gear modifications/restrictions. Specific gear modifications that could be required to avoid green sturgeon bycatch have not been identified at this time.
- Costs of expanding NOAA's Observer Program to include observers on additional vessels and or during additional periods.
- Administrative costs to modify FMEPS to include green sturgeon.

To the extent that incremental fisheries closures are undertaken for green sturgeon or gear modifications or restrictions are required, green sturgeon take prohibitions could affect commercial and recreational fishing efforts. However, the degree to which closures may be implemented are unknown at this time for any alternative.

Dams and water diversions

15. Water supply activities include both construction/improvement of water supply infrastructure for agricultural and municipal/industrial uses along with issues related to the operation, or flow regime, of water diversions. Dam owners and operators may undertake capital, programmatic, and/or operational changes to existing projects in order

for projects to comply with take prohibitions. These changes may occur in response to section 7 consultations, section 10 Habitat Conservation Plans, or outside of these permits. The primary conservation efforts likely to be undertaken to avoid take of green sturgeon appear to be the installation of fish screens and the construction of fish passage facilities to accommodate green sturgeon. The rule would not prohibit take for diversions with screens that meet salmon/steelhead criteria. Given the large amount of overlap in habitat areas with salmon species, incremental effects of the sturgeon rulemaking may be minimal related to fish screens. It is also possible that some level of changes to the operations of dams could be required to reduce entrainment or impingement, or to reduce impacts on spawning habitat.

Power Production (Electric Services and Gas Distribution)

16. The 4(d) rule states that conservation efforts to protect green sturgeon at power producing facilities could include: altering the timing of day when water intake pumps are operated, altering the velocity of water intake; and use of alternative cooling systems that do not require water intake. According to NMFS, the potential placement of tidal- and wave-energy generation equipment in the water column may also obstruct the passage of fish including green sturgeon. However, there are no active generating wave or tidal energy projects located within the study area. Because tidal and wave energy projects in green sturgeon areas on the West Coast are in the preliminary stages of development, NMFS has yet to make specific recommendations about project modifications that may be required to mitigate potential adverse impacts on green sturgeon or its habitat.

17. Liquefied natural gas (LNG) projects may pose a potential threat to green sturgeon in coastal marine areas. According to NMFS, LNG projects represent a potential threat to water quality in the event of leaks, spills, or pipeline breakage. No LNG projects have yet been constructed within the study area. As with tidal- and wave-energy projects, NMFS has yet to make specific recommendations about any project modifications that might be required to mitigate potential adverse impacts on green sturgeon or its habitat because the proposed LNG projects are still in the preliminary stages.

Crop Agriculture and Point Source Polluters (NPDES-permitted activities)

18. Point source polluters discharge toxins into rivers and harbors, usually regulated by EPA via NPDES permits. Nonetheless, such activities may harm green sturgeon. Crop agriculture frequently use pesticides and herbicides, which can also threaten green sturgeon.

19. The Preferred Action states that, “the national standards for use of pesticides and toxic substances may not be conservative enough to adequately protect the Southern DPS as was found for listed salmonids in recent draft and final jeopardy biological opinions issued by NMFS to the U.S. Environmental Protection Agency. Thus, voluntary programs established to aid agricultural producers in meeting NMFS-imposed water quality standards may be required to minimize adverse impacts on the Southern DPS.” It is unclear to what extent current standards might be considered inadequate, and it is possible that monitoring or voluntary compliance with EPA standards may suffice to avoid take of green sturgeon for these activities. Listed salmon and steelhead species are

found in all units where agricultural pesticide application is a threat to green sturgeon habitat. Thus, to the extent that this rule is being followed within salmon and steelhead critical habitat, it appears likely that salmon restrictions under the recent litigation could provide adequate protections for green sturgeon.

Habitat-altering activities for which increased sediment load is the primary concern

20. The Rule states that, in spawning and rearing areas, habitat-altering activities that lead to increased sediment loads to rivers and streams may threaten green sturgeon. The Full Action Alternative would prohibit take by these activities throughout the range of the green sturgeon. In all cases, there appears to be a large overlap with salmon and steelhead requirements for these activities. Thus, the incremental impact of the green sturgeon rulemaking is uncertain.

- **Sand and Gravel Mining.** Gravel mining activities that affect green sturgeon are anticipated to include the removal of gravel for industrial purposes, such as for road construction material, concrete aggregate, fill, and landscaping. It is possible that sand and gravel mining activities could be restricted in riparian areas to accommodate green sturgeon. This analysis does not anticipate that this impact will result in a reduction in the overall market supply of gravel to the impacted regions.
- **Livestock Grazing.** Changes to livestock grazing activities and forestry activities in sturgeon habitat may include fencing riparian areas, placing salt or mineral supplements to draw cattle away from rivers, total rest of grazing allotments when possible, and frequent monitoring.
- **Road and bridge construction, reconstruction, and maintenance/Forestry and Logging.** Transportation projects that affect green sturgeon may include the widening of a road, the reconstruction of a bridge, or the restoration of a ferry terminal. Forestry activities appear most likely to be restricted during the process of building or using roads in the course of timber production. Project modifications likely to be recommended by NMFS include modifying activities to avoid both direct and indirect take of green sturgeon. The cost of project modifications will likely be borne by, or passed on to, the Federal government (e.g., Federal Highways or USFS), which accordingly will ultimately bear the majority of the costs. Therefore, small entities are less likely to be impacted by this activity.
- **Residential and commercial development.** The 4(d) rule for the green sturgeon appears unlikely to significantly increase costs to developers, reduce revenues, impose mitigation costs, or result in project delays. In salmon and steelhead consultations, the most common nexus for residential and related development is a Federal permit for stormwater outfall construction/expansion by USACE. Typical project modifications associated with stormwater outfall projects include implementing state recommended stormwater plans, activities to reduce

stormwater volume and/or pollutants, minimizing hardscape of the outfall structure, and vegetation replacement.

In-water Construction and Dredging Activities

21. Actions associated with in-stream activities that could impact the green sturgeon include dredging, construction or repair of breakwaters, docks, piers, pilings, bulkheads, boat ramp, and docks. This sector would also include construction of liquefied natural gas terminals, however these have not been constructed to date in the study area. Economic impacts result from direct project costs associated with restrictions on the duration and extent of in-water work, erosion and sediment control measures, heavy equipment restrictions, and efforts to minimize take.

22. Based on an examination of the North American Industry Classification System (NAICS) activities, this economic analysis classifies the 11 potentially affected economic activities into 19 industry sectors. Special attention was paid to identifying small businesses expected to face more significant impacts than other industry sectors as a result of the rule. Exhibit 2 presents a list of the major relevant activities and descriptions of the industry sectors involved in those activities, including NAICS codes, and the SBA thresholds for determining whether a firm is small.

Desalination Plants

23. According to NMFS, desalination plants may pose a threat to green sturgeon critical habitat through the discharge of hypersaline effluent that may affect water quality. To the extent that these facilities are owned or operated by small governments, these would be considered to be impacts to small entities. However, the available consultation data upon which we based our analysis do not indicate that NMFS or the Fish and Wildlife Service has consulted on past desalination projects regarding impacts on listed marine species. Further, existing desalination plants do not appear to have implemented measures to manage the discharge of hypersaline effluent for human protection or otherwise, to date. Discharges from desalination plants are subject to Clean Water Act requirements, but because there is no past consultation history, it is not clear whether CWA requirements adequately address hypersaline effluent in marine waters for green sturgeon.

Aquaculture

24. According to NMFS, application of pesticides at aquaculture farms and the subsequent runoff has the potential to impact green sturgeon habitat by affecting water and sediment quality. Aquaculture operations are subject to a variety of federal and state water quality standards, affording green sturgeon and its habitat a level of baseline protection. In addition, many of the proposed units are considered to contain essential fish habitat (EFH) for salmon as well as a variety of other fish species. However, with the exception of Humboldt Bay, NMFS has yet to recommend project modifications for aquaculture facilities.

25. Humboldt Bay's primary aquaculture operation, Coast Seafoods, underwent section 7 consultation in November 2005. The consultation considered the effects of the project on Southern Oregon/Northern California Coast coho salmon, Northern California steelhead,

and California Coastal Chinook salmon. As a result of this consultation, Coast Seafoods undertook a variety of conservation measures including agreeing not to "discharge feed, pesticides, or chemicals (including hormones and antibiotics) into marine waters."[2]

Commercial Shipping Activity

26. According to the U.S. Coast Guard, ballast water discharged from commercial ships is one of the largest pathways for the introduction and spread of aquatic nuisance species.[3] According to NMFS, the release of ballast water and associated impacts on water quality (and the potential introduction of non-native species), are considered to be a potential threat to green sturgeon. Because the threats appear to stem primarily from large commercial vessels operating internationally, the majority of any potential impacts related to green sturgeon would not be expected to be borne by small entities.

[2] National Marine Fisheries Service, Section 7 Consultation on Coast Seafoods Project, November 2005.

[3] U.S. Coast Guard, Ballast Water Management Program, accessed at http://www.uscg.mil/hq/g-m/mso/bwm.htm on April 11, 2008.

EXHIBIT 2. MAJOR RELEVANT ACTIVITIES AND A DESCRIPTION OF THE INDUSTRY SECTORS ENGAGED IN THOSE ACTIVITIES

MAJOR RELEVANT ACTIVITY	DESCRIPTION OF INCLUDED INDUSTRY SECTORS	NAICS CODE	SBA SIZE STANDARD
Commercial, Recreational, & Tribal Fisheries	Fishing, Hunting and Trapping Industries in this sector harvest fish and other wild animals from their natural habitats and are dependent upon a continued supply of the natural resource. The harvesting of fish is the predominant economic activity of this sector and it usually requires specialized vessels that, by the nature of their size, configuration and equipment, are not suitable for any other type of production, such as transportation.	114	$4 million average annual receipts
Water Management	Water Supply and Irrigation Systems This industry comprises establishments primarily engaged in operating water treatment plants and/or operating water supply systems. The water supply annual receipts system may include pumping stations, aqueducts, and/or distribution mains. The water may be used for drinking, irrigation, or other uses. This sector includes desalination plant operations.	221310	$6.5 million average annual receipts
Electric Services & Gas Distribution	Electric Power Generation, Transmission and Distribution This industry group comprises establishments primarily engaged in generating, transmitting, and/or distributing electric power. Establishments in this industry group may perform one or more of the following activities: (1) operate generation facilities that produce electric energy; (2) operate transmission systems that convey the electricity from the generation facility to the distribution system; and (3) operate distribution systems that convey electric power received from the generation facility or the transmission system to the final consumer. This industry sector includes hydropower, tidal and wave energy producers in addition to producers that utilize fossil fuels.	221111 221112 221113 221119 221121 221122	4 million megawatts for the preceding year[1]
	Natural Gas Distribution This industry comprises: (1) establishments primarily engaged in operating gas distribution systems (e.g., mains, meters); (2) establishments known as gas marketers that buy gas from the well and sell it to a distribution system; (3) establishments known as gas brokers or agents that arrange the sale of gas over gas distribution systems operated by others; and (4) establishments primarily engaged in transmitting and distributing gas to final consumers.	221210	500 employees
	Natural Gas Liquid Extraction This U.S. industry comprises establishments primarily engaged in the recovery of liquid hydrocarbons from oil and gas field gases. Establishments primarily engaged in sulfur recovery from natural gas are included in this industry.	211112	500 employees

MAJOR RELEVANT ACTIVITY	DESCRIPTION OF INCLUDED INDUSTRY SECTORS	NAICS CODE	SBA SIZE STANDARD
Sand & Gravel Mining	Construction Sand and Gravel Mining This industry comprises establishments primarily engaged in one or more of the following: (1) operating commercial grade (i.e., construction) sand and gravel pits; (2) dredging for commercial grade sand and gravel; and (3) washing, screening, or otherwise preparing commercial grade sand and gravel.	212321	500 employees
Crop Agriculture	Crop Production (Oilseed and Grain Farming, Vegetable and Melon Farming, Fruit and Tree Nut Farming) This industry group comprises establishments primarily engaged in 1) growing oilseed and/or grain crops and/or producing oilseed and grain seeds; 2) growing root and tuber crops (except sugar beets and peanuts) or edible plants and/or producing root and tuber or edible plant seeds; or 3) growing fruit and/or tree nut crops.	1111 1112 1113	$750,000 average annual receipts
Forestry & Logging	Forestry and Logging Industries in the Forestry and Logging sector grow and harvest timber on a long production cycle (i.e., of 10 years or more).	113	$6.5 million average annual receipts
Livestock Grazing	Beef Cattle Ranching and Farming This industry comprises establishments annual receipts primarily engaged in raising cattle (including cattle for dairy herd replacements)	112111	$750,000 average annual receipts
Road and Bridge Construction & Maintenance	Highway, Street and Bridge Construction This industry comprises establishments primarily engaged in the construction of highways (including elevated), streets, roads, airport runways, public sidewalks, or bridges. The work performed may include new work, reconstruction, rehabilitation, and repairs.	237310	$31 million average annual receipts
Residential & Commercial Development	Land Subdivision This industry comprises establishments primarily engaged in servicing land and subdividing real property into lots, for subsequent sale to builders. Servicing of land may include excavation work for the installation of roads and utility lines. Land subdivision precedes building activity and the subsequent building is often residential, but may also be commercial tracts and industrial parks.	237210	$6.5 million average annual receipts
In-water Construction & Dredging	Water and Sewer Line and Related Structures Construction This industry comprises establishments primarily engaged in the construction of water and sewer lines, mains, pumping stations, treatment plants and storage tanks. This sector includes desalination plant construction activities.	237110	$31 million average annual receipts
	Oil and Gas Pipeline and Related Structures Construction This industry comprises establishments primarily engaged in the construction of oil and gas lines, mains, refineries, and storage tanks.	237120	

MAJOR RELEVANT ACTIVITY	DESCRIPTION OF INCLUDED INDUSTRY SECTORS	NAICS CODE	SBA SIZE STANDARD
	Power and Communication Line and Related Structures Construction This industry comprises establishments primarily engaged in the construction of power lines and towers, power plants, and radio, television, and telecommunications transmitting/receiving towers. This sector includes alternative energy (e.g., geothermal, ocean wave, solar, wind) structure construction.	237130	
	Other Heavy and Civil Engineering Construction This industry comprises establishments primarily engaged in heavy and engineering construction projects (excluding highway, street, bridge, and distribution line construction).	237990	
	Marinas This industry comprises establishments engaged in operating docking and/or storage facilities for pleasure craft owners, with or without one or more related activities, such as retailing fuel and marine supplies; and repairing, maintaining, or renting pleasure boats.	713930	$6.5 million average annual receipts
Point Source Pollution	Food Manufacturing Industries in this sector transform livestock and agricultural products into products for intermediate or final consumption. The industry groups are distinguished by the raw materials (generally of animal or vegetable origin) processed into food products.	311	500 employees
	Wood Product Manufacturing Industries in this sector manufacture wood products, such as lumber, plywood, veneers, wood containers, wood flooring, wood trusses, manufactured homes (i.e., mobile home), and prefabricated wood buildings.	321	500 employees
	Paper and Pulp Mills This industry comprises establishments primarily engaged in manufacturing paper and/or pulp.	322	750 employees
	Sewage Treatment Facilities This industry comprises establishments primarily engaged in operating sewer systems or sewage treatment facilities that collect, treat, and dispose of waste.	221320	$6.5 million average annual receipts
Aquaculture[2]	Finfish Farming and Fish Hatcheries This U.S. industry comprises establishments primarily engaged in (1) farm raising finfish (e.g., catfish, trout, goldfish, tropical fish, minnows) and/or (2) hatching fish of any kind.	112511	$0.75 million average annual receipts
	Shellfish Farming This U.S. industry comprises establishments primarily engaged in farm raising shellfish (e.g., crayfish, shrimp, oysters, clams, mollusks).	**112512**	$0.75 million average annual receipts

MAJOR RELEVANT ACTIVITY	DESCRIPTION OF INCLUDED INDUSTRY SECTORS	NAICS CODE	SBA SIZE STANDARD

Note:
(1) All entities in the Electric Services Sectors are assumed to be small entities. Consequently, the number for small entities in these sectors represent an upper bound estimate. The number of small entities in the hydroelectric power generation and electrical services industries is unknown because of the unavailability of data related to small business thresholds. For both of these industry sectors the SBA defines a firm as "small" if, including its affiliates, it is primarily engaged in the generation, transmission, and/or distribution of electric energy for sale, and its total electric output for the preceding fiscal year did not exceed 4 million megawatt hours. It was not possible to locate a source that provides this information for all regulated entities within these sectors.

ESTIMATE OF THE NUMBER OF SMALL ENTITIES TO WHICH THE RULE WILL APPLY

Approach for Estimating the Number of Small Entities

27. As shown in Exhibit 1, the area where green sturgeon may be found, and hence the action area for this rule, spans from southern California to Alaska. NMFS identified watershed units defined by the U.S. Geological Service as "hydrologic units" that most closely overlap the study areas for the rule.[4] Exhibit 3 shows the distribution of the hydrologic units which define the extent of the study area of this FRFA. Although the affected areas include the bathymetry up to 110m depth off the coast, the small business analysis can only be conducted for land based areas. The study areas as defined by the hydrologic units are wholly contained within the regions mapped in Exhibit 2.

28. Ideally, this analysis would directly identify the number of small entities that are located within hydrologic units that fall within the action area for the rule. However, it is not possible to directly determine the number of firms in each industry sector within the hydrologic units because business activity data is maintained at the county level. Therefore, this analysis first identified small entities in counties that overlap with the hydrologic units within the action area, then estimated the number of small entities within the study area using the following method:

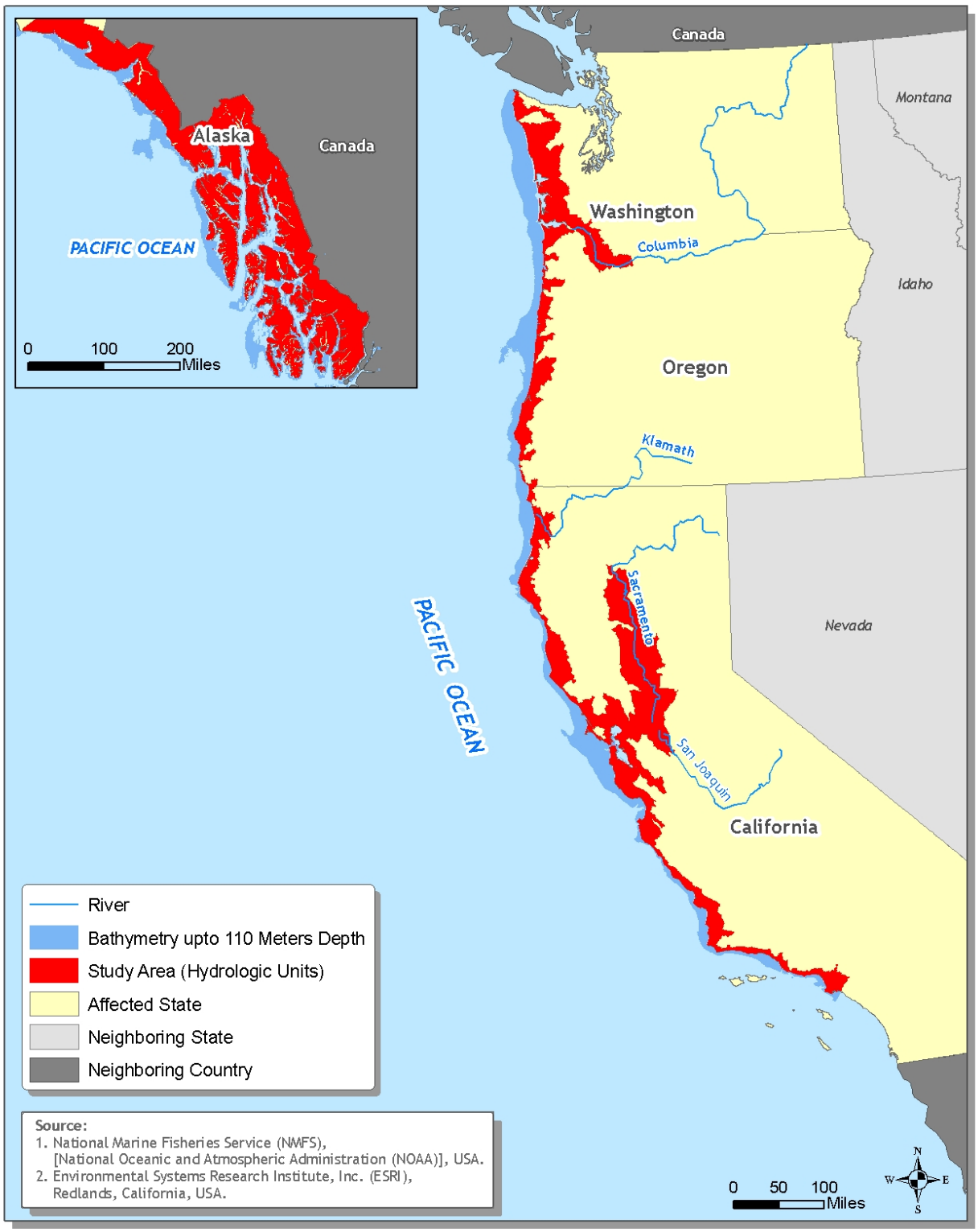
- In order to estimate the number of county businesses located within the study area for the final rule, this analysis assumes that business locations are distributed geographically in the same way that population is distributed. That is, more densely populated areas will contain proportionally more businesses than less populated areas.
- The number of people residing in the hydrologic units was estimated by summing up the population of all census blocks that are contained within the hydrologic unit.[5, 6]
- The ratio of the population within the study area to the total population of the county is used to estimate the proportion of total and small business entities that may be affected by the rule. Thus, this analysis uses population distribution as a proxy for the distribution of small entities in a county.

[4] Each hydrologic unit is identified by a unique hydrologic unit code (HUC) consisting of two to twelve digits based on the six levels of classification in the hydrologic unit system. NMFS determined the smallest practical hydrologic unit to analyze is that designated by a fifth field code (referred to as a fifth field HUC or HUC5).

[5] 2000 Census of Population and Housing.

[6] In case of partial containment of a census block, the ratio of the contained and total area of the block was used to estimate the block population residing within the hydrologic unit. The population that resides within each county included in the study area is generated by summing up the population estimates across all hydrologic units that the county intersects with.

EXHIBIT 3. WATERSHEDS WHERE SOUTHERN DPS FISH ARE LIKELY TO OCCUR[7]



[7] This study area was used as the basis for allocating the number of affected entities in each county to the region likely to be affected by the green sturgeon.

Evaluation of Alternatives

29. In accordance with the requirements of the RFA (as amended by SBREFA, 1996) this analysis considered the impacts of the rule for five alternatives considered by NMFS for this rule. A detailed discussion of the Alternatives is presented in the Comparison of Alternatives section of this analysis. After consideration of all the alternatives, NMFS has selected Alternative B as the Preferred Alternative because it was determined to provide a high degree of protection for Southern DPS green sturgeon while avoiding significant adverse effects and promoting coordination between NMFS and some of the affected entities. Thus, the following section presents the impacts to small entities for the Alternative B.[8]

30. The list of counties, industry sectors (identified by NAICS codes), and the SBA-specified small business size thresholds (Exhibit 2) was used to search the D&B Duns Market Identifiers (File 516) database.[9] The File 516 database is produced by Dun & Bradstreet, Inc. and contains for every county basic company data on U.S. business establishment locations, including public, private, and government organizations. The database search identified within each county the total number of entities and the number of small entities for each industry sector that may be affected by the rule.

31. An estimate of the total number of small entities that could be potentially affected by the rule is summarized in Exhibits 4 and 5. As identified in Exhibit 4, small businesses in 53 counties may be affected by this rule. The state of California includes 28 of these counties. More importantly, of the 10,626 small business identified as potentially affected by this rule, 10,088 (i.e., almost 95 percent) of the businesses are located in California. Thus, almost all the impact is expected to be concentrated in California. Los Angeles County in California has the maximum number (2,515) of affected businesses. Alameda and Sacramento are other counties with over 600 affected small businesses.

32. Exhibit 5 aggregates the results for regions that NMFS identified for purposes of analyzing the impacts of this rule. The San Francisco Bay and California Coastal Regions, being the most densely populated regions in the study area, include 38 and 39 percent of the affected entities, respectively. The Sacramento River Region includes about 18 percent of the total 10,626 small businesses that may be affected by this rule. The rest of the regions (Alaska Coastal, Washington Coastal, Washington Columbia River, Oregon Columbia River, and Oregon Coastal Regions) include only five percent of the small businesses that may be affected by the rule.

33. Exhibits 6 and 7 provide detailed estimates of the number of potentially affected firms by industry sector for each county, and region, respectively.[10] Exhibit 7 summarizes the

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[8] The five Alternatives are compared later in the Comparison of Alternatives section of this analysis.

[9] NAICS codes can be accessed from the US Census Bureau website: http://www.census.gov/epcd/www/naics.html. Last accessed on November 6, 2007.

[10] Dun & Bradstreet data does not identify any hydroelectric power generation firms for the counties included in this analysis. Hydroelectric power suppliers are included under Electric Services and Gas Distribution.

results of this analysis at the regional level for each industry sector that was identified as potentially affected by this rule. Point source polluters (those receiving National Pollutant Discharge Elimination System (NPDES) permits) represent the largest number (3,137) of the potentially affected small entities. This group includes the manufacturing sector (e.g., food processing units, paper and pulp mills or sewage treatment plants). A large number of small businesses involved in crop agriculture are also expected to be affected by the rule, partially due to the risk of pesticides that may drain from crop lands into waters where green sturgeon are found. Thus, water quality concerns are expected to be the reason that a majority (52 percent) of the small entities will be affected. As identified in the rule, States and the Environmental Protection Agency (EPA) have already established acceptable levels of contaminants in waterways. Entities are already required to obtain the National Pollutant Discharge Elimination System (NPDES) permits to discharge contaminants. In cases where NPDES permits are not required, the rule only recommends monitoring and voluntary compliance with the clean water standards set by EPA and the States—thus, no additional burden will be placed on entities in regards to water pollution activities, because of this rule. Therefore, although water pollution concerns led to the identification of the largest number of potentially affected entities, the additional impact to these entities due to the rule is minimal or non-existent.

34. Apart from water pollution, the potential for small businesses engaged in residential and commercial development, and in-water construction and dredging activities to be affected by this rule is the highest, with 2,400 and 825 small entities, respectively, identified within the study area for these two activity types. Because the impact to entities involved in sand and gravel mining, grazing and ranching, forestry and logging, road and bridge construction, and residential and commercial development is limited to the San Francisco Bay and Sacramento River regions, the number of entities identified in these sectors is relatively smaller.

EXHIBIT 4. ESTIMATED NUMBER OF REGULATED ENTITIES BY COUNTY

REGION	STATE	COUNTY	COUNTY POPULATION	POPULATION WITHIN STUDY AREA	% COUNTY POPULATION WITHIN STUDY AREA	REGULATED ENTITIES IN COUNTY	REGULATED SMALL ENTITIES IN COUNTY	REGULATED ENTITIES IN STUDY AREA	REGULATED SMALL ENTITIES IN STUDY AREA
Alaska Coastal Region	Alaska	Haines	2,428	2,192	90.3%	9	9	9	9
		Juneau	31,207	30,501	97.7%	1	1	1	1
		Ketchikan Gateway	13,793	12,106	87.8%	29	27	29	27
		Prince of Wales-Outer Ketchikan	6,052	4,988	82.4%	0	0	0	0
		Sitka	8,789	7,378	83.9%	0	0	0	0
		Skagway-Hoonah-Angoon	3,458	3,287	95.1%	0	0	0	0
		Wrangell-Petersburg	6,686	5,763	86.2%	36	31	33	29
		Yakutat	803	784	97.6%	0	0	0	0
Washington Coastal Region	Washington	Clallam	66,290	-	0.0%	140	134	0	0
		Grays Harbor	68,006	48,673	71.6%	184	174	138	130
		Jefferson	27,268	1	0.0%	58	55	10	10
Washington Columbia River Region	Washington	Clark	374,076	-	0.0%	341	307	0	0
		Cowlitz	94,838	-	0.0%	148	130	0	0
		Pacific	20,975	19,172	91.4%	75	70	73	68
		Skamania	10,167	-	0.0%	20	20	0	0
		Wahkiakum	3,869	2,252	58.2%	26	26	17	17
Oregon Columbia River Region	Oregon	Clatsop	35,762	33,976	95.0%	76	64	75	64
		Columbia	45,434	396	0.9%	122	114	11	11
		Multnomah	675,545	-	0.0%	592	510	0	0
Oregon Coastal Region	Oregon	Coos	62,461	41,435	66.3%	187	176	128	121
		Curry	21,477	1	0.0%	77	73	10	10
		Douglas	101,397	5,444	5.4%	278	268	20	20
		Lane	329,954	2,056	0.6%	508	469	12	11
		Lincoln	44,537	-	0.0%	102	94	0	0
		Tillamook	24,641	895	3.6%	90	86	10	10

REGION	STATE	COUNTY	COUNTY POPULATION	POPULATION WITHIN STUDY AREA	% COUNTY POPULATION WITHIN STUDY AREA	REGULATED ENTITIES IN COUNTY	REGULATED SMALL ENTITIES IN COUNTY	REGULATED ENTITIES IN STUDY AREA	REGULATED SMALL ENTITIES IN STUDY AREA
Sacramento River Region	California	Butte	210,072	151,127	71.9%	452	409	331	298
		Colusa	19,632	18,497	94.2%	153	133	147	128
		Glenn	26,852	14,760	55.0%	183	172	104	98
		Sacramento	1,311,915	1,228,520	93.6%	707	638	666	600
		Shasta	171,170	125,961	73.6%	237	221	180	168
		Sutter	83,047	82,741	99.6%	287	250	287	250
		Tehama	57,825	52,590	90.9%	172	152	161	142
		Yolo	182,025	180,630	99.2%	247	205	247	205
		Yuba	61,455	43,287	70.4%	108	95	80	71
San Francisco Bay Region	California	Alameda	1,504,099	1,320,779	87.8%	890	772	786	683
		Contra Costa	1,004,109	775,478	77.2%	618	556	481	434
		Marin	250,384	244,213	97.5%	247	226	244	223
		Napa	130,384	126,263	96.8%	373	334	364	326
		San Francisco	790,796	790,303	99.9%	533	486	533	486
		San Joaquin	615,261	227,841	37.0%	825	692	310	260
		San Mateo	719,179	718,804	99.9%	443	398	443	398
		Santa Clara	1,725,207	1,234,035	71.5%	1219	1,127	876	812
		Solano	416,892	401,251	96.2%	237	198	231	194
		Sonoma	479,807	157,818	32.9%	718	650	241	217
California Coastal Region	California	Del Norte	27,638	24,725	89.5%	24	20	23	20
		Humboldt	127,438	109,374	85.8%	221	209	194	183
		Los Angeles	9,873,548	5,248,929	53.2%	5,262	4,720	2,802	2,515
		Mendocino	88,345	31,017	35.1%	225	206	84	78
		Monterey	419,850	263,103	62.7%	443	340	281	217
		San Luis Obispo	258,203	169,608	65.7%	414	378	277	253
		Santa Barbara	408,558	383,575	93.9%	386	337	366	321
		Santa Cruz	261,552	260,040	99.4%	314	264	314	264
		Ventura	794,662	323,530	40.7%	666	588	276	244
Total			**24,099,818**	**14,930,099**	**62.0%**	**19,703**	**17,614**	**11,905**	**10,626**

EXHIBIT 5. ESTIMATED NUMBER OF REGULATED ENTITIES BY REGION

REGION	STUDY AREA SIZE (SQ MILES)	TOTAL REGIONAL POPULATION	POPULATION WITHIN STUDY AREA	% COUNTY POPULATION WITHIN STUDY AREA	REGULATED ENTITIES IN REGION	REGULATED SMALL ENTITIES IN REGION	REGULATED ENTITIES IN STUDY AREA	REGULATED SMALL ENTITIES IN STUDY AREA
Alaska Coastal Region	37,438	73,216	66,999	91.5%	75	68	72	66
Washington Coastal Region	1,146	161,564	48,674	30.1%	382	363	148	140
Washington Columbia River Region	977	503,925	21,424	4.3%	610	553	90	85
Oregon Columbia River Region	501	756,741	34,372	4.5%	790	688	86	75
Oregon Coastal Region	840	584,467	49,831	8.5%	1,242	1,166	180	172
Sacramento River Region	5,649	2,123,993	1,898,113	89.4%	2,546	2,275	2,203	1,960
San Francisco Bay Region	4,648	7,636,118	5,996,785	78.5%	6,103	5,439	4,509	4,033
California Coastal Region	7,342	12,259,794	6,813,901	55.6%	7,955	7,062	4,617	4,095
Total	**58,542**	**24,099,818**	**14,930,099**	**62.0%**	**19,703**	**17,614**	**11,905**	**10,626**

EXHIBIT 6. ESTIMATED NUMBER OF REGULATED SMALL ENTITIES IN STUDY AREA BY COUNTY AND INDUSTRY SECTOR

REGION	STATE	COUNTY	FISHERIES	WATER SUPPLY & IRRIGATION SYSTEMS	ELECTRIC SERVICES & GAS DISTRIBUTION	CROP AGRICULTURE	SAND & GRAVEL MINING	FORESTRY & LOGGING	LIVESTOCK GRAZING
Alaska Coastal Region	Alaska	Haines	1	0	1	0	0	1	0
		Juneau	0	0	0	0	0	1	0
		Ketchikan Gateway	1	0	0	0	0	8	0
		Prince of Wales-Outer Ketchikan	0	0	0	0	0	0	0
		Sitka	0	0	0	0	0	0	0
		Skagway-Hoonah-Angoon	0	0	0	0	0	0	0
		Wrangell-Petersburg	14	0	3	0	0	2	0
		Yakutat	0	0	0	0	0	0	0
Washington Coastal Region	Washington	Clallam	0	0	0	0	0	0	0
		Grays Harbor	13	1	2	15	2	37	8
		Jefferson	1	1	1	1	0	1	1
Washington Columbia River Region	Washington	Clark	0	0	0	0	0	0	0
		Cowlitz	0	0	0	0	0	0	0
		Pacific	19	6	2	4	0	10	7
		Skamania	0	0	0	0	0	0	0
		Wahkiakum	2	0	1	0	1	7	2
Oregon Columbia River Region	Oregon	Clatsop	10	3	1	0	1	15	2
		Columbia	1	1	1	1	1	1	1
		Multnomah	0	0	0	0	0	0	0
Oregon Coastal Region	Oregon	Coos	4	6	2	14	0	33	16
		Curry	1	1	1	1	0	1	1
		Douglas	1	1	1	1	1	5	3
		Lane	1	1	1	1	1	1	1
		Lincoln	0	0	0	0	0	0	0
		Tillamook	1	1	1	1	0	1	1
Sacramento River Region	California	Butte	3	10	5	167	0	16	8
		Colusa	0	11	2	95	0	0	4
		Glenn	1	5	1	71	0	0	9
		Sacramento	6	31	17	46	2	3	15

REGION	STATE	COUNTY	FISHERIES	WATER SUPPLY & IRRIGATION SYSTEMS	ELECTRIC SERVICES & GAS DISTRIBUTION	CROP AGRICULTURE	SAND & GRAVEL MINING	FORESTRY & LOGGING	LIVESTOCK GRAZING
		Shasta	0	17	12	10	3	28	9
		Sutter	0	16	5	177	1	1	3
		Tehama	2	13	3	73	1	6	17
		Yolo	0	5	1	95	0	1	5
		Yuba	0	5	3	33	0	1	5
San Francisco Bay Region	California	Alameda	1	9	20	37	1	3	12
		Contra Costa	4	15	21	43	2	0	7
		Marin	8	3	2	21	0	0	4
		Napa	1	6	2	204	0	0	3
		San Francisco	0	5	19	25	3	4	1
		San Joaquin	1	9	5	150	1	0	9
		San Mateo	10	20	10	15	1	2	5
		Santa Clara	2	33	179	56	0	2	8
		Solano	3	4	9	27	1	1	12
		Sonoma	2	16	5	75	1	2	6
California Coastal Region	California	Del Norte	3	2	1	0	0	3	0
		Humboldt	5	14	7	7	1	37	16
		Los Angeles	8	71	50	60	6	6	8
		Mendocino	1	7	2	24	2	9	4
		Monterey	4	24	7	47	1	1	12
		San Luis Obispo	4	16	4	81	1	0	29
		Santa Barbara	4	28	3	84	1	1	18
		Santa Cruz	1	28	5	86	0	4	3
		Ventura	2	20	5	56	1	1	5
Total			**146**	**465**	**423**	**1904**	**37**	**256**	**280**

EXHIBIT 6. ESTIMATED NUMBER OF REGULATED SMALL ENTITIES IN STUDY AREA BY COUNTY AND INDUSTRY SECTOR (cont…)

REGION	STATE	COUNTY	ROAD AND BRIDGE CONSTRUCTION	RESIDENTIAL & COMMERCIAL CONSTRUCTION	IN-WATER CONSTRUCTION & DREDGING	POINT SOURCE POLLUTION	TOTAL
Alaska Coastal Region	Alaska	Haines	1	1	0	4	**9**
		Juneau	0	0	0	0	**1**
		Ketchikan Gateway	6	2	3	7	**27**
		Prince of Wales-Outer Ketchikan	0	0	0	0	**0**
		Sitka	0	0	0	0	**0**
		Skagway-Hoonah-Angoon	0	0	0	0	**0**
		Wrangell-Petersburg	5	0	0	5	**29**
		Yakutat	0	0	0	0	**0**
Washington Coastal Region	Washington	Clallam	0	0	0	0	**0**
		Grays Harbor	11	4	3	34	**130**
		Jefferson	1	1	1	1	**10**
Washington Columbia River Region	Washington	Clark	0	0	0	0	**0**
		Cowlitz	0	0	0	0	**0**
		Pacific	1	1	3	15	**68**
		Skamania	0	0	0	0	**0**
		Wahkiakum	1	0	0	3	**17**
Oregon Columbia River Region	Oregon	Clatsop	8	5	2	17	**64**
		Columbia	1	1	1	1	**11**
		Multnomah	0	0	0	0	**0**
Oregon Coastal Region	Oregon	Coos	10	8	8	20	**121**
		Curry	1	1	1	1	**10**
		Douglas	2	1	1	3	**20**
		Lane	1	1	1	1	**11**
		Lincoln	0	0	0	0	**0**
		Tillamook	1	1	1	1	**10**
Sacramento River Region	California	Butte	18	26	14	31	**298**
		Colusa	1	2	6	7	**128**
		Glenn	2	0	2	7	**98**
		Sacramento	46	194	94	146	**600**
		Shasta	26	17	24	22	**168**

REGION	STATE	COUNTY	ROAD AND BRIDGE CONSTRUCTION	RESIDENTIAL & COMMERCIAL CONSTRUCTION	IN-WATER CONSTRUCTION & DREDGING	POINT SOURCE POLLUTION	TOTAL
		Sutter	4	7	10	26	**250**
		Tehama	4	4	8	11	**142**
		Yolo	15	23	19	41	**205**
		Yuba	5	3	7	9	**71**
San Francisco Bay Region	California	Alameda	58	193	62	287	**683**
		Contra Costa	58	123	62	99	**434**
		Marin	15	63	22	85	**223**
		Napa	8	27	31	44	**326**
		San Francisco	19	176	34	200	**486**
		San Joaquin	9	26	12	38	**260**
		San Mateo	40	118	26	151	**398**
		Santa Clara	68	224	46	194	**812**
		Solano	30	32	25	50	**194**
		Sonoma	13	29	16	52	**217**
California Coastal Region	California	Del Norte	1	1	1	8	**20**
		Humboldt	15	14	12	55	**183**
		Los Angeles	147	853	157	1,149	**2,515**
		Mendocino	4	4	4	17	**78**
		Monterey	14	42	12	53	**217**
		San Luis Obispo	20	37	21	40	**253**
		Santa Barbara	19	57	31	75	**321**
		Santa Cruz	21	38	13	65	**264**
		Ventura	23	40	29	62	**244**
Total			**753**	**2,400**	**825**	**3,137**	**10,626**

EXHIBIT 7. ESTIMATED NUMBER OF REGULATED SMALL ENTITIES IN STUDY AREA BY REGION AND INDUSTRY SECTOR

REGION	FISHERIES	WATER SUPPLY & IRRIGATION SYSTEMS	ELECTRIC SERVICES & GAS DISTRIBUTION	CROP AGRICULTURE	SAND & GRAVEL MINING	FORESTRY & LOGGING
Alaska Coastal Region	16	0	4	0	0	12
Washington Coastal Region	14	2	3	16	2	38
Washington Columbia River Region	21	6	3	4	1	17
Oregon Columbia River Region	11	4	2	1	2	16
Oregon Coastal Region	8	10	6	18	2	41
Sacramento River Region	12	113	49	767	7	56
San Francisco Bay Region	32	120	272	653	10	14
California Coastal Region	32	210	84	445	13	62
Total	**146**	**465**	**423**	**1,904**	**37**	**256**

REGION	LIVESTOCK GRAZING	ROAD AND BRIDGE CONSTRUCTION	RESIDENTIAL & COMMERCIAL CONSTRUCTION	IN-WATER CONSTRUCTION & DREDGING	POINT SOURCE POLLUTION	TOTAL
Alaska Coastal Region	0	12	3	3	16	66
Washington Coastal Region	9	12	5	4	35	140
Washington Columbia River Region	9	2	1	3	18	85
Oregon Columbia River Region	3	9	6	3	18	75
Oregon Coastal Region	22	15	12	12	26	172
Sacramento River Region	75	121	276	184	300	1,960
San Francisco Bay Region	67	318	1,011	336	1,200	4,033
California Coastal Region	95	264	1,086	280	1,524	4,095
Total	**280**	**753**	**2,400**	**825**	**3,137**	**10,626**

Caveats

35. The following bullets describe potential caveats to this analysis:

- While nearly all industries potentially affected by the rule are land-based, the commercial fishing industry is not. Because its operations occur, in most cases, offshore, tracking the locations of small entities using Dun and Bradstreet databases is problematic. As such, this analysis includes the following supplemental data regarding the number of potentially affected entities within the fishing industry. This data was unavailable at the county level. Exhibit 8 presents data on the number of potentially affected fishing vessels by fishery and state, where possible.

EXHIBIT 8. NUMBER OF POTENTIALLY AFFECTED ENTITIES BY COMMERCIAL FISHERY, BY STATE[1]

FISHERY	REGULATORY AUTHORITY	CALIFORNIA	OREGON	WASHINGTON	TOTAL
Groundfish[1]	Federal	471	268	135	874
White Sturgeon[1,2]	State	--	N/A	N/A	N/A
Salmon & Steelhead[1,2]	State	682	736	409	1,827
	TOTAL:	**1,153**	**1,004**	**544**	**2,701**

Notes:
1. Review of the West Coast Commercial Fishing Industry in 2004, Pacific States Marine Fisheries Commission. Prepared by the Research Group for the Pacific States Marine Fisheries Commission, September 2006. Vessel counts include home port vessels as well as out-of-state vessels making landings in each state. The study notes that tracking individual vessels for mobility between fisheries was difficult, and thus vessel counts are not exact.
2. Commercial sturgeon, salmon and steelhead fisheries in the Columbia River basin are managed collectively as the Columbia River Gillnet fishery and are managed under the terms of the Columbia River Fish Management Plan (CRFMP). The number of potentially affected entities includes approximately 315 licenses issued in the Columbia River Gillnet fishery for 2004.

- The SBA definition of a small business applies to a firm's parent company and all affiliates as a single entity.[11] However, because complete ownership and affiliation information was unavailable for the firms in each hydrologic unit, some firms may have been incorrectly identified as small businesses. Consequently, it is possible that this analysis overestimates the number of small entities that will be regulated under the action.

DESCRIPTION OF REPORTING AND RECORDKEEPING EFFORTS

36. The rule does not directly mandate "reporting" or "record keeping" within the meaning of the Paperwork Reduction Act. No person is required to respond to, nor shall any person be subject to a penalty for failure to comply with, a collection of information subject to the requirements of the PRA, unless that collection of information displays a currently valid OMB Control Number.

[11] The SBA's "general principles of affiliation" are set forth in regulations at 13 CFR 121.103.

37. However, modifications to projects and activities taking place in areas containing or affecting green sturgeon may include increased reporting or record keeping requirements. This rule contains collection-of-information requirements subject to the Paperwork Reduction Act (PRA). Public reporting burden per response for this collection of information is estimated to average:[12]

- 40 hours for development of a Fisheries Management and Evaluation Plan (FMEP);
- 5 hours to prepare biannual FMEP reports;
- 20 hours for development of a Tribal Fishery Management Plan;
- 40 hours for development of a State-sponsored scientific research program;
- 5 hours to prepare annual State-sponsored scientific research program reports;
- 5 hours for submission of reports on emergency rescue, salvage or disposal of Southern DPS fish;
- 40 hours for development of State Watershed Conservation Plan Guidelines;
- 2 hours to prepare positive findings on Watershed Conservation Plans;
- 5 hours to prepare determinations for short-term habitat restoration exceptions;
- 5 hours to prepare fish passage certifications;
- 40 hours to develop fish passage design and construction plans;
- 40 hours to develop fish passage determinations and alternative plans;
- 5 hours to prepare annual fish passage take reports;
- 5 hours to prepare water diversion screen certifications;
- 40 hours to develop water diversion screening design and construction plans; and
- 5 hours to prepare annual water diversion take reports.

These estimates include the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

[12] Draft Proposed Section 4(d) rule for the Proposed Rulemaking to Establish Take Prohibitions for the Threatened Southern Distinct Population Segment of North American Green Sturgeon, August 2007.

IDENTIFICATION OF RELEVANT FEDERAL RULES THAT MAY DUPLICATE, OVERLAP, OR CONFLICT WITH THE RULE

38. Federal laws other than the ESA, as well as State and local laws and regulations may protect green sturgeon even in the absence of section 4(d) take prohibitions. In many cases, a law or regulation directly affects an activity that also has the potential to affect green sturgeon. In those cases, this analysis incorporates the economic impacts of these other measures into the baseline (it does not consider them).

CLEAN WATER ACT (33 U.S.C. 1251 ET SEQ. 1987)

39. The Clean Water Act (CWA) establishes the basic structure for regulating discharges of pollutants into the waters of the United States. It gives the Environmental Protection Agency (EPA) the authority to implement pollution control programs such as setting wastewater standards for industry. The CWA also continued requirements to set water quality standards for all contaminants in surface waters.

40. According to the CWA, it is unlawful for any person to discharge a pollutant from a point source into navigable waters, unless a permit is obtained under its provisions; this requires issuance of Section 404 permits from the USACE. As part of pollution prevention activities, the USACE may limit activities in waterways through its 404 permitting process. These reductions in pollution may benefit green sturgeon.

41. Under the National Pollutant Discharge Elimination System (NPDES) program, EPA sets pollutant-specific limits on the point source discharges for major industries and provides permits to individual point sources that apply to these limits. Under the water quality standards program, EPA, in collaboration with States, establishes water quality criteria to regulate ambient concentrations of pollutants in surface waters.

42. Under section 401 of the CWA, all applicants for a Federal license or permit to conduct activity that may result in discharge to navigable waters are required to submit a State certification to the licensing or permitting agency. For example, the 1995 Bay-Delta Water Quality Control Plan and Water Right Decision 1641 incorporates objectives such as providing water for fish and wildlife, including anadromous fish. Costs associated with this and other existing water control plans are considered baseline protection in this analysis.

MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT REAUTHORIZATION ACT 2006

43. This regulation signed by the President in January, 2007, updates the older Magnuson-Stevens Fishery Conservation and Management Act (as amended through 1996) that was designed for identification of essential fish habitat in fishery management plans and consideration of actions to ensure the conservation and enhancement of habitat. The newer Magnuson-Stevens Reauthorization Act “mandates the use of annual catch limits and accountability measures to end overfishing, provides for widespread market-based fishery management through limited access programs, and calls for increased

international cooperation."[13] This act may provide protection to green sturgeon by imposition of stringent measures to prevent fishing of green sturgeon, and improve conditions by encouraging market based conservation strategies.

NATIONAL FOREST MANAGEMENT ACT (16 USC §§ 1600-1614 1976)

44. This Act requires assessment of forest lands, development of a management program based on multiple-use, sustained-yield principles, and implementation of a resource management plan for each unit of the National Forest System. The Act may provide protection to green sturgeon within National Forests, primarily through its authorization of the Northwest Forest Plan (NWFP) and PACFISH. NWFP and PACFISH provide numerous protections for anadromous fish species related to Federal lands management activities (The NWFP and PACFISH are discussed in more detail below).

NORTHWEST FOREST PLAN (1994)

45. The "Forest Plan" is a Federal interagency cooperative program that has recently been implemented to provide a coordinated management direction for the lands administered by the U.S. Forest Service (USFS) and Bureau of Land Management (BLM). The Northwest Forest Plan defines Standards and Guidelines (S&Gs) for forest use throughout the 24 million acres of Federal lands in its planning area (the range of the Northern spotted owl, Western Oregon, Western Washington, and Northwestern California). Specifically, the NWFP provides S&Gs for management of timber, roads, grazing, recreation, minerals, fire/fuels management, fish and wildlife management, general land management, riparian area management, watershed and habitat restoration, and research activities on USFS and BLM lands. To accomplish its goals, the NWFP defines seven land allocation categories, including "matrix lands," areas where the majority of timber is to be taken, and Riparian Reserves and Key Watersheds, where distances from rivers are set within which many activities are restricted. The Aquatic Conservation Strategy (ACS) component of the plan specifically provides for fishery habitat, protection, and restoration. One of the most important protective measures implemented through the Plan are riparian reserves. These are buffered strips of land that, depending on stream class and type of watershed, range from 300 feet on perennial streams to 50 feet on ephemeral streams.

PACFISH (INTERIM STRATEGIES FOR MANAGING ANADROMOUS FISH-PRODUCING WATERSHEDS) (1995)

46. The USFS and the BLM are developing an ecosystem-based, aquatic habitat and riparian-area management strategy (commonly referred to as "PACFISH") that addresses Federally-managed, anadromous fish watersheds in eastern Oregon, Washington, Idaho, and portions of California (areas outside the Northwest Forest Plan). The strategy is being developed in response to significant declines in naturally-reproducing salmonid stocks, including steelhead, and widespread degradation of anadromous fish habitat east of the Cascade mountain range. Like the Northwest Forest Plan, PACFISH is an attempt to

[13] As stated by National Marine and Fisheries Service, NOAA at http://www.nmfs.noaa.gov/msa2007/ (Website last accessed on November, 17, 2007.

provide a consistent approach for maintaining and restoring aquatic and riparian habitat conditions which, in turn, are expected to promote the sustained natural production of anadromous fish. Presently, an interim strategy has been instituted to halt degradation to fish habitat and to ensure that future opportunities for habitat restoration are not foregone while comprehensive studies are completed for longer-term management strategies. Like the NWFP, PACFISH provides guidelines for timber, roads, grazing, recreation, minerals, fire/fuels management, lands, riparian area, watershed and habitat restoration, and fisheries and wildlife restoration. Standards and guidelines under PACFISH are nearly identical to those in the NWFP.

FEDERAL POWER ACT (16 U.S.C. § 800 1920, AS AMENDED)

47. The Federal Power Act (FPA) was promulgated to establish a regulatory agency to oversee non- Federal hydropower generation. The resulting Federal Energy Regulatory Commission (FERC), an independent Federal agency governing approximately 2,500 licenses for non-Federal hydropower facilities, has responsibility for national energy regulatory issues.

48. This Act may provide protection to green sturgeon habitat from hydropower activities. Section 10(j) of the Federal Power Act (FPA) was promulgated to ensure that FERC considers both power and non-power resources during the licensing process. More specifically, section 18 of the FPA states that FERC shall require the construction, operation, and maintenance by a licensee at its own expense of a fishway if prescribed by the Secretaries of Interior (delegated to the Fish and Wildlife Service) and Commerce (NOAA).

FISH AND WILDLIFE COORDINATION ACT (16 U.S.C.§§ 661-666 1934, AS AMENDED)

49. This regulation provides that, whenever the waters or channels of a body of water are modified by a department or agency of the U.S., the department or agency first shall consult with the U.S. Fish and Wildlife Service and with the head of the agency exercising administration over the wildlife resources of the State where modification will occur with a view to the conservation of wildlife resources.

50. The purpose of this Act is to ensure that fish and wildlife resources are equally considered with other resources during the planning of water resources development projects by authorizing NOAA Fisheries to provide assistance to Federal and State agencies in protecting game species and studying the effects of pollution on wildlife. This Act may offer protection to green sturgeon habitat by requiring consultation concerning the species with NOAA Fisheries for all instream activities with a Federal nexus.

RIVERS AND HARBORS ACT (33 USC §§ 401 ET SEQ. 1938)

51. The Rivers and Harbors Act (RHA) places Federal investigations and improvements of rivers, harbors and other waterways under the jurisdiction of the Department of the Army, U.S. Army Corps of Engineers (USACE) and requires that all investigations and improvements include due regard for wildlife conservation.

52. This Act may provide protection to the green sturgeon related to in-stream construction activities. Under sections 9 and 10 of the RHA, the USACE is authorized to regulate the construction of any structure or work within navigable waterways. This includes, for example, bridges and docks.

NATIONAL ENVIRONMENTAL POLICY ACT (42 USC §§ 4321-4345 1969)

53. The National Environmental Policy Act (NEPA) requires that all Federal agencies conduct a detailed environmental impact statement (EIS) in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment.

54. The NEPA process may provide protection to the green sturgeon for activities that have Federal involvement, if alternatives are considered and selected that are less harmful to green sturgeon and its habitat than other alternatives.

WILDERNESS ACT (16 USC §§ 1131-1136 1964)

55. The Wilderness Act established the National Wilderness Preservation System. With a few exceptions, no commercial enterprise or permanent road is allowed within a wilderness area. Temporary roads, motor vehicles, motorized equipment, landing of aircraft, structures and installations are only allowed for administration of the area. Measures may be taken to control fire, insects and disease. Prospecting for mineral or other resources, if carried on in a manner compatible with the preservation of wilderness, is allowed.

56. The Wilderness Act may offer protections to green sturgeon by limiting land disturbing activities in Wilderness Areas in National Forests. Human activity in wilderness areas is likely to be greatly reduced when compared to non-wilderness areas, which is likely to benefit green sturgeon. To the extent that Wilderness Area designations have precluded human activity and plans for activity in areas containing green sturgeon, then Wilderness Area impacts are incorporated into the baseline.

THE SIKES ACT IMPROVEMENTS ACT (16 USC §670 1997)

57. The Sikes Improvement Act (SIA) requires military installations to prepare and implement an Integrated Natural Resources Management Plan (INRMP). The purpose of the INRMP is to provide for:

- The conservation and rehabilitation of natural resources on military installations;
- The sustainable multipurpose use of the resources, which shall include hunting, fishing, trapping, and nonconsumptive uses; and
- Subject to safety requirements and military security, public access to military installations to facilitate the use of the resources.

INRMPs developed in accordance with SAIA may provide protection to the green sturgeon on military lands.

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) (CALIFORNIA NATURAL RESOURCES CODE §15065(A))

58. CEQA is a California State statute that requires State and local agencies (known as "lead agencies") to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible. Projects carried out by Federal agencies are not subject to CEQA provisions. CEQA instructs the lead agency (typically a county or city community development or planning department in the case of land development projects) to examine impacts from a broad perspective, taking into account the value of species' habitats that may be impacted by the project in an Environmental Impact Report (EIR). The lead agency must determine which, if any, project impacts are potentially significant and, for any such impacts identified, whether feasible mitigation measures or feasible alternatives will reduce the impacts to a level less than significant. It is within the power of a lead agency to decide that negative impacts are acceptable in light of economic, social, or other benefits generated by the project.

CENTRAL VALLEY PROJECT IMPROVEMENT ACT

59. Passed in 1992 by Congress, the Central Valley Project Improvement Act (CVPIA) is an addendum to the Central Valley Project Act that promotes environmental protection and restoration within California's Central Valley. The CVPIA has two objectives: preserving fish and wildlife and their habitats, and increasing the benefits of the Central Valley Project by adding incentives to use agricultural water more efficiently. To accomplish these objectives, the CVPIA allows contractors to participate in water markets, changes the pricing structure for the water contractor's, creates a restoration fund to finance activities that enhance fish and wildlife and their habitat, and allocates water for environmental uses. Specific provisions of the CVPIA that potentially benefit green sturgeon (and which have already been initiated) include: dedication of 800,000 acre-feet of CVPIA yield for fish and wildlife; release of pulsed flows to increase survival of migrating anadromous fish, and installation of fish screens at water diversions. The CVPIA also places limitations on water contracting and establishes a restoration fund of 50 million dollars annually.

60. More specifically, the CVPIA requires the Secretary of the Interior to develop and implement "a program which makes all reasonable efforts to ensure that, by the year 2002, the natural production of anadromous fish in Central Valley rivers and streams will be sustainable, on a longterm basis, at levels not less than twice the average levels attained during the period of 1967- 1991" (Section 3406[b][1]). This program is already in progress; it is known as the Anadromous Fish Restoration Program (AFRP). A coalition of fish experts from the Federal and state agencies, private industry and academia (AFRP Core Group) has developed a working plan for restoring salmon and steelhead in the Central Valley. The working plan provides a platform upon which the participating agencies and public will build a final plan. Actions are recommended for each watershed; they cover a broad spectrum of habitat restoration activities, such as improving instream flows, maintaining adequate water temperatures, correcting fish passage problems at dams and diversions, and restoring spawning gravel and riparian habitat. Further details on the recommended actions may be found in the Working Paper

on Restoration Needs: Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.

CALFED AND THE ENVIRONMENTAL WATER ACCOUNT

61. To address the long-term resource needs of the Central Valley, BOR, the California Department of Water Resources, and other Federal and state agencies have initiated the California Bay-Delta Authority (CALFED) Program. This long-term planning effort established by legislation enacted in 2002 is designed to develop a comprehensive water management and ecosystem restoration plan for the Central Valley. A key component of CALFED's Water Management Strategy, the Environmental Water Account (EWA) was created to address two problems, declining fish populations and unreliable water supplies. Its purpose is to better protect fish by making it possible to modify water project operations in the Bay-Delta and still meet the needs of water users.

62. The EWA buys water from willing sellers or diverts surplus water when safe for fish, then banks, stores, transfers and releases it as needed to protect fish and compensate water users. For example, EWA managers might coordinate with water project operators to curtail pumping at specific times to avoid harming fish, and then provide water to cities and farms to compensate for the reduced pumping.

FOR THE SAKE OF THE SALMON

63. This 1994 regional initiative by Federal, state, local, and tribal governments, and private and public organizations is intended to provide overall coordination and direction in protecting and restoring salmon throughout the Pacific Northwest. It is a proactive framework designed to identify solutions to salmon protection problems that are often beyond the scope of a single authority. It focuses on a four-part strategy which includes the following components:

- Identify and seek to modify public and private policies that contribute to the decline of the salmon and determine the means by which essential activities can be made less harmful to ecosystems;
- Take immediate steps to protect remaining healthy habitat;
- Improve the efficiency and cost effectiveness of government activities that protect and restore the health and productivity of salmon habitat; and,
- Encourage a conservation and stewardship ethic toward our natural environment in government, public, and private decision making. The NMFS and FWS strongly support this initiative.

LONG-TERM MANAGEMENT STRATEGY (LTMS) FOR THE PLACEMENT OF DREDGED MATERIAL IN THE SAN FRANCISCO BAY REGION

64. The LTMS is a multi-agency effort on the part of the U.S. Army Corps of Engineers (USACE), EPA, NOAA and others to eliminate unnecessary dredging and maintain in an economically and environmentally sound manner those channels necessary for navigation in San Francisco Bay and Estuary. The LTMS considered three long-term strategies for channel maintenance, all of which attempt to reduce the amount of sediment disposed

within the San Francisco Bay estuary. The LTMS also establishes dredging windows for salmon and other aquatic species. Seasonal limitations on dredging were established to accommodate salmon spawning.

65. NOAA reviews USACE dredging permit applications at the programmatic level, as opposed to the individual permit level, unless projects cannot occur within the allotted dredging windows and a formal consultation is required.

ESA - SACRAMENTO RIVER WINTER-RUN CHINOOK SALMON RECOVERY PLAN AND SECTION 7 CONSULTATIONS

66. The flow of the upper Sacramento River is regulated by Shasta/Keswick dams and flow augmentation is managed through a Trinity River diversion, all of which are owned and operated by the U.S. Bureau of Reclamation (BOR). The BOR generally operates the Shasta and Trinity divisions of the Central Valley Project (CVP) in accord with a CVP Operations Criteria and Plan (BOR 1992) and the winter-run chinook (*O. tshawytscha*) biological opinion for operation of CVP and State Water Project (SWP). Many requirements in this and other winter-run chinook biological opinions should directly benefit green sturgeon in the Sacramento River and Sacramento-San Joaquin Delta, by increasing flows, stabilizing ramping rates, and improving water temperatures, passage past dams and diversions, and water quality.

MITCHELL ACT

67. The NMFS administers the Mitchell Act which was passed by Congress in 1938 (and amended in 1946) for the purpose of providing for the conservation of the fisheries resources of the Columbia River. The Columbia River Fisheries Development Program (CRFDP) was established to coordinate activities authorized under the Mitchell Act. As such, the CRFDP is a cooperative effort between NMFS, the FWS, and the fisheries agencies of Oregon, Washington, and Idaho. In addition to funding the operation and maintenance of artificial propagation facilities, the CRFDP funds activities relating to stream improvements, such as fishway development, irrigation diversion screening, and stream clearing. These stream improvement activities have direct impacts on some populations of steelhead in the Columbia River basin. Fishways on tributaries in eastern Oregon, in the upper Snake River and Clearwater River basins in Idaho, and on up-river tributaries in Washington facilitate the passage of adult salmon and steelhead over barriers that once were partial or complete impediments to migration. Dagger Falls Ladder on the Salmon River and Selway Fall Ladder in the Clearwater River basin provide passage in Idaho. Ladders on tributaries of the Umatilla and Grande Ronde rivers in Oregon and on the Wenatchee and Methow rivers in Washington also provide improved adult passage. Irrigation diversions can be lethal to rearing and migrating juvenile salmonids. Under the CRFDP, over 850 screens have been constructed to prevent fish mortality at irrigation diversions. The majority of these are in the Salmon River basin in Idaho and on eastern Oregon Columbia River tributaries. The CRFDP currently provides the majority of funding for multi-agency, cooperative, accelerated programs of screen construction, rehabilitation, and replacement. The program's goal is to have all

irrigation diversions which impact anadromous salmonids in the Columbia River basin screened by 2002.

PRINCIPLES FOR AGREEMENT ON BAY-DELTA STANDARDS BETWEEN THE STATE OF CALIFORNIA AND THE FEDERAL GOVERNMENT

68. On December 15, 1994, the Federal government, the State of California, water users, and environmental advocates signed a three-year agreement on new protections for the San Francisco Bay and Delta entitled Principles for Agreement on Bay-Delta Standards Between the state of California and the Federal Government (Principles). Several measures under the Principles should improve habitat conditions for green sturgeon, in particular for juveniles rearing and migrating through the Sacramento-San Joaquin Delta. Increased outflow in the Delta from February through June will likely improve green sturgeon rearing habitat in the Delta. Closures of the Delta Cross Channel gates on the Sacramento River should reduce the diversion of juvenile green sturgeon into the central Delta and direct them away from the SWP and CVP pumping plants towards more suitable rearing habitat on the north and west side of the Delta. Water export restrictions in the spring may also provide benefits for juvenile fish in the Delta.

69. In addition to the protections afforded by modification of CVP and SWP operations, the Principles established a program, know as Category III, to develop, fund, and implement nonflow related fish and wildlife protection measures in the Central Valley. The Category III program has initiated a number of actions that are likely to benefit green sturgeon including the installation of fish screens on several previously unscreened water diversions.

THE COMPREHENSIVE CONSERVATION AND MANAGEMENT PLAN FOR THE SAN FRANCISCO BAY-DELTA ESTUARY

70. The Comprehensive Conservation and Management Plan for the San Francisco Bay-Delta Estuary helps to restore and maintain the estuary's water quality and natural resources. This plan is jointly sponsored by the EPA and the State of California, and is considered to be a blueprint for restoring and maintaining the chemical, physical, and biological integrity of the Bay and Delta. Many of the recommended actions may improve rearing and migratory conditions for steelhead by improving water quality and flows and restoring riparian habitat, shallow water areas, and tidal slough habitats.

THE KLAMATH ACT

71. On October 27, 1986, Congress passed the Klamath Act (PL 99-552), authorizing a 20-year-long Federal-State cooperative Klamath River Basin Conservation Area Restoration Program for rebuilding of river's fish resources. The Act created a 14-member Klamath River Basin Fisheries Task Force and directed the U.S. Secretary of Interior to cooperate with the Task Force in creating and implementing the Klamath River Basin Conservation Area Fishery Restoration Program. In 1991, the Task Force developed a Long Range Plan for the Klamath River Basin Conservation Area Restoration Program. The Plan is intended to give initial guidance to the Task Force in its long-range direction in accomplishing the restoration of Klamath basin anadromous fisheries which include:

restore, by the year 2006, the biological productivity of the Klamath River basin in order to provide for viable commercial and recreational ocean fisheries and in-river tribal trusts and recreational fisheries; support for the Klamath Fishery Management Council in development of harvest regulation recommendations that would provide for viable fisheries and escapements; recommendations to Congress, state legislatures, and local governments the actions each must take to protect the fish and their habitats in the basin; inform the public about the value of anadromous fish to the Klamath River region and gain their support for the Restoration Program; and promote cooperative relationships between lawful users of the basin's land and water resources and those who are primarily concerned with the implementation of the Restoration Plan and Program. The Task Force members are appointed by (and represent) the Governors of California and Oregon; the U.S. Secretaries of Interior, Commerce, and Agriculture; the California counties of Del Norte, Humboldt, Siskiyou and Trinity; Hoopa Valley, Karuk and Yurok tribal fishers and anglers and commercial fishers. The Act also created an 11-member Klamath Fishery Management Council to "establish a comprehensive long-term plan and policy... for the management of the in-river and ocean harvesting that affects or may affect Klamath and Trinity River basin anadromous salmon populations." The Council is composed of essentially the same interests as the Task Force, except that the four county representatives hold seats only on the Task Force.

SALMON, STEELHEAD TROUT, AND ANADROMOUS FISHERIES PROGRAM ACT (SENATE BILL 2261)

72. In 1988, the California State legislature passed the Salmon, Steelhead Trout, and Anadromous Fisheries Restoration Act (Chapter 1545/88/Senate Bill 2261), which established the long-term goal of doubling anadromous fish populations from their 1988 abundance levels by the end of the century. This Act precipitated several plans for restoring Central Valley anadromous fisheries populations and their habitat: the Central Valley Salmon and Steelhead Restoration and Enhancement Plan, and Restoring Central Valley Streams. In general, these planning documents have outlined efforts to restore chinook salmon populations. Restoration activities currently being implemented as a result of these plans and California Senate Bill 1086 (described below) include: a pilot pumping project to improve fish passage at Red Bluff Diversion Dam, installing water temperature control devices at Shasta dam and Whiskytown reservoir, correcting fish passage problems on several Sacramento River tributaries, and acquiring riparian woodland areas along Butte Creek and the Sacramento River.

73. As part of the Salmon, Steelhead Trout, and Anadromous Fisheries Program, the Steelhead Management and Restoration Project was also established in 1991. The CDFG has produced a draft plan which outlines management activities for the restoration and maintenance of California's steelhead populations. In the Central Valley, the CDFG's focus for steelhead restoration is on recovering wild populations, and restoring hatchery-maintained runs. As an example, the draft plan outlines measures for the Sacramento River include correcting fish passage and screening problems, agricultural drainage and heavy metal pollution from the Iron Mountain Mine Superfund Site. Within the Sacramento River system, the plan recommends improved flows in the lower reaches by

exchanging groundwater for surface flows. A monitoring program has also recently been established to assess adult steelhead numbers in Mill and Deer creeks. In addition, the CDFG plan recommends temperature and flow regimes for the Yuba River; adequate minimum flows, flow fluctuation standards, and water temperatures in the American River as well as storage levels in Folsom Reservoir. The CDFG has developed several other fishery management plans for Central Valley streams including: the Lower Yuba River fishery management plan, the Lower Mokelumne River Fisheries Management Plan, and the Steelhead Restoration Plan for the American River.

KEENE-NIELSEN FISHERIES RESTORATION ACT OF 1985

74. This Act states that California intends to "make reasonable efforts to prevent further declines in fish and wildlife, intends to restore fish and wildlife to historic levels where possible, and intends to enhance fish and wildlife resources where possible. Just over $15 million were initially authorized in approved legislation, however, only $11.3 million were actually appropriated between 1985 and 1987. The Act was reworded through 1990 legislation to closely tie expenditures from this account to projects called for under the Salmon, Steelhead Trout, and Anadromous Fisheries Program Act of 1988. However, the legislation provided no funding to the Keene-Nelson account, nor have the budgets of subsequent governors.

CALIFORNIA SENATE BILL 1086

75. The State of California passed Senate Bill 1086 in 1986, calling for a management plan to protect, restore, and enhance the fish and riparian habitat and associated wildlife of the upper Sacramento River. In response to this legislation, the Resources Agency of California prepared the Upper Sacramento River Fishery and Riparian Habitat Management Plan. This plan recommends a variety of habitat restoration measures, including improving spawning gravel, water quality, and passage at dams and diversions. Senate Bill 1086 appropriated $250,000 to prepare this management plan and to develop an inventory of riparian lands.

CAL TRANS ENVIRONMENTAL ENHANCEMENT AND MITIGATION PROGRAM

76. This program was established by the enactment of the Transportation Blueprint Legislation of 1989. This legislation provided for the annual allocation of $10 million that will be distributed through the California Resources Agency to FY 2000-2001. The program provides grants to local, state and Federal agencies and nonprofit entities to mitigate the environmental impact of modified or new public transportation facilities. Eligible projects for funding include the 25 acquisition, restoration or enhancement of resource lands to mitigate the loss of, or the detriment to, resource lands lying within or near the right-of-way acquired for proposed transportation improvements. Resource lands include natural areas, wetlands, forests, woodlands, meadows, streams, or other areas containing fish or wildlife habitat.

CALIFORNIA WILD AND SCENIC RIVERS ACT

77. This Act declares that water is generally not available for appropriation by diversion from or storage in a designated Wild and Scenic River, unless approved by an initiative of the

voters or a to-thirds vote of the California Legislature. Recently, Mill and Deer creeks (Sacramento River tributaries) have been proposed for inclusion in the State and National Wild and Scenic River Acts.

AGREEMENT BETWEEN THE DEPARTMENT OF WATER RESOURCES AND THE DEPARTMENT OF FISH AND GAME TO OFFSET DIRECT FISH LOSSES IN RELATION TO THE HARVEY O. BANKS DELTA PUMPING PLANTS (DWR FOUR PUMPS AGREEMENT)

78. The CDFG and the California Department of Water Resources (DWR) entered into an agreement in 1986 to offset the direct losses of striped bass, chinook salmon and steelhead losses by the diversion of water by the Harvey O. Banks Delta Pumping Plant. Projects funded under this agreement which may benefit green sturgeon include spawning gravel restoration projects on the Sacramento, Merced and Tuolumne rivers and Mill Creek, and installation of fish screens in Suisun Marsh sloughs.

SAN JOAQUIN RIVER MANAGEMENT PROGRAM ADVISORY COUNCIL

79. This Council is charged by the legislature to develop the San Joaquin River Management Program, to identify actions that can be taken to benefit legitimate uses of the San Joaquin River system. The program objectives are to develop compatible solutions to water supply, water quality, flood protection, fisheries, wildlife habitat and recreation needs. The study area covers the river from Friant Dam downstream through the South Delta Water Agency. Actions resulting from implementation of this management program have the potential to benefit steelhead.

COLUMBIA RIVER FISH MANAGEMENT PLAN

80. In keeping with existing court order, the states of Oregon and Washington must work with tribal and Federal authorities to rebuild weak runs and achieve fair sharing of the available salmon harvest between Native American and non-Native American fisheries. Major points of the plan include the commitment to rebuild upriver spring and summer chinook salmon runs to levels that would restore fisheries, management of harvests to insure that wild salmon runs continue to rebuild, and management of inriver and ocean fisheries to insure fair sharing between Native American and non-Native American. The plan also provides for a flexible and dynamic management approach, as well as for creation of a basin-wide Production Advisory Committee to coordinate joint development of subbasin plans which will address habitat protection, fish propagation, and harvest.

NORTHWEST POWER PLANNING COUNCIL - STRATEGY FOR SALMON

81. The Northwest Power Planning Council was established by Congress to develop a plan to protect and enhance the Columbia basin's fish and wildlife and a regional power plan that provides a reliable, low-cost electricity supply. The goal of the plan is to double salmon production in the Columbia River basin and to accomplish this with no appreciable risk to the biological diversity of fish populations. The plan calls for improved passage and screening at Columbia and Snake River dams, predator reductions in the Columbia and Snake Rivers, downstream barging of juvenile salmonids past Columbia River dams, improvement of harvest and hatchery practices to protect wild salmonids, and protection and restoration of fish habitat within the Columbia River basin. The plan also calls for the

evaluation of adverse economic effects of salmon recovery and identification of sources of funds to mitigate the adverse effects.

OTHER STATUTES AND REGULATIONS THAT APPLY TO LAND USE ACTIVITIES

82. While the following statutes and regulations may apply to lands and waters that fall within green sturgeon habitat areas, they are unlikely to provide significant baseline protections and are not considered in the analysis.

- *Fish and Wildlife Conservation Act (16 USC §§ 2901-2911 1980, as amended)* – The FWCA encourages States to develop, revise and implement, in consultation with Federal, State, local and regional agencies, a plan for the conservation of fish and wildlife, particularly species indigenous to the State.
- *Fisheries Restoration and Irrigation Mitigation Act (16 USC § 777 2000)* - The FRIMA directs the Secretary of Interior, in consultation with the heads of other appropriate agencies, to develop and implement projects to mitigate impacts to fisheries resulting from the construction and operation of water diversions by local government entities (including soil and water conservation districts) in the Pacific Ocean drainage area.
- *Water Resources Development Act (33 USC §§ 2201-2330 1986, as amended)* - WRDA authorizes the construction or study of USACE projects and outlines environmental assessment and mitigation requirements.
- *Anadromous Fish Conservation Act (16 USC §§ 757 et seq. 1965)* - The AFCA authorizes the Secretary of the Interior to enter into agreements with States and other non-Federal interests to conserve, develop and enhance the anadromous fish resources of the U.S.
- *Wild and Scenic Rivers Act (16 USC §§ 1271-1287 2001)* - WSRA authorizes the creation of the National Wilderness Preservation System and prohibits extractive activities on specific lands.
- *North American Wetland Conservation Act (16 USC § 4401 et seq. 1989)* - NAWCA encourages partnerships among public agencies and other interests to protect, enhance, restore and manage an appropriate distribution and diversity of wetland ecosystems and other habitats for migratory birds and other fish and wildlife.
- *Federal Land Policy and Management Act (43 USC §§ 1701-1782 1976)* – This Act requires the Bureau of Land Management to employ a land planning process that is based on multiple use and sustained yield principles.
- *Executive Order 11988 and 11990 (1977)* – These Executive Orders require, to the extent possible, prevention of long and short term adverse impacts associated with the occupancy and modification of floodplains and prevention of direct or indirect support of floodplain development wherever there is a practicable alternative.

- *Coastal Zone Management Act (16 USC §§ 1451 et seq. 1972)* - CZMA establishes an extensive Federal grant program to encourage coastal States to develop and implement coastal zone management programs to provide for protection of natural resources, including wetlands, flood plains, estuaries, beaches, dunes, barrier islands, coral reefs, and fish and wildlife and their habitat.
- *Action Plan for the Restoration of the South Fork Trinity River Watershed and its Fisheries.* This action plan was completed for the BOR and Trinity River Task Force in 1994. The plan describes the factors presently limiting anadromous fish restoration, reviews past research and monitoring activities, and lists actions necessary to restore the South Fork Trinity River basin and its anadromous fishes.
- *Trout and Steelhead Conservation and Management Planning Act of 1979*. This Act declares that it is a policy of the State of California to establish and maintain wild trout and steelhead stocks in suitable waters of the state and establishes angling regulations designed to maintain wild trout and steelhead through natural production.
- *California Endangered Species Act (California Fish and Game Code §§ 2050, et seq.)* - The CESA parallels the main provisions of the Federal Endangered Species Act and is administered by the California Department of Fish and Game (DFG). CESA prohibits the "taking" (the California Fish and Game Code defines "take" as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill") of listed species except as otherwise provided in State law. The CESA also applies the take prohibitions to species petitioned for listing ("candidate species").
- *Z'berg-Nejedly Forest Practice Act of 1973 (Cal. Pub. Res. Code §§ 4511 - 4628)* - Also referred to as the California Forest Practice Act, this act regulates all timber harvesting in California on all non-federal land. CDF oversees enforcement of California's forest practice regulations. Under the Forest Practice Act, Timber Harvesting Plans (THPs) are submitted to CDF for commercial timber harvesting on all non-federal timberlands. The Act requires that all private forest land be replanted within five years and that a certain number of dead trees be left in harvest areas for birds and animals that need them.

DESCRIPTION OF ALTERNATIVES TO THE RULE THAT WOULD MINIMIZE SIGNIFICANT ECONOMIC IMPACTS ON SMALL ENTITIES

83. Although this final rule will not have a significant effect on a substantial number of small entities, the FRFA must include a description of the steps the agency has taken to minimize the significant economic impact on small entities consistent with the stated objectives of applicable statutes, including a statement of the factual, policy, and legal reasons for selecting the alternative adopted in the final rule and why each one of the other significant alternatives to the rule considered by the agency which affect the impact on small entities was rejected.

84. In this FRFA, we describe and evaluate five alternative actions, or alternative 4(d) rules, including a no action alternative, a full action alternative (application of all ESA section 9 prohibitions), a full action alternative with exceptions, and two additional alternatives that would apply the take prohibitions to specific categories of activities, with and without exceptions.

- No Action Alternative: Do not apply ESA section 9(a)(1) prohibitions or any other protective regulations to the Southern DPS.
- Full Action Alternative: Apply all ESA section 9(a)(1) prohibitions to the Southern DPS.
- Alternative A: Apply the prohibitions listed under ESA section 9(a)(1)(A) and (a)(1)(D) through (a)(1)(G) to the Southern DPS. Apply the section 9 take prohibitions [ESA section 9(a)(1)(B) and (a)(1)(C)] to specific categories of activities that either cause take of Southern DPS fish or alter its habitat in a manner detrimental to the continued existence of the species.
- Alternative B: *Preferred Action*: Apply all ESA section 9(a)(1) prohibitions to the Southern DPS as in the Full Action Alternative, but with exceptions for activities that NMFS has determined to be adequately protective of the Southern DPS.
- Alternative C: Apply the ESA section 9(a)(1) prohibitions as described in Alternative A, but with exceptions from the take prohibitions [ESA section 9(a)(1)(B) and (a)(1)(C)] for activities that NMFS has determined to be adequately protective of the Southern DPS.

Exhibit 9 summarizes the main features of the alternatives.

COMPARISON OF ALTERNATIVES

85. As shown in Exhibit 10, this analysis classifies activities potentially affected by take prohibitions into 11 industry sectors that have the potential to affect small entities. As shown, the Full Action Alternative and Alternative C are anticipated to impact the largest number of industries. Because seven exceptions are identified for Alternatives B and C that would allow activities to continue unhindered, economic impacts to activities are described as "potential" for these Alternatives. In addition, some take prohibitions for these alternatives are limited in geographic scope, e.g., some habitat-altering activities are only expressly prohibited in the spawning and rearing areas (located only in San Francisco Bay and Sacramento River Regions). Five industry groups for which geographically limited prohibitions exist due to spawning areas are marked with an "S." Activities related to filling on or isolating wetlands, such as installation of tide gates, culverts, and debris or sediment-trapping road crossing structures, are only anticipated to be affected under the Full Action Alternative, and potentially affected under Alternative C.

EXHIBIT 9. SUMMARY OF ALTERNATIVES

ALTERNATIVE	ACTIVITIES SUBJECT TO THE TAKE PROHIBITIONS	EXCEPTIONS
No action	n/a	n/a
Full action	All activities under section 9.	None
Alternative A	Specific categories (same as Alt C): • Fisheries harvest; • Collection and handling for any purpose (e.g., scientific research, emergency fish rescue, commercial sale, consumption); • Construction, maintenance, or operation of migration barriers in spawning or rearing habitats; • Destruction or modification of spawning or rearing habitats; • Application of pesticides or discharge of pollutants beyond accepted levels into waterways used by Southern DPS fish; • Activities that may entrain or impinge Southern DPS fish (e.g., operation of unscreened water diversions in spawning or rearing habitats, dredging, and power plant operations); and • The release or introduction of non-native species.	None
Alternative B: Preferred Action	All activities under section 9.	Activities conducted under NMFS-approved plans or criteria for: • Recreational and commercial fisheries; • Tribal fisheries and resource management; • Habitat restoration activities; • Federal, state, and private research or monitoring; • Emergency fish rescue; and • Enforcement activities.
Alternative C	Specific categories (same as Alt A): • Fisheries harvest; • Collection and handling for any purpose (e.g., scientific research, emergency fish rescue, commercial sale, consumption); • Construction, maintenance, or operation of migration barriers in spawning or rearing habitats; • Destruction or modification of spawning or rearing habitats; • Application of pesticides or discharge of pollutants beyond accepted levels into waterways used by Southern DPS fish; • Activities that may entrain or impinge Southern DPS fish (e.g., operation of unscreened water diversions in spawning or rearing habitats, dredging, and power plant operations); and • The release or introduction of non-native species.	Activities conducted under NMFS-approved plans or criteria for: • Recreational and commercial fisheries; • Tribal fisheries and resource management; • Habitat restoration activities; • Federal, state, and private research or monitoring; • Emergency fish rescue; and • Enforcement activities.

EXHIBIT 10. POTENTIALLY AFFECTED INDUSTRIES BY ALTERNATIVE

POTENTIALLY AFFECTED INDUSTRY	NO ACTION	FULL ACTION	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C
Commercial, recreational, and Tribal fisheries	N	Y	Y	P	P
Dams and water diversions	N	Y	Y	P	P
Power production	N	Y	Y	P	P
Scientific research activities/Emergency Rescue Activities	N	Y	Y	P	P
Crop agriculture	N	Y	Y	P	P
Sand and gravel mining	N	Y	S	P	S
Forestry and Logging	N	Y	S	P	S
Livestock grazing (beef cattle ranching)	N	Y	S	P	S
Road and bridge construction, reconstruction, and maintenance	N	Y	S	P	S
Residential and commercial development	N	Y	S	P	S
In-water construction and dredging activities (including utility line construction, marinas, and other heavy and civil engineering construction)	N	Y	Y	P	P
Point source pollution (NPDES-permitted activities)	N	Y	Y	P	P
Installation of tide gates, culverts, and debris or sediment-trapping road crossing structures leading to filling on or isolating wetlands	N	Y	N	P	N
Key: N =No impacts anticipated, Y=Impacts anticipated, P=Potential industry impacts, S=Potential industry impacts in spawning areas only (Sacramento River and San Francisco Bay Regions).					

86. A detailed analysis of the impact to small entities for the preferred Alternative B has already been presented. Exhibit 11 provides an overview of the impacts by comparing the total number of small entities that would be affected for each alternative. For the industry sectors evaluated, the Full Action and Alternative B are equivalent to each other; similarly, Alternatives A and C are also equivalent. Under Alternatives A and C, however, five habitat-altering activities are only regulated in spawning areas, while these activities are regulated throughout the range of the sturgeon in the Full Action Alternative and Alternative B. In addition, under Alternatives A and C, installation of tide gates, culverts, and debris or sediment-trapping road crossing structures leading to filling on or isolating wetlands are not regulated while they are under the Full Action Alternative and Alternative B.

EXHIBIT 11 ESTIMATE OF THE NUMBER OF SMALL BUSINESSES THAT MAY BE AFFECTED FOR EACH ALTERNATIVE

POTENTIALLY AFFECTED INDUSTRY	NO ACTION	FULL ACTION	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C
Commercial, recreational, and Tribal fisheries	0	146	146	146	146
Dams and water diversions	0	465	465	465	465
Power production	0	423	423	423	423
Crop agriculture	0	1,904	1,904	1,904	1,904
Sand and gravel mining	0	37	17	37	17
Forestry and Logging	0	256	70	256	70
Livestock grazing (beef cattle ranching)	0	280	142	280	142
Road and bridge construction, reconstruction, and maintenance	0	753	439	753	439
Residential and commercial development	0	2,400	1,287	2,400	1,287
In-water construction and dredging activities (including utility line construction, marinas, and other heavy and civil engineering construction)	0	825	825	825	825
Point source pollution (NPDES-permitted activities)	0	3,137	3,137	3,137	3,137
Total	**0**	**10,626**	**8,855**	**10,626**	**8,855**