Healthy ecosystem means an ecosystem where ecological productive capacity is maintained, diversity of the flora and fauna is preserved, and the ecosystem retains the ability to regulate itself. Such an ecosystem should be similar to comparable, undisturbed, ecosystems with regard to standing crop, productivity, nutrient dynamics, trophic structure, species richness, stability, resilience, contamination levels, and the frequency of diseased organisms.

Overfished means any stock or stock complex, the status of which is reported as overfished by the Secretary pursuant to § 304(e)(1) of the Magnuson-Stevens Act.

(b) *Word usage.* The terms ''must'', ''shall'', ''should'', ''may'', ''may not'', ''will'', ''could'', and ''can'', are used in the same manner as in § 600.305(c).

§ 600.815 Contents of Fishery Management Plans.

(a) *Mandatory contents*—(1) *Habitat requirements by life history stage.* FMPs must describe EFH in text and with tables that provide information on the biological requirements for each life history stage of the species. These tables should summarize all available information on environmental and habitat variables that control or limit distribution, abundance, reproduction, growth, survival, and productivity of the managed species. Information in the tables should be supported with citations.

(2) *Description and identification of EFH*—(i) *Information requirements.* (A) An initial inventory of available environmental and fisheries data sources relevant to the managed species should be used in describing and identifying EFH. This inventory should also help to identify major species-specific habitat data gaps. Deficits in data availability (i.e., accessibility and application of the data) and in data quality (including considerations of scale and resolution; relevance; and potential biases in collection and interpretation) should be identified.

(B) To identify EFH, basic information is needed on current and historic stock size, the geographic range of the managed species, the habitat requirements by life history stage, and the distribution and characteristics of those habitats. Information is also required on the temporal and spatial distribution of each major life history stage (defined by developmental and functional shifts). Since EFH should be identified for each major life history stage, data should be collected on, but not limited to, the distribution, density, growth, mortality, and production of each stage within all habitats occupied, or formerly occupied, by the species. These data should be obtained from the best available information, including peer-reviewed literature, data reports and ''gray'' literature, data files of government resource agencies, and any other sources of quality information.

(C) The following approach should be used to gather and organize the data necessary for identifying EFH. Information from all levels should be used to identify EFH. The goal of this procedure is to include as many levels of analysis as possible within the constraints of the available data. Councils should strive to obtain data sufficient to describe habitat at the highest level of detail (i.e., Level 4).

(*1*) *Level 1: Presence/absence distribution data are available for some or all portions of the geographic range of the species.* At this level, only presence/absence data are available to describe the distribution of a species (or life history stage) in relation to potential habitats. Care should be taken to ensure that all potential habitats have been sampled adequately. In the event that distribution data are available for only portions of the geographic area occupied by a particular life history stage of a species, EFH can be inferred on the basis of distributions among habitats where the species has been found and on information about its habitat requirements and behavior.

(*2*) *Level 2: Habitat-related densities of the species are available.* At this level, quantitative data (i.e., density or relative abundance) are available for the habitats occupied by a species or life history stage. Because the efficiency of sampling methods is often affected by habitat characteristics, strict quality assurance criteria should be used to ensure that density estimates are comparable among methods and habitats.

Density data should reflect habitat utilization, and the degree that a habitat is utilized is assumed to be indicative of habitat value. When assessing habitat value on the basis of fish densities in this manner, temporal changes in habitat availability and utilization should be considered.

(*3*) *Level 3: Growth, reproduction, or survival rates within habitats are available.* At this level, data are available on habitat-related growth, reproduction, and/or survival by life history stage. The habitats contributing the most to productivity should be those that support the highest growth, reproduction, and survival of the species (or life history stage).

(*4*) *Level 4: Production rates by habitat are available.* At this level, data are available that directly relate the production rates of a species or life history stage to habitat type, quantity, quality, and location. Essential habitats are those necessary to maintain fish production consistent with a sustainable fishery and the managed species' contribution to a healthy ecosystem.

(ii) *EFH determination.* (A) The information obtained through the analysis in paragraph (a)(2)(i) of this section will allow Councils to assess the relative value of habitats. Councils should interpret this information in a risk-averse fashion, to ensure adequate areas are protected as EFH of managed species. Level 1 information, if available, should be used to identify the geographic range of the species. Level 2 through 4 information, if available, should be used to identify the habitats valued most highly within the geographic range of the species. If only Level 1 information is available, presence/absence data should be evaluated (e.g., using a frequency of occurrence or other appropriate analysis) to identify those habitat areas most commonly used by the species. Areas so identified should be considered essential for the species. However, habitats of intermediate and low value may also be essential, depending on the health of the fish population and the ecosystem. Councils must demonstrate that the best scientific information available was used in the identification of EFH, consistent with national standard 2, but other data may also be used for the identification.

(B) If a species is overfished, and habitat loss or degradation may be contributing to the species being identified as overfished, all habitats currently used by the species should be considered essential in addition to certain historic habitats that are necessary to support rebuilding the fishery and for which restoration is technologically and economically feasible. Once the fishery is no longer considered overfished, the EFH identification should be reviewed, and the FMP amended, if appropriate.

(C) EFH will always be greater than or equal to aquatic areas that have been identified as ''critical habitat'' for any managed species listed as threatened or endangered under the Endangered Species Act.

(D) Where a stock of a species is considered to be healthy, then EFH for the species should be a subset of all existing habitat for the species.

(E) Ecological relationships among species and between the species and their habitat require, where possible, that an ecosystem approach be used in determining the EFH of a managed species or species assemblage. The extent of the EFH should be based on the judgment of the Secretary and the appropriate Council(s) regarding the quantity and quality of habitat that is necessary to maintain a sustainable fishery and the managed species' contribution to a healthy ecosystem.

(F) If degraded or inaccessible aquatic habitat has contributed to the reduced yields of a species or assemblage, and in the judgment of the Secretary and the appropriate Council(s), the degraded conditions can be reversed through such actions as improved fish passage techniques (for fish blockages), improved water quality or quantity measures (removal of contaminants or increasing flows), and similar measures that are technologically and economically feasible, then EFH should include those habitats that would be essential to the species to obtain increased yields.

(iii) *EFH Mapping Requirements.* The general distribution and geographic limits of EFH for each life history stage should be presented in FMPs in

the form of maps. Ultimately, these data should be incorporated into a geographic information system (GIS) to facilitate analysis and presentation. These maps may be presented as fixed in time and space, but they should encompass all appropriate temporal and spatial variability in the distribution of EFH. If the geographic boundaries of EFH change seasonally, annually, or decadally, these changing distributions need to be represented in the maps. Different types of EFH should be identified on maps along with areas used by different life history stages of the species. The type of information used to identify EFH should be included in map legends, and more detailed and informative maps should be produced as more complete information about population responses (e.g., growth, survival, or reproductive rates) to habitat characteristics becomes available. Where the present distribution or stock size of a species or life history stage is different from the historical distribution or stock size, then maps of historical habitat boundaries should be included in the FMP, if known. The EFH maps are a means to visually present the EFH described in the FMP. If the maps identifying EFH and the information in the description of EFH differ, the description is ultimately determinative of the limits of EFH.

(3) *Fishing activities that may adversely affect EFH.* (i) Adverse effects from fishing may include physical, chemical, or biological alterations of the substrate, and loss of, or injury to, benthic organisms, prey species and their habitat, and other components of the ecosystem.

(ii) FMPs must include management measures that minimize adverse effects on EFH from fishing, to the extent practicable, and identify conservation and enhancement measures. The FMP must contain an assessment of the potential adverse effects of all fishing equipment types used in waters described as EFH. This assessment should consider the relative impacts of all fishing equipment types used in EFH on different types of habitat found within EFH. Special consideration should be given to equipment types that will affect habitat areas of particular concern. In completing this assessment, Councils should use the best scientific information available, as well as other appropriate information sources, as available. Included in this assessment should be consideration of the establishment of research closure areas and other measures to evaluate the impact of any fishing activity that physically alters EFH.

(iii) Councils must act to prevent, mitigate, or minimize any adverse effects from fishing, to the extent practicable, if there is evidence that a fishing practice is having an identifiable adverse effect on EFH, based on the assessment conducted pursuant to paragraph (a)(3)(ii) of this section and/or the cumulative impacts analysis conducted pursuant to paragraph (a)(6)(ii) of this section.

(iv) In determining whether it is practicable to minimize an adverse effect from fishing, Councils should consider whether, and to what extent, the fishing activity is adversely impacting EFH, including the fishery; the nature and extent of the adverse effect on EFH; and whether the management measures are practicable, taking into consideration the long and short-term costs as well as benefits to the fishery and its EFH, along with other appropriate factors, consistent with national standard 7.

(4) *Options for managing adverse effects from fishing.* Fishery management options may include, but are not limited to:

(i) *Fishing equipment restrictions.* These options may include, but are not limited to: Seasonal and area restrictions on the use of specified equipment; equipment modifications to allow escapement of particular species or particular life stages (e.g., juveniles); prohibitions on the use of explosives and chemicals; prohibitions on anchoring or setting equipment in sensitive areas; and prohibitions on fishing activities that cause significant physical damage in EFH.

(ii) *Time/area closures.* These actions may include, but are not limited to: Closing areas to all fishing or specific equipment types during spawning, migration, foraging, and nursery activities; and designating zones for use as

marine protected areas to limit adverse effects of fishing practices on certain vulnerable or rare areas/species/life history stages, such as those areas designated as habitat areas of particular concern.

(iii) *Harvest limits.* These actions may include, but are not limited to, limits on the take of species that provide structural habitat for other species assemblages or communities, and limits on the take of prey species.

(5) *Identification of Non-fishing related activities that may adversely affect EFH.* FMPs must identify activities that have the potential to adversely affect EFH quantity or quality, or both. Broad categories of activities which can adversely affect EFH include, but are not limited to: Dredging, fill, excavation, mining, impoundment, discharge, water diversions, thermal additions, actions that contribute to non-point source pollution and sedimentation, introduction of potentially hazardous materials, introduction of exotic species, and the conversion of aquatic habitat that may eliminate, diminish, or disrupt the functions of EFH. An FMP should describe the EFH most likely to be adversely affected by these or other activities. For each activity, the FMP should describe known and potential adverse impacts to EFH. The descriptions should explain the mechanisms or processes that may cause the adverse effects and how these may affect habitat function. A GIS or other mapping system should be used to support analyses of data. Maps geographically depicting impacts identified in this paragraph should be included in an FMP.

(6) *Cumulative impacts analysis*—(i) *Analysis.* To the extent feasible and practicable, FMPs should analyze how fishing and non-fishing activities influence habitat function on an ecosystem or watershed scale. This analysis should describe the ecosystem or watershed, the dependence of the managed species on the ecosystem or watershed, especially EFH; and how fishing and non-fishing activities, individually or in combination, impact EFH and the managed species, and how the loss of EFH may affect the ecosystem. An assessment of the cumulative and synergistic effects of multiple threats, including the effects of natural stresses (such as storm damage or climate-based environmental shifts), and an assessment of the ecological risks resulting from the impact of those threats on the managed species' habitat should also be included. For the purposes of this analysis, cumulative impacts are impacts on the environment that result from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions, regardless of who undertakes such actions. Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time.

(ii) *Cumulative impacts from fishing.* In addressing the impacts of fishing on EFH, Councils should also consider the cumulative impacts of multiple fishing practices and non-fishing activities on EFH, especially, on habitat areas of particular concern. Habitats that are particularly vulnerable to specific fishing equipment types should be identified for possible designation as habitat areas of particular concern.

(iii) *Mapping cumulative impacts.* A GIS or other mapping system should be used to support analyses of data. Maps depicting data documenting cumulative impacts identified in this paragraph should be included in an FMP.

(iv) *Research needs.* If completion of these analyses is not feasible or practicable for every ecosystem or watershed within an area identified as EFH, Councils should, in consultation with NMFS, identify in the FMP priority research areas to allow these analyses to be completed. Councils should include a schedule for completing such research. Such schedule of priority research areas should be combined with the research needs identified pursuant to paragraph (a)(10) of this section.

(7) *Conservation and enhancement*—(i) *Contents of FMPs.* FMPs must describe options to avoid, minimize, or compensate for the adverse effects identified pursuant to paragraphs (a) (5) and (6) of this section and promote the conservation and enhancement of EFH, especially in habitat areas of particular concern.

(ii) *General conservation and enhancement recommendations.* Generally, non-

water dependent actions should not be located in EFH if such actions may have adverse impacts on EFH. Activities that may result in significant adverse affects on EFH, should be avoided where less environmentally harmful alternatives are available. If there are no alternatives, the impacts of these actions should be minimized. Environmentally sound engineering and management practices should be employed for all actions which may adversely affect EFH. Disposal or spillage of any material (dredge material, sludge, industrial waste, or other potentially harmful materials) which would destroy or degrade EFH should be avoided. If avoidance or minimization is not possible, or will not adequately protect EFH, compensatory mitigation to conserve and enhance EFH should be recommended. FMPs may recommend proactive measures to conserve or enhance EFH. When developing proactive measures, Councils may develop a priority ranking of the recommendations to assist Federal and state agencies undertaking such measures.

(iii) *Conservation and enhancement options.* FMPs should provide a variety of options to conserve or enhance EFH, which may include, but are not limited to:

(A) *Enhancement of rivers, streams, and coastal areas.* EFH located in, or influenced by, rivers, streams, and coastal areas may be enhanced by reestablishing endemic trees or other appropriate native vegetation on adjacent riparian areas; restoring natural bottom characteristics; removing unsuitable material from areas affected by human activities; or adding gravel or substrate to stream areas to promote spawning. Adverse effects stemming from upland areas that influence EFH may be avoided or minimized by employing measures such as, but not limited to, erosion control, road stabilization, upgrading culverts, removal or modification of operating procedures of dikes or levees to allow for fish passage, structural and operation measures at dams for fish passage and habitat protection, or improvement of watershed management. Initiation of Federal, state, or local government planning processes to restore watersheds associated with such rivers, streams, or coastal areas may also be recommended.

(B) *Water quality and quantity.* This category of options may include use of best land management practices for ensuring compliance with water quality standards at state and Federal levels, improved treatment of sewage, proper disposal of waste materials, and providing appropriate in-stream flow.

(C) *Watershed analysis and planning.* This may include encouraging local and state efforts to minimize destruction/degradation of wetlands, restore and maintain the ecological health of watersheds, and encourage restoration of native species. Any analysis of options should consider natural variability in weather or climatic conditions.

(D) *Habitat creation.* Under appropriate conditions, habitat creation (converting non-EFH to EFH) may be considered as a means of replacing lost or degraded EFH. However, habitat conversion at the expense of other naturally functioning systems must be justified within an ecosystem context.

(8) *Prey species.* Loss of prey is an adverse effect on EFH and a managed species, because one component of EFH is that it be necessary for feeding. Therefore, actions that reduce the availability of a major prey species, either through direct harm or capture, or through adverse impacts to the prey species' habitat that are known to cause a reduction in the population of the prey species may be considered adverse effects on a managed species and its EFH. FMPs should identify the major prey species for the species in the FMU and generally describe the location of prey species' habitat. Actions that cause a reduction of the prey species population, including where there exists evidence that adverse effects to habitat of prey species is causing a decline in the availability of the prey species, should also be described and identified. Adverse effects on prey species and their habitats may result from fishing and non-fishing activities.

(9) *Identification of habitat areas of particular concern.* FMPs should identify habitat areas of particular concern within EFH. In determining whether a type, or area of EFH is a habitat area

of particular concern, one or more of the following criteria must be met:

(i) The importance of the ecological function provided by the habitat.

(ii) The extent to which the habitat is sensitive to human-induced environmental degradation.

(iii) Whether, and to what extent, development activities are, or will be, stressing the habitat type.

(iv) The rarity of the habitat type.

(10) *Research and information needs.* Each FMP should contain recommendations, preferably in priority order, for research efforts that the Councils and NMFS view as necessary for carrying out their EFH management mandate. The need for additional research is to make available sufficient information to support a higher level of description and identification of EFH under paragraph (a)(2)(i) of this section. Additional research may also be necessary to identify and evaluate actual and potential adverse effects on EFH, including, but not limited to, direct physical alteration; impaired habitat quality/functions; cumulative impacts from fishing; or indirect adverse effects such as sea level rise, global warming and climate shifts; and non-equipment related fishery impacts. The Magnuson-Stevens Act specifically identifies the effects of fishing as a concern. The need for additional research on the effects of fishing equipment on EFH and a schedule for obtaining that information should be included in this section of the FMP. If an adverse effect on EFH is identified and determined to be an impediment to maintaining a sustainable fishery and the managed species' contribution to a healthy ecosystem, then the research needed to quantify and mitigate that effect should be identified in this section.

(11) *Review and revision of EFH components of FMPs.* Councils and NMFS should periodically review the EFH components of FMPs, including an update of the equipment assessment originally conducted pursuant to paragraph (a)(3)(ii) of this section. Each EFH FMP amendment should include a provision requiring review and update of EFH information and preparation of a revised FMP amendment if new information becomes available. The schedule for this review should be based on an assessment of both the existing data and expectations when new data will become available. This information should be reviewed as part of the annual Stock Assessment and Fishery Evaluation (SAFE) report prepared pursuant to §600.315(e). A complete review of information should be conducted as recommended by the Secretary, but at least once every 5 years.

(b) *Optional components.* An FMP may include a description and identification of the habitat of species under the authority of the Council, even if not contained in the FMU. However, such habitat may not be EFH. This subpart does not change a Council's ability to implement management measures for a managed species for the protection of another species.

(c) *Development of EFH recommendations.* After reviewing the best available scientific information, as well as other appropriate information, and in consultation with the Councils, participants in the fishery, interstate commissions, Federal agencies, state agencies, and other interested parties, NMFS will develop written recommendations for the identification of EFH for each FMP. In recognition of the different approaches to FMP development taken by each Council, the NMFS EFH recommendations may constitute a review of a draft EFH document developed by a Council, or may include suggestions for a draft EFH FMP amendment and may precede the Council's development of such documents, as appropriate. In both cases, prior to submitting a written EFH identification recommendation to a Council for an FMP, the draft recommendation will be made available for public review and at least one public meeting will be held. NMFS will work with the affected Council(s) to conduct this review in association with scheduled public Council meetings whenever possible. The review may be conducted at a meeting of the Council committee responsible for habitat issues or as a part of a full Council meeting. After receiving public comment, NMFS will revise its draft recommendations, as appropriate, and forward a final written recommendation and comments to the Council(s).

(d) *Relationship to other fishery management authorities.* Councils are encouraged to coordinate with state and interstate fishery management agencies where Federal fisheries affect state and interstate managed fisheries or where state or interstate fishery regulations affect the management of Federal fisheries. Where a state or interstate fishing activity adversely impacts EFH, NMFS will consider that action to be an adverse effect on EFH pursuant to paragraph (a)(5) of this section and will provide EFH conservation recommendations to the appropriate state or interstate fishery management agency on that activity.

Subpart K—EFH Coordination, Consultation, and Recommendations

SOURCE: 62 FR 66555, Dec. 19, 1997, unless otherwise noted.

§ 600.905 Purpose and scope and NMFS/Council cooperation.

(a) *Purpose.* These procedures address the coordination, consultation, and recommendation requirements of sections 305(b)(1)(D) and 305(b)(2–4) of the Magnuson-Stevens Act. The purpose of these procedures is to promote the protection of EFH in the review of Federal and state actions that may adversely affect EFH.

(b) *Scope.* Section 305(b)(1)(D) of the Magnuson-Stevens Act requires the Secretary to coordinate with, and provide information to, other Federal agencies regarding the conservation and enhancement of EFH. Section 305(b)(2) requires all Federal agencies to consult with the Secretary on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH. Sections 305(b) (3) and (4) direct the Secretary and the Councils to provide comments and EFH conservation recommendations to Federal or state agencies on actions that affect EFH. Such recommendations may include measures to avoid, minimize, mitigate, or otherwise offset adverse effects on EFH resulting from actions or proposed actions authorized, funded, or undertaken by that agency. Section 305(b)(4)(B) requires Federal agencies to respond in writing to such comments. The following procedures for coordination, consultation, and recommendations allow all parties involved to understand and implement the requirements of the Magnuson-Stevens Act.

(c) *Cooperation between Councils and NMFS.* The Councils and NMFS should cooperate as closely as possible to identify actions that may adversely affect EFH, to develop comments and EFH conservation recommendations to Federal and state agencies, and to provide EFH information to Federal or state agencies. The Secretary will seek to develop agreements with each Council to facilitate sharing information on actions that may adversely affect EFH and in coordinating Council and NMFS comments and recommendations on those actions. However, NMFS and the Councils also have the authority to act independently.

§ 600.910 Definitions and word usage.

(a) *Definitions.* In addition to the definitions in the Magnuson-Stevens Act and § 600.10, the terms in this subpart have the following meanings:

Adverse effect means any impact which reduces quality and/or quantity of EFH. Adverse effects may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, reduction in species' fecundity), site-specific or habitatwide impacts, including individual, cumulative, or synergistic consequences of actions.

Council includes the Secretary, as applicable, when preparing FMPs or amendments under section 304 (c) and (g) of the Magnuson-Stevens Act; and when commenting and making recommendations under the authority of section 305(b)(3) of the Magnuson-Stevens Act to any Federal or state agency on actions that may affect the habitat of fishery resources managed under such FMPs.

Federal action means any action authorized, funded, or undertaken, or proposed to be authorized, funded, or undertaken by a Federal agency.

Habitat areas of particular concern means those areas of EFH identified pursuant to § 600.815(a)(9).