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Protected Resources Management

Endangered Species Act

INTERIM ENDANGERED AND THREATENED SPECIES RECOVERY PLANNING GUIDANCE

NOTICE: This publication is available at: http://www.nmfs.noaa.gov/directives/ and http://www.nmfs.noaa.gov/pr/pdfs/recovery/guidance.pdf.

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Interim
Endangered and Threatened Species
Recovery Planning Guidance
Version 1.3

National Marine Fisheries Service

1315 East-West Hwy.

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Organization of the Document:

The Recovery Planning Guidance is designed in such a way as to facilitate its updating. The original version was completed in October 2004. Subsequent updates are indicated with a new date in the lower righthand corner of each chapter that has been updated. If a chapter has not been updated, the original date will appear in the lower righthand corner of the document. In this way, an individual can know if they have the latest version of each chapter by comparing it to the version on our website, and can keep their hard copy updated without having to print the entire document. We suggest that users of this guidance keep their hard copy in a three-ring binder. The latest version of the guidance can be found at http://www.nmfs.noaa.gov/pr/recovery/.

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Acronyms

The following standard abbreviations for scientific/technical acronyms are found throughout this document:

APA	Administrative Procedure Act
DOI	Department of the Interior
DPS	Distinct Population Segment
ESA	Endangered Species Act of 1973, as amended
ESU	Evolutionarily Significant Unit
FACA	Federal Advisory Committee Act
FOIA	Freedom of Information Act
FR	Federal Register
FWS	U.S. Fish and Wildlife Service
GPRA	Government Performance and Results Act
HCP	Habitat Conservation Plan
HQ	Headquarters Office (NMFS)
MMPA	Marine Mammal Protection Act of 1972, as amended
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service (also known as NOAA Fisheries)
NOA	Notice of Availability
NOAA	National Oceanic and Atmospheric Administration
OMB	Office of Management and Budget
OPR	Office of Protected Resources (NMFS)
PVA	Population Viability Analysis
RSRP	Recovery Science Review Panel (Pacific salmon)
SCB	Society for Conservation Biology
TRT	Technical Recovery Team (Pacific salmon); Take Reduction Team (MMPA)

List of Phone Numbers

National Marine Fisheries Service
- Headquarters Office of Protected Resources (Silver Spring MD)
  - Division of Endangered Species - 301-713-1401
  - Division of Marine Mammals - 301-713-2322
- Northeast Regional Office (Gloucester, MA)
  - Office of Protected Resources - 978-281-9328
- Southeast Regional Office (St. Petersburg, FL)
  - Office of Protected Resources - 727-824-5312
- Northwest Regional Office (Portland, OR)
  - Office of Protected Resources - 503-736-4721
- Southwest Regional Office (Long Beach, CA)
  - Main number - 562-980-4000
- Pacific Islands Regional Office (Honolulu, HI)
  - Main number - 808-973-2937
- Alaska Regional Office (Juneau, AK)
  - Main number - 907-586-7221

1.0 Purpose and Overview

The purpose of this document is to guide the National Marine Fisheries Service (NMFS) and its partners in recovery planning under the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. 1531 et seq.)[1]. Although every species has unique needs and circumstances, this guidance strives to ensure consistency in approach to the application of statutory, regulatory, and policy requirements in the development of recovery plans, to emphasize certain aspects of planning, and to assist in keeping plans useful and

Recovery planning has evolved considerably over the years as we have learned more about the root causes of endangerment and what it takes to recover species. Species' biological needs and responses to specific threats and recovery actions are myriad. However, certain themes are repeated time and again, such as the need to identify and mitigate the threats to a species and to bolster its numbers and range in order to assure sustainable recovery. This guidance attempts to learn from and take advantage of these commonalities while also allowing for the flexibility necessary to tailor species-specific recovery programs that accommodate the unique biological capabilities and needs of the species and address the specific circumstances of its endangerment.

To achieve this breadth and flexibility, a drafting team representing extensive recovery experience in field, regional, and national offices in the agency drew on their own experience as well as on that of their peers and the scientific literature (Box 1.0). The resultant draft, thoroughly reviewed, reflects the recovery experience of NMFS, as informed by the scientific literature.

[1]The Marine Mammal Protection Act requires the development of conservation plans for 'depleted' marine mammals species (16 U.S.C. 1383b(b)). For species that are also listed as threatened or endangered under the ESA, the same plan may serve both purposes (see section 2.2.5 Integration of MMPA and ESA).

Box 1.0 - 2002 Society for Conservation Biology Study of FWS Recovery Plans and its application to the NMFS Recovery Program

Considerable attention has been focused on endangered species recovery plans in the scientific and popular literature. Of particular note is a recently completed three-year study by the Society for Conservation Biology (SCB), conducted in cooperation with FWS, which analyzes a number of aspects of FWS recovery plans (Clark et al., 2002; Crouse et al., 2002). From the analysis of recovery plans for 181 species, the study identified a number of strengths and weaknesses in past and current recovery plans. The results of this study pertain to NMFS recovery plans as well as FWS plans. Therefore, this guidance incorporates a number of the recommendations from this study. Among these recommendations are the need to focus more on threats as a unifying theme; focus more on monitoring; and provide clearer and more consistent linkage between the biology of the species and the recovery criteria and actions identified in the recovery plan.

Some key conclusions relevant to endangered species recovery plans made in the SCB study:

What is Working?

•Species with recovery plans in place for longer time periods show more improvement in status
•Most recovery plans are being implemented to some extent
•High priority recovery actions are more likely to be implemented than lower priority actions
•Identification of threats in plans builds on listing documents

What has Improved?

•Use of active management is increasing
•Emphasis on monitoring species is increasing
•Recovery criteria are increasing in specificity
•Scientific tools, such as population viability analysis, adaptive management, and meta-population analysis, are being used more frequently

What Needs More Improvement

•Explicit addressing and monitoring of threats
•Diversity of contributors (while keeping teams small)
•Monitoring of species trends, threats, implementation, effectiveness of implementation, and recovery criteria
•Internal consistency of plans, i.e., connecting biological information to recovery criteria/actions
•Inclusion of new science and theories
•Elimination of taxonomic biases
•Prioritization of species' plans for implementation and revision
•In multi-species plans, addressing of individual species needs, revisions, and implementation
•Addressing of needs for critical habitat management, where designated

1.1 Why Develop Recovery Plans?

A Recovery Plan is the road map to recovery.

Recovery is the process by which listed species and their ecosystems are restored and their future is safeguarded to the point that protections under the ESA are no longer needed. A variety of actions may be necessary to achieve the goal of recovery, such as the ecological restoration of habitat or implementation of conservation measures with stakeholders. However, without a plan to organize, coordinate and prioritize the many possible recovery actions, the effort may be inefficient or even ineffective. Although recovery *actions* can, and should, start immediately upon listing a species as endangered or threatened under the ESA, prompt development and implementation of a recovery *plan* will ensure that recovery efforts target limited resources effectively and efficiently into the future. The recovery plan serves as a road map for species recovery -- it lays out where we need to go and how best to get there. A recovery plan is one of the most important tools to ensure sound scientific and logistical decision-making throughout the recovery process. Primarily, a recovery plan should do the following:

- Delineate those aspects of the species' biology, life history, and threats that are pertinent to its endangerment and recovery
- Outline and justify a strategy to achieve recovery
- Identify the actions necessary to achieve recovery of the species
- Identify goals and criteria by which to measure the species' achievement of recovery

Recovery plans can also serve the following secondary functions:

- Serve as outreach tools by articulating the reasons for a species' endangerment, as well as why the particular suite of recovery actions described is the most effective and efficient approach to achieving recovery for the species
- Help potential cooperators and partners understand the rationale behind the recovery actions identified, and assist them in identifying how they can facilitate the species' recovery
- Serve as a tool for monitoring recovery activities
- Be used to obtain funding for NMFS and its partners by identifying necessary recovery actions and their relative priority in the recovery process

Recovery plans are guidance documents, not regulatory documents. No agency or entity is required by the ESA to implement the recovery strategy or specific actions in a recovery plan. However, the ESA clearly envisions recovery plans as the central organizing tool for guiding each species' recovery process. They should also guide Federal agencies in fulfilling their obligations under section 7(a)(1) of the ESA, which calls on all Federal agencies to "utilize their authorities in furtherance of the purposes of this Act by carrying out programs for the conservation of endangered species and threatened species..." In addition to outlining strictly proactive measures to achieve the species' recovery, plans provide context and a framework for implementation of other provisions of the ESA with respect to a particular species, such as section 7(a)(2) consultations on Federal agency activities, development of Habitat Conservation Plans or Safe Harbor agreements under section 10, special rules for threatened species under section 4(d), or the creation of experimental populations in accordance with section 10(j).

1.2 Legal and Policy Guidance for Recovery Planning

Recovery planning is guided by the statutory language of the ESA and NMFS policies, the latter of which may reflect interpretation by the courts (see Box 1.2), and informed by various other Federal laws. There are no specific regulations regarding recovery.

The Statute – Section 4(f) of the ESA addresses the development and implementation of recovery plans. The following are the key provisions of this section of the Act:

- 4(f)(1) - Recovery plans shall be developed and implemented for listed species unless the Secretary ". . . finds that such a plan will not promote the conservation of the species" (see section 2.2.1 - Exemption from Drafting Recovery Plans).
- 4(f)(1)(A) - Priority is to be given, to the maximum extent practicable, to ". . .species, without regard to taxonomic classification, that are most likely to benefit from such plans, particularly those species that are, or may be, in conflict with construction or other development projects or other forms of economic activity."
- 4(f)(1)(B) - Each plan must include, to the maximum extent practicable,
  "(i) a description of such site-specific management actions as may be necessary to achieve the plan's goal for the conservation and survival of the species;
  (ii) objective, measurable criteria which, when met, would result in a determination . . . that the species be removed from the list; and,
  (iii) estimates of the time required and the cost to carry out those measures needed to achieve the plan's goal and to achieve intermediate steps toward that goal."
- 4(f)(2) - To assist in the development and implementation of recovery plans, NMFS may appoint recovery teams, which may include non-NMFS participants, and which are not subject to the requirements of the Federal Advisory Committee Act (FACA).
- 4(f)(4) - NMFS must ". . . provide public notice and an opportunity for public review and comment. . ." and ". . . consider all information presented during the public comment period prior to approval of the plan."
- 4(f)(5) - Prior to implementation of a recovery plan, each Federal agency must ". . .consider all information presented during the public comment period. . ."
- 4(h)(4) - NMFS shall establish, and publish in the *Federal Register*, agency guidelines that include " . . . a system for developing and implementing, on a priority basis, recovery plans. . ."

Recovery Policies – Five joint policies were promulgated by NMFS and FWS in 1994 which, among other things, address a number of aspects of recovery planning. These include the following:

- Interagency Cooperative Policy for Peer Review in Endangered Species Activities (59 FR 34270; FWS and NMFS 1994a)
- Interagency Cooperative Policy on Information Standards Under the Endangered Species Act (59 FR 24271; FWS and NMFS 1994b)
- Interagency Cooperative Policy on Recovery Plan Participation and Implementation Under the Endangered Species Act (59 FR 34272; FWS and NMFS 1994c)
- Interagency Cooperative Policy for the Ecosystem Approach to the Endangered Species Act (59 FR 34274; FWS and NMFS 1994d)
- Interagency Cooperative Policy Regarding the Role of State Agencies in Endangered Species Act Activities (59 FR 34275; FWS and NMFS 1994e)

The Policy on Recovery Plan Participation and Implementation Under the Endangered Species Act focuses solely on recovery planning and implementation, and is updated and superceded

by this policy and guidance. The other 1994 joint policies, which apply to recovery as well as other aspects of the endangered species program, are incorporated into, but not superceded by, this guidance. Copies are included in Appendix A. Several other policies and guidance documents affect various aspects of recovery planning. For example, the Safe Harbor Policy (64 FR 32717; FWS and NMFS 1999) provides a tool that may be useful in the recovery of some species. The application of these other policies to recovery planning will be addressed in other sections of the Recovery Handbook.

Court Decisions – A number of court decisions have interpreted the recovery planning provisions of the ESA in conjunction with challenges to particular recovery plans (see Appendix B). These decisions have focused primarily on the mandatory nature of the section 4(f) provisions (unless the agency had shown that the species qualified under an exception), and the connection between threats affecting the species and the development of measurable criteria and management actions (see Box 1.2)

Other Federal Laws – In addition to the ESA, there are five other Federal statutes that are particularly important to developing and implementing recovery plans, assembling the administrative record, and involving the public.

- The Freedom of Information Act (FOIA; 5 U.S.C. 552), enacted in 1966, provides that any person has the right to request access to Federal agency records.
- The Federal Advisory Committee Act (FACA; 5 U.S.C., App.; C.F.R. Part 102-3), enacted in 1972, governs the establishment, management, and operation of groups, meetings, task forces, committees, and other similar groups that qualify as "federal advisory committees" under the Act.
- The Administrative Procedure Act (APA; 5 U.S.C. 551-59, 701-06, 1305, 3105, 3344, 5372, 7521), passed in 1946, identifies the process for making regulations, provides for participation by the public in the rulemaking process, and sets standards for judicial review of agency decisions.
- The National Environmental Policy Act (NEPA; 42 U.S.C. 4321 *et seq*.,), passed in 1969, assures that all branches of government give proper consideration to the environment prior to undertaking any major federal action which significantly affects the environment.
- The Paperwork Reduction Act (44 U.S.C. 3501-20), enacted in 1995, minimizes the burden that Federal paperwork imposes on the public and improves the quality and use of Federal information.
- The Information Quality Act (Pub. L. 106-554), enacted in 2002 requires each Federal agency to develop guidelines to

Box 1.2 - Sonoran Pronghorn Recovery Criteria Legal Case

In Defenders of Wildlife v. Babbitt, 130 F.Supp. 2d 121 (2001), the court ruled that "... the Fish and Wildlife Service has acted in a manner that is arbitrary and capricious and contrary to law by issuing a Recovery Plan that fails to establish (1) objective measureable criteria, which, when met, would result in a determination that the pronghorn may be removed from the list of endangered species or, if such criteria are not practicable, an explanation of that conclusion and (2) estimates of the time required to carry out those measures needed to achieve the plan's goal and to achieve intermediate steps toward that goal where practicable, or, if such estimates are not practicable, an explanation of that conclusion."

Th courts remanded the 1998 Final Revised Sonoran Pronghorn Recovery Plan and directed the Service to: (1) reassess Sonoran pronghorn recovery criteria and incorporate objective measureable criteria for delisting; and (2) provide estimates of time required to carry out those measures needed to achieve the plan's goal and intermediate steps toward that goal.

ensure the quality of disseminated information and a process by which a person can seek a correction of disseminated information (see section 4.6 Information Standards, and Appendix N. Information Quality Guidelines).

In summary, with respect to recovery planning, we have certain statutory requirements as well as other requirements imposed by either policy or court decisions. This statutory, policy, and judicial guidance requires certain elements to be included in a plan and incorporates certain standard elements into the process of drafting plans (consultation, quality data, public participation etc.). Within these sideboards, NMFS and its staff are given considerable discretion to determine the details of how we go about developing specific recovery plans and what they look like. Recovery planners should view this as an opportunity to use their creativity and ingenuity to craft the most effective and practical recovery program for each species in their care.

1.3 A Comprehensive Approach to Recovery

Species do not live in a vacuum. They interact with, depend upon, or affect other species and their environments. Understanding the interactions between species and their ecosystems is fundamental to recovery planning. Recovery plans should be useful to all NMFS biologists who implement the ESA, such as those working on consultations or HCPs, as well as all agencies or individuals that may affect the species. Likewise, even the best of plans may achieve little for species recovery if they are not implemented because they are not practical, they are misunderstood, or they are opposed by those with the authority or means to implement them. To ensure lasting recovery, this planning guidance takes a comprehensive approach to species recovery on multiple scales – within the ecosystem, within the ESA, within NMFS, with other agencies, and with stakeholders and the public.

1.3.1. The Ecosystem Approach

In recognition of the role that other species and their environments play in species recovery, the ESA clearly states that one of its purposes is to: "... provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved ..." (16 U.S.C. 1531 et seq., section 2(a)). Indeed, conserving species' ecosystems

possible, recovery plans should focus on the broader view of the species' health, by working to ensure the health of its habitat and ecosystem functions, rather than the narrower view of looking at the species only. As implied in the ESA, conserving the ecosystems upon which a species depends is more likely to ensure that species' long-term viability. In keeping with the ESA's directive, this guidance focuses not only on the listed species themselves but also on restoring their habitats as functioning ecosystems.

1.3.2 The Significance of Threats in Recovery Planning

Recovery plans have long focused on the demographics, habitat and other characteristics of a species' life history. These are extremely important, as knowledge of a species' biological needs and constraints is imperative to making viable conservation management decisions for a species. However, merely increasing a species' numbers, range and abundance does not ensure its long term health and sustainability; only by alleviating threats can lasting recovery be achieved. Identification of, and strategies for dealing with, the threats that are contributing to the status of the species as threatened or endangered, or are likely to recur in the foreseeable future, should be central to the recovery plan and program. A recovery plan must also outline the characteristics of a species that make it vulnerable to, and that would allow it to recover from, environmental, demographic, and human-caused threats. Finally, recovery actions and monitoring schemes should specifically reduce or remove each of the threats identified for the species, and monitor the success in controlling them.

The reasons for a species' decline often comprise an interrelated, interactive suite of factors, rather than a linear cause-and-effect of a single factor. Therefore, a recovery plan must not only identify the different threats, but also analyze and determine the relationships among threats so that a recovery strategy can be designed to effectively reduce these threats. A threats assessment can be used in recovery planning to determine the relative importance of various threats to a species (see section 5.1.6.7, Reasons for Listing/Threats, and Appendix C). A threats assessment includes (1) identifying threats and their sources, (2) determining the effects of threats, and (3) ranking each threat based on relative effects. This guidance recommends using a threats assessment for species with multiple threats to help identify the relative importance of each threat to the species' status, and, therefore, to prioritize recovery actions in a manner most likely to be effective for the species' recovery.

1.3.3 Synergies with Other Parts of the ESA

While section 4(f) and 7(a)(1) are the only sections of the ESA that focus solely on

recovery, it is fair to say that all sections of the ESA affect the goal of recovery of listed species, in one way or another. With this in mind, this guidance highlights potential synergies between recovery and other sections of the ESA (sections 7(a)(2), 10, 6, etc.). The resulting plans should provide a context and framework for guiding implementation of the other provisions of the ESA with respect to the target species.

1.3.4 Partnerships in Recovery Planning

A plan is just that: a plan. For results, the plan must be implemented. NMFS has neither the resources nor the authority to implement many, if not most, recovery actions. Communication, coordination, and collaboration with a wide variety of potential stakeholders are essential to the acceptance and implementation of recovery plans. In addition, recovery plans must be designed so that all players, whether they were involved in writing the plan or not, understand the rationale behind the recovery program, buy into this program, and recognize their role in its implementation. As policies indicate, NMFS is committed to working with stakeholders throughout the entire recovery process, from planning through implementation to recovery and delisting. For the purposes of recovery planning, we define the term stakeholder broadly as those who have an interest in the recovery of the species. This may include other bureaus within NMFS, other government agencies, affected landowners, academic scientists, conservation organizations, industry, etc. The addition of these participants may sometimes make the planning process more complicated and time-consuming. However, involving stakeholders early and throughout the process may help achieve necessary understanding of the species' biology, threats and recovery needs, identify and resolve implementation issues and concerns at the planning stage, increase buy-in, and facilitate more effective implementation (see sections 2.4, Preparing for Stakeholder Involvement, and 4.3, Managing Stakeholder Involvement).

1.4 Opportunities for Streamlining and Flexibility

The guidance notes throughout where opportunities exist to streamline recovery plans, e.g., by incorporating other documents by reference and reducing tangential or irrelevant information. One opportunity for streamlining that will provide a means of keeping our recovery plans current and useful in the most efficient way possible, involves the use of a page numbering system such as that used in this guidance (see section 4.7, Formatting). Such a system allows for revisions or updates of individual sections of the plan more frequently without the need to undertake a major plan revision effort (see section 6.2, Modifying the Recovery Plan). Another opportunity lies in the use of electronic media and the posting of electronic files. This should greatly enhance our ability to distribute information and post plan updates and addenda (see section 5.2.4, Approval and Distribution Process, and section 6.3, Notification, Review, and Approval of Plan Modifications).

With respect to streamlining the actual recovery planning process, however, two particular areas of planning standout as needing, if anything, additional attention and time. These are early communication and coordination (see sections 2.3, Organizing the Recovery Planning Effort; 2.4, Preparing for Stakeholder Involvement; 4.3, Managing Stakeholder Involvement in the Planning Process; and 4.4, Public Communication and Outreach), and the thought process involved with synthesizing the background information into a cohesive, effective recovery strategy and program (see section 5.1.7, Recovery Strategy, and section 5.1.9, Recovery Program). Indeed, this guidance strongly encourages additional time and attention for each of these areas. While this may appear to be an added burden and contrary to the concept of streamlining, this early investment in these parts of the process is anticipated to actually front-load the recovery process and facilitate smoother and more rapid implementation.

1.5 Overview of the Planning Process

The recovery process comprises a suite of inter-related steps that fall generally into the following three primary phases: (1) pre-planning; (2) planning; and (3) implementation and monitoring (Figure 1). In the pre-planning phase, a recovery outline is developed (see section 3.0, The Recovery Outline). The recovery outline provides interim strategies and goals for recovering the species and lays out how and by whom a recovery plan is to be developed. The outline may also note the rare case that a species is exempt from recovery planning (see section 2.2.1, Exemption from Drafting Recovery Plans). The planning phase involves the actual writing of the recovery plan, including the solicitation and incorporation of comments via peer review and public comment (see section 4.0, Planning Considerations (inclusive); and section 5.2, Procedural Requirements). The implementation and

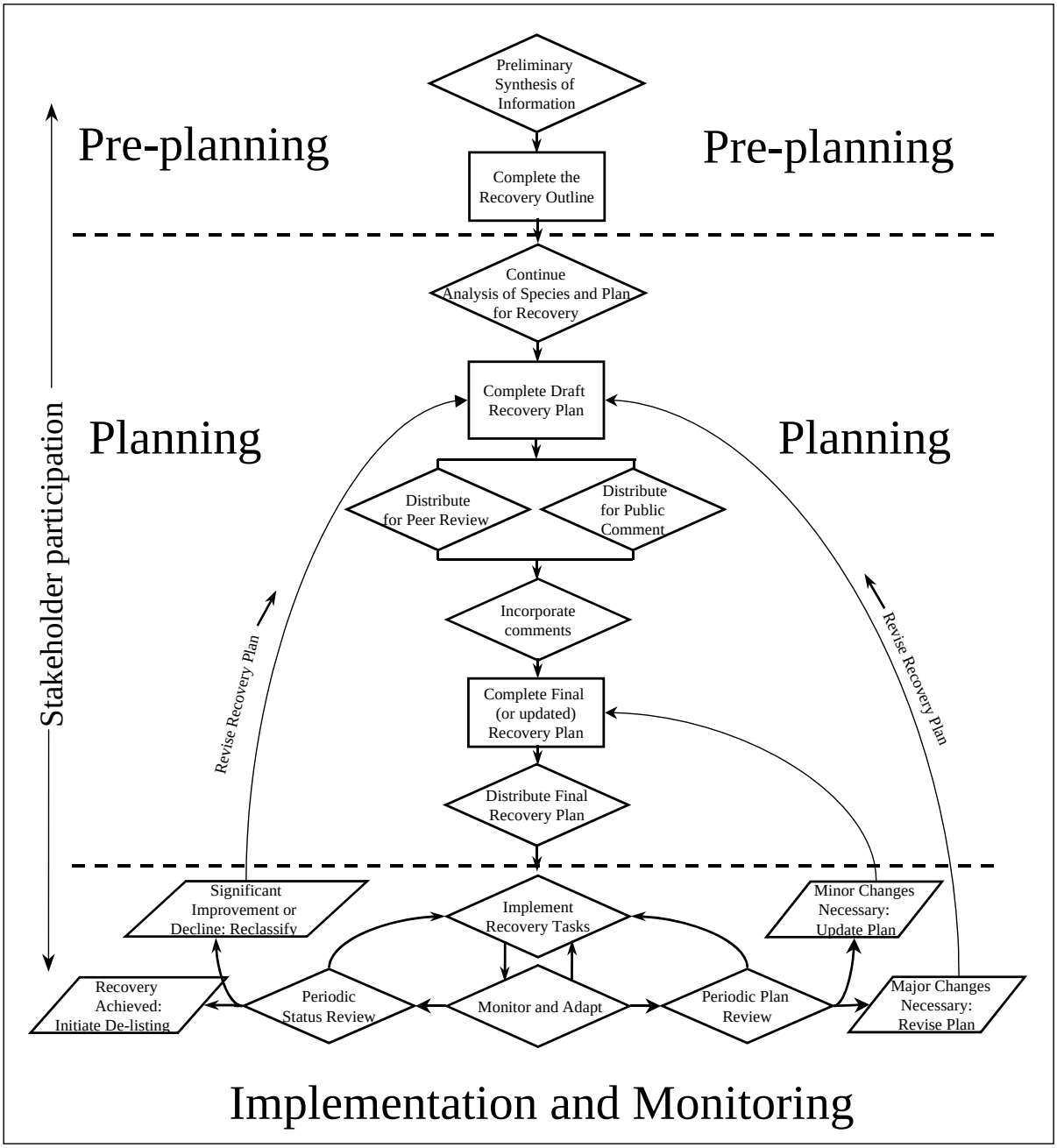

Figure 1. The Recovery Process

monitoring phase involves the implementation of the recovery actions called for in the recovery plan or outline (if a plan has not been developed yet), monitoring of implementation and effectiveness of the actions, and adaptation of the plan, if necessary (see section 6.1 for a brief overview of implementation and monitoring. These will be dealt with in greater detail in other sections of the Recovery Handbook). Periodic review of the status of the species and of the recovery plan may lead to updates or revisions of the recovery plan (see section 6.2, Modifying the Recovery Plan) and/or downlisting or delisting of the species.

These phases are not step-wise or mutually exclusive; rather, they are in a continuous state of flow and feedback. Implementation and monitoring often begin before a plan, or even an outline, is completed and plans are updated or revised as needed, according to the results of monitoring. In some cases, a planning process may need to return to the pre-planning phase, e.g., when a complete revision of the recovery plan is needed and a determination of how to develop the plan must be revisited.

1.5.1 Timeframes

Recovery outlines should be completed within 60 days of listing, and approved within 90 days of listing. These are completed internally, by agency biologists, in consultation with other biologists (those who worked on the listing and those who will be working on consultations or HCPs) as well as species experts, and possibly some stakeholders. The recovery outline is an interim document that is based on the best currently available information – usually the listing package. The short time-frame allowed for completion of the recovery outline is purposeful. It is meant to ensure that its completion will not detract from the recovery planning effort that should be underway shortly after the species is listed. The timing of the outline is meant to force biologists who will be responsible for the writing of the recovery plan, consulting on the species, or otherwise working with the species to communicate with each other and put preliminary strategies for recovering the species on paper as soon as feasible. Not only will this ‘get the ball rolling’ for development of the recovery plan, but a timely recovery outline can inform ongoing activities, such as HCP development and section 7 consultation, so these activities do not inadvertently foreclose recovery options before the recovery plan is developed.

Final recovery plans should be completed within 2.5 years of listing, unless an extension for a particularly complex plan has been approved by the Headquarters office. In order to reach this time frame, drafts should be completed within 1.5 years of listing. Table 1 describes the required timeframes for recovery planning.

Table 1. Timeframes for Recovery Outline and Recovery Plan Development

60 days from date of listing	Recovery outline completed and submitted to Regional Office
90 days from date of listing	Recovery outline approved
18 months from date of listing	Draft recovery plan completed and distributed for public comment and peer review
2.5 years (30 months) from date of listing	Final recovery plan completed and approved

1.5.2 Agency Roles and Responsibilities

The following table outlines the general responsibilities of the Regions and Headquarters Office for NMFS.

Table 2. NMFS Roles and Responsibilities

Regional Administrator	**Headquarters**
	Provide guidelines and training on national policy and legal requirements of recovery planning.
Prepare and approve a Recovery Outline for any listed species for which the Region has lead – draft within 60 days from final listing rule publication; approval within 90 days. Provide copy to Headquarters.	Review draft Recovery Outline from region for major policy issues or controversies. Prepare and approve a Recovery Outline for listed species for which Protected Resources has lead – draft within 60 days from final listing rule publication; approval within 90 days.
Publish Notice of intent to prepare a recovery plan and request information in Federal Register (for species with regional lead).	Publish Notice of intent to prepare a recovery plan and request information in Federal Register (for species with Headquarters lead).
Establish recovery teams, if appropriate, to develop the recovery plan and oversee its implementation.	Establish recovery teams, if appropriate, to develop the recovery plan and oversee its implementation (for species with Headquarters lead).
Prepare draft and final recovery plans.	Prepare draft and final recovery plans (for species with Headquarters lead).
	Review and provide comments to regions on the technical/agency draft of new or revised plans regarding adherence to existing policies and guidelines.
Ensure appropriate peer review, public review and comment.	Ensure appropriate peer review, public review and comment (for species with Headquarters lead).
Obtain concurrence by Headquarters. Approve and disseminate all recovery plans. Print within 90 days of approval; distribute within 120 days, subject to availability of funds.	Approve and disseminate all recovery plans (for species with Headquarters lead). Print within 90 days of approval; distribute within 120 days, subject to availability of funds.
Release to press and or publish a public notice of availability of new or revised recovery plans. Provide copy to Headquarters.	Release to press and or publish a public notice of availability of new or revised recovery plans (for species with Headquarters lead).
Direct and coordinate recovery plan implementation or take actions to conserve listed species if plan is not completed. Track and review progress.	Direct and coordinate recovery plan implementation or take actions to conserve listed species if plan is not completed for species (for species with Headquarters lead). Track and review progress.
Revise and update recovery plans, as necessary. Inform all cooperators of modifications in the plan.	Revise and update recovery plans, as necessary (for species with Headquarters lead). Inform all cooperators of modifications in the plan. Maintain national website with updated recovery plans
Report to Headquarters on status of recovery plans, recovery implementation, and status of the species.	Compile regional and Headquarters reports on recovery implementation progress, species status, and the status of draft, revised or approved recovery plans for Assistant Administrator's submission to Congress.

2.0 Preplanning Considerations

Before beginning work on a recovery plan, a number of preliminary decisions must be made and actions must be taken. These decisions set the stage for recovery planning and encompass considerations such as the scope of the plan, logistical issues, interim management of the species until a recovery plan is completed, participation in the planning process, appointing a recovery team, and setting up the administrative record for the recovery process. The Recovery Outline (see section 3.0) provides a template for documenting preplanning decisions.

2.1 Determining the Scope of the Recovery Plan

Single-species recovery plans have been the most common type of plan prepared since the enactment of the ESA. However, multiple species plans and ecosystem plans have gained increasing currency since the mid-1990s. It is important to note that, although the ESA appears to focus on the individual species, subspecies, or distinct population segments (DPSs)[2], the purposes of the ESA include conserving the ecosystems upon which listed species depend. Recovery plans should aim to address threats by restoring or protecting ecosystem functions or processes whenever and wherever possible (as opposed to actions that require long-term and possibly expensive management programs). This approach is science-based and provides a means for required habitat to be maintained long-term in a dynamic way by natural processes.

This broader perspective should be infused into all recovery plans, whether they be for single species (including subspecies and DPSs), or multiple species.

Three possible biological scopes for recovery efforts exist, and choosing the appropriate scope requires careful consideration:

- Single species/subspecies/DPS
- Multiple species
- Ecosystem

A fourth scope, recovery plans for individual populations of a wide-ranging species (such as peregrine falcons and bald eagles), was used occasionally in the past. Because this has led to problems later in the process, we now recommend that planning documents for entities smaller than the listed entity should only be developed in the context of recovery of the entire listed entity, using recovery criteria clearly set out for the entire listed entity (see section 2.1.1, Single Species/Subspecies/DPS Plans, for further discussion).

The appropriate scope for the recovery planning effort may be evident from the listing package (whether it was prepared for a single species, a group of species, or for multiple species within an imperiled ecosystem). However, there may be circumstances where it is appropriate to plan recovery at a different scope than that at which the species was listed, for such reasons as the following:

- If a species is without a recovery plan and occupies the same habitat and has similar recovery needs as another species or group of species, it may be possible to incorporate the species into a recovery plan for the other species. This can be done when a recovery plan is being written for the other species or by incorporating recovery criteria, management actions, and time and cost estimates for the new species into an existing plan by preparing an amendment to the existing plan (see section 6.2.3, Plan Addenda).

[2] A Distinct Population Segment is a population segment that is discrete in relation to the remainder of the species to which it belongs, and significant to the species to which it belongs. An Evolutionarily Significant Unit (ESU) of Pacific Salmon is considered a DPS. DPSs must be designated through a rulemaking. See the Policy Regarding the Recognition of Distinct Vertebrate Population Segments Under the Endangered Species Act (FWS and NOAA 1996) for more discussion of discreteness and significance.

- In some cases, it may be preferable to prepare a plan for a single species which was listed in the same listing rule as other species. This may occur, for instance, when circumstance dictates a need to prepare immediately a plan for a particular species because unique taxonomy, threats, or other reasons indicate the need for more species-specific recovery strategies, or if an opportunity arises for a particular species expert to expedite planning.

- If a number of species that occupy the same ecosystem were listed separately, it may be most efficient and effective to prepare a multiple-species or ecosystem plan. Multiple-species plans may provide the opportunity to explicitly address any contradictory recovery needs of two or more species. In addition, including numerous species within an area in one plan can be more user-friendly for local property owners and planners. Plan revisions may provide an opportunity to combine species that were previously addressed in separate plans or that do not have plans. However, it is necessary to ensure that species included in a multiple-species plan are each given adequate and appropriate attention.

2.1.1 Single Species/Subspecies/DPS Plans

Given that taxa are listed and delisted as "species" (defined in the ESA as including subspecies and DPSs), a single species plan is the most straightforward scope to use for an individual planning effort. If the species is distinct from other listed species in its floral/faunal community with respect to its habitat requirements and threats and/or if it is the only listed species in its general geographic area, a single-species plan is likely the most appropriate.

Although a DPS is treated as a separate species under the ESA and thus may have a separate recovery plan, it is important to note that a recovery plan *cannot* be used to designate a DPS. Designation of a DPS requires a rulemaking process.

2.1.2 Multiple Species Plans

If two or more species occur in the same geographical area or jurisdiction, and share common threats or management needs, a multiple species plan may be the most appropriate. This type of plan may also be helpful when species with overlapping ranges have seemingly contradictory recovery needs that need to be resolved early to accommodate the recovery of both species. Many authors have recommended multiple-species recovery plans as a way to plan more efficiently and to better implement management actions (Franklin 1993; Clark 1994; Tear et al. 1995; Carroll et al. 1996; Simberloff 1997

listed species in multiple-species plans had less robust scientific underpinning, objectives, and recommendations, and that trends in status for individual species tended to be less positive than those for species with single-species recovery plans. Therefore, the benefits of preparing a multiple-species plan should be carefully assessed, and the following considerations should be kept in mind:

- Each listed species in the plan should be fully addressed in terms of status, threats, and biological needs and constraints (this does not mean that these items need be addressed for each species separately but that a reader should be able to discern each species' status, threats, etc., easily from the information provided).
- Objective, measurable recovery criteria must be developed for each species, although it may be possible for the same criteria to apply to more than one species where the threats are identical.
- Recovery actions should be consolidated for multiple species whenever possible to

maximize effectiveness, but should indicate which species will be affected.

- Individual species can be independently listed, reclassified, or delisted, and the plan updated or revised accordingly.
- In general, multiple-species plans will be more expansive documents, and means for keeping them updated and useful should be considered during the planning process.

2.1.3 Ecosystem Plans

If several listed species in a shared biotic community rely on protection and/or restoration of their ecosystem to reach recovery, an ecosystem plan may be appropriate. (Many recovery plans identified as "ecosystem" plans in the past are actually multiple-species plans). In this type of plan, most recovery actions will be directed toward ensuring the sustainability of the ecosystem upon which all of the listed species (and other species) depend. While ecosystem functions and status comprise the cornerstone of this type of plan, the role and recovery needs of individual listed species must be addressed within the ecosystem context. The biological connection between the ecosystem and the listed species should be clearly described. Recovery

2.2 Special Considerations

2.2.1 Exemption from Drafting Recovery Plans

Section 4(f)(1) of the ESA requires NMFS to develop and implement recovery plans for

such a plan will not promote the conservation of the species." (ESA, section 4(f)(1)) There are very few acceptable justifications for an exemption from having a recovery plan, and a determination that an exemption is warranted should be well documented in the administrative record. The determination that a plan will not promote the conservation of the listed species must be approved by the Assistant Administrator for Fisheries (NMFS). Foreign species (species whose historic and current ranges occur entirely under the jurisdiction of other countries) qualify for the exemption.

The following justifications may exempt species from having a recovery plan:

- Delisting is anticipated in the near future because (1) the species is presumed to be extinct or (2) the species is determined to have been listed in error, possibly due to new taxonomic or status information.
- The species' current and historic ranges occur entirely under the jurisdiction of other countries, i.e., it is a foreign species. Generally, the U.S. has little authority to implement actions needed to recover foreign species, and therefore, a recovery plan would not promote the conservation of these species. While importation into the U.S. and the commercial transportation or sale in foreign commerce of such species by any person subject to U.S. jurisdiction are prohibited unless authorized, the taking of listed species is prohibited only within the U.S., within the territorial seas of the U.S., and on the high seas. The management and recovery of listed foreign species remain the responsibility of the countries in which the species occur, with the help of available technical and monetary assistance from the U.S.
- Other circumstances that are not easily foreseen, but in which the species would not benefit from a recovery plan.

In the past, existence of an alternative plan was used to justify an exemption from having a recovery plan, but this guidance considers adoption of an alternative plan a streamlining method of recovery plan preparation (see section 2.3.2.1, Use of Alternative Recovery Plans).

It should be noted that an exemption does not exempt NMFS from preparing for recovery of the species. At a minimum, a recovery outline (section 3.0) should be prepared for every domestic listed species.

2.2.2 Deferring Recovery Planning

There are some circumstances in which it may be necessary to defer the development of a recovery plan via an exemption approved by the Headquarters office. A plan cannot be deferred indefinitely, however, and a recovery outline, however general, should be prepared if at all possible. Circumstances in which a plan may be deferred include the following:

- A need exists to resolve taxonomic questions because new taxonomic information has come to light since listing and the resolution of the taxonomic question is expected to have a substantial bearing on the recovery planning process.
- The best available scientific information indicates that the species may be extinct, and therefore development of a recovery plan is not prudent unless and until the species' existence/extinction is confirmed. If the species is later discovered to exist, recovery planning should commence promptly. In the meantime, a recovery outline can guide surveys and should include a contingency plan in the case of re-discovery of the species. In this case, the species may be only temporarily

exempt from the recovery planning requirement.

2.2.3 Transnational and Transboundary Species

For purposes of this guidance, transnational species are those listed species with geographical ranges both within the U.S. and within one or more international borders. This can be due to migration or because the resident population straddles the border of the U.S. and one or more other countries. For transnational species, it is important to consider appointing one or more recovery team members from the other nation(s). If a representative from the other nation(s) is not appointed to the team, regular communication and cooperation with appropriate agencies in the other nation is important. It is also possible that individuals or representatives of agencies or interest groups from these nations be invited to attend recovery team meetings as observers. For the development of reclassification or delisting criteria, an early decision must be made as to whether individuals of the species that occur outside the U.S. or management actions taken outside the U.S. are necessary in order to achieve the recovery goal (keeping in mind that recovery criteria should be based on the biological needs of the species). If management actions outside the U.S. are necessary, early and continuing international cooperation is very important.

Transboundary species comprise a special case of transnational species. Canada, Mexico and the U.S. are all parties to the Memorandum of Understanding Establishing the Canada/Mexico/United States Trilateral Committee for Wildlife and Ecosystem Conservation and Management (Trilateral Agreement; Appendix D). Article III of the Trilateral Agreement states that the Trilateral Committee will... "develop, implement, review and coordinate specific cooperative conservation projects and programs; and integrate its projects and programs into the conservation priorities of the country in which those projects and programs take place." The FWS International Affairs Office - Division of International Conservation coordinates the Trilateral meetings, although NMFS is also involved. For NMFS, questions with regard to treatment of transboundary species can be directed to the Office of Protected Resources. (See the list of phone numbers in the front of this guidance.)

A similar agreement exists between Canada and the United States, entitled the Framework for Cooperation between the U.S. Department of the Interior and Environment Canada in the Protection and Recovery of Wild Species at Risk (Framework; Appendix E). The Framework aims to exchange information and technical expertise, evaluate the status of species, promote increased partnerships between the countries, identify species needing bilateral action, and "promote the development and implementation of joint or multi-national recovery plans for species identified as endangered or threatened." Starting in 2001, both NMFS and Department of Fisheries and Oceans (DFO) Canada are participating in bilateral Framework meetings hosted by DOI and Environment Canada in order to facilitate bilateral protection and recovery of marine species. The FWS contact for the Framework is the Washington Office of Endangered Species, which should be kept informed of new recovery efforts with Canada to facilitate coordination. NMFS headquarters may be contacted regarding questions on marine species, but NMFS has been working through FWS on Framework issues.

2.2.4 Species Occurring on Tribal Lands

Although Native American Tribes share the general goal of conserving endangered and threatened species on their lands, Tribal lands are not Federal public lands, and NMFS has special responsibility to address listed species in accordance with the following principles:

- Respect Tribal rights
- Acknowledge the treaty obligations of the United States towards Tribes
- Use the government-to-government relationship in dealing with Tribes
- Protect natural resources that the Federal government holds in trust for Tribes
- Solicit and utilize the expertise of affected Indian Tribes by having tribal

representation on recovery teams, as appropriate

- Work cooperatively with affected Tribes to identify and implement recovery

Departmental and Executive policies related to tribes are contained in Appendix F and include the following: Joint Secretarial Order on American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act (Department of the Interior and Department of Commerce 1997); American Indian and Alaska Native Policy of the U.S. Department of Commerce (1995); Executive Order on Consultation and Coordination with Indian Tribal Governments (2000); Executive Order on Indian Sacred Sites (1996); Presidential Memorandum on Government-to-Government Relations with Native American Tribal Governments (1994; 59 FR 10877).

One example of cooperation between Tribes and NMFS is the partnership between the Skagit System Cooperative and the NWFSC Watershed Program to recover threatened chinook salmon in the Skagit River Basin (see Box 2.2)

2.2.5 Integration of MMPA and ESA

Box 2.2 - Working with Local Tribes to Recover Salmon in the Pacific Northwest

In order to recover threatened chinook salmon populations in the Skagit River Basin, Washington, a partnership was formed between the Skagit System Cooperative and NMFS. The Skagit System Cooperative (SSC) is the fishery management agency for the Swinomish Tribal Community, Upper Skagit Indian Tribe, and Sauk-Suiattle Indian Tribe. The SSC approached the Watershed Program of NMFS Northwest Fisheries Science Center (NWFSC) about working together because they shared common goals. A Memorandum of Understanding (MOU) was developed as a formal vehicle to streamline cooperation.

In particular, the MOU identified the mutual goal of cooperatively developing a life-cycle model that relates the production of juvenile chinook salmon to habitat characteristics in the Skagit River Basin. Both parties share equitably in the collaborative tasks outlined in the MOU: (a) developing the life-cycle model (including necessary research), (b) collecting and analyzing field data necessary to parameterize and update the model, and (c) designing additional model elements that incorporate further biological processes and life-history patterns, as needed. It is the shared project goals and envisioned products that drive this type of relationship.

This partnership works well for several reasons. First, each party has unique expertise necessary to obtain the common goal. The SSC envisioned developing a chinook life cycle model in 1995 and has been conducting habitat and juvenile chinook life history studies in freshwater and estuarine areas of the Skagit since that time. The NWFSC has staff that are specialized in modeling and communicating results to a wide audience. In addition, NWFSC provides a means of collecting data in important unsampled strata i.e., Skagit Bay offshore habitats. By cooperating, the job gets done faster and more thoroughly than it otherwise would. Without NWFSC, a major sampling strata would not be sampled. Without SSC, most of the rest of the data would not be collected. Together, they build a better model. This effort is also successful because it is being conducted as part of the larger Puget Sound recovery planning effort for Pacific salmon.

As tribute to the success of this partnership, within a short time after the MOU was drawn up, the SSC and NWFSC had started multiple field projects, and were well on the way to completion of the life history model. The partnership continues to expand its ideas on joint projects to address threatened populations of juvenile chinook salmon in the Skagit River Basin and beyond.

All marine mammals are protected under the Marine Mammal Protection Act (MMPA). The MMPA specifies that conservation plans should be completed for any species or stock designated as depleted, which includes those that are listed as endangered or threatened under the ESA. The MMPA defines "depleted" as a marine mammal species or stock that is below its optimum sustainable population (OSP) level or that is listed as threatened or endangered under the ESA. The OSP level is the number of animals that will result in the maximum productivity of the population or the species, keeping in mind the carrying capacity of the habitat and the health of the ecosystem of which they form a constituent element. Thus, in some cases, there is a different threshold for a depleted designation under the MMPA than for a threatened or endangered listing under the ESA.

The MMPA requires that conservation plans be modeled after ESA recovery plans; therefore, all MMPA conservation plans should follow the format of an ESA recovery plan, as described in this guidance. For those marine mammals that are depleted due to their listing under the ESA, a recovery plan can serve the dual purpose of compliance with the requirement for a recovery plan under the ESA and for a conservation plan under the MMPA. For marine mammal stocks that are depleted but listed under the ESA, the guidance for recovery plans remains consistent with requirements for a conservation plan. Senate report 100-592 indicated that managers should include the basic components of a recovery plan as specified in section 4(f)(1)(B) of the ESA, as well as the following:

> (1) an assessment of the status of the species or stock and its essential habitat; (2) a description of the nature, magnitude, and causes of any population declines or loss of essential habitat; (3) an assessment of existing and possible threats to the species and its habitat; (4) a discussion of critical information gaps; (5) a description and discussion of research and management that could be undertaken to meet the objectives of the plan; and (6) a schedule for implementing the research and management actions identified in the plan.

This direction for conservation plans comports with the requirements of a recovery plan. The assessment of status, trends, habitat needs, causes of decline, threats, and critical information gaps can be included in the Background section of the plan. Research and management actions can be included in the Recovery Action Narrative section of the plan. The schedule for implementation of the plan can be covered in the Implementation Schedule of the recovery plan. Since the goal of OSP under the MMPA may be "higher" than that of delisting under the ESA, a recovery plan would include goals and criteria for delisting under the ESA and may also include goals, criteria and actions for attaining OSP.

Take reduction plans, which are developed pursuant to section 118 of the MMPA to address incidental mortality and serious injury of "strategic"[3] marine mammals affected by commercial fishing operations, should be incorporated into recovery/conservation plans when completed. More information on take reduction plans can be found at 50 CFR part 229, which provides general guidance for implementing section 118 of the MMPA.

It should be noted that an enhancement permit under the MMPA can only be issued if the taking or importation is consistent with an MMPA conservation plan or an ESA recovery plan. Thus, recovery plans for marine mammals should address issues such as rescue, rehabilitation,

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[3] The term "strategic stock" means a marine mammal stock (1) for which the level of direct human-caused mortality exceeds the potential biological removal level; (2) which, based on the best available scientific information, is declining and is likely to be listed as a threatened species under the ESA within the foreseeable future; or (3) which is listed as a threatened or endangered species under the ESA, or is designated as depleted under the MMPA.

captive breeding etc., for which requests for enhancement permits can be anticipated.

2.3 Organizing the Recovery Planning Effort

Recovery planning requires NMFS to organize a process addressing both inside-NMFS and outside-NMFS involvement. For the simplest planning efforts, it may be sufficient to approach organizational issues in an ad hoc fashion. For more complex efforts, however, these organizational issues should be explicitly addressed in order to identify clearly expectations, responsibilities, and lines of communication. It is also important to put together a timeline for completion of key steps, which includes (and may help set) the frequency of public meetings and plan reviews, and time limits for each. The majority of these considerations will be addressed in the Recovery Outline (section 3.0).

The inside-NMFS logistics include such issues as the following:

- Who will be NMFS' lead region/recovery biologist for the species?
- What type and level of coordination needs to occur among recovery, consultation, and permitting biologists, etc.?
- What other program or agency personnel (e.g., Refuges, Fisheries, Contaminants, Law Enforcement, National Ocean Service, Marine Sanctuaries, etc.) should have involvement in recovery planning and implementation?
- Who will write, edit, or review the plan?
- Who will facilitate meetings (should an outside facilitator be brought in)?
- Who will maintain administrative files, including data and comments provided by experts and stakeholders?
- How can communication and coordination best be facilitated among the Field, Regional, and Headquarters Offices, and other agencies, including foreign agencies, when appropriate?
- Who will be the NMFS contact person for stakeholder inquiries?
- Who will need to review the plan before it can be approved and how much time can be devoted to review?

Involving experts and stakeholders outside NMFS in the planning process has become increasingly important. Whether it be through informal contacts, information-sharing sessions, task forces, a recovery team, or other means, the relationships, roles, and responsibilities among planning parties again should be explicit. Some of the outside-NMFS organizational considerations include the following:

- Does the species or ecosystem occur on Tribal lands/waters or cross international borders?
- Who will be integrally involved in plan preparation, and who will provide peer reviews?
- What stakeholders will be involved at which stages in the effort and how?
- What are the most appropriate methods for contacting/involving stakeholders?
- Do you need to plan time for public meetings?
- What is the most appropriate length of time for public comment periods?
- Should a facilitator be used in running stakeholder meetings?

The outcome of all these considerations should be a proposed organizational structure and timeline that can be used to assign or negotiate roles and responsibilities with all those involved in the planning effort, and to plan for their completion. For more information on recovery teams, see section 2.3.3, Appointing a Recovery Team, and 4.2, Managing a Recovery Team.

Box 2.3 - The Recovery Planning Process for Pacific salmon

NMFS has developed a unique strategy for recovery planning for Pacific salmon and steelhead in the four states of Washington, Oregon, California, and Idaho. Eight recovery planning areas, or domains, have been identified throughout the West Coast that encompass all 26 listed ESUs of Pacific salmon and steelhead. A Recovery Science Review Panel (RSRP) has been appointed, comprised of scientists with national and international reputations. The RSRP is chartered to ensure that recovery plans use consistent and well accepted ecological and evolutionary principles and to oversee peer review of all recovery plans.

NMFS has appointed Technical Recovery Teams (TRTs) comprised of scientists to delineate populations, develop de-listing criteria, and to analyze factors that limit species survival. NMFS will work with state, tribal and local interests to craft a recovery plan development process specific to each domain that refines the TRT de-listing criteria into recovery goals, develops specific actions to achieve recovery goals, and estimates the time and cost for recovery. This process will build upon the many existing state and local conservation and recovery efforts already underway. The structure and timing of efforts will depend to an extent on what processes are underway in a given area.

In some cases it may be appropriate for NMFS to establish a Recovery Team by adding individuals to the TRT who possess a wider range of expertise (such as policy, economic analysis, land use planning, etc.) or represent ongoing planning efforts. In other cases it may be appropriate to appoint a separate policy-oriented Recovery Team and have the TRT serve as science advisors to that team. In still other cases, it may be that stakeholder lead efforts have matured to a point where it is unnecessary to appoint a Recovery Team for development of the recovery plan. In such cases, the TRT could serve as science advisors to the stakeholder effort and that effort can submit a recovery plan as an “Alternative Recovery Plan” for adoption by NMFS.

The key to this planning is to build existing efforts and develop new efforts where needed, and do so in a manner that involves NMFS sufficiently to ensure that recovery plans are consistent with the ESA and this guidance..

2.3.1 Coordination

In order to heed the direction in the 1994 Interagency Policy on Recovery Plan Participation and Implementation of the ESA (FWS and NMFS 1994c) that recovery plans be completed in a timely way, e.g., within two and a half years of listing, the planning process must run as smoothly as possible. This indicates a clear need for effective leadership and for accountability in terms of plan production and quality. As in any type of project, this outcome is best achieved by identifying someone as the Recovery Plan Coordinator. The Recovery Plan Coordinator should be designated prior to beginning any recovery plan, and this individual’s role should be clearly conveyed to everyone involved in the planning process. The Recovery Plan Coordinator’s standard role is to be the key person involved in all aspects of the planning process to the degree necessary to keep recovery plan development on course.

In some cases, the Recovery Plan Coordinator will be the biologist who listed the species; this individual will then go on to prepare the recovery outline and write the recovery plan; in other cases, the Recovery Plan Coordinator will not be directly involved in preparing planning documents but will work closely with plan authors and contributors. For complex, high-profile species, a full-time species coordinator may be designated, as has been done for the white abalone. For species with recovery teams, the Recovery Plan Coordinator

will typically be the Recovery Team Liaison (and, in some cases, the Team Leader). Some situations may require a small group of coordinators rather than a single person; in these cases, individual roles and responsibilities should be clearly spelled out before embarking on the planning project. It is important to note that the Recovery Plan Coordinator for a specific plan may or may not be the person designated in the field or regional office as the Recovery Coordinator (at the regional level, this role may involve administrative and review functions rather than coordination of specific projects, but each office is different). In any event, the key consideration is that someone be assigned to take responsibility for seeing the recovery plan through both the production and review phases to a timely completion.

Note that it is important, in terms of accountability, for the Recovery Plan Coordinator to be a NMFS employee, even if the plan is being contracted out or is in any other way being produced out of house. In cases where primary responsibility for producing and implementing a recovery plan has been delegated to a state agency or other organization, it may be appropriate to have the NMFS Recovery Plan Coordinator work hand-in-hand with a co-coordinator from that agency or organization. In all cases it is critical to have a key NMFS person responsible for ensuring that the process does not stall, that communication among all involved parties is open and constructive, and that planning products meet NMFS standards. These requirements clearly demand organizational skills, an ability to work well with others, a willingness to take responsibility for outcomes, and a conviction that the recovery plan will serve the best interests of the species.

2.3.2 Plan Preparation

Recovery plans can be written by any of several different entities, depending on the situation. In fact, all or part of a recovery plan may have been written by a different entity and adopted by NMFS. It should be borne in mind that, whoever writes the plan, the ESA recovery plan is a NMFS document and NMFS is ultimately responsible for its content. The following are considerations in determining who should write a recovery plan.

2.3.2.1 Use of Alternative Recovery Plans

In some cases, an alternative plan, already existing or about to be completed, serves the purpose of a recovery plan. An alternative plan is usually written by another agency or organization, but must be the functional equivalent of a NMFS recovery plan. In the past, existence of an alternative plan was used to justify an exemption from having a recovery plan, but this guidance considers adoption of an alternative plan a streamlining method of recovery plan preparation. Alternative plans must have the elements of a recovery plan required by the ESA (site-specific management actions necessary to achieve the plan's goal; objective, measurable criteria for meeting that goal; and estimates of the time and cost required to carry out those measures) as well as those required by policy directives and this guidance. Alternative plans that do not meet these requirements may be adopted as recovery plans once appropriate changes are made to ensure that they meet the requirements. In some cases, these changes are most appropriately made in the plan itself; in others they may be made in the form of an addendum. Alternative plans must undergo public review and comment.

2.3.2.2 Use of NMFS Biologists to Write Recovery Plans

In some cases it may be deemed efficient to have an individual or a small group of individuals within NMFS, often experts on the species, write a recovery plan. NMFS biologists are frequently used when a species has a small range or exists largely on publicly owned or managed land and waters and the number of potential stakeholders is small, making coordination less complex. A NMFS biologist may also write a recovery plan when the biologist is one of few experts on the species.

mission of the management area may coincide with the recovery of the species. This may also be the case with privately owned lands, such as trusts and preserves. In these cases, complexity and conflict are likely to be low, and it is possible for NMFS biologists to write effective recovery plans, particularly for species with a small range.

It is tempting to assign NMFS biologists to write recovery plans for the sake of efficiency, even if it is not the most appropriate means of completing a plan for that species. However, too many recovery plans are not used because they do not have the buy-in of those needed to carry out recovery actions. It is important to ensure that the long-term benefits of recovery implementation are not sacrificed for a quick completion of a recovery plan. In any case, it is essential that authors of recovery plans coordinate with all stakeholders.

Box 2.3.2.4 Decision Point: Recovery Team or Not??

Consider factors such as:

•the species' range (wide-ranging or endemic),
•whether there are controversial issues involved, and
•the scope of the plan (single species, multi-species, ecosystem focus)

Recovery teams are often appropriate for more wide-ranging species, more controversial issues, and larger-scope plans.

2.3.2.3 Use of Contractors to Write Recovery Plans

In some circumstances, it may be more expedient to hire a contractor to write a recovery plan, particularly if agency staff are not available. Contractors hired to write recovery plans may be affiliated with state conservation agencies, universities, museums, aquaria, private conservation organizations or private contracting businesses with relevant expertise. These individuals are considered independent scientists or specialists and are chosen for their expertise. When writing the plan, they do not represent the group with which they are otherwise affiliated. A draft plan does not necessarily reflect the views or positions of NMFS or any other involved agency. The plan a contractor submits may be accepted in full or in part by the Regional or Assistant Administrator, but the agency is under no obligation to do so. Contractors are usually hired through a contractual agreement. As in the case of agency biologists writing plans, it is imperative that individuals who are contracted to write a recovery plan coordinate with stakeholders, including private landowners, land managers, users of the areas in which the species occurs, and other interested parties. In cases where it is determined not appropriate for a contractor to coordinate with the stakeholders, NMFS must carry out these activities appropriately, and the contract should clarify the roles of the contractor and NMFS with respect to these activities.

2.3.2.4 Use of Recovery Teams to Write Recovery Plans

Recovery teams are often used to write recovery plans, especially when numerous parties have expertise or interest in the species for which the plan is being written. Recovery teams can bring together the diversity of expertise most appropriate to understanding a particular species' endangerment and for devising an effective recovery program. Recovery teams may also provide stakeholders and jurisdictions (including State, Tribal, and local governments) the opportunity to participate in the planning and implementation of actions necessary to recover and sustain the listed species; ensure that a diversity of options for the recovery strategy are considered; and help to develop plans that are practical and feasible and that minimize socioeconomic impacts (although they must lead to recovery of the species within a reasonable timeframe).

The decision on whether or not to appoint a recovery team depends on the specific circumstances of the species. Generally, teams are

appropriate where there is greater public interest (i.e., more and diverse stakeholders, controversial issues) and/or a wider species' range. Decisions on whether to have a recovery team and, if so, potential roles of team members in plan development and implementation may be addressed in the Recovery Outline (see section 3.0, The Recovery Outline, and Box 2.3.2.4).

Recovery teams have numerous advantages in that they do the following:

- obtain diverse opinions and ensure dialogue regarding important recovery issues;
- increase the depth of expertise (biological and otherwise) contributing to plan development;
- provide a mechanism for multiple agencies and stakeholders to interact;
- address and resolve controversial issues early in the process;
- impart greater credibility to decisions made by NMFS regarding the species' recovery program;
- develop advocates for the recovery program; and
- facilitate the implementation of recovery actions.

Disadvantages of recovery teams may include the following:

- a tendency for unwieldy and nonproductive meetings, especially if the team is large or includes persons who view their special interests as more important than the recovery of the species (see section 2.3.3.2, Recovery Team Composition);
- the investment of considerable energy and resources;
- difficulties bridging knowledge gaps among scientists, agency representatives, and other stakeholders;
- more complications in recovery plan development due to diverse viewpoints and sheer number of opinions;
- difficulty managing the dissemination of information (for example, members may inadvertently share incomplete or inaccurate information with the public or media); and
- potential for misunderstandings if all team recommendations are not accepted by NMFS.

Guidance concerning the appointment and management of recovery teams is provided in sections 2.3.3, Appointing a recovery team, and 4.2, Managing a Recovery Team.

2.3.2.5 Use of Informal Meetings and Groups

Whether NMFS biologists, contractors or recovery teams are writing the recovery plan, informal meetings and groups can be useful to share information, accomplish planning tasks, explore multiple points of view, and generate interest in the planning endeavor (see Box 2.3.2.5). Several options are provided below:

- Work with experts and interested parties on a one-to-one basis. Many times, this is the most productive way for the Recovery Plan Coordinator and/or for the plan author to proceed.

- Begin the recovery planning process with a "kick-off" meeting or workshop in which experts and other key contributors can get acquainted, share information and ideas, express opinions, and help establish a baseline understanding of the species with respect to recovery needs and opportunities.

- Use informal meetings to invigorate the process at various points during plan development. These meetings (including conference calls, video conferencing, or any other mode of group discussion) can be task- or topic-oriented; they can help keep the planning process moving forward; and they can be more or less inclusive of individuals with various expertise and interested parties. Examples include PVA workshops, meetings to discuss research findings, single-issue discussions, meetings with state agencies

to discuss cooperative efforts, and meetings to review draft documents.

- Set up informal planning groups, task forces, topical committees, or communication networks to address specific planning issues or to obtain various types of input.

It should also be recognized that these informal approaches require a significant degree of initiative and coordination, which should be anticipated when developing schedules and budgets and setting out milestones. Informal meetings and groups hold the potential for being much more fluid, inclusive, and focused than recovery teams, but they are not necessarily less time consuming. Good communication is all-important, and follow-up is vital, i.e., meeting notes should be shared and entered into the administrative record, and participants should be apprized of their continuing roles in the planning process. Also, if the plan is being prepared by a contractor or other independent party, this individual should be involved in or kept informed of all substantive discussions.

Bear in mind that recovery teams and informal planning meetings or groups are not mutually exclusive. Recovery team members may join larger recovery meetings when desired; recovery teams can work alongside task forces; team members can be consulted as individual experts, etc. For any given planning project, the variety of expertise and richness of experience should be tapped in the most effective way possible and with a clear purpose in mind.

Box 2.3.2.5 - Use of informal planning by a Service Biologist: Endangered Wood Stork Recovery Planning

To write the recovery plan for the wide-ranging, cross-regional endangered wood stork (*Mycteria americana*), the FWS lead biologist prepared an outline of the issues (including controversial) that needed to be addressed, held a meeting with all persons who knew anything about the species needs, and developed a draft plan from what was said at the meeting. The draft plan was distributed for review and comment to everyone who attended the meeting, in addition to anyone else who he thought would be affected and would have input. The draft and very successful approved plan were written in-house.

Although these less formal avenues for working with plan contributors and with other planning partners are more dynamic than a standing advisory body (like a recovery team - see section 2.3.3) and can provide a means of nurturing strong working relationships, they cannot function like a Federal Advisory Committee. According to the Federal Advisory Committee Act (FACA), NMFS cannot ask for and cannot accept consensus recommendations; NMFS cannot convene regularly scheduled meetings with the same group of invited participants; and none of these groups or individuals can be given decision making authority without going through very specific procedures. It is important to understand the provisions of FACA before any of the above options are used. Within this legal constraint, however, the informal approach can be an effective way of garnering individual viewpoints and new information while avoiding some of the pitfalls associated with recovery teams, e.g., conflicts of interest, size limitations, difficulties in gaining consensus, and the time constraints of team members.

As an example of the concerns about violating FACA, in 1994, the 11th Circuit Court of Appeals upheld a District Court holding that the combined findings of several scientists, initially requested individually by the FWS to assess the current status of the Alabama sturgeon, constituted a scientific advisory panel without following FACA procedures, and there had been a violation of FACA (Alabama-Tombigbee Rivers Coalition v. Dept. of Interior, 26 F.3d 1103 (11th Cir. 1994)).

Because of this violation, the court upheld an injunction preventing the FWS from publishing, employing, and relying on the panel's report, either directly or indirectly, to determine whether to list the Alabama sturgeon. This decision was

made, not because the science was invalid, but because it was developed and introduced into the process without following FACA procedures.

2.3.3 Appointing a Recovery Team

2.3.3.1 Statutory and Policy Basis

According to section 4(f)(2) of the ESA, NMFS, "in developing and implementing recovery plans, may procure the services of appropriate public and private agencies and institutions, and other qualified persons." Section 4(f)(2) also exempts appointed recovery teams from the requirements of the Federal Advisory Committee Act (FACA; see Section 1.2). Most appointed groups whose purposes are to develop or implement recovery plans qualify as recovery teams and thus are exempt from FACA constraints.

Although appointed recovery teams are specifically exempt from FACA provisions, outside of the recovery team setting one must carefully consider the provisions of FACA when seeking *advice* or *recommendations* from more than one individual at a time in the development and implementation of recovery plans.

2.3.3.2 Recovery Team Composition

The composition of a recovery team is crucial to its effectiveness. Team membership and team size are two key considerations in ensuring a functional recovery team.

Identification and Selection of Team Members – Recovery teams usually consist of a Team Leader, a Team Liaison, and a manageable number of team members (see Team Size below). Although diversity of membership is encouraged, recovery team membership should be based on relevant expertise, not affiliation, and all members of the recovery team must be committed to the recovery of the species in a timely manner. Team members should be selected for their knowledge of (1) the species, closely related species, ecosystem, or relevant disciplines, e.g., local planning, ecology, genetics; (2) the threats contributing to the status of the species, e.g., resource extraction operations, forestry, hydrology; or (3) various elements of recovery plan design or implementation, e.g., land-use planning or knowledge of alternatives to reduce socioeconomic effects of implementation. Teams are to be composed of recognized experts in their fields and are encouraged to explore all avenues to achieve recovery. Membership should include people with experience in managing species and in restoring and managing habitats. Additional considerations when selecting team members include (1) the ability to work together in team situations and (2) the ability to make time available to fulfill the needs of the recovery planning time frames.

Team Leaders and Team Liaisons – Although the Team Leader and the Team Liaison may be the same person, the Team Liaison is always a NMFS employee while, in many cases, the Team Leader is not a NMFS employee. The individuals in these positions work closely together to handle logistics of meetings, communication among members and between members and the agency, and ensure that the team stays on schedule. Both must have good organizational and leadership skill and have the ability to maintain a productive atmosphere for the recovery team. The Team Leader particularly is generally chosen because s/he is well respected and is considered fair and unbiased. The latter is especially important for species' plans that will involve contentious issues.

Generally, the responsibilities of the *Team Leader* include the following:

- Works with the Team Liaison to plan recovery team meetings
- Chairs and facilitates recovery team meetings (although a professional facilitator may be brought in for specific meetings in which a subject is going to attract a large number of people or is particularly contentious, or all meetings, if necessary)
- Takes a lead on overseeing recovery plan development
- Works with the team to identify and recommend priorities for recovery implementation

Generally, the responsibilities of the *Team Liaison* include the following:

- Provides guidance to the team regarding their role and function
- Ensures that the Regional Administrator's requests and recommendations are addressed
- Serves as the conduit through which recommendations, team minutes, and other communications to and from the Regional Administrator are transmitted
- Keeps the Regional Office and Headquarters informed of team opinions and positions on critical issues, and recovery planning progress
- Represents, elicits participation of, and informs experts in other NMFS programs (e.g., Habitat Conservation, Sustainable Fisheries), as appropriate

Team Size – Team size should balance the need to include diverse expertise and experience with the need to optimize manageability. In addition to the previously mentioned advantages of including a variety of expertise on teams, it has been suggested that diverse teams, particularly those with at least one non-federal member, may result in plans that are more likely to be implemented and effective (Clark et al. 2002). However, both Clark et al. (2002) and Gerber and Schultz (2002) also note that larger teams do not correlate with better plans or improved status trends for listed species. Management literature regarding team size indicates that teams may consist of two to 25 members (Hiller 1998) although the size generally suggested for optimal functioning is five to eight (Baguley 2002, Harrington-Mackin 1994). More specifically, Baguley (2002) states that the ideal size for a well-functioning team is five to seven members and that no more than ten members should be appointed to the team if full participation and involvement is being sought, albeit larger teams allow a wider range and diversity of skills and abilities. Harrington-Mackin (1994) sets the ideal team size for accomplishing multiple, complex tasks at five to eight members. She defines small teams as having six to 12 members and large teams as having 15-25 members. She cautions that larger teams are generally more appropriate when they are tasked with a simpler assignment or when the team is to be subdivided into specialized functions; in any case, members of large teams must recognize that they will not have equal participation in all issues (Harrington-Mackin 1994). These team size sideboards are found throughout business management literature.

There are a variety of options for restructuring the "traditional" recovery team format for cases where the number of potential contributors significantly exceeds the optimal functional team size. Options include developing: workgroups, scientific/technical and implementation subgroups, advisory recovery networks, core-teams, and technical consultants/technical advisors (see Appendix G). Experts or contributors who are primarily involved through these alternate mechanisms usually address specific species or habitat issues, rather than large sections of the recovery plan.

2.3.3.3 Appointing a Recovery Team

Recovery team members are appointed by the lead Assistant Administrator (with the exception of NMFS Pacific salmon teams, which are appointed by the Regional Administrator) with the approval of the prospective team member's employer. An appointment letter describing the terms of their appointment is sent to new members (See Appendix H for a sample appointment letter). These terms and other issues regarding team procedures may be clarified through a Terms of Reference, which is often distributed and agreed upon by all members at the first meeting.

The appointment letter does the following:

- Identifies the purposes of the team (whether to write/revise a plan, guide recovery implementation etc.)
- Explains that team members serve in an advisory capacity to the Assistant or Regional Administrator and are providing their recommendations and advice in response to their requests
- Indicates the anticipated duration of the team

- Clarifies that team members may be removed or replaced as the focus of the recovery team changes or if an individual fails to serve in a contributory and constructive way
- Clarifies that recovery teams may be terminated or restructured when their purpose has been served
- Notes, as appropriate, whether team members are responsible for their own travel expenses.

2.3.3.4 Terms of Reference

A Terms of Reference, which describes the team operating rules, is not mandatory but can be a very useful document. Generally, the Team Leader and Team Liaison or Recovery Coordinator draw up a Terms of Reference in advance of the first recovery team meeting. The team then discusses it and proposes changes, if any. Once finalized, the Terms of Reference should be agreed to by all team members and the Regional Administrator (see Appendix I for a sample Terms of Reference). The specific contents of the Terms of Reference should be tailored to each situation and can be finalized in consultation with the team. This document serves as an agreement between each member of the recovery team and NMFS.

The Terms of Reference does the following:

- Clarifies the purposes of the team and expected products
- Details the responsibilities of NMFS with respect to the team
- Details the roles of team members, the Team Leader, and the Team Liaison/Recovery Coordinator
- Describes the operating rules of the team, e.g., whether decisions will be made by consensus (preferable), majority votes, 3/4 majority votes; what percentage of members form a quorum; if members can have proxies or must be present, etc.
- Addresses the formation and duties of sub-committees, workgroups, and other groups

Box 2.3.3.3 - One Way to Construct a Recovery Team

To ensure that potential recovery team members understood their role in developing the South Florida Multi-Species Recovery Plan, the FWS lead office in Vero Beach, Florida used the following process prior to appointment of recovery team members: 1) The Introduction (which described the expertise needs and the outline of the plan's scientific basis) of the draft plan was prepared by the Field Office. 2) Agency heads, local governments, state partners and other stakeholders were contacted by a letter which described the scope of the plan and the approach that would be used to develop the plan, and attached a copy of the Introduction. Recipients were asked to provide their recommendations for recovery team members based on the information provided. 3) Potential members then received the recovery team appointment letter.

- Emphasizes the confidentiality of drafts and internal documents

2.3.4 Developing a Production Schedule

As stated in section 1.5.1, Timeframes, recovery outlines should be completed within 60 days of listing and approved within 90 days of listing, and a draft recovery plan developed within 1.5 years of listing and a final within 2.5 years of listing. A schedule for accomplishing various planning actions and a method for monitoring progress should be developed. This schedule should include important meetings (including public meetings), turnaround times for internal and peer reviews, and other milestones.

2.3.5 Setting Up the Administrative Record

The administrative record is the paper trail that shows the basis upon which the agency has made its decisions, and the procedures that the agency followed. The administrative record for a recovery plan consists of all documents and

materials considered by the decision-makers in making decisions concerning the development and implementation of the recovery plan, including those that reflect positions contrary to the final outcome. Examples of documents that should be included in the administrative record include the following:

- Relevant portions of policies, guidelines, directives, manuals, books, etc.
- Technical information, sampling results, survey information or other studies, reports, or scientific articles relating to the species covered in the plan
- External correspondence relating to the plan, including communications from other agencies and the public, and responses to those communications (E-mails from those outside the agency should be printed on paper and included in the administrative record)
- Notes or minutes of meetings with stakeholders, invitations and outreach material
- Transcripts of public hearings and other meeting notes
- Telephone conversation records, unless they are personal notes (see below)
- Petitions or other legal documents received from adversarial groups
- Draft versions of the plan that were circulated outside the agency
- *Federal Register* or other notices or formal documents relating to the plan
- Decision documents

Personal notes written and controlled by individual staff members solely for their own use are not included in the administrative record. NMFS has issued Guidelines for Agency Administrative Records. These are available at http://reefshark.nmfs.noaa.gov/f/pds/publicsite/documents/procedures/30-123-01.pdf .

An administrative record should be established early in the process of recovery planning and maintained throughout. A good administrative record documenting the processes and decisions involved in developing and implementing a recovery plan is extremely important; if a recovery plan is challenged in court, the administrative record will serve as the basis for court review. Two laws are particularly relevant to the establishment and maintenance of an administrative record – the Administrative Procedure Act of 1946 (APA) and the Freedom of Information Act of 1966 (FOIA).

Administrative Procedure Act

The APA sets standards for judicial review of agency actions and public involvement in a rule-making process. The APA allows a private party to challenge the legal sufficiency of any final "agency action" (under which a final recovery plan or the decision that a recovery plan would not promote conservation of the species can be challenged) or bring a lawsuit for an "agency action unlawfully withheld or unreasonably delayed" (under which the failure to complete a recovery plan in a timely manner can be challenged). When reviewing the adequacy of a final recovery plan or decision not to prepare a plan, a court should uphold the plan or decision unless it is " arbitrary, capricious, and an abuse of discretion or otherwise not in accordance with the law." In conducting its examination, the court will consider whether the agency acted within the scope of its legal authority, whether the agency adequately explained its decision, whether the agency based its decision on facts in the record, and whether the agency considered the relevant factors. The successful defense of a final recovery plan or decision not to prepare a plan thus largely depends upon the adequacy of the agency's administrative record.

The APA also requires the publication in the *Federal Register* of rules and a period for public comment. Although a recovery plan does not come under the public notice and comment requirements of the APA, the ESA itself requires public notice and the opportunity for comment. The adequacy of the public comment process would be reviewed under APA standards. The administrative record should document NMFS' public comment process and that the agency considered the comments received. Thus, a Notice of Availability (NOA) of the draft plan must be published in the *Federal Register,* and interested

parties and the public must be given an opportunity to comment.

Freedom of Information Act

FOIA states that any person has the right to request access to federal agency records. Federal agencies are required to disclose records upon receiving a written request for them, except for those records that are protected from disclosure by the nine exemptions and three exclusions of the FOIA. This right of access is enforceable in court. Records include all books, papers, maps, charts, plans, architectural drawings and microfilm; all machine-readable material such as electronic mail, magnetic tape, disks, drums, and punched cards; all audiovisual material such as still pictures, sound and video recordings; and all other documentary materials (including handwritten notes), regardless of physical form or characteristics, made by or received by NMFS pursuant to Federal laws or in connections with the transaction of public business and preserved or appropriate for preservation by the Service as evidence of the organization, functions, policies, decisions, procedures, operations, or other activities, or because of the informational value of the record (44 U.S.C. 2211).

The nine exemptions of FOIA follow:

1. Matters of national defense or foreign policy
2. Internal personnel rules and practices
3. Information specifically prohibited from disclosure by other statutes
4. Trade secrets, commercial or financial information (confidential business information)
5. Privileged interagency or intra-agency documents
6. Personal information affecting an individual's privacy
7. Records compiled for law enforcement purposes
8. Records of financial institutions
9. Geological and geophysical information, including maps, concerning wells

However, if a portion of a record falls within one of the exempted categories it does not mean that it is automatically excluded from release (note that an entire record would rarely fall within an exemption). If an exemption is to be invoked to deny access to information, a justification for withholding the information must be provided -- a mere assertion that an exemption applies is insufficient.

It should be noted that any information that has already been released in some way to the public can no longer qualify for an exemption. Generally, once a document has been released to a non-agency party, it loses its exempted status and cannot be withheld as a privileged document in litigation. Although this issue is not necessarily limited to FOIA, FOIA is a common form of release. This serves as a reminder to be cognizant of what gets shared with stakeholders and others outside the recovery team. However, NMFS should be able to release agency documents to recovery team members without waiving their ability to withhold the documents under FOIA, as long as team members do not distribute the documents. Consider whether confidentiality should be one of the ground rules for the recovery team. Such documents should be labeled as confidential and team members should understand that such documents should not be shared outside the recovery team process.

2.4 Preparing for Stakeholder Involvement

Stakeholders, broadly defined, are those who have an interest in the recovery of the species or particular actions taken to recover the species. Stakeholders can include, but are not limited to, other programs within NMFS, other government agencies (Federal, Tribal, State and local), affected landowners or fishers, academic scientists, conservation organizations, industries, or members of the general public. Establishing relationships with stakeholders as early in the process as appropriate and feasible is essential to building a foundation for the stakeholder involvement that will result in the development of recovery strategies that are practicable and likely to be implemented, thus achieving species recovery.

The recovery outline should include a description of how and where stakeholders will be involved in the planning process. This should include preliminary identification of, and a strategy for involving, appropriate stakeholders. In most cases, because of time constraints, formal stakeholder involvement will likely not begin until after the outline is complete. Below are thoughts on how to identify and involve stakeholders. These should be considered during the writing of the recovery outline and after the recovery outline is complete. Stakeholder involvement should continue throughout the recovery planning process. Additional information on involving stakeholders in the development of a recovery plan is discussed in section 4.3, Managing Stakeholder Involvement.

2.4.1 Identifying Key Stakeholders

Determining who the relevant stakeholders may be depends upon the situation and type of recovery activities that may be needed for the species. Having the right stakeholders is essential to developing an effective recovery plan and realizing its implementation. Stakeholders who commented on the proposed listing or who were otherwise involved in the listing process can form a starting point for identifying stakeholders. Questions to ask when identifying relevant stakeholders include the following:

- Who are the people or groups most dependent on the resources involved?
- Who are the people or groups most interested in recovering the species?
- Who commented on the proposed listing or were otherwise involved in the listing process?
- Who best represents those likely to affect or be affected by the recovery process?
- Who can help you meet the potential recovery goal, objectives, and criteria?
- Who is likely to be responsible for actions required for recovery?
- Who possesses claims, including legal jurisdiction and customary use, over the resources involved?
- Who are the people or groups most knowledgeable about, and capable of dealing with, the resource issues?
- Who specifically is having an impact on the conservation of the species?
- Who has been primarily managing the species and its habitat?
- Have there been similar conservation initiatives in the area? If successful, who was in charge and how did stakeholders participate?
- What stakeholder participation might be missed without a special effort?
- Who is likely to mobilize for or against what may be needed?
- Who can make what is intended more effective through their participation or less effective by their nonparticipation or outright opposition?
- Who can contribute financial and technical resources?
- Who will use the plan to justify funding requests, e.g., states or other NMFS programs?

Once a list of potential stakeholders is developed, the next step is to identify specific individuals or groups that are willing to participate in the recovery process. This is best done by learning how prospective stakeholders are organized and how they operate, by determining their relationships to one another; and by understanding the social, cultural, and institutional factors that

affect the ability of stakeholders to participate. It may also be useful to disseminate information about the proposed activity, enabling interested stakeholders to identify themselves to you.

2.4.2 Options for Stakeholder Participation

NMFS must promote stakeholder participation early in the recovery process by (1) making recovery outlines available to the public via NMFS' internet sites, (2) providing public notification regarding the intent to develop a recovery plan, an anticipated timeline for recovery planning, the opportunities for stakeholder involvement in planning and implementation, and (3) soliciting information about the recovery needs of the species or ways to minimize the social and economic impacts of implementing recovery actions. For newly listed or recently reclassified species, this can be accomplished simply by adding language to the final listing rule. For revisions or previously listed species without plans, NMFS requires publishing a *Federal Register* notice. In all cases, a notice may also be made available via NMFS' internet sites. Other means of ensuring meaningful stakeholder involvement that should be considered in the writing of the recovery outline and beyond include, but are not limited to, the following:

- Holding public hearings and group meetings (this involves planning for adequate funding and time);
- Providing stakeholders with regular reports from, and an opportunity to provide regular input to, the recovery team or other plan writers;
- Asking stakeholders to select the stages of plan development and issues in which they wish to be involved, to help them make most efficient use of their time and focus their participation on their most important issues;
- Including stakeholders on subcommittees set up for particular issues; and
- Including key stakeholders on the recovery team.

See section 4.3.2, Methods for Involving Stakeholders, for additional methods to involve stakeholders.

3.0 The Recovery Outline

Conservation actions for imperiled species can be initiated before or after a species has been listed as threatened or endangered. For some species, conservation needs are outlined prior to listing in such documents as state conservation agreements, candidate conservation agreements, or other management plans and strategies. Following listing, development begins on recovery plans, which contain long-term recommendations for meeting reclassification (for endangered species) and delisting objectives. In the interim between listing and recovery plan approval, the *recovery outline* provides a preliminary strategy for conservation that conforms to the mandates of the ESA. The recovery outline both guides initial recovery actions and ensures that future recovery options are not precluded due to a lack of interim planning. The recovery outline also lays the groundwork for recovery planning by documenting preplanning decisions.

Recovery outlines or their functional equivalent must be prepared for all newly listed species. This applies equally to multiple-species and ecosystem strategies. In addition, for any previously listed species that lack an approved recovery plan, a recovery outline must also be prepared. Ultimately, all listed species will have a relevant, documented strategy, whether it be a recovery outline or a recovery plan, that guides the conservation effort.

3.1 Definition and Purpose

The recovery outline is a *succinct, strategic, document used to direct the recovery effort and maintain recovery options for a species, group of species, or ecosystem, pending an approved recovery plan.* Recovery outlines constitute an important part of the administrative record for listed species.

The primary function of the recovery outline is to present a preliminary conservation strategy that will guide recovery actions in a systematic, cohesive way until a recovery plan is available. Its secondary function is to guide and document preplanning considerations for recovery planning. If the species is deferred or exempt from recovery planning (see section 2.2.1, Exemption from Drafting Recovery Plans), the recovery outline will act as the main recovery document.

The recovery outline addresses several needs. Actions that are urgently needed at the time a species is listed, as well as actions that constitute the early steps of prolonged efforts, can be implemented more effectively and efficiently if they are treated as integral parts of a rangewide conservation strategy. By providing a consistent view of the species' status and recovery needs, the recovery outline can also provide a basis for conducting project reviews under ESA sections 7 and 10. It can also be used by biologists to help project proponents to avoid narrowing or precluding future recovery options, e.g., allowing loss of a portion of habitat that might later be determined to be extremely important to the recovery of the species. With respect to critical habitat, identification of recovery needs can provide a context for management decisions within designated areas and inform delineation of appropriate habitat for future designation. Using the recovery outline as an organizational tool for both guiding and recording preplanning decisions (see section 2.0, Preplanning Considerations) will help expedite the recovery planning process, particularly in terms of thinking ahead about who will be involved in recovery plan preparation and how stakeholders can most effectively be involved in the planning and implementation process, if applicable.

When developing a recovery outline, keep in mind its practical uses as a hands-on guide to action and as a preplanning document. The recovery outline should be as concise as possible, although length and level of detail will vary among species. It should be prepared with the users in mind, i.e., those biologists, managers, and decision makers who will be implementing recovery actions. The recovery outline is not meant in any way to detract from the recovery planning process; it should not become a *de facto* recovery plan, nor should it deter efforts to expedite the recovery planning process.

3.2 Contents of the Recovery Outline

The contents of the recovery outline are divided into four major components: introduction, recovery needs assessment, preliminary recovery strategy, and preplanning decisions. The introduction provides basic background information. The recovery needs assessment evaluates population status, threats, and conservation measures *from a recovery perspective*. This assessment provides the basis for mapping out the preliminary recovery strategy, which focuses on a recovery vision for the species and states a brief action plan for working toward this vision. The strategy and action plan are the meat of the recovery outline, as they will guide decisions that will affect the recovery of the species until a recovery plan is completed. Preplanning decisions center on such administrative considerations as who will prepare the recovery plan, what will be the schedule for producing the plan, and who will participate in the process.

Additionally, for species that have a well-established database, it may be possible and prudent to provide additional detail in the recovery outline. Optional information may include: maps (e.g., occupied habitat, potential habitat, current range, possible reintroduction areas, suitable habitat, location of populations); delineation of recovery units; preliminary recovery criteria; and time frames and implementation strategies for various recovery actions.

The recovery outline is based solely on available data and the use of concise, cited references to the maximum extent possible (rather than repeating information). Development of the recovery outline will rely heavily on the information that supported the species' listing. Recovery outlines for some species may need to supplement the listing information when new information has become available. The Recovery Outline can tap information from other conservation strategies for the species, habitat, or ecosystem (e.g., state conservation plans, candidate conservation agreements, forest management plans), as well as from the first-hand knowledge of species experts, state agencies, and stakeholders. Information sources will vary in quality and reliability, and drafters may want to indicate how the variation will influence recovery decision-making for the species.

Required contents of a recovery outline are listed in Table 3, followed by an explanation for each item.

TABLE 3. REQUIRED CONTENTS OF A RECOVERY OUTLINE

INTRODUCTION

- Species' scientific and common name(s)
- Listing status and date
- Lead Regional Office
- Lead Field Office and contact biologist
- Level of available information and treatment of uncertainties

RECOVERY STATUS ASSESSMENT

- Biological assessment: What are the recovery implications of the species' demographic/genetic status?
- Threats assessment: What are the recovery implications of the threats facing the species?
- Conservation assessment: What steps have been taken to address the species' recovery needs?
- Summary statement of recovery needs

PRELIMINARY RECOVERY STRATEGY

- Recovery priority number, with rationale, for each listed species
- Recovery vision statement
- Brief action plan for working toward this vision

PREPLANNING DECISIONS

- Will a recovery plan be prepared? If not, provide rationale for exemption.
- Scope of the recovery plan (single species, multiple species, ecosystem, non-DPS population)
- Recovery Plan Coordinator (if different from lead biologist)
- Plan preparer(s)
- Where will information sources and the administrative record be housed?
- Will a recovery team be appointed? If so, provide expertises to be represented on the team.
- Production schedule for planning documents
- Key stakeholders: identify in-house partners, other conservation partners, scientific experts, affected parties
- Plan for stakeholder involvement in the recovery planning and/or implementation process

Appendix K includes the recovery outline for Virginia sneezeweed, which indicates the direction

and level of detail envisioned and varying elements incorporated into an effective recovery outline.

3.2.1 Introduction

Most of the items in this part of the recovery outline are self-explanatory. A few sentences should be included about the type and quality of available information for making early recovery decisions, with significant data gaps identified. Likewise, a sentence or two about the treatment of uncertainties should include (1) any assumptions or constraints that may significantly affect the ability to move ahead with recovery and (2) the role of research in the recovery process.

3.2.2 Recovery status assessment

An understanding of recovery needs should be based on a "rapid assessment" of the current status of the species, including *rangewide* assessments of the (1) biological, (2) threats, and (3) conservation information contained in the listing package *from a recovery perspective*. Rather than repeating the listing information, these assessments should *interpret* this information with respect to recovery, and assumptions should be made explicit. The assessments should be informal and brief (one to two paragraphs each) following an orderly thought process.

"Prompt sheets" of generic questions are provided to help guide each of these assessments. The questions are meant to provoke a course of thinking that should result in an effective preliminary recovery strategy and an early action plan. Note that the use of the prompt sheets is entirely optional.

- *Biological Assessment* – What are the recovery implications of the species' demographic/ genetic status? This assessment should focus *only* on biological factors that are related to recovery (see the Biological Assessment Prompt Sheet). The outcome of this assessment should be a brief statement about (1) aspects of the species' biology and ecology that may affect its recovery potential and needs and (2) the species' rangewide population status and trends.

- *Threats assessment* – What are the recovery implications of the threats facing the species? The outcome of the

Box 3.2.2 - 1 - Prompt Sheet for Biological Assessment

•Is the species' current biological status more or less conducive to recovery?
•How many extant populations appear viable?
•Are small or isolated populations highly persistent?
•What is the current vs. former distribution of the species throughout its range?
•Is the species locally abundant but absent from a large portion of its former range?
•Can populations be restored in historical locations?
•Is the species declining rapidly? Has it stabilized?
•What intrinsic biological factors are limiting to the species' recovery?
•Is habitat availability or quality a limiting factor?
•Is available habitat at carrying capacity? Can potential habitat be identified?
•Is much known about the species' response to management interventions?
•Overall, what is the prospect for the species being ultimately self-sustaining in the wild?
•Is the basic biology of the species fairly well understood? If not, what do we need to know to manage for the species?
•What is the appropriate scale for evaluating and managing species (e.g. species, population, management unit?)

assessment should be a clear (if tentative) picture of how current and potential threats affect the recovery prognosis for the species. See the Threats Assessment Prompt Sheet.

- *Conservation assessment* – What steps have been taken to address the species' conservation needs? This may consist of both pre- and post-listing measures, including ongoing conservation efforts. Candidate assessment forms, listing, and critical habitat designation documents are good sources of information for conducting this recovery-oriented assessment. The Conservation Assessment Prompt Sheet indicates what types of questions might be asked to assess the level of conservation in place for the species and further conservation needs.

- *Summary statement of recovery status* – The three assessments should be synthesized into a brief statement about the overall recovery status of the species. This summary statement should clearly indicate the key recovery needs, and impacts to avoid, for the species based on the current understanding of the species' status. It can then provide a basis for describing the direction that recovery will take, i.e., the preliminary recovery strategy, while a recovery plan is being developed.

Box 3.2.2 - 2 - Prompt Sheet for Threats Assessment

•Did the listing rule accurately describe all known threats? Has additional information regarding threats surfaced?
•What threats require the most immediate response?
•What threats are most intransigent?
•Did the listing rule address less immediate threats? If not, does the recovery plan need to?
•Did the listing rule include threats that may not be significant or contribute significantly to the species status as threatened or endangered?
•Do individual factors have potential for causing further declines or preventing recovery?
•Are the combined effects of multiple threats the primary concern?
•Are some threats, such as climate change or acidification, beyond the scope of a single-species recovery effort?
•Which threats are rangewide and which are local?
•What is the species' known response to the threats facing it?
•If threats to habitat are a key listing factor, what are the opportunities for protection?
•Is incidental take through section 7 or section 10 anticipated?
•Overall, to what extent can the threats facing the species be reduced or eliminated?

Box 3.2.2 - 3 - Prompt Sheet for Conservation Assessment

•Will any pre-listing conservation agreements or plans remain in place?
•Has any recovery-related research been conducted?
•To what degree have key populations and their habitat been protected?
•Is management of the species and/or its habitat underway? What management measures have been effectively employed for the species?
•Have any conservation measures pursuant to section 7 or 10 been identified? What effects could activities, or incidental take permitted under sections 7 and 10 have on the species' recovery potential?
•What role have/will other regulatory mechanisms play, if any, in maintaining recovery options for the species?
•Does the species have an active conservation constituency?

3.2.3 Preliminary Recovery Strategy

The preliminary recovery strategy involves *preliminary decisionmaking on a rangewide basis*. Although it will be, in most if not all cases, primarily qualitative, the strategy should provide a foundation for implementation of initial recovery actions as well as a valid biological context for making critical habitat and ESA section 7 and 10 determinations. Insofar as site-specific management actions can be included in the recovery outline, this is encouraged; however, this is *not* a requirement. The preliminary recovery strategy should include:

- *The species' recovery priority number* – The recovery priority number for the species (or for each species in a multi-species group) is based on the criteria in the Recovery Priority Guidelines (NMFS 1990, 55 FR 24296) and indicates the priority of the *species* for recovery plan development and implementation. Recovery priority numbers range from a high of 1 to a low of 12 based on the magnitude of threat (high, moderate, or low), recovery potential (high or low), and conflict with development projects or other economic activity.

  A rationale for the recovery priority must accompany the priority number. This rationale should explain how each criterion applies to the particular species. For instance, rather than merely saying there is a moderate degree of threat, explain the degree of threat relative to the recovery status assessment. It could also include, as appropriate, a statement about how the priority number might affect recovery efforts for the species.

- *Recovery vision statement* – This should consist of a brief statement that envisions full recovery for the species. The vision statement should relate closely to the species' recovery status (based on preceding assessments) in describing what full recovery for the species, or group of species, could "look like." If full recovery is not foreseeable (in which case an explanation should be provided), the recovery vision should focus on stabilization. In creating this vision, it may help to explore possibilities such as those on the Recovery Vision Prompt Sheet. It is difficult to be proactive, if the destination cannot be envisioned.

Box 3.2.3 - 1 - Recovery Vision Prompt Sheet

•Does recovery for the species mean it will be fully self-sustaining throughout its historical range, or does it mean something less than that because of biological or environmental limiting factors?
•Does recovery mean a substantial increase in the number of populations and/or individual occurrences?
•Does recovery mean filling in distribution gaps to buffer against likely disturbances and/or providing for natural repopulation if local extinction occurs?
•Does recovery mean that there can be fewer than the number of currently known populations if the remaining populations are fully protected and managed?
•Does recovery include expanding the current range of the species, and to what extent?
•Does recovery mean the species will live in a threat-free environment, and if not, which threats must be eliminated and which reduced to achieve recovery?
•How much protection, of what types, will be necessary to ensure the species' long-term viability after delisting?

Box 3.2.3 - 2 - Action Plan Prompt Sheet

•What actions will advance recovery toward the vision of recovery?
• Which actions should begin immediately?
•What actions will NMFS be responsible for initiating?
•What studies are most relevant to the species' recovery ?
•What is an appropriate inventory and monitoring system for the species?
•How can it be ensured that section 7 and section 10 determinations will not preclude recovery options for the species?
•For multi-species or ecosystem plans, how will each species fit into the larger strategy, and what actions are needed for individual species?
•What actions will address the ESA mandate to conserve the ecosystems upon which species depend?
•What actions are needed to gain and maintain stakeholder support for the species?

- *A brief action plan for working toward this vision* – Although the recovery needs identified through the recovery assessment and vision should be incorporated into the action plan as appropriate, as an in-house document, the action plan should focus on those measures that may be implemented by NMFS. The set of actions should include (1) the major steps that could lead to full recovery, (2) the needs that must be addressed immediately, and (3) the options to conserve for later planning decisions.

  The major steps should include: identify key long-term recovery actions, identify the threat(s) the actions address, note the contribution of each action toward full recovery (including which steps come first and which come later), and identify the Federal role in implementing each action. The action plan should also describe near-

term needs and opportunities for the species, including those actions that: (1) are most urgent, (2) are a prerequisite to addressing other needs, (3) should begin sooner rather than later because they are of long duration, e.g., monitoring, management experiments, and/or (4) constitute key information needs, e.g., taxonomic questions, population studies, habitat modeling.

3.2.4 Preplanning Decisions

The preplanning component of the recovery outline should document, as succinctly as possible, the preplanning considerations discussed in section 2.0 of this guidance. Among other things, these considerations include the designation of a lead region and biologist, the scope of the plan, identification of who will prepare the plan, and the manner in which stakeholders will be involved. Table 3 contains the list of preplanning decisions that must be documented in the recovery outline. For species that have been formally exempted from recovery planning (see section 2.2.1, Exemptions from Drafting Recovery Plans), the reasons for the species' exemption from recovery planning should be stated, rather than outlining preplanning decisions.

Appendix K includes the recovery outline for Virginia sneezeweed, which indicates the direction and level of detail envisioned and the varying elements that could be incorporated into an effective recovery outline.

3.3 Procedural Requirements and Timelines

3.3.1 Preparation of the Recovery Outline

Recovery outlines must be prepared for all listed species that do not have an approved recovery plan, unless approval of the recovery plan is imminent or delisting is being proposed. For a multiple-species listing, one recovery outline may cover multiple species, indicating those elements that are common to all species and those that are specific to each individual species. At a minimum, each species in a multiple-species recovery outline should have an individual recovery priority number.

For newly listed species, the recovery outline should be submitted to the Regional Office within 60 days after listing, with the option of completing it at the time of listing (this may be advisable in many cases in order to ensure maintenance of all appropriate recovery options for the species). If extenuating circumstances exist, this deadline may be extended up to six months with the approval of the Regional Administrator and prior agreement by Headquarters.

Functional equivalents of recovery outlines, e.g., comprehensive biological opinions, may suffice for some species. In order to determine the sufficiency of other documents as preliminary recovery strategies and preplanning documents, the content of the documents should be compared with the list of required contents in Table 3. Any missing items should be appended to the document so that it comprises a functional recovery outline, subject to the same review and approval procedures as all other recovery outlines.

3.3.2 Review and Approval of the Recovery Outline

The recovery outline should be reviewed and approved by the Regional Administrator within 30 days of the outline being submitted for approval, i.e., 90 days after listing. If an extension has been granted for preparation of the recovery outline, the time frame for review and approval will remain at 30 days from the date the outline is submitted.

Informational copies of recovery outlines must be forwarded to Headquarters at least two weeks prior to approval by the Regional Administrator. If Headquarters does not comment during this two-week period, it may be assumed that the recovery outline can be approved by the Regional Administrator.

Given their role as internally developed preplanning documents, recovery outlines will not be subject to public review. The reason is that the recovery outline is primarily intended to ensure the consistency, efficiency, and effectiveness of actions that NMFS and its partners may take to conserve a listed species and its habitat while a more comprehensive recovery planning effort, which always involves public participation, is pending. Recommendations in the recovery outline are non-binding; the recovery outline is intended to guide, rather than require, the actions of others outside NMFS.

3.3.3 Distribution and Disclosure

A copy of the approved recovery outline should be forwarded to Headquarters within ten days following regional approval.

Also upon approval, the lead NMFS office should post the recovery outline on its Internet site and share it through other appropriate means (e.g., at stakeholder meetings, with other Federal, State, Tribal partners, etc.). The cover page for all approved recovery outlines should include the following statement and disclaimer:

This outline is meant to serve as an interim guidance document to direct recovery efforts, including recovery planning, for the recently listed [insert species name(s)] until a full recovery plan is developed and approved. A preliminary strategy for recovery of the species is presented here, as are recommended high priority actions to stabilize and recover the species. The recovery outline is intended primarily for internal use by the National Marine Fisheries Service as a pre-planning document. Formal public participation will be invited upon the release of the draft recovery plan for this/these species. However, any new information or comments that members of the public may wish to offer as a result of this recovery outline will be taken into consideration

during the recovery planning process. Recovery planning is scheduled to begin in [month, year], and the recovery plan is targeted for completion in [month, year]. NMFS invites public participation in the planning process. Interested parties may contact _____.

3.3.4 Coordination

3.3.4.1 Contributors

The lead recovery biologist for the species, who may or may not be the listing biologist, should identify who will help prepare the recovery outline. For some species, the lead biologist may be able to prepare the outline independently; for other species, it may be necessary to include other NMFS biologists, program coordinators, and/or agency attorneys. It will be essential to coordinate with ESA section 7 and HCP biologists who are involved with ongoing projects that could significantly affect the conservation of the species and its habitat. For more complex recovery efforts, the lead biologist may also want to contact key individuals from other offices, regions, or agencies; in certain cases, species experts or other key stakeholders may be asked to contribute to the outline. In addition to coordinating input from other personnel, sources of information should be consolidated and meetings or conference calls (if any) should be scheduled.

The lead recovery biologist should determine what information needs to be included in the outline. It may be most expeditious to complete an initial draft in-house; then, *if necessary*, additional input can be solicited from other parties as determined through the coordination efforts mentioned above. Preparation of the recovery outline may benefit from an informal review by the NMFS biologists and managers who may be implementing it, although this is not required.

3.3.4.2 Stakeholders

Establishing relationships with stakeholders early in the recovery process can build a foundation for the long-term stakeholder involvement that will be necessary to achieve species recovery. To promote early stakeholder participation in the recovery process, NMFS should make approved recovery outlines available to the public on their websites. These should be accompanied by (1) an anticipated timeframe for recovery planning and opportunities for stakeholder involvement in planning and implementation and (2) a request for information about the recovery needs of the species or ways to minimize the social and economic impacts of implementing recovery actions. For newly listed or recently reclassified species, if a notice of the intent to develop a recovery outline and a recovery plan was included in the final listing rule (see section 2.4.2, Options for Stakeholder Participation), posting the recovery outline and an accompanying notice on a NMFS website is sufficient (see section 3.3.3, Distribution and Disclosure). For revisions of recovery plans or in cases where a notice of intent to prepare a recovery plan was not included in the final listing rule, NMFS requires a *Federal Register* notice. The recovery planning process will provide the opportunity for further dialogue about the recovery issues identified in the recovery outline. Various ideas for advancing this dialogue and involving stakeholders in recovery planning and implementation are presented in sections 2.4, Preparing for Stakeholder Involvement and 4.3, Managing Stakeholder Involvement.

3.3.5 Using/updating the Recovery Outline

The approved recovery outline will remain in effect as the primary guiding document for recovery until the final recovery plan is approved. During this time, the outline will act as the baseline document for assessing the merits of project proposals or evaluating recovery progress. In this sense, it should help guide the following aspects of recovery implementation.

- Funding and implementing of Federal recovery actions
- Working with Federal agencies in the context of section 7 consultations
- Developing Habitat Conservation Plans
- Clarifying recovery needs for key habitat identification and management
- Communicating with recovery partners, stakeholders, and the public, as appropriate

In some cases, changes may need to be made to the recovery outline in order to maintain its utility as a preliminary recovery strategy up until the time the final recovery plan is approved. The close alignment suggested by the overlap between the recovery outline and recovery planning does not mean draft plans should be required to conform to the outline; rather, the recovery outline should be updated if substantive new information or a significant change in direction emerges during the planning process.

Substantive changes to the recovery outline should be approved by the Regional Administrator and either incorporated into or appended to the outline or retained as file records. Changes that may affect incidental take authorizations, for example, should be documented and coordinated with the involved section 7 and section 10 biologists. As appropriate, the recovery outline should be updated online.

The lead region will be responsible for ensuring that either an up-to-date recovery outline or recovery plan is maintained for all listed species until delisting. In cases where plan preparation is unavoidably and significantly delayed, the recovery outline should be reviewed annually and updated as needed.

4.0 Planning Considerations

4.1 Directing the Planning Process

4.1.1 Effective Coordination and Management Oversight

As indicated in section 2.3.1, Coordination, the Recovery Plan Coordinator's fundamental role is to be the key person involved in all aspects of the planning process to the degree necessary to keep recovery plan development on course. From one planning project to another, however, particular responsibilities of the Recovery Plan Coordinator may vary depending upon specific planning needs. Aspects of planning that can benefit from careful coordination include (but are not limited to the following:

- Logistics such as developing a production schedule (see 2.3.4, Developing a Production Schedule); setting up meetings, briefings, conference calls, and list serves; maintaining mailing lists; and distributing materials
- Management of contracts
- Tracking of plan development
- Communication among the various in-house and other contributors to the plan
- Housing and dissemination of information for the plan and interim planning products
- Maintenance of the administrative record
- Facilitation of decision-making and/or conveyance of preliminary decisions and recommendations
- Plan reviews and other types of input
- Public communications
- Facilitation of management oversight

The most important aspects of coordinating any recovery planning project are to ensure that everyone involved is aware of the "ground rules," to facilitate constructive communication, and to keep plan development progressing. Concurrently, the Recovery Plan Coordinator and other program staff should keep managers informed, encourage them to exert their oversight responsibilities, and ensure that management support is forthcoming as planning proceeds. This can be accomplished by formalizing lines of communication, identifying points of involvement, and providing briefings.

Effective coordination will require foresight and a proactive rather than reactive approach to the opportunities and pitfalls that may arise during the planning process. It will also require a considerable amount of dedicated time and an ability to give daily priority to the recovery planning enterprise.

4.1.2 Managing Contracts

Entering into a contract for recovery planning services helps to ensure that the intended product(s) will be received in a timely manner and to specify the expected product. Contracting for specific products can assist recovery teams, working groups, or an individual by limiting the time needed to assemble all aspects of the recovery plan. It is also possible to obtain a contractor's services for the drafting of the plan itself. During the discussion/negotiation of the contract, the cost of the job should be negotiated based on the services, product(s), and the amount of time needed to complete the job. It is imperative that the contract identify the due dates and the services/products being provided.

The Recovery Team Liaison or Recovery Plan Coordinator should (1) articulate whether the contractor is sought for his/her expertise and/or close association with the species, (2) ensure that the format and content of all products are consistent with this guidance, and (3) note who will pay the costs other than the contractor's time, i.e., travel, purchasing of software, etc. A note can be added to the contract stating that the products provided will be considered recommendations to NMFS. The Recovery Team Liaison or Recovery Plan Coordinator should ensure that the individual has the time required to complete the tasks, as expected.

Examples of contractual services include:

- Writing the draft recovery plan and/or the final recovery plan
- Taking notes/recording discussions at recovery team meetings
- Assembling plan sections, graphs, maps, or other information that is written by

multiple persons, recovery team members or working groups
- Editing the assembled document
- Attending recovery team meetings to become familiar with the issues and team
- Providing revisions of early "draft" documents based on suggestions or changes
- Reviewing comments received on the draft plan and preparing responses
- Meeting/consulting with the Team Liaison, Team Leader, Recovery Plan Coordinator, and/or recovery team members or consultants to the recovery team to address issues presented as a result of the draft plan review/comment period
- Consulting periodically with the Team Liaison, Team Leader or Recovery Plan Coordinator) to determine job priorities
- Serving as a peer reviewer of specific draft plan sections or issues (Note: applicable only when not involved in the development of the recovery plan)

The contract can be in the form of a purchase order or an agreement. The affiliation of the contractor, (Tribal, State, Federal, private company or university) and the amount of the invoice will dictate the type of contract or agreement and payment of services. Consult your Administrative Officer for guidance.

4.1.3 Staying on track

Keeping the planning process on track means both staying on schedule and building a compelling case for recovery recommendations. This is a challenge because any process as long and complex as recovery planning has the potential to lose momentum, to become side-tracked, and even to stall out. This could happen for a variety of reasons, including lack of time, competing priorities, inability to resolve key issues, lack of leadership, political maneuvering, or unforeseen obstacles. It can be difficult, and requires the active commitment of all participants in the process, to keep the planning process moving smoothly and productively.

Primary responsibility for keeping the process on track will, in most cases, fall on the shoulders of the Recovery Plan Coordinator, the Recovery Team Leader and the Team Liaison (for species with recovery teams), and agency/program managers. In any case, to keep the planning process on track requires that the track be clearly laid out, i.e., the production schedule should be well thought out and agreed upon by everyone involved in the process, and adjusted if and when needed. In no case should the schedule be discarded without being replaced if the process begins to lag. Also, everyone needs to understand the ground rules for the planning process, as well as the desired outcomes in order to avoid getting inadvertently diverted from the task at hand. Staying on the course that has been laid out requires strong and resilient leadership.

One of the best ways to stay on track is to be very clear from the outset about the responsibilities of the various parties to the planning process, and to either gain an active commitment to stick with the ground rules and to meet the schedule from all involved or to negotiate a schedule that everyone can strongly commit to. After this has been done, it will be incumbent on the Recovery Plan Coordinator and his/her supervisor to ensure that participants are living up to their commitments to the extent possible. It should also be borne in mind that adapting a plan and schedule to respond to new information or to any other eventuality may dictate the need to develop a new schedule, but it does not mean that commitments are no longer real.

4.2 Managing a Recovery Team

Recovery team management is the responsibility of the Secretary of Commerce, through NMFS. Responsibility for managing NMFS teams differ with each species. Many NMFS regions take day-to-day responsibilities for managing teams, although responsibility for appointing recovery teams and for approving recovery plans lies with the Assistant Administrator for Fisheries in Headquarters. Other teams are managed by Headquarters, e.g., sea turtles. NMFS has delegated all Pacific salmon recovery planning responsibilities to Regional Offices.

The following guidelines apply to the management of recovery teams:

- Recovery teams are convened at the discretion, and work under the authorization, of the Assistant Administrator (Regional Administrator for the NW Region).
- The appointment letter and/or the Terms of Reference should thoroughly explain the role and expectations of each recovery team member (see section 2.3.3.3, Appointing a Recovery Team).
- Lines of communication between the team and NMFS are direct. Unless special circumstances warrant, Team Leaders communicate directly with the Assistant or Regional Administrator through the Team Liaison.
- The Team Leader and the Team Liaison play key roles in organizing the team, facilitating open and constructive discussion, and keeping the schedule for development of the recovery plan on track (see section 2.3.3.2, Recovery Team Composition).

4.2.1 The Role of a Recovery Team

Recovery teams may be convened to assist and advise NMFS on a variety of aspects of the development and implementation of an endangered species' recovery plan. The recovery team serves in an advisory capacity to NMFS but is not subject to the Federal Advisory Committee Act (see section 2.3.3., Appointing a Recovery Team). Traditionally, team members assist with the preparation of recovery plans (new plans, updates, and/or revisions), either by lending advice or by writing plan sections. Teams may also be asked to provide advice and assistance to NMFS on planning-related scientific issues and recovery implementation. In this capacity, some recovery teams have been requested to provide technical assistance on other aspects of NMFS responsibilities as they relate to the species' recovery, e.g., prioritization of research and management proposals. If teams provide policy analysis or recommendations, recipients must be cautioned that this information represents the team's views, not necessarily the views of NMFS or any other agency.

4.2.2 Agency Roles

At NMFS, the lead region or Headquarters takes the lead in determining the recovery team's composition, takes the lead for activities related to development and/or implementation of the recovery plan, but, with the exception of Pacific salmon teams, teams are appointed and plans approved by the Assistant Administrator for Fisheries in Headquarters. During the tenure of a recovery team, NMFS is ultimately responsible for team management and facilitation, although a Team Leader may take the lead in this role. The Team Liaison acts as a conduit for communication between the team and NMFS. (See section 2.3.3.2, Recovery Team Composition, for more information on the roles of the Team Leader and Team Liaison.) Ultimately, NMFS is responsible for accepting (or not), modifying, and approving the submitted plan.

4.2.3 Recovery Team Business

Although salary, per diem, and travel costs associated with recovery team activities are normally borne by team members' employers, routine business expenses, such as clerical and drafting services, supplies, printing costs, and other special services for team business, are typically funded by NMFS. NMFS also has the discretion of furnishing travel and related funds for the expense of team members. Other team business should be conducted as follows:

- A Memorandum of Agreement (MOA) that authorizes the expenditure of NMFS

funds may be prepared to facilitate the use of a contract or a purchase order for financing routine team business (see Appendix M, sample MOA). If the team leader is replaced, a new agreement must be prepared and signed by the Regional Administrator and newly appointed team leader.

- A Terms of Reference (TOR) may be prepared. This clearly lays out the roles, responsibilities, and expectations of both parties (see Appendix I, sample TOR).
- Teams may meet as frequently as necessary.
- Team meetings should generally be open to the public if facilities allow. However, if the recovery team requires time to itself to deliberate issues and prepare options for the draft recovery plan or if individuals or groups request private sessions with the recovery team to avoid public disclosure of confidential business or proprietary information, working sessions can be conducted that are not open to the public.
- All members are expected to conduct themselves and team business as described in the appointment letter and/or the Terms of Reference (see section 2.3.3, Appointing a Recovery Team, for more information on both).
- The process for decision-making should be clear and agreed upon by all members in the first meeting of the team. It is preferable for team decisions to be made by consensus. However, when addressing particularly contentious issues, teams may choose alternate methods, such as voting.
- Minutes should be prepared for each meeting and submitted to the Regional Administrator. Reports on accomplishments, such as inventory work, are often presented at team meetings and should be included in the minutes. When differences of opinion occur, the minutes should include the minority opinion, as well as the majority opinion.
- For species occurring in more than one region, the lead region is responsible for keeping the other involved region(s) fully informed of team activities. When more than one region has a team for a given species, the region with lead recovery responsibility must carefully coordinate among the teams (see section 2.1.1, Single Species/Subspecies/DPS plans).
- NMFS regions are responsible for keeping Headquarters offices informed of controversial or significant issues.
- The Team Liaison may or may not be an official team member. The Team Liaison may simply participate in team discussion by providing advice on NMFS policy and guidelines or may serve as an expert for the team.
- NMFS' fiscal obligation is contingent upon the yearly availability of funds as appropriated by Congress and is allocated according to each agency's other priorities for the year.
- Unless the Team Leader is a NMFS employee, agency letterhead and government postage are not to be used for team business (to do so could imply that the team is expressing NMFS policies or positions). Official NMFS letters to a team are to be directed to the Team Leader.
- After the recovery plan has been completed and approved, the Recovery Team may continue to serve indefinitely in an advisory capacity to NMFS, at the discretion of the Assistant Administrator and, at the request of the Assistant Administrator, may take an active role in coordinating and/or implementing recovery activities.

For the protection of the recovery team members, and in the best interests of species recovery, the recovery team should be mindful of a number of situations that it should avoid. Specifically, it is <u>inappropriate</u> for a recovery team to do the following:

- Represent itself as speaking for the agency
- Distribute draft plans or other internal documents; the Regional Administrator will obtain the views of cooperators, other

Federal and State agencies, and the public.

- Act through the news media, conservation organizations, State or Federal legislatures, or other parties to influence agency decisions.
- Act as an official consulting group to anyone other than the Regional Administrator, or accept other responsibilities outside its planning assistance roles without the prior conference of the Regional Administrator.
- Interject itself in litigation or regulatory actions.
- Contact parties that may be adversely affecting the species. This is the responsibility of the Secretary of Commerce or other federal or state agencies, as appropriate. The team should bring such actions to the attention of the Regional Administrator.

4.3 Managing Stakeholder Involvement

More comprehensive guidance to working with stakeholders throughout the recovery process is being developed for the Recovery Handbook. The guidance here focuses on plan development in particular.

4.3.1 How to Create Effective Stakeholder Participation

Since stakeholder involvement is context specific, what constitutes effective stakeholder participation sometimes can be difficult to determine.

On the one hand, one might seek to have stakeholder involvement in proportion to the role that the stakeholder will play, or in proportion to the degree that recovery activities might affect the stakeholder. If it is clear that a stakeholder will have only a small role in the recovery of the species, then one may want to consider a limited involvement for that stakeholder.

On the other hand, a stakeholder does not have to directly affect, or be directly affected by, recovery of the species to have a keen interest in species recovery. As such, it is important to ask the stakeholders about their concerns or goals. What aspects of recovery planning and implementation are of interest to the stakeholder and what can the NMFS do to facilitate their involvement? Once you know how stakeholders want to be involved, plan accordingly to ensure that the species' recovery planning and implementation continue to progress. However, planning for stakeholder involvement is a continual process, and your strategy may need to be updated as stakeholder roles change through recovery planning and implementation.

One caution – the focus of recovery planning should not be an extended quest for ever increasing stakeholder involvement at the expense of actually planning or implementing recovery actions; the goal of NMFS is to use stakeholder involvement to expedite the ultimate recovery of the species. There are logistical limits to who should be considered a relevant stakeholder, and to how various stakeholders can be involved. For example, stakeholder membership on recovery teams usually should be limited to those who bring a relevant expertise to the recovery planning process. Stakeholders who only represent particular affiliations should be involved in other ways.

Not all stakeholders will be involved in the same way, nor will they want or be able to be involved in the same way or to the same degree. How a specific stakeholder is involved is less important than ensuring that their involvement has meaning to the recovery process and that their involvement is meaningful to them. The less directly involved a stakeholder is in the process, the more critical it becomes to incorporate effective feedback mechanisms.

4.3.2 Methods for Involving Stakeholders

The challenge to NMFS is to find ways to effectively involve stakeholders in the recovery process without significantly slowing recovery. Effectively involving stakeholders requires, at a minimum, these three basic actions: (1) transmitting information to the stakeholders, (2) receiving feedback from the stakeholders, and (3) acting upon the information received. Regardless of whether stakeholders are participating on the recovery team, assisting with implementation plans for specific recovery actions, or simply reviewing draft documents and providing feedback, these three fundamental needs must be addressed.

There are many ways NMFS can encourage stakeholders to participate in recovery planning and implementation. The following are some ideas for approaching stakeholder involvement:

- Ask stakeholders to assess their needs and resources, and to recognize the opportunities offered by recovery planning and implementation; use this information to shape the strategy for recovery.
- Ask stakeholders to collect and analyze conservation information, e.g., monitoring threats.
- Request that stakeholders provide input on key recovery planning and implementation issues, e.g., how to implement a recovery

action such as a conservation education strategy.

- Ask stakeholders to participate in specific recovery actions.
- Request stakeholders to provide labor and resources to implement the recovery activities, e.g., through volunteering to participate in recovery activities
- Ask stakeholders to assume specific functions and responsibilities for recovery planning and implementation, including participating on the recovery team or specific action sub-team.
- Encourage partnerships with stakeholders and agree on a specific sharing of benefits and costs.

In the case of recovery planning for Pacific salmon, stakeholders are being asked to become very involved the in the recovery process through the development of sub-basin plans and assessments. These sub-basin plans will contribute to the recovery plan for the species. The sub-basin plans will provide many of the site specific habitat and hatchery related actions that will be undertaken to achieve the recovery of the species. Without the high level of involvement of stakeholders at the local scale, recovery will not be achievable.

Box 4.3.2 - Stakeholder Involvement with the Loggerhead Turtle Recovery Team

Several approaches were taken by the Loggerhead Recovery Team (made up of 7 biologists from the Services, states, and academia) to facilitate stakeholder involvement in the revision of the Loggerhead Turtle Recovery Plan. These approaches included construction and maintenance of a comprehensive website, organizing an interactive meeting for invited stakeholders, and maintaining and extensive e-mail list for notifying stakeholders of Team activities.

Website: The Loggerhead Recovery Team developed a comprehensive website (http://northflorida.fws.gov/SeaTurtles/loggerhead-recovery/overview.htm) to keep stakeholders and other interested parties informed about their work. The website is user-friendly, provides answers to frequently asked questions, posts minutes of each of the Team meetings, includes a schedule of milestones in the recovery planning process, and serves as a site to post draft sections of the plan for stakeholder review as major sections are completed. An e-mail address is provided on the site for questions/comments.

Stakeholder Meeting: A 2-day interactive meeting was organized early in the recovery planning process. Approximately 75 stakeholders representing industry (e.g., fisheries, coastal development), federal partners (e.g., Corps of Engineers, Minerals Management Service, Department of Defense), academia, non-governmental organizations, and private individuals were invited by the Team. The structured meeting consisted of a half day of presentations by Team members on recovery planning, species biology, population trends, threats analyses, and recovery criteria. The remainder of the meeting was organized into breakout groups which were structured to encourage stakeholder input on the Team's threats analysis approach and population trend assessment results as well as to gain input from stakeholders on recovery actions and recovery criteria.

E-Mail Contact List: As another method of keeping in touch with stakeholders, the Recovery Team maintains an e-mail group mail list of several hundred stakeholders. As the Team completes drafts of segments of the Plan they will be posted to the website and stakeholders will be notified that Plan sections are now available for review and comment. This review and comment precedes the formal Federal Register notice and request for comments on the Services draft.

Feedback from stakeholders regarding their involvement in recovery planning has been highly complimentary thus far.

4.3.3 Strategies for Communicating with Stakeholders

Technology offers the opportunity to interact with stakeholders in new and important ways, often allowing us to involve a much wider stakeholder audience than would have otherwise been practicable. However, it is important to note that some stakeholders may not yet have the ability to participate using technology-supported methods. When assessing and planning for stakeholder involvement, the opportunities and constraints for using new technologies must be assessed in specific context. The following sections address specific means of communicating with stakeholders.

4.3.3.1 Technology-based Strategies

There are a number of possibilities for using electronic media to facilitate communication with stakeholders. Check with the Public Affairs staff in your field office or regional office for information on the latest technologies, details on how to set up one or more of these systems, and whether there are any departmental rules or guidance governing how they are used. Remember that the rules governing recovery planning (FACA, FOIA, etc.) do apply here, as

with any other form of communication. Electronic options include, but are not limited to, to the following:

Electronic Mailing Lists (list-serves) – Electronic mailing lists are commonly used to provide information and allow people to discuss common interests. A program can automatically add interested persons to the mailing list. The person will receive messages posted to the list by other subscribers and will be able to post messages or enter replies to messages that will be broadcast to all of the other subscribers.

Dedicated E-mail Accounts (including auto-reply e-mail) – Establish a unique e-mail address for the species recovery activities to which inquires can be directed. This e-mail account could also incorporate an auto-reply, which responds with Frequently Asked Questions, fact sheets, or internet links to additional resources.

Websites – Websites can provide an excellent means of communicating with stakeholders. Recovery information can be posted to pages dedicated to recovery planning and implementation for the species and can be regularly updated. Secure websites can be used to limit access to information to only the stakeholders involved, if necessary. Caution: the website should be regularly updated, and the date updated should be clear; sometimes no website is better than an out-of-date website that frustrates or misleads the reader.

On-line bulletin boards – An on-line bulletin board or conference is asynchronous (not-real-time) communication with others by typing messages that everyone who belongs to the Bulletin Board or Conference can see. The messages are posted to the website and remain accessible to viewers over time. Bulletin boards typically invite those with a particular interest to post subject matter that might be of interest or importance to the issue at hand, e.g., submit ideas or comments on already posted material.

4.3.3.2 Non-technology Based Strategies

There are many other methods to make information available to stakeholders and to receive their input. These include newspaper notifications, informational meetings, informational mailings, one-on-one meetings, telephone interviews, and response and reply cards. Many of these methods have been used successfully by NMFS for years; others may offer new opportunities

4.3.3.3 Focus Groups

Focus group are generally small groups of individuals who are led through an issue in a conversational, free-flowing manner, usually by a professional moderator. The value of a focus group is that group members will exchange ideas and build upon these ideas to generate more of the information for which you are searching. However, focus groups are not brainstorming sessions; focus groups are convened to understand how people feel and think about a program or issue that is of importance to NMFS.

4.3.4 Legal Considerations for Interacting with Stakeholders

When developing plans to involve stakeholders, NMFS must also consider the various laws that can affect the manner of interactions. Discussing your plans for involving stakeholders with the appropriate Office of General Counsel is highly recommended. The information below is meant to highlight the legal considerations for developing plans to involve stakeholders and not to be used as a substitute for specific legal advice.

Federal Advisory Committee Act (FACA) – As discussed in section 2.3.3.1, Statutory and Policy Basis [for Recovery Teams], the ESA specifically exempts recovery teams from the requirements of FACA. However, to the extent that stakeholders are involved in recovery planning and implementation outside a recovery team, NMFS must ensure compliance with FACA.

In 2001, the General Services Administration issued final regulations implementing FACA (66 FR 37727). Section 102-3.40(e) specifies that FACA does not apply to “Groups assembled to provide individual advice.” FACA does not apply to a group that meets with no Federal official(s), including a public meeting, where advice is sought from the attendees on an individual basis and not from the group as a whole. To ensure compliance

with FACA, when seeking stakeholder involvement outside the context of a recovery team, the input should be on an individual basis rather than seeking recommendations from a group as a whole, i.e., consensus advice.

Paperwork Reduction Act (PRA) – To the extent that input from stakeholders is solicited in the context of a survey or a similar tool for gathering information, the requirements of the PRA must also be considered. The PRA requires a Federal agency to obtain approval from OMB each time it proposes to collect or sponsor, even under a contract or other agreement, the collection of identical information, e.g., a response to specific questions, from more than nine respondents.

Collection of information NOT requiring OMB clearance under the PRA include the following:

- Collection of identical information from nine or fewer people
- Surveys of other Federal agencies, bureaus, laboratories, etc.
- Passive means of obtaining feedback and comments without using structured questions, e.g., providing the opportunity for the public to provide feedback and comments through internet sites
- Feedback obtained through discussions that are not structured as a survey or focus group mechanism.
- Feedback or comments received through hotlines and complaint systems

Freedom of Information Act (FOIA) – When sharing information with stakeholders, it is important to note that once records have been released to the public, the agency may no longer be able to withhold the records under the FOIA exemptions. This is the case even if it was privileged interagency or intra-agency information which otherwise would have been withholdable (43 CFR 2.13; see additional comments in section 2.3.5).

4.4 Public Communication and Outreach

Another component of successful recovery planning is communication and outreach with the public. Communication efforts can shift public support, change attitudes and behaviors, heighten awareness, attract new partners, and succeed where disincentives and regulations have failed. To carry out successful conservation programs, we must better understand and apply effective communication. Underplaying communication and public relations can sink an otherwise sound recovery program. The aim of communication and outreach is basically to identify public attitudes, and then plan and implement a program of action to earn public support and understanding (Jacobson, 1999).

Outreach planning differs from stakeholder involvement, in that it casts a broader net to the public at large to keep the public informed on our work and keep them engaged and sharing in our successes. Public review and comment should be considered just one part of the overall public communication strategy. Publishing notices in the *Federal Register* is *not* outreach; efforts such as public information meetings, dissemination of communication documents/handouts, and interviews with media *are* outreach, and may occur throughout the recovery planning process. Keeping an engaging and updated website is also an effective outreach tool.

The foundation of a successful public communications program consists of systematic planning, implementation, and evaluation. The planning step starts with a review of the needs of the species and an identification of the desired public response to these needs. It may be necessary to target different audiences and to develop communication objectives for each audience. Communication objectives may be aimed at increasing an audience's knowledge, or changing attitude or behaviors. Once the objectives are articulated, tasks to implement them and measures to evaluate the result should follow (Jacobson 1999). Collaborating with a regional or national Outreach Specialist may be the most effective way to make certain that the recovery outreach component of recovery planning is accomplished. The public communications effort for the gray wolf in Yellowstone National Park is an example of an in-depth program that incorporates many techniques (Jacobsen 1999).

Many of the same strategies and tools for communication described in section 4.3.3, Strategies for Communicating with Stakeholders, apply to communicating with the wider public. Some outreach is local, while some is far reaching. Websites and list serves can be particularly useful when wide-ranging species are concerned. NMFS' websites should be used, at a minimum, to keep the public up-to-date on the status of recovery planning. List serves can be established to announce the availability of draft and final recovery plans, and to make announcements of interest to specific stakeholder and public interest audiences, e.g., discovery of a new population or information on monitoring results. Automatic notification of plan availability can be a useful public service undertaken with a minimal investment of field office personnel and fiscal resources. The list serve could continue to be used through recovery implementation to stay in touch with interested public.

4.5 Monitoring considerations

A sound monitoring program is a key part of the recovery process. Monitoring is needed to address a number of different aspects of a recovery program. These include species status and trends, threats, plan implementation, the effectiveness of recovery actions, and progress towards meeting recovery criteria. Recovery management decisions need to be verified and supported by monitoring results. In this way, monitoring can provide the scientific foundation for further recovery actions and measure the progress of management decisions. The recovery plan should contain, at a minimum, the basic framework of the monitoring program. A basic monitoring program can be defined in a separate section of the plan or contained within the various recovery actions in the Recovery Action Narrative (see Monitoring and Adaptive Management in section 5.1.9.3). Monitoring, and how to design specific monitoring actions, will be addressed in much more detail in a separate chapter of the Recovery Handbook.

Post-delisting Monitoring - The ESA requires NMFS to monitor delisted species for at least five years post-delisting to ensure that removal of the protections of the ESA does not result in a return to threatened or endangered status (ESA section 4(g)). While it is not necessary to include a post-delisting monitoring plan in the recovery plan, an action for development of a post-delisting monitoring plan should be included in the Recovery Program (see section 5.1.9).

4.6 Information standards

The 1994 Interagency Policy on Information Standards Under the Endangered Species Act directs NMFS to "conduct management-level review of documents developed and drafted by Service biologists to verify and assure the quality of the science used to establish official positions, decisions, and actions taken by the Services during their implementation of the Act" (FWS and NMFS 1994b; Appendix A).

In addition, in 2002 NOAA released Information Quality Guidelines (required under the Data Quality Act of 2002 (P.L. 106-554)) that direct that all information sources and analyses used in NOAA documents be checked and documented through a formal system of management review and oversight (NOAA 2002; see Appendix N). Together, these policies hold managers and decisionmakers accountable for ensuring that the data and analyses used in recovery planning are sound and that the documents conform to ESA policy standards.

4.7 Formatting

Recovery plans should be "living documents" and, as such, should be formatted to allow for updates, revisions, and addenda. The formatting should follow a pattern of pagination that allows individual plan sections to be updated and replaced in their entirety. Headings should follow a decimal system such as that used in this guidance and each page should have headers/footers that clearly identify the name of the plan, plan chapter, section, page number, and date. No specific additional formatting is necessary to facilitate converting the document to Internet based applications such as ".pdf" or ".html" file formats.

The completed recovery plan should be printed and distributed on 3-hole punch paper for ease of placement in a binder, which will facilitate replacement of individual updated sections. The recovery plan should also be converted to ".pdf" file format using Adobe Acrobat to allow for easy posting on and downloading from Internet websites. Very large plans may also be distributed on CDs, but will still require the page numbering, disclaimer note, and web-posting to allow for easy updating of individual sections. Plans may be posted in addition on field office websites, but they still must be posted on the regional and headquarters websites so that stakeholders and the public can find them easily.

4.8 User Friendly/Plain English

For recovery plans to serve not only as internal organizational documents but also as effective outreach documents to a diverse group of potential cooperators and stakeholders, presentation is very important. If a document is poorly organized, or looks sloppy and hastily thrown together, cooperators and potential partners are less likely to regard it seriously or to implement its recommendations. It is important to check and correct seemingly minor errors in spelling, punctuation, or syntax. A copy of *The Elements of Style* (Strunk and White 1972) is an extremely handy tool when writing documents like recovery plans. Try to provide illustrative graphics and break up the text with useful headings, text boxes, and other formatting techniques to enhance reader attention and comprehension. Figures and tables should be easily understood.

"Plain language" amounts to developing technical documents in a writing style that clearly explains to the public what the government requires or recommends. Clear explanations improve the relationship between the government and the public it serves by not letting jargon and technical terms get in the way of communication. A good relationship with partners and stakeholders who hold the key to implementation of recovery actions is essential; therefore, clear communication is essential. Through directives and guidance, the Federal Government, including the Office of the Federal Register, strongly supports the use of plain language.

Writing in plain language is based on the following three key concepts:

- *Use reader-oriented writing* – Write for your customers, not for other government employees. This means avoiding unnecessary use of acronyms, keeping sentences short and simple, and using terminology that lay people can understand. At the same time, keep the document accurate.
- *Use the informal level of expression* – To the extent possible, write as you would speak, preferring the short, as opposed to the long, word and the Anglo-Saxon, as opposed to the Greek and Latin, derivative. Avoid slang and colloquial expressions. In all cases give preference to the accurate word, even though it is long or derived from Greek or Latin.
- *Make your document visually appealing* – Present your text in a way that highlights the main points you want to communicate.

For detailed instructions on how to "de-bureaucratize" your documents, please visit the website that has been developed specifically to help you out: www.plainlanguage.gov

4.9 Maintaining the Administrative Record

The lead biologist, planning coordinator, and/or other person(s) assigned to maintain the administrative record for a particular recovery planning process should ensure that all relevant paperwork is systematically housed in a designated location. Maintaining a good administrative record from the beginning will will do the following:

- Facilitate plan updates and revisions
- Ensure continuity in the event of staff turnover
- Allow for more rapid dissemination of materials relevant to a particular recovery need or proposal
- Expedite tracking and information management efforts
- Allow for efficient responses to FOIA requests
- Strengthen the agency's case should a plan or its implementation be challenged in court (judicial review of a plan is based on – and nearly always limited to – the documents of the administrative record).

For guidance on what to include in the administrative files, refer to section 2.3.5, Setting up the Administrative Record. Files for planning and implementation should be distinctly organized and be subdivided according to the major parts of the plan and/or paperwork associated with the planning process, such as notices, correspondence, reviews, and responses. It may prove helpful to confer with counsel and colleagues who have had to produce an administrative record during the course of a lawsuit about tips and pitfalls in maintaining easily accessible, well-organized files.

It will be incumbent on the person(s) maintaining the administrative files to ensure that all relevant materials are obtained. Therefore, good communication between this person and others involved in planning and implementation is essential. Everyone involved in the process should be aware of who is maintaining the administrative files so that information needed to maintain a complete file can be forwarded to that person.

If a less centralized system is adopted for maintaining the administrative record for recovery planning and/or implementation, it is all the more imperative to clearly designate what information will be housed in which files in order to eliminate, at best, redundancy, and at worst, serious gaps in the record that could result from the expectation that others are holding on to particular materials. Departmental and Regional attorneys can provide further advice when needed.

5.0 The Recovery Plan

Section 5.1 of this guidance is formatted such that each subsection corresponds to a heading within the Table of Contents of a recovery plan (see section 5.1.5 for sample Table of Contents). We hope that the format of this chapter facilitates using is as a reference when writing or editing a recovery plan. Additional sections may exist, such as a Preface, List of Abbreviations, or Mission Statement of the Agency, and some of the subsections presented here may be merged in a recovery plan, if appropriate. Although there is some flexibility in the format of a recovery plan, we suggest that the writer follow these guidelines to achieve uniformity across recovery plans. This uniformity will facilitate understanding and implementation of plans for those who must work with more than one species or plan.

A recovery plan needs to lead readers along a logical path from what is known about the species' biology and life history, threats, and current conditions to a recovery strategy and program. It should be clear to the reader why the particular recovery program presented is expected to be the most effective and most efficient way of achieving recovery for the species. This includes simple checks such as ensuring that there are recovery actions to address each threat identified in the Background section of the plan and that readers can readily identify which threats each action is intended to address. In other words, each section of the plan should build on the preceding section(s) in order to create a clear picture of the plan for recovery. Remember that the recovery plan is an outreach document as well as a plan. If it is not clear why the particular recovery program was developed, the program is less likely to be implemented.

5.1 Contents of a recovery plan

5.1.1 Title Page

The title page should include the name of the plan; indicate if it is a revision and give dates for previous revisions; note the Regional/ Headquarters office, agency and location; and include the approval signature and date (for final plans) or month and year of issuance (for draft plans) (Figure 2).

RECOVERY PLAN FOR THE
NORTH ATLANTIC RIGHT WHALE
(Eubalaena glacialis)

REVISION

Original Version: December 1991

Prepared by

Office of Protected Resources
National Marine Fisheries Service
Silver Spring, MD

Approved:_____
William T. Hogarth, PhD.
Assistant Administrator for Fisheries
National Oceanic and Atmospheric Administration

Date:_____

Figure 2. Sample Title Page

5.1.2 Disclaimer Page

Both the disclaimer (for draft and final) and citation information should be included on this page (Figure 3). Unless there is a specific reason not to, the disclaimer should appear exactly as it does here. NMFS should be cited as the plan's author, even if it is drafted by an individual or recovery team. Be sure to include the website from which the plan can be downloaded.

Disclaimer

Recovery plans delineate such reasonable actions as may be necessary, based upon the best scientific and commercial data available, for the conservation and survival of listed species. Plans are published by the National Marine Fisheries Service (NMFS), sometimes prepared with the assistance of recovery teams, contractors, State agencies and others. Recovery plans do not necessarily represent the views, official positions or approval of any individuals or agencies involved in the plan formulation, other than NMFS. They represent the official position of NMFS only after they have been signed by the Assistant Administrator. Recovery plans are guidance and planning documents only; identification of an action to be implemented by any public or private party does not create a legal obligation beyond existing legal requirements. Nothing in this plan should be construed as a commitment or requirement that any Federal agency obligate or pay funds in any one fiscal year in excess of appropriations made by Congress for that fiscal year in contravention of the Anti-Deficiency Act, 31 U.S.C. 1341, or any other law or regulation. Approved recovery plans are subject to modification as dictated by new findings, changes in species status, and the completion of recovery actions.

LITERATURE CITATION SHOULD READ AS FOLLOWS:

National Marine Fisheries Service. 2003. Recovery Plan for the North Atlantic Right Whale (*Eubalaena glacialis*). National Marine Fisheries Service. Silver Spring, MD

ADDITIONAL COPIES MAY BE OBTAINED FROM:

National Marine Fisheries Service
Office of Protected Resources
1315 East-West Highway, 13th floor
Silver Spring, MD 20910
301-713-1401 or 301-713-2322

Recovery plans can be downloaded from the NMFS website:
http://www.nmfs.noaa.gov/pr/recovery/plans.htm

Figure 3. Disclaimer Page

5.1.3 Acknowledgments

This page should acknowledge the primary author(s), if completed in-house or by contract, or the recovery team (Figure 4). It often acknowledges other contributors to the plan.

ACKNOWLEDGMENTS

NMFS gratefully acknowledges the contributions of the following individuals in developing the Recovery Plan for the North Atlantic Right Whale.

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Figure 4. Sample Acknowledgments Page

5.1.4 Executive summary

The Executive Summary should summarize major sections of the plan. Try to keep the summary to a single page, front and back, if possible. The Executive Summary should be written after the main components of the plan are completed (or nearly so) and should include the following:

Current Species Status: Include listing status (threatened or endangered), date listed, recovery priority, numbers, distribution of populations, and key biological needs and constraints.

Habitat Requirements and Limiting Factors: Summarize specialized habitat requirements and major threats to be addressed under **Actions Needed.**

Recovery Strategy: State as clearly and succinctly as possible, with page references where greater detail is given, if needed.

Recovery Goals, Objectives, and Criteria: Generally take *verbatim* from the plan, but abbreviate if necessary, with page references where specifics are given.

Actions Needed: The ESA requires that recovery plans include the actions that may be necessary to achieve recovery. Include all major headings from the recovery action outline here, recognizing that there may be numerous actions that fall under each one. In other words, include 1.0 - Protect and manage existing habitat, 2.0 - Conduct management-oriented research, 3.0 - Monitor key populations, etc., but not their subcomponents. Depending on how actions are categorized in the recovery action outline, some general actions may be combined into broader categories in the Executive Summary.

Estimated Date and Cost of Recovery: After completing the Implementation Schedule, add total yearly cost estimates (section 5.1.10; Appendix Q) for each major action category, i.e., all actions beginning with the same number, and indicate the anticipated year that recovery would be achieved. Estimates should be carried through to the date of full recovery, i.e., when recovery criteria could be met. There may be extreme cases in which estimating a date and cost to recovery is not possible due to uncertainty in what actions will need to be taken to recovery the species. In such circumstances (and they should be rare), an order of magnitude for cost and some indication of time in terms of decades, should be provided if at all possible.

Table 4. Example Cost Estimates table.

COST ESTIMATES (in thousands)

Year	Obj. 1	Obj. 2	Obj. 3	Yearly Total
FY 01	3		9	12
FY 02	3	9.5	9	21.5
FY 03	3	9.5	12	24.5
FY 04	3	2.5	12	17.5
FY 05			12	12
FY 06			12	12
FY 07			12	12
FY 08			4	4
FY 09			4	4
FY 10			4	4
Grand Totals	12	21.5	90	123.5

5.1.5 Table of Contents

For most plans, the Table of Contents should include all headings and subheadings in the plan (Figure 5). Try to keep the Table of Contents to one to three pages, so that a reader can understand the organization and find pertinent sections at a glance. For particularly complex plans, such as multiple-species plans, this may mean leaving out subheadings at the lower levels or using some other means of keeping the number of pages to a minimum.

Headings, subheadings, tables etc. can be coded using word processing software, which allows for pagination in the Table of Contents to be adjusted with each version of the document as the plan is being written.

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Figure 5. Sample Table of Contents

5.1.6 Background

In this revised guidance, the previously used name of this section, Introduction, has been changed to Background. "Background" more accurately describes the purpose of the section which provides the background information needed to understand the Recovery Strategy, Recovery Goals, Objectives and Criteria, and the Recovery Program.

The Background section of the recovery plan is critical to the understanding and acceptance of the recovery needs of the species and should provide information to build the case for why the particular recovery program outlined in the recovery plan is the most appropriate path to recovery. Information in this section should be directly relevant to understanding the endangerment and recovery of the species. The Background section needs to discuss succinctly the information in each of the subsections outlined below and identify data gaps within these subsections. Since the Background section of the recovery plan is the primary vehicle for communication with other agencies and the public about the species' recovery needs and its recovery program, this section needs to be biologically accurate but readable by lay persons. Appropriate references should be cited but also summarized succinctly, i.e., the recovery plan should be a stand-alone document. Like in all sections, the Background section should be arranged in such a way that the information can be accessed easily. Ensure that the titles of these subsections correspond to the titles in the Table of Contents.

Directly under the heading Background, the introductory paragraph should include a sentence about the general purpose of recovery plans (to guide implementation of recovery of the species) and the ESA mandate for preparing them. It should note that they are advisory documents, and that recovery recommendations are based on resolving the threats to the species and ensuring self-sustaining populations in the wild. Include any general introductory information that may be pertinent to the particular species, e.g., that the plan covers multiple species, that it includes candidate species, that it's a revision that contains many changes based on research conducted between the completion of the original plan and this plan, or whatever might aid the reader in understanding the plan. This paragraph should ease the reader into the plan with an understanding of its purpose and an expectation of how the plan will build the case for the specific actions it recommends.

In addition to the introductory paragraph discussed above, the following subsections are suggested for inclusion in the Background section. They may be adapted or additional subsections added to suit the biology of, and issues affecting, the species. These subsections can refer to a recent status review or the listing package for more in-depth information.

5.1.6.1 Brief Overview/Status of the Species

Give a brief overview of the species, including its scientific and common names; status (threatened, endangered, candidate or proposed (multiple-species plans may include the latter)); date listed, proposed, or designated as a candidate; *Federal Register* citation for the final listing rule for each species, subspecies or DPS/ESU; and the species' recovery priority number (section 3.2.3). The State status, the estimated extent of decline of the species, and a very concise overview of threats or limiting factors are optional items that may also be included.

5.1.6.2 Species' Description and Taxonomy

Describe the taxonomy and physical appearance of the species. This should be written approximately on the level of a field guide. State the date when the species was described and refer to the best available technical descriptions. Make clear how well the species is understood regarding taxonomy, especially if genetic studies have not been conducted. Mention look-alike species, note how to differentiate between them and the species in the plan, and explain how similarity of appearance of sympatric species might influence recovery efforts, such as searches. When dealing with lesser known species describe family affiliations that may be useful to the non-taxonomist.

5.1.6.3 Populations Trends and Distribution

Give the best available information on current and historical numbers of populations and individuals and on current and historically occupied range. Give information on population trends, and projections based on recent trends, if available. Note how much confidence there is in this knowledge, including how much effort has gone into the search effort and whether there's much likelihood that more populations will be found in future searches. Be sure to include negative search results. Indicate populations known to be extirpated and habitat known to be permanently lost. Indicate whether carrying capacity is limiting the species and whether decreases in carrying capacity are necessarily permanent. Indicate population or stock (for marine mammals listed under the MMPA) discreteness. Metapopulation considerations should be included, if relevant, and modeling or viability analyses that have been conducted should be cited and briefly described. The significance of population status and distribution with respect to recovery needs and opportunities should be stated.

Include maps of appropriate scale to delineate current and historical range, without disclosing any sensitive, site-specific information. Be sure that the map has adequate margins to allow for hole-punch binding, a legend, an indication of north, and that it will reproduce clearly.

5.1.6.4 Life History/Ecology

Summarize the life history and ecology of the species. Focus on the biological or ecological aspects of the species that are relevant to ongoing threats or to future recovery. Pertinent information may include reproduction and recruitment rates and strategies, age at maturity, growth rates, phenology, breeding habits, reproductive strategy, spawning or other dispersal methods, diet and feeding habits, behavior, migration and movement patterns, habitat use patterns, and natural sources of mortality.

Frequently, considerable information on species biology has been discussed in a recent listing rule, and a succinct summary of this information, referencing the listing rule and other relevant literature, may reduce the time involved in incorporating this information into the recovery plan. Do keep in mind, however, that the recovery plan should be a stand alone document and must, therefore, summarize this background information. This subsection may be combined with the following subsection.

5.1.6.5 Habitat Characteristics/Ecosystem

This section of the recovery plan focuses specifically on the habitat needs of the species and should note the different habitats used for different portions of the species' life history (breeding, feeding, calving, spawning, and nursery habitats; summer and wintering grounds; migratory routes; rookeries; haul-outs; seasonal wetlands or drylands; associated species; etc.). Be sure to include relevant physical and biological aspects of habitat and ecosystem needs, such as geological formations, plant or community associations, migratory pathways, cover and food use, currents, water quality and quantity, flow regimes, and host species, as well as known relationships to competitors, predators and prey, and symbiotic relationships.

Describe all elements of the ecosystem that may need to be taken into account by project planners and managers. For instance, if habitat quality is an issue for the species, discuss the differences between optimal, suboptimal, and marginal habitat. If the species opportunistically utilizes resources not deemed to be habitat, this should be noted and qualified. If the species occupies only a fraction of habitat considered to be suitable at a given time, this should be noted. This information will be used for section 7 consultations, Habitat Conservation Plans, and for other management programs.

5.1.6.6 Critical Habitat

If critical habitat has been designated under section 4(a)(3)(A) of the ESA, make it a heading in the plan. (This is usually designated at the time of listing, but may be designated subsequent to listing and revised when necessary.) Describe critical habitat, including the time when it was designated, the boundaries of the designation (include a map, if appropriate), and the constituent elements listed as essential in the designation. If

important habitat has been identified as needed for recovery but has not been designated as critical habitat, be sure to note this in this section and include the necessary management of the habitat in the recovery actions section. This may also assist in future revisions of critical habitat.

It should be noted in the recovery plan that designated critical habitat carries with it consultative requirements under section 7(a)(2) of the ESA with regard to adverse modification. See Box 5.1.6.6 for other attributes of critical habitat.

Box 5.1.6.6 - Special Attributes of Critical Habitat

•Under section 7(a)(2) of the ESA, Federal agencies must avoid adverse modification of critical habitat, whether or not the species currently uses that habitat.

•Critical habitat must be defined by specific limits using reference points and lines as found on standard topographic maps of the area.

•Physical and biological features essential to the conservation of the species and that may require species management must be considered when designating critical habitat. These include 1) space for individual and population growth, and for normal behavior; 2) food, water, air, light, minerals, or other nutritional or physiological requirements; 3) cover or shelter; 4) sites for breeding, reproduction, rearing of offspring, germination, or seed dispersal; and generally 5) habitats that are protected from disturbance or are representative of the historic geographical and ecological distributions of the species.

•Designation of critical habitat must take into consideration the impacts of the designation, including economic impacts (listing cannot). An area may be excluded if it is determined that the benefits of such exclusion outweigh the benefits of specifying such areas as critical habitat, unless it is determined, based on the best scientific and commercial data available, that this exclusion will result in the extinction of the species.

•Critical habitat designations may be revised through the rule-making process as new data become available.

•Critical habitat does not have to be designated if it is deemed not prudent to do so. A “not prudent” determination is made if the designation will increase the degree of threat to a species that is threatened by human activities (for example, through collection or vandalism), or if the designation would not be considered beneficial to the species.

•Critical habitat is not designated in areas outside of US jurisdiction.

5.1.6.7 Reasons for Listing / Threats Assessment

This subsection should include an overview of the species' decline, and its causes of decline (to the extent they can be determined). The causes of decline, or threats, may be past, continuing from the past into the future, newly identified, and reasonably anticipated in the future (including, but not limited to, those that have been temporarily curtailed but are likely to recur). Where possible, this subsection should also identify the source of threats, e.g., if the threat is siltation in a stream, the source could be urban runoff, watering cattle, removal of riparian vegetation, recreational uses, etc. Noting the source helps tailor the recovery action(s) needed. When discussing each threat and its source(s), the geographic scope, severity, and frequency of the various threats should be indicated, noting those that present greater or lesser threats to the species. Uncertainties with respect to threats to the species should be identified as well.

The question often arises as to whether intractable threats, such as climate change or environmental shifts, should be included in recovery plans. Although sometimes difficult to address, all realistic threats should be identified, i.e., those that are likely to have an effect on the species (not a list of every conceivable threat). Although we may not be able to address the issue in the recovery plan, it is important to make the threats assessment as objective as possible, and to document the existence of all threats. In addition, in the future this might help to ascertain the extent of the threat to imperiled species or, if multiple species are affected by the same threat in a given area, it could help lead to a common solution.

To provide continuity among the listing package, this section and the recovery criteria, threats that were listed in the final rule should be addressed in this section and discussed in terms of the five listing factors (see Box 5.1.6.7 on the five listing factors). If the species was recently listed, much of this information can be taken from the "Factors Affecting the Species" section of the listing rule. Plans should assess any new threats, changes in severity of threats, and threats that have been reduced or removed since publication of the final listing rule.

Box 5.1.6.7 - The five listing factors, as outlined in section 4 of the ESA

A. The present or threatened destruction, modification, or curtailment of its habitat or range

B. Overutilization for commercial, recreational, scientific or educational purposes

C. Disease or predation

D. The inadequacy of existing regulatory mechanisms

E. Other natural or manmade factors affecting its continued existence

Conducting a threats assessment for the species is strongly recommended. A threats assessment is a structured approach to assessing threats, sources of threats, and their relative importance to the species' status, and often results in a threats table which summarizes the findings of the assessment. A threats assessment aids in identifying the sources of stress to the listed species or to its habitat, and in evaluating and ranking these stresses. This is particularly valuable when there are multiple, potentially interacting threats. Conducting a threats assessment is also an extremely valuable tool for ensuring that diverse people, such as a recovery team, attendees at a public meeting, or readers of a recovery plan, approach the recovery planning process with the same assumptions about threats, their sources and their importance to the recovery of the species. Explicitly outlining the threats, their sources and their importance to recovery, results in greater understanding of the recovery strategy and actions outlined in the recovery plan. Revisiting a threats table or other results of a threats analysis can also help to get a group, such as a recovery team, back on track later in the recovery planning process, should they start digressing or losing focus. The Nature Conservancy has one approach to conducting a threats assessment that may be useful (The Nature Conservancy 2001). See Appendix C for more detailed information on the TNC approach to threats assessment.

5.1.6.8 Conservation Efforts

For some species, conservation efforts intended to reduce or remove threats will have been ongoing or initiated prior to the approval of the recovery plan. These efforts, conducted by individuals, private organizations, state and local agencies, or Federal agencies, should be discussed here. This should not be a laundry list of achievements. This discussion should include an assessment of the effectiveness of conservation actions to date including, if the action was in place before listing, the reasons why the efforts were considered insufficient to reduce threats to the point that listing was unnecessary, e.g., the effort only covered a small portion of the species' range or addressed only one of several threats. Explain the net benefit of these achievements to the species' conservation to date, and whether such efforts and their benefits are expected to continue. This will be instructive to the reader and help to document why NMFS is taking the strategy that it does in subsequent sections of the recovery plan. Indeed, the advances made in conservation compared with the discussion of unaddressed threats from the preceding section should lead very logically to the Recovery Strategy. For revised plans, this is the place to list the recovery actions that have been accomplished to date.

5.1.6.9 Biological Constraints and Needs

Based on all of the above, identify any biological constraints or needs of the species that need to be considered in planning and management. The purpose of this section is to state up front any known limiting factors that are biologically inherent in the species and non-modifiable, and which *must be honored* when designing any management/recovery program for that species. Examples might include extremely delayed maturity which requires unusually high annual survival in juvenile stages; needs for a particular and rare habitat for one or another life history stage; or a need for a minimum population size for successful breeding behavior. For instance, in the case of freshwater mussels, the presence of fish hosts for the larval stage of the mussel in particular river reaches at particular times of year might be crucial. Identifying biological constraints and needs will inform not only recovery planning but also the development of habitat conservation plans, section 7 consultations, Safe Harbor Agreements, and any other activities that may affect the species.

5.1.7 Recovery Strategy

The Recovery Strategy presents and justifies the recommended recovery program for the species, based on the information presented in the Background section. It can be one of the most challenging sections of the recovery plan. This section was not included in recovery plans in the past. However, because it is the link between the biological needs and situational background of the species and the Recovery Program, the Recovery Strategy is believed to be extremely useful and is now a required section of the plan.

The Recovery Strategy is comparable to the "If . . ., then . . ." statement of a logical construct that identifies the assumptions and logic underlying the selection of one path over another to achieve the objectives and goal. Because the rationale for the species' recovery program lies in the Recovery Strategy, it provides a cogent, well-reasoned preamble to the recovery objectives and criteria that immediately follow. Rather than merely paraphrasing or summarizing the criteria and actions, the Recovery Strategy is intended to give a clear sense, in broad brush strokes, of the "whole" of the recovery effort within which the actions are the individual parts.

An effective strategy will, in a few short paragraphs, enable the reader to grasp the species' current situation and the logic of the recommended approach to its recovery. The strategy will also comprise an important part of the administrative record should the recovery recommendations ever be challenged.

The following elements should be addressed in the Recovery Strategy, as appropriate (not necessarily in the order presented):

- *Key facts and assumptions* – Taken from the Background, these considerations may be a combination of concerns about the species' demography, threats, biological constraints and needs, ongoing conservation programs, data gaps, and so on. These key facts and assumptions form the foundation upon which the species' recovery program is based.

- *The primary focus(es)/objective(s) of the recovery effort* – For some species, the recovery program will have a single overriding focus/objective, e.g., habitat protection or control of invasive species. For other species, the recovery program may have two or three objectives, e.g., protection of current populations, captive propagation for eventual re-establishment in historic habitat, and public outreach to reduce incidental take of the species. The relative priority and timing (whether simultaneous or sequential) of each objective should be made clear. In either case, the focus of the recovery effort should be evident in the plan's recovery recommendations.

- *The overarching objectives and recovery actions of the plan and their relative priorities* – How do the objectives and recovery actions with their respective priorities support the primary focus of the recovery effort? For instance, if habitat protection is the most immediate and primary need, but recovery can not be achieved without an ambitious reintroduction program, the relative priority and timing of these imperatives should be made clear.

- *The delineation of and rationale for recovery units, or other management units, if used (see section 5.1.7.1)* – If there are important reasons to structure the recovery effort, these should comprise an important element of the strategy and be outlined in this section. Identification of recovery criteria and actions on a unit-by-unit basis will then follow in later sections of the plan. Be aware that "Recovery Units" are a special form of management unit that apply only in some cases.

- *Other important considerations or contingencies, if any* – Any other important considerations or contingencies that will play a strong role in the recovery effort should be explained.

5.1.7.1 Delineation of Recovery Units (optional)

A recovery unit is a special unit of the listed entity that is geographically or otherwise identifiable and is essential to the recovery of the entire listed entity, i.e., recovery units are *individually necessary* to conserve genetic robustness, demographic robustness, important life history stages, or some other feature necessary for long-term sustainability of the *entire listed entity*. Examples of recovery units might include various developmental stages of a species, such as the breeding and foraging assemblages; dispersed population units that represent the genetic diversity of a species necessary to provide adaptive flexibility and avoid inbreeding; or multiple population sources in a dynamic ecosystem subject to unpredictable stochastic events such as hurricanes or wild-fires. For many species, the identification of recovery units is not necessary. However, establishment of recovery units can be a useful recovery tool, especially for species occurring across wide ranges with multiple populations or varying ecological pressures in different parts of their range. Since every recovery unit is necessary for the long term health and stability of the overall listed entity, recovery criteria for the listed entity should address each identified recovery unit, and every recovery unit must be recovered, before the species can be delisted.

As noted in the Consultation Handbook, recovery units are population units that have been "...documented as necessary to both the survival and recovery of the species in a final recovery plan(s) ..." (FWS and NMFS 1998: 4-36). The Consultation Handbook goes on to indicate that establishment of recovery units in a recovery plan may streamline jeopardy determinations for a listed species. The reason is that the value of conserving a particular recovery unit to the conservation of the entire listed entity has already been laid out in the recovery plan. Therefore, if the recovery unit is jeopardized, the species as a whole is jeopardized. It is important to note that one cannot find jeopardy for a recovery unit, per se, but only for a species, as a result of loss or impairment of the recovery unit. In a recovery plan, it is imperative that a thorough explanation be made regarding how the recovery units for a given species are being defined and their importance to the species as a whole.

Recovery units, if used, should collectively cover the entire range of the species. However, this does not mean that each individual or population within the recovery unit must be conserved; only that the boundaries around recovery units should be sufficiently broad to include all current populations. For example, a recovery criterion for a given recovery unit may be to conserve (reach certain demographic parameters and control threats in) "4 of the 5" or "6 of the 8" populations or subpopulations within that unit. On the other hand, a recovery unit may need to have populations added to reach its recovery criteria, i.e., there may be one population currently existing within a recovery unit but the goal for that recovery unit may be to have two or three viable populations (with threats controlled) to meet its recovery criteria. In any event, every recovery unit must be conserved because it is, by definition, essential to the conservation of the species.

If recovery units are identified, the plan must include the rationale. Recovery units should be delineated on a biological basis; however, sometimes minor adjustments may be made to the boundaries to reflect different management regimes or for other management purposes. Some reasons to consider delineating recovery units include the following:

- Re-establishing historical or maintaining current genetic flow
- Encompassing current and historical population and habitat distributions
- Ensuring conservation of the breadth of a species' genetic variability
- Facilitating meta-population dynamics

Special considerations for recovery units:

- Recovery units cannot be reclassified or delisted independently
- Recovery units are not synonymous with critical habitat units – one is a unit of the listed species, the other is a unit of the species' habitat
- Each recovery unit should be sufficiently large to buffer against successional

processes, while assuring a geographically well-distributed population

Recovery Units vs. Management Units - It is fairly common to identify management units in recovery plans. These are units that might require different management (perhaps because of different threats in different geographic areas) that might be managed by different entities, or that might encompass different populations. However, each management unit is not necessarily essential to the conservation of the species, as is the case for each recovery unit. For instance, recovery criteria may require that some subset of management units meet the criteria for downlisting or delisting (e.g., "4 of 5" or 6 of 8" management units). When in doubt whether every unit is essential to the conservation of the species, it is wise to use management units, rather than recovery units.

Once identified, recovery units are frequently managed effectively as management units; however, as stated earlier, it is also possible for a single recovery unit to encompass multiple management units. One potential scenario for delineating recovery units could occur as follows. The species may be divided into three recovery units, all of which must be conserved to ensure the long-term viability of the species. Each of the three recovery units consists of several populations. Each population might be identified as a management unit. To achieve recovery within each recovery unit, only a subset of the populations might have to reach certain abundance estimates and threats-based criteria in order to be considered for delisting.

Recovery Units vs. Distinct Population Segments Some recovery units may qualify as a DPS, according to the 1996 DPS policy; however, a recovery unit cannot be treated as a DPS in a recovery plan. A DPS is a listable, and de-listable, entity; recovery units are not. Further, while a recovery plan can identify a recovery unit, it cannot designate a DPS because designation of a DPS requires a rule-making pursuant to section 4 of the ESA.

5.1.8 Recovery Goals, Objectives and Criteria

Since the development of the previous recovery planning guidance for NMFS (1992), considerable attention has been focused on how to make recovery plans more effective, and on the statutory requirements for measurable, objective criteria for recovery. This section of the guidance reflects much of this thinking and departs from the previous guidance in both emphasis and substance, particularly with respect to recovery criteria. In addition, some of the terminology (for example, the use of the term "objectives") has been modified for consistency with general planning terminology.

5.1.8.1 Recovery Goals

A goal is the desired outcome of an activity. For the purposes of recovery planning, the goal is almost always recovery and, therefore, delisting of the species. If a species is listed as endangered, an intermediate goal of reclassifying the species to threatened, with accompanying objectives and criteria, is also appropriate. It is possible for some species that delisting cannot be foreseen. For example, the natural habitat of some species has been so reduced that captive propagation and active management may be necessary for the foreseeable future. In these rare cases, the goal may be to achieve long term stability through ongoing management and downlisting to threatened status.

Some recovery planning efforts may attempt to set goals higher than those needed to achieve delisting of the species, e.g., the goal of Optimal Sustainable Population for species listed under the MMPA. In these cases it is important to identify the difference between the ESA delisting goals and any other goals that occur in a recovery plan.

5.1.8.2 Recovery Objectives

Goals usually can be subdivided into discrete component objectives which, collectively, describe the conditions necessary for achieving the goal. Simply stated, recovery objectives are the parameters of the goal, and criteria are the values for those parameters. Identifying the components of the overall goal facilitates both identification of

Box 5.1.8.3 - 1 - When drafting recovery criteria, remember that they should be "SMART"

- **S**pecific - Who, what, & where
- **M**easurable - So that species status and recovery progress can be assessed
- **A**chievable - Authority, funding, staffing are technically feasible (even if not always likely)
- **R**ealistic - Grounded in good science and defensible
- **T**ime-referenced - Not open-ended, having a set time frame for determining if the objective is be met, e.g., stable or increasing "for 3 generations" or "for a minimum of 10 years."

mechanisms for achieving progress toward the goal (thereby assisting in identification of necessary recovery actions) and recognition of the goal when it has been reached.Recovery and long term sustainability of an endangered or threatened species require adequate reproduction for replacement of losses due to natural mortality factors (including disease and stochastic events), sufficient genetic robustness to avoid inbreeding depression and allow adaptation, sufficient habitat (type, amount, and quality) for long-term population maintenance, and elimination or control of threats (this may also include having adequate regulatory mechanisms in place). Thus, it is appropriate to identify recovery objectives in terms of demographic parameters, reduction or elimination of threats to the species (the five listing factors), and any other particular vulnerability or biological needs inherent to the species. For example, a recovery objective might be to ensure adequate, quality nesting habitat that is held in protected status. Other objectives might include the elimination or control of incidental take of a species, reduction of competition from invasive species, or increased recruitment to the breeding population.

5.1.8.3 Recovery Criteria

Recovery criteria are the values by which it is determined that an objective has been reached, and thus need to be established for each recovery objective. Combined, recovery criteria comprise the standards upon which the decision to reclassify or delist a species should be based. Recovery criteria must be "objective and measurable," address threats as well as demographic factors and, at least for those criteria addressing threats, be written in terms of each of the 5 "listing" factors (see *Addressing threats in recovery criteria*, below).

Developing recovery criteria that are both objective and measurable is a statutory requirement in the ESA for recovery plans and a useful exercise in terms of planning. The ESA states that each recovery plan shall incorporate, to the maximum extent practicable, "objective,measurable criteria which, when met, would result in a determination. . . that the species be removed from the list." It can be difficult to

identify the exact point at which a species is recovered and thus to develop good criteria with which to recognize it. Further, because there may be trade-offs among different threats, recovery may be possible in multiple states, e.g., a species might be able to tolerate a continuing level of one threat if another threat has been eliminated. Furthermore, each species has unique characteristics and threats. For these reasons, the ESA and this guidance do not dictate either the specific objectives or criteria for recovery of any species, but leave that to the discretion of NMFS, as informed by experts familiar with the species and their needs.

The ESA does, however, provide sideboards for criteria development, and the following guidance is intended to assist recovery biologists and recovery teams in developing useful criteria within the framework of those sideboards, applying the framework of objectives described in section 5.1.8.2, Recovery Objectives.

- Recovery criteria can be viewed as the targets, or values, by which progress toward achievement of recovery objectives can be measured. For instance, if we have identified what a species' populations, habitat, and threats are expected to look like when the species is recovered, and is eligible for delisting, we will be better able to determine how far the species needs to move to reach those objectives and the actions needed to achieve each objective.

Box 5.1.8.3 - 2 - Examples of Recovery Criteria from the Piping plover Recovery Plan, revised, Jan.1995

The following is an example of good demographic recovery criteria. Please note that these must also be accompanied by criteria that address the threats that are negatively affecting the species.

Criterion 1: Increase and maintain for five years a total of 2,000 breeding pairs, distributed among four recovery units as specified below.

Recovery Unit	*Minimum Population (pairs)*
Atlantic Canada	400
New England	625
New York-New Jersey	575
Southern (DE-MD-VA-NC)	400

Criterion 2: Verify the adequacy of a 2,000-pair population of piping plovers to maintain heterozygosity and allelic diversity over the long term.

Criterion 3: Achieve a five-year average productivity of 1.5 fledged chicks per pair in each of the four recovery units described in Criterion 1. Data to evaluate progress toward meeting this criterion should be obtained from sites that collectively support at least 90% of the recovery units' population.

- Recovery criteria should address the biodiversity principles of representation, resiliency and redundancy (Schaffer and Stein 2000). Representation involves conserving the breadth of the genetic makeup of the species to conserve its adaptive capabilities. Resiliency involves ensuring that each population is sufficiently large to withstand stochastic events. Redundancy involves ensuring a sufficient number of populations to provide a margin of safety for the species to withstand catastrophic events.
- Recovery criteria must address threats to the species in term of each of the 5 factors outlined in section 4(a)(1) of the ESA (see Box 5.1.6.7). See discussion under *Addressing threats in recovery criteria*, below.
- In addition to threats, recovery criteria will usually also include population numbers, sizes, trends and distribution, population structure or recruitment rates, specific habitat conditions, and minimum time frames for any of the above.
- Recovery criteria must be measurable and objective; however, they need not all be quantitative. For example, a measurable and objective criterion may be for a state to have a management plan in place that NMFS agrees will manage the species effectively after the species is delisted. This criterion is measurable and objective (although there's some subjectivity with regard to whether the plan will be effective), without having a numerical

Box 5.1.8.3 - 3 - Examples of Listing/recovery Factor-based Recovery Criteria

The following example of a criterion related to listing/recovery factor A is from the Loggerhead Turtle Recovery Plan completed in 1991.

At least 25 percent (560 km) of all available nesting beaches (2240 km) is in public ownership [with a sea turtle management plan], is distributed over the entire nesting range, and encompasses greater than 50 percent of the nesting activity.

The following example of two criteria related to listing/recovery factors A and E are from the West Indian Manatee Recovery Plan (Florida population), third revision, completed in 2002.

Listing/Recovery Factor A: The Present or Threatened Destruction, Modification, or Curtailment of a Species Habitat or Range (Habitat Working Group and Warm-water Task Force identified in other portions of this plan are tasked to further refine these criteria). In order to ensure the long term recovery needs of the manatee and provide adequate assurance of population stability (i.e., achieving the demographic criteria), threats to the manatee's habitat or range must be reduced or removed. This can be accomplished through federal, state or local regulations (identified in Factor D below) to establish and maintain minimum spring flows and protect the following areas of important manatee habitat:

a. Minimum flow levels at the Crystal River Spring Complex, Homosassa Springs, Blue Springs, Warm Mineral Spring, and other spring systems as appropriate, in terms of quality (including thermal) and quantity have been adopted by regulation and are being maintained.
b. A network of the level 1, 2 and 3 warm-water refuge sites identified in Figure 7 have been protected as either manatee sanctuaries, refuges or safe havens.
c. Adequate feeding habitat sites (extent, quantity and quality) associated with the network of warm-water refuge sites are identified by the HWG and are protected.
d. The network of migratory corridors, feeding areas, calving and nursing areas are identified by the HWG are protected as manatee sanctuaries, refuges or safe havens.

Box 5.1.8.3 - 3 -continued - Examples of Listing/recovery Factor-based Recovery Criteria

Listing/Recovery Factor E: Other Natural or Man-made Factors Affecting Its Continued Existence The most predictable uncontrollable threat to manatee recovery remains human-related mortality. In order to ensure the long-term recovery needs of the manatee and provide adequate assurance of population stability (i.e., achieving the demographic criteria), natural and man-made threats to manatees need to be reduced or removed. This can be accomplished through establishing the following federal, state or local regulations, tasks and guidelines to reduce or remove human caused "take" of manatees:

a. State, federal and local government manatee conservation measures (such as, but not limited to speed zones, Refuges, sanctuaries, safe havens, enforcement, education programs, County and MPPs etc.) have been adopted and implemented to reduce unauthorized watercraft-related "take" in the following Florida counties: Duval (including portions of Clay and St. Johns in the St. Johns River), Volusia, Brevard, Indian River, Martin, Palm Beach, Broward, Dade and Monroe on the Florida Atlantic Coast; Citrus, Pinellas, Hillsboro, Manatee, Sarasota, Charlotte, Lee and Collier on the Florida Gulf Coast; and Glades County on the Okeechobee Waterway. These measures are not only necessary to achieve recovery, but may ultimately helped to comply with the MMPA. (Task 1.3, 1.4, 1.5, 3.3.1)

Stable or positive population benchmarks as outlined in the demographic criteria provide measurable population parameters that will assist in measuring the stabilization, reduction, or minimization of watercraft related " take." Two other indices (weight of evidence) [that] will assist in measuring success include: open 1) watercraft-related deaths as a proportion of the total known mortality; and (2) watercraft-related deaths as a proportion of a corrected estimated population. These and other indices should be monitored.

b. All control structures and navigational locks listed as needing devices to prevent mortality have been retrofitted. (Task 1.6)

c. Guidelines have been established and are being implemented to reduce or remove threats of injury or mortality from fishery entanglements and entrapment in storm water pipes and structures. (Task 1.7, 1.6.3)

component.

Addressing threats in recovery criteria - In the past, recovery criteria have typically included population numbers, sizes, trends, and possibly distribution. These types of criteria remain valid and useful. However, few criteria have focused on threats to the species, as organized under the five listing/delisting factors of the ESA. The tacit assumption has been that the species' population parameters serve as surrogate indicators of the status of the species, including control of threats. Although this assumption may have been accurate in some cases, it has not in others. For example, population augmentation through captive breeding and re-establishment may increase a species' population numbers while a threat continues unabated; however, population declines will recur once augmentation ceases. In another example, take of a species, either direct or via habitat alteration, may have been curtailed by listing the species and populations may thus have rebounded, but the threat of take could recur after delisting if adequate regulatory mechanisms have not been put in place. Thus, evaluating a species for potential reclassification or delisting requires an explicit analysis of threats under the five listing factors in addition to evaluation of population or demographic parameters. By establishing criteria for each of the five listing/delisting factors that are

currently relevant to the species, the Recovery Program for the species is more likely to ensure that the underlying causes of decline have been addressed and mitigated prior to considering a species for delisting.

Legal challenges to recovery plans have affirmed the need to frame recovery criteria in terms of threats assessed under the five listing factors.

"Congress has spoken in clarion terms: the objective, measurable criteria must be directed towards the goal of removing the endangered or threatened species from the list. Since the same five statutory factors must be considered in delisting as in listing, 16 U.S.C. § 1533 (a), (b), (c), the Court necessarily concludes that the FWS, in designing objective, measurable criteria, must address each of the five statutory delisting factors and measure whether threats to the [species] have been ameliorated." (see Fund for Animals v. Babbitt, 903 F. Supp. 96 (D.D.C 1995), Appendix B).

Finally, a 2006 Government Accountability Office audit of the NMFS' and FWS' endangered species recovery programs recommended that the Secretaries of Commerce and Interior direct their staff to ensure that all new and revised recovery plans have either recovery criteria evidencing consideration of all five delisting factors or a statement regarding why it is not practicable to do so (GAO 2006). For this reason, we require that all the criteria section of all plans now list out the 5 factors, and place the criteria that will address them below the appropriate factor. In the case that there are no threats that correspond to a given factor, simply note that this factor, e.g., habitat loss or destruction or modification, is not considered a threat to the given species. We anticipate that recovery plans will also include demographic criteria (abundance, distribution etc.), and that these appear separately from the "threats-based" criteria.

The role of PVA in recovery criteria – It has been suggested that a population viability analysis (PVA) indicating long-term viability should be considered an alternative to traditional population and listing factor-based recovery criteria. Such a PVA may serve as an ancillary criterion and may be beneficial to a delisting analysis. However, a PVA is based not only on a series of estimates about the vital rates of a species (and the variability of those estimates), but also on a series of assumptions about threat conditions and other variables, and their potential effects on the vital rates. Therefore, a PVA should not be viewed as a replacement for criteria based on threats, but as a supplement to them. The criteria describe the conditions under which it is anticipated the PVA would indicate long-term viability.

Dealing with uncertainty – Criteria must often be developed in the face of considerable uncertainty. Uncertainty may itself stem from a number of different sources, e.g., parameter uncertainty, model uncertainty, measurement uncertainty, and natural stochastic variation. It is important to try to identify both the sources and amounts of uncertainty that are contributing to the determination of recovery criteria. Some, like stochastic uncertainty, cannot be easily modified by human activity, so our recovery criteria may need to ensure a species' resilience to such an event. For example, we can expect a class 5 hurricane to hit somewhere in the southeast U.S. on average every X years, but we cannot say for certain exactly where or when, so we may need to build population redundancy into the recovery criteria for a southeastern species that is particularly vulnerable to hurricane damage. Other sources of uncertainty are more malleable, and our need to build the uncertainty into the criteria may vary depending upon our state of knowledge about the parameter. For example, our ability to estimate a species' population size may improve with new techniques; as our measurements become more precise, we may be willing to accept lower, but more certain, population targets. By identifying the sources and magnitude of our uncertainties, we can build better criteria and more accurately target those aspects of our criteria that may bear refining in the future. Meanwhile, because it is difficult to measure the parameters upon which the recovery objectives and criteria are based, it is entirely appropriate to identify confidence limits or other means to account for uncertainty in predictions and measurements. For example, a criterion might require that a certain measurable condition be met with 95 percent confidence for a period of three generations.

What if recovery criteria cannot be determined? – In some rare cases, the current best available information is so seriously limited that it is truly not possible to identify delisting or reclassification criteria. This would be an unusual case, such as one in which the species' threats are not understood well enough to identify priorities and appropriate mitigation (see Gila trout case study, Box 5.1.8.3 - 4). In the rare case that recovery objectives and criteria cannot be established at thetime the plan is written, the following steps should be taken: (1) describe interim objectives and criteria, which will be used for the short-term until better delisting objectives and criteria can be determined; (2) explain clearly in the plan and the administrative record why objectives and criteria are undeterminable at the time; and (3) include the actions necessary and timelines in the plan to obtain the pertinent information and develop recovery objectives and criteria once the information is obtained. This may be a case in which research is one of the primary objectives of the plan.

Box 5.1.8.3 - 4 - The Gila Trout Case

The Gila trout lawsuit demonstrates the need to articulate the rationale for failing to provide delisting criteria in a recovery plan.

In SWCBD and Rio Grande Chapter of Trout Unlimited v. Babbitt, CIV 98-372-TUC JMR (D.Ariz, 1999), the Southwest Center for Biological Diversity and the Rio Grande Chapter of Trout Unlimited brought suit against the Secretary of the Interior for, in part, failing to identify objective and measurable delisting criteria in the 1993 Gila Trout Revised Recovery Plan. The plan stated that "Delisting criteria have not been determined ... The estimated date for downlisting is the year 2000. Delisting criteria cannot be addressed at present, but will be determined when downlisting criteria are met".

Gila trout is listed as endangered under the ESA. Based on having met the criteria set forth in the 1984 revised recovery plan, FWS proposed to downlist the species in 1987. However, due to subsequent severe fire, flooding, and drought in the species' habitat, three of the five remaining Gila trout populations declined significantly and the Service withdrew its proposal. In response to this drastic change in the species' status, the Service decided to again revise the recovery plan. The 1993 revision adopted a new approach to recovery; rather than focusing on small headwater stream restoration, the plan's focus shifted to restoration of whole drainages within the species' historic habitat in Arizona and New Mexico. With this shift came new information needs, such as genetic analysis that would provide information crucial to determining a reintroduction strategy for the remaining trout stocks, captive breeding experimentation to determine methods for successful hatchery management, and extensive stream surveys to identify appropriate locations for reintroduction. Due to insufficient information in these areas, the developers of the plan stated that they were unable to determine delisting criteria that would represent full recovery of the species.

Summary judgement was entered in favor of the Secretary, as the administrative record and recovery plan supported the need to gather additional data before delisting criteria could be developed. The administrative record documented concern among recovery team members over the quality of information available on Gila trout life history, taxonomy, and systematics, and the need to answer important questions such as whether stocks should be kept separately or interbred for reintroduction.

5.1.9 Recovery Program

The Recovery Program section of a recovery plan describes the recovery actions (formerly known as recovery "tasks") found to be necessary to achieve the plan's goal(s) and objectives and the monitoring actions necessary to track the effectiveness of these actions and the status of the species. Essentially, this section describes all actions that will alleviate known threats and restore the species to long term sustainability. These actions might include (but are not limited to) habitat protection, limitations on take, outreach, research, control of disease, control of invasive species, controlled (including captive) propagation, reintroduction or augmentation of populations, and monitoring actions. Ongoing or planned Federal, regional, State, local or tribal recovery activities should be incorporated into this section, if at all possible. Measuring the effectiveness of the plan via monitoring actions should be included in the recovery program, and these monitoring actions should be assigned a priority equal to the activity that is being monitored. Finally, all recovery programs should include the development of a post-delisting monitoring plan as one of their actions.

Ultimately, the Recovery Program section of the recovery plan will provide guidance to the resource manager, resource user or landowner regarding the goals of the plan and actions needed to achieve recovery (including each action's role and priority within the overall recovery program). It will facilitate tracking recovery progress and accomplishments and assist in identification of appropriate conservation actions that can be implemented via sections 6, 7 and 10 of the ESA. As always, effective coordination with stakeholders and other interested parties is essential in the identification of recovery actions.

5.1.9.1 Threats Tracking Table (Optional)

Because of the need to address threats and frame recovery criteria and actions in terms of the five listing factors, it is useful to maintain a tracking system (which could be a simple table or spreadsheet) that cross-references (1) the listing factors, (2) the threats associated with each listing factor, (3) the recovery criteria related to each threat and/or listing factor, and (4) the numbered recovery actions (from either the narrative description of the recovery program or the Implementation Schedule) that address each threat. An example of the threat and recovery action table can be found in Appendix V, Actions Table and Tip Sheet. The use of such a table early in the planning process can promote internal consistency in the document by ensuring that the recovery criteria adequately reflect the threats identified in the background, and that there are adequate and appropriate actions to address these threats and achieve the recovery criteria for the species. Inclusion of the tracking table in the recovery plan should facilitate understanding on the part of stakeholders of the rationale and need for the various recovery actions included in the Recovery Action Narrative.

5.1.9.2 Recovery Action Outline (= Stepdown Outline)

The recovery action outline (previously referred to as the stepdown outline) is a "skeleton" list of tasks in the recovery action narrative (previously the recovery narrative). It includes all actions in the recovery action narrative without the accompanying descriptions and helps facilitate seeing the big picture of the program.

Recovery action outlines are included at the discretion of the region. Sequential numbering using decimal points to indicate "stepped-down" actions is recommended (see below). Generally, the recovery action outline is inserted into the plan after the recovery action narrative is completed because it reflects the recovery action narrative verbatim. Box 5.1.9.2 exhibits portions of a recovery action outline from the Atlantic Coast Population Piping Plover Recovery Plan.

Box 5.1.9.2 - Recovery Action Outline:
Atlantic Coast Population of the Piping Plover (*Charadrius melodus*)

1. Manage breeding piping plovers and habitat to maximize survival and productivity.
 1.1 Monitor status and management of Atlantic Coast piping plovers.
  1.1.1 Monitor population trends, productivity, and distribution in each recovery unit.
  1.1.2 Monitor plover breeding activities at nesting sites to identify limiting factors.
 1.2 Maintain natural coastal formation processes that perpetuate high quality breeding habitat.
  1.2.1 Discourage development that will destroy or degrade plover habitat.
  1.2.2 Discourage interference with natural processes of inlet formation, migration, and closure.
  1.2.3 Discourage beach stabilization projects.
  1.2.4 To compensate for disruption of natural processes, create and enhance nesting and feeding habitat, especially in the vicinity of existing stabilization projects.
   1.2.4.1 Encourage deposition of dredged material to enhance or create nesting habitat.
   1.2.4.2 Discourage vegetation encroachment at nesting sites.
   1.2.4.3 Draw down or create coastal ponds to make more feeding habitat available.
 1.3 Reduce disturbance of breeding plovers from humans and pets.
  1.3.1 Reduce pedestrian recreational disturbance.
   1.3.1.1 Fence and post areas used by breeding plovers, as appropriate.
   1.3.1.2 Implement and enforce pet restrictions.
   1.3.1.3 Prevent disturbance from disruptive recreational activities when plovers are present.
  1.3.2 Reduce disturbance, mortality and habitat degradation caused by off-road vehicles, including beach-raking machines. . . .

2. Monitor and manage wintering and migration areas to maximize survival and recruitment in the breeding population.
 2.1 Monitor known and potential wintering sites.
  2.1.1 Monitor abundance and distribution of known wintering plovers.
  2.1.2 Survey beaches and other suitable habitat to determine additional wintering sites.
  2.1.3 Identify factors limiting the quantity and quality of habitat or its use by piping plovers at specific wintering sites.
 2.2 Protect essential wintering habitat by preventing habitat degradation and disturbance.
  2.2.1 Protect habitat from impacts of shoreline stabilization, navigation projects, and development.
  2.2.2 Protect wintering habitat from disturbance by recreationists and their pets.
  2.2.3 Protect piping plovers and their wintering habitat from contamination and degradation due to oil or chemical spills. . . .

3. Undertake scientific investigations that will facilitate recovery efforts. . . .

5.1.9.3 Recovery Action Narrative

This section of a recovery plan describes all actions necessary to achieve full recovery of the species, both in the near and long term, and the monitoring actions necessary to track the effectiveness of these actions and the status of the species. The narrative that accompanies the actions should address the priority of the action (see section 5.1.10, Implementation Schedule and Cost Estimates), and any monitoring actions accompanying an action should be given the same

priority. Within the recovery action narrative, recovery actions should be stepped down to discrete actions that can be funded, permitted, or carried out independently. Actions should also be listed as separate recovery actions if one should receive a higher priority than the other. Use judgement in deciding how finely to slice the recovery actions. Generally, this is a rare opportunity to describe the actions needed to recover the species and may assist agencies to get funding for these actions, so seize the moment and make them as specific as possible while leaving sufficient flexibility to allow for creative or new solutions.

If certain actions are dependent on the outcome of other planned actions, this should be noted in the narrative, and the time frame for the later recovery action should follow the first action in the Implementation Schedule. The following parameters should be applied to the recovery action narrative:

- Recovery actions should be discrete and action oriented, and their descriptions concise.
- Whenever possible, recovery actions should be site-specific, as per ESA section 4(f)(1)(B)(i)).
- Recovery actions should be stepped-down to items at a level at which they can be funded or contracted, if at all possible.
- The narrative should include both near-term actions (those that prevent extinction or lead to long-term recovery actions) and long-term actions (all those actions needed to reclassify to threatened status and delist).
- Recovery actions that are dependent on the outcome of earlier actions should be indicated as such.
- Priority 1 recovery actions (see section 5.1.10, Implementation Schedule and Cost Estimates) must be justified in the recovery action narrative as those actions necessary to prevent extinction or prevent the species from declining irreversibly in the foreseeable future.
- Actions should be described with sensitivity and discretion. For instance, reference to specific parcels of land or actions can result in a positive reaction (help them receive a higher priority) or a negative reaction (give unwanted attention to a specific landowner or other stakeholder). Good stakeholder communications during the planning process should help minimize these concerns.

Although near-term needs (for the next five to ten years) may be better known and identification of costs and possible funding sources easier to ascertain, longer term actions that will lead to a delisting must be identified unless identification of such actions is not possible. For threats and other issues that cannot be resolved in the near term, at a minimum, identification of interim steps that can be taken toward future resolution should be identified. The intent is to focus on accomplishments that can be pursued in the near-term, while ensuring that all actions fit within the long-term strategy and direction for recovery.

Recovery actions must include specific actions to control each of the identified threats to the species, as categorized under the five-listing factors of the ESA. Such might include, but are not limited to, specific actions such as: limiting direct or incidental take, habitat protection and restoration, or population augmentation to reduce vulnerability to small population sizes, etc. In addition, some types of actions may be cross-cutting and address multiple threat factors, such as outreach, or recur under each of the threat categories, such as: research, monitoring, or adaptive management. Specific comments on some of these categories of actions follow.

Control of Threats – An increase in numbers and in populations is not adequate to delist a species; rather, it must also be clear that threats to the species' well-being are sufficiently controlled to ensure that the species no longer fits the definition of threatened or endangered (see court cases described in section 1.2, Legal and Policy Guidance for Recovery Planning). Recovery actions that control identified threats should be included, and the reasons for including the actions should be made clear. Control of threats includes, but is not limited to, a management regime to control an invasive species (the expected effectiveness should be discussed in the narrative),

means to control vessel traffic that affects a species, means to control bycatch of the species, protection of certain key areas of habitat from development or other threats, and putting a regulatory mechanism in place to control these or any other threats. For situations in which more information is needed to determine the extent of threats or potential future threats, e.g., diseases that are likely to spread, there should be recovery actions to study these threats.

When putting together the recovery action narrative, clarify to the reader the magnitude and immediacy of the threats (this information should be obtainable, and paraphrased, from the Threats Assessment in section 5.1.6.7), and state the priority and extent to which the threats are expected to be addressed with the given management action.

Habitat Protection and Restoration – Recovery actions should seek to protect and, possibly, restore habitat that is important to the continued existence and recovery of the species. This habitat should have been identified in the Background section of the plan. When identifying recommendations for the protection or management of the species' important habitats, clearly identify the area and describe the goal of the action, but be careful not to limit your options by being too prescriptive. For instance, "Exclude cattle from Site A via fencing or other means," is different from "Fence Site A." Biologists in resource-management agencies have noted that specifying sites needed for protection or management in the recovery plans facilitates obtaining funding and staff-time to carry out those actions. Remember also, that it is often assumed that some recovery actions, such as habitat protection, necessarily control threats. However, depending upon the type of protection and management regime, a threat to habitat may be more or less controlled. If continuing management or controls are necessary, be sure to include them.

In the case of land that may need to be protected via land acquisition, identification of sites for acquisition (by fee title or by conservation easement) may also be extremely useful in getting funding for site purchases. Indeed, for some agencies and grants, having the site specified in the plan as important to the recovery of the species is a requirement. Identification of land acquisition needs may also assist other partners in focusing efforts on land protection schemes. However, be aware that this can be viewed as controversial by stakeholders and the public in some areas. Be sensitive to potential stakeholder concerns in these cases and initiate stakeholder contacts early in the process to minimize misunderstandings and controversy. In some cases it may be deemed necessary to be less precise about specific parcels in the recovery plan.

Limiting Take – Recovery actions can specify the need and means to eliminate or minimize take, direct or indirect, of the species. For instance, "Reduce nest disturbance by creating seasonal no-take zones " or "Establish no take zones around rookeries" may be appropriate actions to include in some plans. They may simply provide information on how to limit take, although they may also provide valuable information for development of a Habitat Conservation Plan, or serve as a reasonable and prudent measures or provide conservation recommendations in a section 7 consultation.

Population Augmentation/Establishment of New Populations – In some cases, population augmentation (considered here to include establishment of new populations) may be necessary to prevent extinction of a species or to build a species' numbers to a self-sustaining level. NMFS has a controlled propagation policy to guide biologists in such circumstances (FWS and NMFS 2000; Appendix P). This will often involve artificial propagation, although it may involve outplanting or releasing individuals directly from another population. It should be noted that population augmentation can have benefits and risks to both the target species and other listed and unlisted species. Population augmentation and the species propagation that often accompanies it can entail large monetary, time and staffing commitments, risks of disease outbreaks, and uncertainty of success. An assessment of risks and uncertainties must be undertaken, and alternatives that require less intervention should be considered seriously before undertaking such a program. Population augmentation should receive foremost

consideration for recovery only when it is believed that recovery within an acceptable timeframe would not occur without it. It should not be used as a substitute for resolving the threats that led to the species listing. Population augmentation should always take place in concert with other recovery actions, such as habitat protection and restoration, in order for augmented populations to become self-sustaining and to achieve recovery goals.

Where population augmentation is appropriate, it should be considered and planned for as early in the recovery process as possible, both in order to identify and capture/collect the maximum amount of genetic variation available in the extant population for breeding stock, and in order to allow adequate time to get a successful captive propagation/breeding program in place. In the case of plants, care should be taken to ensure that the appropriate genotypes are used (not simply the easiest to grow or the "weediest") and are planted in appropriate densities. In the case of such aquatic species as salmon and trout, some artificial propagation programs, or hatcheries, have been in existence for over 100 years, and extensive mixing of hatchery populations has occurred. Care must be taken to ensure that those individuals used to develop a conservation hatchery program for a listed species are closely related to the species that is being recovered.

The following steps may be included as part of a recovery action for population augmentation: (1) A determination of the genetic variation of an extant population(s); (2) development of a plan for artificial propagation and release/outplanting; (3) development of techniques for captive breeding/artificial propagation, if necessary; (4) development of a captive breeding/artificial propagation population, if necessary; (5) release/outplant of individuals; and (6) monitoring of population augmentation. These steps should be considered early in the recovery process, and planned for, as appropriate.

Outreach – Outreach is a key component for ensuring the long-term recovery of listed species. Historically, in a recovery plan, the outreach strategy was a low priority action and placed at the end of implementation schedules and action lists. However, providing information to the public and especially to those entities that are most likely to affect the species may be crucial to species and habitat recovery. Effective partnering is a good start to outreach, but other means, such as holding public meetings, producing fact sheets, writing news articles, and giving public programs will usually result in increased support for recovery actions and can help ensure conservation of the species far beyond that offered by NMFS alone. Increasing public interest also results in better chances of maintaining funding (see section 4.4, Public Communication and Outreach). Unfortunately, in the past, recovery actions that refer to public education or outreach frequently have not been detailed enough to serve the recovery objectives.

As appropriate for the species, include recovery actions that relate to educational and interpretive activities, public hearings, public events, media broadcasts or publications. Specifically, develop/improve public education materials, explain through the media how the species will be delisted, create community based partnerships to further the message, share current science with the public, and hire professional communications consultants to develop an outreach strategy. The recovery plan should make reference to issues identified in the FWS National Outreach Strategy (Appendix O). The sample outreach plan found at the end of Appendix O can be completed for recovery planning when appropriate. The outreach plan may be adapted to fit a particular situation.

Research – Research actions in the recovery program section of the plan should be limited to those essential to meeting recovery criteria and achieving goals of the plan. These may include identifying and studying aspects of life history critical to population growth and persistence, determining underlying biological and ecological causes of population decline, and identifying and studying threats to the species. Genetic research may also be important when establishing new or augmenting existing populations, when establishing priorities where only a subset of the existing population can be protected, or for a species with critically low levels (Schemske et al., 1994). Within the recovery action narrative, also explain the potential need to change recovery actions or priorities as the results of research

become available (see Monitoring and Adaptive Management in this section). Note that specifying research actions may be necessary for obtaining funding for these actions and helpful in obtaining scientific research permits under section10(a)(1)(A).

Monitoring – Monitoring is the measurement of an action or an environmental characteristic to determine compliance, status, trends, or effects of the action or characteristic. Three basic types of monitoring are conducted in the recovery program as follows: (1) implementation (compliance) monitoring, which is used to see whether the plan is being implemented fully (Did we do what we said we could do in the recovery plan?); (2) status and trend monitoring, which determines whether a population or threat is increasing or decreasing (What is happening to our population right now? To what extent has the threat been controlled? Is the population increasing over time and what can we predict for the future?); and (3) cause and effect monitoring, which tests hypotheses and determines (via research) whether an action is effective and should be continued (Is the dam hindering fish migration? Is our management action causing the population to increase?). Implementation monitoring is generally completed by NMFS through some type of tracking system and may not be reflected in the recovery action narrative per se (see section 6.0, Using and Updating the Plan and the Implementation chapter of the handbook). However, it will have a great influence on whether recovery goals and objectives are met. "Status and trend" and "cause and effect" monitoring will be more meaningful in guiding a recovery action along the way. This is especially true of "cause and effect"monitoring, where adaptive management may be useful. "Status and trend" and "cause and effect" monitoring may be best achieved by partnering with other programs within NMFS, other Federal agencies, academic institutions, and researchers.

Two particular approaches have been used to include monitoring actions, particularly "status and trend" and "cause and effect" monitoring, in the Recovery Action Outline and Narrative. The first approach includes monitoring actions throughout the recovery action narrative, directly following each action or a suite of actions to be monitored. The second approach combines monitoring actions into a separate monitoring section in the narrative. The first approach reminds managers and others using the recovery plan of each point at which monitoring should be undertaken. It also clarifies that monitoring is an integral component of achieving and tracking recovery, especially for cases in which populations are geographically distinct and localized, and each population is likely to be managed by different entities. This way, if monitoring actions are included with other recovery actions within a geographic area, managers can focus on all actions, including monitoring, to be taken for the populations of concern to them. Managers should not have to look for information in a separate monitoring plan and determine what applies to them (although there may be an appendix with protocols or other specifics included in the plan). On the other hand, combining all monitoring into a separate section of the narrative may ensure that monitoring is consistent across the range of the species and result in a more cohesive monitoring program. This may work best for wide-spread species for which many different entities may be managing portions of the same population. It will ensure that monitoring is done consistently across the species' range, and may be especially helpful where numerous HCPs or other plans for the species are being implemented or are anticipated. It will also be helpful in organizing information for future post-delisting monitoring plans (see Post-Delisting Monitoring below).

The decision regarding whether monitoring actions are included throughout the plan or in a separate monitoring section is left up to the authors. Whichever way it is included, monitoring should be an integral and important component of the plan, and, as stated earlier, monitoring actions and their implementation should be given the same priority as the actions they are monitoring. For those species for which a separate monitoring section is developed, it may be useful to cross reference key actions to that monitoring to ensure that such monitoring is not overlooked.

The ESA requires NMFS to monitor delisted species for at least five years post-delisting to ensure that removal of the protections of the ESA

does not result in a return to threatened or endangered status. While it is not necessary to include a post-delisting monitoring plan in the recovery plan, per se, an action for development of a post-delisting monitoring plan should be included in the Recovery Action Program. As importantly, the need for a post-delisting monitoring plan should be kept in mind while other monitoring programs are being developed, to ensure that early monitoring programs are designed in such a way as to lead naturally into post-delisting monitoring, including providing appropriate baseline data. The post-delisting monitoring plan should also be developed well before delisting is contemplated. This will ensure that a well thought out plan is in place at the time of delisting.

Adaptive Management - Adaptive management can be an extremely useful tool for moving toward recovery when uncertainty exists regarding the threats to the species, the species' life history, or the effectiveness of various management actions. Adaptive management uses the scientific method "learning by doing," and then adapting accordingly. It involves (1) formulating an action (in this case a recovery or research action), (2) setting it up as a hypothesis to be tested, (3) implementing the action while monitoring the outcome, (4) evaluating its effectiveness or outcome using *pre-determined* criteria, and (5) adjusting, discontinuing, or continuing the action as necessary or, in the case of research actions, taking the next appropriate step depending on the outcome of the research. This process provides feedback to ensure that actions are effective and minimizes surprises if additional steps become necessary because an agreed-upon objective is not reached.

Thus, in cases of significant uncertainty, the description of a recovery action within a recovery plan should include an adaptive management plan for the action. This adaptive management plan should include the hypothesis to be tested, how the effectiveness of the action will be monitored, what criteria will be used to determine if the action is effective, and how the action will be adjusted if these criteria are not met. Every recovery action should have two accompanying actions: "Monitor effectiveness of the action," and "Adjust the action based on effectiveness, if necessary."

The keys to adaptive management include the following: (1) appropriate monitoring of an action, (2) agreed upon criteria to determine whether an action is effective, and (3) agreed-upon actions to take as a necessary step for a research action or for a management action if the effectiveness threshold is not reached during the agreed upon timeframe. When uncertainty exists, management actions should have specific criteria for evaluating their effectiveness. For example, if the goal is to increase the species' habitat over time, it is important to note whether any amount of increase is acceptable, or whether a minimum percentage increase (say, ten percent) would be acceptable. It is also important to note the timeframe over which the increase must be maintained. Having the objective stated clearly, in measurable terms when possible, and agreed upon beforehand makes it easier to determine the point at which goals have been met. Finally, it is important to determine up front what actions will be taken if the objective is not reached. For instance, in a case where the objective is not reached, it should already be decided whether additional habitat will be protected, the habitat will be protected more intensively, the management should be changed, or the management will be curtailed. More information on adaptive management will be included in the Implementation Chapter of the Recovery Handbook.

5.1.10 Implementation Schedule and Cost Estimates

The implementation schedule is designed to satisfy the requirement under the ESA that recovery plans must contain "estimates of the time required and the cost to carry out those measures needed to achieve the plan's goal and to achieve intermediate steps toward that goal" (ESA section 4 (f)(1)(A)(iii)). The implementation schedule also identifies a priority for each recovery action in the narrative and recommends responsible party(ies) for carrying out each recovery action. The implementation schedule can be used in securing and in obligating funds and in establishing associated regulatory and other management priorities. The implementation schedule also provides the basis for tracking plan implementation performance.

The implementation schedule is usually located immediately after the recovery action narrative. It is usually presented in a table format in a landscape orientation with each row representing an individual action (see Appendix Q).

Introduction/Disclaimer – Given the limitations to the information contained in an Implementation Schedule, it is advisable to include as a preface an introduction/disclaimer, such as the following:

The Implementation Schedule that follows outlines actions and estimated costs for the recovery program for the [name of species], as set forth in this recovery plan. It is a guide for meeting the recovery goals outlined in this plan. This schedule indicates action priorities, action numbers, action descriptions, duration of actions, the parties responsible for actions (either funding or carrying out), and estimated costs. Parties with authority, responsibility, or expressed interest to implement a specific recovery action are identified in the Implementation Schedule. When more than one party has been identified, the proposed lead party is indicated by an asterisk (*). The listing of a party in the Implementation Schedule does not require the identified party to implement the action(s) or to secure funding for implementing the action(s).

Assigning priorities – Priorities are assigned to each action in the implementation schedule. In compliance with NMFS' Endangered and Threatened Species Listing and Recovery Priority Guidelines (55 FR 24296) (Appendix S), all recovery actions will have assigned priorities based on the following:

Priority 1: Actions that must be taken to prevent extinction or to prevent the species from declining irreversibly
Priority 2: Actions that must be taken to prevent a significant decline in species population/habitat quality or in some other significant negative impact short of extinction
Priority 3: All other actions necessary to provide for full recovery of the species

It is important to emphasize that a priority 1 recovery action is an action that must be taken to prevent extinction. Therefore, the use of priority 1 recovery actions in a recovery plan for a threatened species should be done judiciously and with a constant reflection back to the original definitions. Given the number of species that are on the brink of extinction or in serious decline, the temptation to assign recovery actions a higher priority than is warranted should be avoided. That said, one should also be careful not to assign a lower priority than is warranted, just because an action is one component of a larger effort that must be undertaken. For instance, there is often confusion as to whether a research action can be assigned a priority of 1 since, in and of itself, it will not prevent extinction. However, the application of some research tasks may be necessary to prevent extinction (e.g., applying the results of a genetics study to a captive propagation program for a seriously declining species) and would warrant priority 1 status.

Assigning priorities does not imply that some recovery actions are of low importance; instead it implies that they may be deferred while higher priority recovery actions are being implemented. For some species, especially those with complicated recovery programs involving many actions, it may be useful to assign sub-priorities within these categories, e.g., priority 2a, priority 2b, priority 2c. If sub-priorities are assigned, a definition of each sub-priority should be provided.

Table structure – Recovery actions in the implementation schedule can be arranged in various ways, depending on what the authors feel is the most useful organization for users of the plan. They are usually arranged in the order of the recovery outline/narrative, although they may also be arranged according to geographic locations (where they occur in distinct populations), by the categories of threats delineated in the threats analysis (section 5.1.6.7), by category of actions (habitat protection, research, population augmentation etc.), in priority order (all priority one recovery actions grouped first, priority two recovery actions grouped next, and priority three actions last), or any combination therein. For instance, actions can be arranged by priority within a category of tasks (where different entities would be carrying out research and management) or by priority within geographic location (where different managers would be carrying out the actions but it would be helpful to have actions within a geographic location prioritized). (See Appendix P.)

Recovery action number – This number should be identical to that identified in the recovery action narrative. Recovery actions listed in an implementation schedule should be of the lowest (most specific) order, i.e., there is no reason to list 1.0 and 1.1 if you list 1.1.1, 1.1.2, and 1.1.3.

Recovery action description – Enter the title or a brief description of the recovery action (this should reflect the wording in the recovery action narrative to the extent possible).

Recovery action duration – Estimate the length of time to complete the recovery action. State whether the recovery action is currently underway by putting adding a comment under the comment column or, if the action will be continuous throughout the recovery of the species and is currently underway, it may be described as "ongoing". Some actions may be continuous throughout the recovery period but not currently underway, and may appropriately be described as "continuous." Other actions are of a definite duration, such as research projects and development of regulations, should include specific time estimates, unless the administrative record reflects that time estimates were not feasible. These time estimates are important in estimating the overall cost of recovery of the species. Be precise and note that identifying too many actions as "ongoing/continuous" is inappropriate (Defenders of Wildlife v. Babbitt, 130 F. Supp.2d. 121 (D.D.C. 2001); Appendix B.).

Responsible parties – Identify the best lead party or parties to actually accomplish the recovery action. It is preferable, but not required, to obtain agreement from the party(-ies) beforehand, in order to help facilitate implementation of the plan. Note that inclusion under Responsible Parties does not commit any party to actually doing the work, but merely identifies the best candidate for completing the action. Be aware however that in some agencies, e.g., the National Park Service, if a party is not identified as lead or co-lead, it may be difficult for it to obtain funding and staffing for that action. Thus you may want to be liberal in your identification of leads if it will assist parties in participating in the action.

Cost Estimates – Enter the estimated costs for each identified recovery action. Although section 4(f) of the ESA requires the time and cost to be estimated to reach the plan's goal (usually delisting), a 2006 Government Accountability Office audit of the NMFS' and FWS' endangered species recovery programs found that most plans only included time and costs estimates for a 5-7 year period (GAO 2006). In response to the audit, the Department of Commerce and NMFS agreed that estimates of the time and cost to recover each species will be included in new and revised recovery plans. For the sake of brevity, in the Implementation Schedule that accompanies the plan, costs should be provided on an annual basis for the first 5 years and also projected out to the estimated time of full recovery, i.e., there should be 6 columns for cost estimates, 5 stating the costs for the first five years and the 6th giving the cost for that action to recovery. In order to estimate all costs, including those that don't occur in the first 5 years, it is wise to use a spreadsheet on which costs are input for the entire recovery period and derive the Implementation Schedule from that. Given the duration and annual cost of an action, the cost to recovery is a matter of filling out the spreadsheet/table. The total of all actions will be the estimated cost to recovery.

It is recognized that completing this section can be difficult in part because obtaining cost estimates from other identified parties can be challenging and estimating costs far into the future becomes increasingly imprecise. Consulting with potential responsible parties can often be helpful in establishing cost estimates – and keeps them from being surprised when they see the recovery plan. In some cases, best estimates are all that can be supplied; in others, it may be acceptable to state "To Be Determined" or TBD, especially where it is unclear whether or not the action will be necessary, e.g., for the action "Adjust action in response to effectiveness monitoring, if necessary." Estimates should be based on realistically optimistic projections of the ability to get actions funded and staffed, as this may assist in obtaining funding at the appropriate time for the species.

Estimating costs is also difficult because recovery plans contain actions that may be required under mandates other than the ESA, e.g., state law, Clean Water Act (CWA), etc. Although it is recognized that only so much time can be given to figuring the cost of every action, there may be instances in which in may be worthwhile to figure the incremental cost, if any, above those incurred under the other mandates. A rule of thumb would be, if the costs are incurred because the species is listed and the action is necessary for recovery (i.e., if they wouldn't be incurred "but for" the recovery action for the listed species), include the cost in the plan. If, on the other hand, the action truly would take place regardless of the involvement of the listed species, and the plan says to consider the needs of the species while taking the action, you may add only the incremental costs, if there are any, or partial costs if that's more appropriate (and note this in the comments column). For example, actions may be underway or planned to meet CWA standards in a river in which a listed species occurs. These actions may be cited in the plan as important to the species' recovery, but the cost of these actions in the implementation schedule may be zero because the action is taking place regardless of the need to recover the listed species. It is important to note that not all recovery actions have costs – sometimes it is just a matter of considering the needs of the species while implementing an action that would be done regardless. If incremental costs are negligible, but the action's important to the recovery of the species, it's acceptable to put $0 under the party that would need to consider the needs of the species while undertaking that action. Be sure, however, to explain in the comments section that the consideration of species has a negligible cost but is still important.

As usual, the administrative record should document how cost estimates were made, or why they could not be determined, if that is the case.

Comments – This section of the implementation schedule is a good place to note if a recovery action is already underway, if an action relates to another action (if the action will likely be accomplished simultaneously with another action or if it is dependent on another action being completed first), and if any other relevant information pertaining to that recovery action exists.

5.1.11 Literature Cited

Be sure to refer to all literature that is cited in the recovery plan in proper scientific citation format and to list it alphabetically at the end of the plan. It may also be helpful to include a list of references not cited but which were used in background research or may be of interest to the reader. Uncited references may be listed in a separate section, or in the same section as the literature cited, provided that the title of the section is changed to References.

The following references are provided as examples and are given in Name-Year format for the bibliography. They can be cited in the body of the paper using the "In-Text:" example.

Book [In-Text: (Wagner et al. 1990)]

Wagner, W.H., D.R. Herbst, and S.H. Sohmer. 1990. Manual of the Flowering Plants of Hawai'i. University of Hawai'i Press and Bernice P. Bishop Museum Press, Honolulu. 1853 p.

Book Chapter (or other part with different author) [In-Text: (Belovsky 1987)]

Belovsky, G.E. 1987. Extinction models and mammalian persistence. Pp. 35-37 *in* M.E. Soule (ed.), Viable populations for conservation. Cambridge University Press, New York, New York.

Journal Article [In-Text: (Ackerman 1980); (Mace and Lande 1991); (Taylor et al. 1996)]

Ackerman, R.A. 1980. Physiological and ecological aspects of gas exchange by sea turtle eggs. American Zoologist 20:575-583.

Mace, G.M., and R. Lande. 1991. Assessing extinction threats: toward a reevaluation of IUCN threatened species categories. Cons. Biol.5:148-157.

Taylor, B.L., P.R. Wade, R.A. Stehn, and J.F. Cochrane. 1996. A Bayesian approach to classification criteria for spectacled eiders. Ecol. App. 6(4):1077-1089.

Same-author Documents in the same year [In text: (Haig and Oring 1988a; Haig and Oring 1988b)]

Haig, S.M. and L.W. Oring. 1988a. Genetic differentiation of piping plovers across North America. Auk 105(4):260-267.

Haig, S.M. and L.W. Oring. 1988b. Distribution and dispersal in the piping plover. Auk 105(3): 630-638.

Dissertations and Theses [In-Text: (Dettmers 1995); (Gerstein 1995)]

Dettmers, J. M.. 1995. Assessing the trophic cascade in reservoirs: the role of an introduced predator. Dissertation. Ohio State University, Columbus, OH. 88 pp.

Gerstein. E.R. 1995. The underwater audiogram of the West Indian manatee (*Trichechus manatus latirostris*). M.S. Thesis. Florida Atlantic University. 40 pp.

Conference Paper [In-Text: (Balazs et al. 1995); (Ogren 1984)]

Balazs, G.H., P. Siu, and J.P Landret. 1995. Ecological aspects of green turtles nesting at Scilly Atoll in French Polyniesia. Pp. 7-10 *in* Richardson, J.I. and T.H. Richardson (compilers), Proceedings of the Twelfth Workshop on Sea Turtle Biology and Conservaton. NOAA Tech. Memo. NMFS-SEFSC-361. 274 pp.

Ogren, L. 1984. Overview of the biology of the green turtle. Pp. 78-80 *in* P. Bacon, F. Berry, K. Bjorndal, H. Hirth, L. Ogren and M. Weber (eds.), Proceedings of the Western Atlantic Turtle Symposium. RSMAS Printing, Miami.

Technical Reports [In-Text: (Cowardin et al. 1979); (Angliss et al. 2002)]

Cowardin, L.M., V. Carter, F.C. Golet, E.T. LaRoe. 1979. Classification of wetlands

and deepwater habitats of the United States. U.S. Fish and Wildlife Service Report FWS/OBS/-79/31. 103 pp.

Angliss, R.P., G.K. Silber, and R. Merrick. 2002. Report of a workshop on developing recovery criteria for large whale species. NOAA Technical Memorandum NMFS-OPR-21. 32 pp.

Unpublished Documents [In text: (Cuddihy et al. 1983); (Ehrhart 1983); (Helgerson, *in litt.*, 2000)]

Cuddihy, L.W., J.A. Davis, and S.J. Anderson. 1983. A survey of portions of Kapala and Ka'u Forest Reserves, Island of Hawai'i. Prepared for Endangered Plant Species Program, Division of Forestry and Wildlife, Hilo, Hawaii.

Ehrhart, L.M. 1983. A survey of nesting by the green turtle, *Chelonia mydas*, and loggerhead turtle, *Caretta caretta*, in South Brevard County, Florida. Unpublished Report to World Wildlife Fund-US, Washington, DC. 49 pp.

Helgerson, Ken. Baker County Transportation Department. 2000. Letter to Edna Rey-Vizgirdas. 4 pp.

Recovery Plans [In text: (FWS 1998); (NMFS 1992); (NMFS and FWS 1998)]

U.S. Fish and Wildlife Service. 1998. Recovery Plan for insect and plant taxa from the Santa Cruz Mountains, California. U.S. Fish and Wildlife Service. Portland , Oregon. 83 pp.

National Marine Fisheries Service. 1992. Recovery Plan for the Steller Sea Lion *(Eumetopias jubatus*). Prepared by the Steller Sea Lion Recovery Team for the National Marine Fisheries Service, Silver Spring, Maryland. 92 pp.

National Marine Fisheries Service and U.S. Fish and Wildlife Service. 1998. Recovery Plan for U.S. Pacific Populations of the Green Turtle (*Chelonia mydas*). National Marine Fisheries Service, Silver Spring, MD. 84 pp.

Federal Register Notices [In text: (FWS 1990; 55 FR 32088, month day, year)]

U.S. Fish and Wildlife Service. 1990. Endangered and threatened wildlife and plants: Determination of threatened status for the Puritan tiger beetle and the northeastern beach tiger beetle; Final rule. 55 FR:32088-32904, month, day, year.

Electronic Journals [In-Text: (Slater and Jones 1995)]

Slater, P.J.B., and A.E. Jones. 1995. Timing of songs and distance call learning in zebra finches. Animal Behavior [serial online] 49(2):123-248. Available from: OhioLINK Electronic Journal Center via the Internet (http://journals.ohiolink.edu/etext/).

Personal Communication [Generally only citation is in text: (B.A. Schroeder, National Marine Fisheries Service, personal communication, 2003)]

5.1.12 Appendices

Any peripheral but pertinent documents can be included in the appendices of the recovery plan. Resist putting too much into the appendices. Appendices can include outreach materials, relevant reports (or their executive summaries), data, monitoring protocols, habitat management plans, the comments or summaries of public comments and information on public meetings. Appendices can be good places for specific issues to be fleshed out in detail.

5.2 Procedural Requirements

5.2.1 Plan Preparation

The actual plan preparation phase of the recovery planning process starts with publication of a Notice of Intent (NOI) to prepare a recovery plan and request for information in the *Federal Register*. The NOI can be included in the final listing notice. The next steps are to gather, analyze, and synthesize information and complete a draft plan, followed by review of that plan through technical, public and formal peer review. The plan will not be complete (final) until all comments have been considered, appropriate changes are incorporated, and the plan is approved by NMFS.

Recovery planning will rarely be linear. Rather, it will involve multiple iterations that will undergo review and feedback, including stakeholder and technical feedback which may be gathered throughout the process. This may result in major shifts or minor adjustments in the thinking process. Until a draft is ready to undergo public review and comment, this iterative process will be informal, although in some cases it may involve peer reviews of sections of the plan or issuance of a draft for technical review.

5.2.1.1 Information Gathering

Compile all available information that contributes to the best possible scientific understanding of the species' biology, threats, recovery issues, and needs. Much of this information will likely come from the listing package or files. Other data may come from current status reviews; research results that become available within the planning time frame; wider literature searches; pre-listing planning and conservation efforts; and communications with species experts, land managers, and others with expertise regarding the status, biology, management needs and other information relevant to the species' recovery. Information can also be solicited from the public at the beginning of the planning process through the publication of a notice in the *Federal Register*.

Information gathering involves sorting pertinent data into meaningful categories, identifying data gaps, ensuring that original sources and reliable data are used, and making judgments as to the applicability and interpretation of the data within the recovery context. The pertinent information gleaned from this process is presented in the Background section of the recovery plan (see section 5.1.6, Background).

5.2.1.2 Analysis

This step involves careful assessment of the biology, status, and threats information compiled to ascertain the relative significance of the various issues facing the species, the possible ramifications of these issues, and the opportunities currently available for addressing these issues and advancing recovery. While some of the findings that may arise from analysis will be self-evident, others will emerge only after rigorous thought and dialogue among experts, which should be documented for the administrative record. The threats assessment exercise referred to in section 5.1.6.7 is a tool that may be used to complete the analysis of threats to the species.

For many species, analysis will not involve much statistical or quantitative analysis because of limited data availability. However, when adequate information is available, a more rigorous analysis should be conducted. The results of this analysis should be succinctly summarized in section 5.1.7, Recovery Strategy, and the plan should clearly indicate how it uses the results to form its recommendation.

5.2.1.3 Synthesis

This step integrates and builds upon the information base and analysis to craft a recovery strategy; recovery goals, objectives, and criteria; a set of actions designed to achieve those recovery criteria; and a schedule for implementation (see sections 5.1.7 to 5.1.10). Overall, the strategy, goals, objectives, criteria and recovery actions form the recovery program for the species. It is important to note that while the information that has been gathered and analyzed may yield some straightforward ideas about how to proceed with recovery, the synthesis phase often involves making decisions based upon best professional

judgment. Depending on the types and amount of information available, structured decision-making and models may be of use during this phase.

In order to develop a recovery program, several crucial decisions must be made. The first, and most important, is determining what "recovery" means for the species. This determination will lead to a set of goals, objectives, and reclassification and delisting criteria that signal partial or complete recovery of the species. The second is determining the actions that will achieve the recovery criteria. The third is assigning priority ranks, timeframes, responsible parties, and costs to the recovery actions. Finally, there is a review process that serves as a check on the validity of assumptions and conclusions.

5.2.2 Review of Recovery Plans

According to section 4(f)(4) of the ESA, NMFS must provide public notice and an opportunity for public review and comments on all recovery plans. In order to ensure recovery plans are based on the best scientific information and judgement, joint policy also requires NMFS to solicit peer review on all recovery plans (FWS and NMFS 1994a). In addition, plan preparers may want to consider other reviews.

National Environmental Policy Act (NEPA) - NMFS (NOAA) has determined that issuance of recovery plans under section 4(f) of the ESA is categorically excluded from review under NEPA (NMFS - NOAA Administrative Order 216-6, section 6.03e3(a)). The NOAA Administrative Order notes that "Preparation of [a] recovery plan pursuant to section 4(f)(1) of the ESA is categorically excluded because such plans are only advisory documents that provide consultative and technical assistance in recovery planning." However, NMFS' guidance notes exceptions to categorical exclusions (see NAO 216-6, section 5.05c), and therefore the administrative record should document that the categorical exclusion applies, and that no exception applies.

For both agencies, implementation of recovery actions identified in a recovery plan are subject to analysis under NEPA.

5.2.2.1 Technical Review *(optional)*

A technical draft of the plan may be developed for separate scientific and/or policy review. Distribution may include scientists or experts in pertinent fields – both in-house and at academic institutions or other pertinent agencies and scientific organizations – and agency experts in the ESA, including attorneys in the Office of General Counsel. If the review is conducted by outside scientific experts, it may constitute peer review (see section 5.2.2.2, Peer Review). It may also be conducted in addition to another peer review at the time of the public review.

5.2.2.2 Peer Review

Scientific integrity is of paramount importance in recovery as well as other endangered species program activities. Peer reviews strengthen the quality and credibility of ESA recovery decisions. Peer review is a thorough review by two or more independent scientists. NMFS recognizes that peer review requires thoughtful responsiveness to the specific issues raised in each recovery plan, clear communication between reviewers and NMFS biologists, and flexible approaches to implementing effective review.

Policy requirements of peer review – Although independent peer review of recovery plans is not required under the ESA, NMFS has had a longstanding practice of inviting comments from knowledgeable scientists on draft recovery plans. In 1994, this practice was reinforced by a joint agency policy mandating independent "peer review" of these documents (FWS and NMFS 1994a). This policy states that NMFS will "utilize the expertise of and actively solicit independent peer review to obtain all available scientific and commercial data from appropriate local, State, and Federal agencies; Tribal governments; academic and scientific groups and individuals; and any other party that may possess pertinent information.." Furthermore, NMFS will "summarize in the final plan the opinions of all independent peer reviewers ... and include the reports and opinions in the administrative record of that plan." NMFS must (1) seek peer review during public comment periods, (2) document reviewers' opinions, and (3) maintain a record of all materials received (FWS and NMFS 1994a).

Guidelines to ensure effectiveness of peer reviews – Although the peer review policy language is confined to obtaining all pertinent data, peer review also entails evaluation of the information (recommendations, assumptions, and criteria) presented in draft plans. NMFS biologists should, therefore, request that independent reviewers (1) assess the completeness of the data in the plan and provide pertinent information that may be missing, and (2) evaluate these data with reference to plan recommendations (recovery criteria and actions).

At a minimum, peer review must be conducted during the public comment period for agency draft plans, and comments must be documented and records kept on file. NMFS biologists should (1) compose letters or develop other means of soliciting peer review from identified individuals at the time the draft plan is released for public review, (2) develop a point-by-point response to substantive feedback received from peer reviewers, (3) document (summarize) these responses in the final plan to be submitted for approval, and (4) maintain copies of both the letters and NMFS responses as part of the administrative record. Note that in many cases it may be appropriate for NMFS to go beyond these minimum requirements in order to increase the benefits of peer review. For example, peer review of focused sections of the plan before the public review period is often desirable.

Although the policy does not stipulate a minimum number of peer reviewers to be solicited for draft recovery plans (as it does for listing packages), its intent clearly is to have sufficient peer review of all significant aspects of the plan. It is also important to remember that peer review is not necessarily confined to scientific review. Thus, while biological review will form the core of peer review of recovery plans, review by other types of experts may also be necessary if issues raised in the plan indicate that such a need goes beyond what can be achieved through the public review mandated by the ESA. Thus, in coordinating peer review, NMFS biologists should identify the types of information that need to be reviewed, identify one or more reviewers that can address each category of information, and ask for reviews that are germane to each reviewer's area of expertise. Finally, in order to ensure that peer reviewers are "independent," NMFS biologists should seek reviewers who are not members of the species' recovery team or otherwise involved in plan preparation, have no potential conflict of interest regarding recovery planning outcomes, and are deemed capable of providing an objective, unbiased review.

Interim peer reviews – An interim peer review may be conducted on **preliminary planning products** such as a PVA, a taxonomic study, a threats assessment, or a draft of just the Background section. It might be most easily characterized as peer review of the building blocks that make up a comprehensive product: the recovery plan. Interim reviews should ensure that critical information feeding into the planning process -- information which might influence recovery strategies, criteria, or actions, is sound. Successful implementation of interim reviews requires that both the scientific community and NMFS strive to maximize the efficiency of this process. Interim reviews should focus on discrete and significant scientific questions pertaining to a particular decision; this, in turn, should facilitate more efficient evaluation and comment. Furthermore, it may be possible to structure the planning process so that other facets of the process can proceed pending interim review of a particular issue.

Focused peer reviews – In many cases, focusing peer review (of interim products or draft plans) on specific questions can substantially improve the effectiveness of the review process. This approach is supported by the policy language that calls for peer review "relating to the selection or implementation of specialized recovery actions or similar topics in ... recovery plans ..." (FWS and NMFS 1994a). Although a responsible reviewer may choose to read an entire document for a contextual understanding, focusing on discrete issues should enhance the review process.

To accomplish this, NMFS biologists should direct the reviewer's attention to scientific or commercial questions that pertain to his/her area of expertise. More specifically, NMFS should (1) define the critical issues, (2) seek reviewers with expertise pertaining to each issue, and (3) ask each reviewer to scrutinize relevant aspects of the document (if

several individuals review distinct aspects of a document, it may also be advisable for another reviewer to assess whether these issues have been properly integrated).

As a consequence of taking this highly focused approach, more experts may be involved in reviewing a particular document, but individual time demands should diminish, requests for reviews should be more successful, and reviews should be more productive. Seeking focused reviews may be the best way to ameliorate otherwise intractable time and funding constraints.

Information standards for peer reviews – To facilitate constructive independent reviews, the following measures are recommended:

- Precisely formulate questions for reviewers. For example, reviewers of a recovery plan based in part on a population viability model might be asked to comment specifically on whether, using best available data, modeling techniques incorporate appropriate assumptions regarding demographic parameters.
- Supply reviewers with background information regarding the legal and administrative requirements for recovery plans as well as "ground rules" for conducting useful and timely reviews. See Appendix R for guidance on how to identify potential independent reviewers and sample informational materials to be sent to the reviewers.
- Be available to answer questions from reviewers regarding the limits and breadths of comments.

5.2.2.3 Public Review

In accordance with section 4(f)(4) of the ESA, the opportunity for public review and comment is required for all new and revised recovery plans, and input received during this period must be considered prior to completion and approval of the plan. Draft plans released for public review should be as close to final as possible; however, it is possible or even likely that serious concerns or significant information may arise through public review. Sufficient time to address comments should be built into the planning process. An NOA of a Draft Recovery Plan for Review and Comment (see Appendix T for example) must be published in the *Federal Register* (See. The standard time period for public review is 60 days.

During the review process, a copy of the *Federal Register* NOA should be sent to all interested parties, including, but not limited to landowners and other affected parties; non-governmental organizations, such as environmental groups and user groups; other Federal agencies; appropriate state, county, and local agencies; all potential partners including academic institutions, landowners, businesses, and, in many cases, Congressional offices (see Appendix T). In the NOA, the ADDRESSES section should state clearly the place where the reader should write to receive a hard copy of the plan and the Internet address where an electronic copy of the plan can be obtained. At this time, news releases and fact sheets may be desirable if the plan addresses highly visible, widespread or controversial species. Finally, to ensure consistency on various policy issues, all draft recovery plans will be reviewed by the Washington, DC Offices during the public review period or, at the region's discretion, earlier in the process. For wide-ranging or controversial species, an outreach plan may be needed to guide this process.

5.2.3 Incorporation of Comments

Information obtained through public comments should be incorporated throughout the final plan, as appropriate, and a summary of comments may also be included in the final plan as an appendix. The administrative record should include copies of all comments with an indication of how they comments were addressed. Even with a public comment period, NMFS should, within reason, be receptive to input at any point during the recovery planning process. However, NMFS is required to address only those comments received during the formal public comment period.

If significant new information is gathered during or after the public review process, leading to significant changes in the draft plan, the public comment period should be re-opened.

5.2.4 Approval and Distribution Process

NMFS recovery plans must be approved by the Assistant Administrator for Fisheries after review by the Office of Protected Resources (PR). For recovery plans on listed ESUs of Pacific salmon, approval of recovery plans has been delegated to the Regional Administrator(s) of the applicable region(s). In the case of plans for species that occur in multiple regions of NMFS, review and concurrence of the final plan by the Regional Administrator(s) in the non-lead regions must be

Draft and final recovery plans should be forwarded to PR, accompanied by a memorandum from the Regional Administrator to the Assistant Adminstrator and an NOA for publication in the Federal Register. PR will submit the NOA for draft and final plans to the *Federal Register* (See Appendices T and U). Each regional office will be responsible for posting draft and final plans on the Internet and for printing and distributing draft and final plans.

5.2.4.1 Distribution of Comments to Federal Agencies

Section 4(f)(5) of the ESA requires that "Each Federal agency shall, prior to implementation of a new or revised recovery plan, consider all information presented during the public comment period." Accordingly, copies of all comments on new and revised recovery plans should be provided to all relevant Federal agencies.

5.2.4.2 NMFS Distribution Process

Upon approval, final plans should be distributed to all interested parties who received draft plans for review, as well as anyone who commented on the plan. In addition, an NOA will be published in the *Federal Register* (see Appendix U), and the plan should be made available on the NMFS website. At this time, it may be appropriate to distribute news releases, fact sheets, and other outreach materials on the final plan, especially for highly visible, wide-ranging, or controversial species.

6.0 Using and Updating the Plan

If a recovery plan is never consulted, the recovery of the species may go awry, and the thinking, time, and effort put into developing a well-written document will be wasted as well. Three fundamental reasons exist that would cause a recovery plan to be left on the shelf. First, all contributors to the plan may be integrally involved in carrying out recommended actions, which they believe they can readily recall without consulting the document. Second, the recommendations in the plan may become obsolete, may be overridden by political or legal contingencies, or may have been poor decisions to begin with, so the plan does not reflect current recovery needs or opportunities. Third, a turnover of participants in the recovery process may lead to inadvertent disregard of planning premises and recommendations.

For the plan to be used, it must:

- Make a clear and compelling case for recovery that provides a sound basis for implementing individual recovery actions;
- Be a tool for generating sponsorship -- all listed species need strong advocates;
- Be kept current and relevant; and
- Have administrative support.

Experience shows that the recovery process often becomes more complex as actions are undertaken and new information is generated. Roadblocks can multiply, and, without the strategic outlook and incremental steps that are outlined in a good plan, the overall effort may seem daunting and confused. Recovery is a serious, complicated endeavor that we need to think about carefully, implement wholeheartedly, and reassess constantly.

6.1 Implementation, Monitoring, and Information Management

Recovery is an iterative process. Through careful monitoring, the data generated and lessons learned from implementing individual recovery actions feed back into refining the recovery plan. Monitoring may focus on implementation (the extent to which the plan is followed and recovery actions are taken) and/or effectiveness (to what extent recovery actions are successful and progress is made). It may also include tracking of threats or other constraints to full recovery. NMFS is currently preparing additional guidance for implementation of recovery plans and monitoring of recovery progress (to become separate chapters in the Recovery Handbook).

6.1.1 Review of Recovery Progress

A regular review of the actions accomplished and actions still in need of implementation should be conducted to track implementation status and identify additional recovery needs. Annual accomplishment reporting is critical for maintaining public and Congressional support for recovery efforts; thus, information about significant achievements should be forwarded to the appropriate office following current Regional and Headquarters Office procedures. Required annual reporting for the Government Performance and Results Act (GPRA) and for the Recovery Report to Congress (to be addressed in other portions of the Recovery Handbook) is a good trigger for a general review of the entire recovery progress for a species. Identifying actions still in need of funding and/or implementation will facilitate budget requests, section 7 or 10 decisions, grant proposals, research recommendations, and opportunities for partnerships. This information can also indicate how stakeholders can best contribute to the recovery effort. Finally, the regular maintenance of implementation tracking records and species' recovery progress should greatly facilitate the statutorily required five-year review of the species (guidance under development).

It is recommended that the lead biologist for the species maintain a written or electronic tracking system of recovery actions, including such information as implementation status, contribution of agency funds, contribution of other funds, partners, percent and description of completed actions, percent and description of incomplete or pending tasks, and cost estimates for needed actions. This will be an important component of the recovery administrative record. The Implementation Schedule can serve as a useful tool for such tracking.

6.1.2 Reassessing Threats

As noted under Monitoring discussion in section 5.1.9.3, Recovery Action Narrative, actions for monitoring both the status and trends of threats and the effects of threat reduction actions should have been built into the Recovery Action Narrative of the recovery plan. It is important to periodically review the results of this monitoring and revisit the threats assessment section (5.1.6.7) to assess whether changes should be made in the recovery program. Again, regular monitoring of threats and a reassessment of the threats assessment should greatly facilitate the species' five-year review.

6.2 Modifying the Recovery Plan

The ESA requires a review of all listed species at least once every five years (guidance for this review is under development and will become part of the Recovery Handbook). Immediately following this five-year review, approved recovery plans should be reviewed in conjunction with implementation monitoring, to determine whether or not the plan needs to be brought up to date. The following criteria should be used to determine whether the plan needs modification:

- Background information

  - Has our understanding of the species' status, threats, or recovery needs changed?
  - Has the knowledge base for the species significantly increased?
  - Do uncertainies and data gaps exist that could impede recovery progress?
  - Does the plan adequately describe the status, the listing factors and continuing threats, and the conservation measures for the species?

- Recovery strategy

  - Does the plan contain a recovery strategy?
  - Is the strategy consistent with the biological, threats, and conservation information presented in other sections of the plan?
  - Is the strategy relevant to current concerns and opportunities relating to the species' recovery?
  - Does the strategy contain broad elements that lead directly to measurable recovery criteria and specific management actions?

- Recovery objectives, and criteria

  - Are the recovery criteria measurable?
  - Are the recovery criteria clearly linked to conclusions about the species' status and the threats to its survival?
  - Do the recovery criteria reflect the recovery strategy for the species?
  - Are the listing factors explicitly addressed by the recovery criteria?
  - Does the plan contain delisting criteria and, if not, does it provide a rationale for their exclusion?
  - If the plan contains interim objectives and criteria, have the uncertainties leading to this been addressed? Is there a trigger for revisiting these criteria?

- Recovery actions (i.e., tasks) and implementation schedule

  - Are the recovery actions clearly linked to the recovery objectives and criteria?
  - Are the recovery actions in line with the recovery strategy?
  - Do the collective recovery actions still constitute a sound stepdown plan for achieving the recovery criteria?
  - Are the recovery actions in the plan being effectively implemented?
  - Have a significant number of actions been completed?
  - Are a significant number of actions obsolete?
  - Are additional actions needed?
  - Are the priorities assigned to individual actions still valid?
  - Is the implementation schedule out of date?

This review may indicate that the plan continues to be sufficient for guiding recovery implementation for the species. In this case, a brief record of the review should be maintained in the administrative files for the species and no further action is necessary until (a) the next plan review or (b) significant new information or interest emerges that indicates a more immediate need for making changes to the plan.

If, however, the review of the plan and its implementation shows that the plan is out of date or its usefulness is limited, plan modifications should be scheduled. Although the need for, and extent of, plan modifications will vary considerably, no specific schedule for initiating or completing plan modifications is currently required. Nonetheless, due attention should be given to making necessary modifications in a timely way. If lack of resources will delay

initiation of plan modifications, the changes that are needed and the lack of capacity to make them should be so noted for the administrative record.

When significant plan improvements are needed but resources are too scarce to accomplish this in a short time, it may be useful to consider developing an interim product for documenting considerations that will affect conservation of the species and its habitats (or their habitats in the case of multiple-species recovery efforts) during the time that a useful, up-to-date plan is unavailable. This interim document would be fundamentally similar to a recovery outline (see section 3.0 Recovery Outline). Although it would be inappropriate for such an interim document to include changes in the recovery program that contradict the approved recovery plan, it could serve a critical function by refining recovery criteria and/or actions, or outlining which actions (of those contained in the recovery plan) need to be emphasized while awaiting a revised or updated recovery plan. It could also incorporate study findings to enhance the scientific basis for undertaking specific recovery projects or for making determinations under section 7 and 10 of the ESA. Such an interim document could either stand alone or be appended to an approved recovery plan as an addendum (see section 6.2.3, Plan Addenda).

At this juncture, it is important to note that less complex plans may be easier to bring up-to-date than more complex or multiple-species plans. The ability to keep a plan useful and up-to-date should be a strategic consideration in determining (1) the scope and complexity of the initial plan, (2) the structure of the document, and (3) the involvement of stakeholders. Also, new information will emerge during the recovery process on a more or less regular basis. Establishing a central clearinghouse for this information will greatly expedite plan changes. In most, if not all, cases, it may be most efficient to keep recovery plans current by updating them frequently enough to forgo the need for major revisions (See sections. 6.2.1 - 6.2.3, Plan Updates, Revisions, Addenda, for the different types of plan modifications). In taking this incremental approach, however, it is important to bear in mind that at certain points, multiple changes that are minor in and of themselves may add up to a major change in recovery direction about which the public must be kept informed and involved. The question of when and how to involve the public in keeping plans continually current may be best addressed by taking an interactive approach to stakeholder involvement, as described in section 4.3.

There are three primary types of plan modifications: (1) an update, (2) a revision, or (3) an addendum. The following criteria should be used to determine which of these is most applicable:

- The age of a plan (a 20 year-old plan is most likely out-of-date)
- How much information has changed
- The extent of new information
- The level of interest or controversy in the plan.

It is important to keep contributors to the recovery effort and all stakeholders informed about key recovery decisions, updates, revisions and addenda.

6.2.1 Plan Updates

An update to a recovery plan involves relatively minor changes. An update may identify specific actions that have been initiated since the plan was completed, as well as changes in species status or background information that do not alter the overall direction of the recovery effort. An update cannot suffice if substantive changes are being made in the recovery criteria or if any changes in the recovery strategy, criteria, or recovery actions indicate a shift in the overall direction of recovery; in this case, a revision would be required. Updates should be completed by either the lead biologist for the species or the recovery team. Copies of the updated pages should be forwarded to cooperators and to the distribution list for the recovery plan, and posted on NMFS regional and national websites. Because an update does not represent a major change in recovery direction, it does not require a public review and comment period.

6.2.2 Plan Revisions

A revision is a substantial rewrite of at least a portion of a recovery plan and is usually required

if major changes are required in the recovery strategy, objectives, criteria, or actions. A revision may be required when new threats to the species are identified, when research identifies new life history traits or threats that have significant recovery ramifications, or when the current plan is not achieving its objectives. In some cases, a revision may be undertaken when a significant amount of time has passed and a number of updates have been completed. The planning process for revising a recovery plan is the same as for original plan development, including reconvening a recovery team, if appropriate. Revisions of recovery plans represent a major change to the recovery plan and must include a public review and comment period.

6.2.3 Plan Addenda

An addendum can be added to a plan after a recovery plan has been approved. Types of addenda can range from the interim document described in section 3.0 to implementation strategies or participation plans, to more minor information updates. Addenda that represent significant additions to the recovery plan should undergo public review and comment before being attached to the recovery plan. An example of a significant addendum is one that adds a species to a plan (see section 2.1, Determining the Scope of the Recovery Plan).

6.3 Notification, Review, and Approval of Plan Modifications

Updates to recovery plans and minor addenda represent minor changes and can be approved at the field office or at the Regional Administrator level. Updates do not require formal public comment periods; however, contributors, stakeholders, and the Headquarters offices should be sent a copy of the changes to the plan and the changes should be posted on regional and national NMFS websites.

When plan revisions or major addenda are slated, particularly for controversial species, NMFS should publish a *Federal Register* Notice of Intent at the outset of the process. This Notice should solicit data, provide information about public review and comment, and state the purpose of the revision. Further, because plan revisions represent a significant change to the recovery plan, they must go through the same review and clearance procedures as a draft and final recovery plan (see section 5.2, Procedural Requirements), including a public comment period announced in the *Federal Register*.

The review and approval of addenda should occur on a case by case basis due to the highly variable significance of different types of addenda.

6.4 Continuing Involvement in the Recovery Process

In addition to formal notification requirements and comment periods, our responsibility to invite public involvement and respond to public input throughout the recovery process extends beyond the letter of the law.

With regard to involvement in preparation of plan revisions and other significant recovery documents, if the stakeholders have been actively involved as partners in implementing the approved recovery plan, involvement in the updating or revision process may be seamless. In fact, productive working relationships with stakeholders may expedite the process of making changes to the plan. The stakeholder involvement process should be viewed as an *interactive* process, and, in this sense, technologies that facilitate ongoing interaction should be exploited whenever possible. Such tools as websites, e-mail networks, audio- and video-conferencing, and discussion threads may enhance the ability to keep recovery plans continually current and provide for the ongoing involvement of all interested parties.

6.4.1 Maintaining the recovery team

Completion and approval of a recovery plan sometimes signal an appropriate time for disbanding the recovery team, particularly if it was appointed strictly to prepare the plan. There are other cases where the team can continue to function effectively as the recovery plan is implemented.

If the team's responsibilities are limited to plan preparation, this should be made clear from the outset of the process, and it may have a strong influence on selection of the Team Leader and team members. Likewise, if the team has a broader recovery mandate, team membership should be arranged with this in mind. In the latter case, the team can provide effective assistance in keeping the recovery plan in line with implementation progress. If the initial planning process has been too arduous, this prospect may not appeal to all team members, and it may be necessary to revisit the ground rules, or Terms of Reference, for the team and possibly to revise its membership.

Inefficiencies or other pitfalls that may have affected team performance during preparation of the initial recovery plan should be identified and dealt with if the same team is expected to prepare plan updates, addenda, and/or revisions. This level of work entails a significant commitment on the part of each team member, and it may be wise to build in a system of turnover or revolving membership that recognizes this.

It is important, when maintaining the recovery team as an ongoing planning and implementation advisory group, to continue to foster the involvement of other parties in the recovery process. Recovery teams can, if allowed, become a surrogate for stakeholder involvement that could result in the exclusion of other interested parties and important contributors to the recovery effort.

If a recovery team is retained or reappointed for preparing a plan revision or update, the same considerations that were discussed in sections 2.0, Preplanning Considerations, and 4.0, Planning Considerations, apply.

6.4.2 Maintaining partnerships

Initially, partnerships may be more or less limited to those identified in the "Responsible Agencies" column of the implementation schedule. As the recovery process proceeds, it is likely that additional or different implementation partners will be identified. Parties who have been actively involved in implementing the approved recovery plan will have a strong sense of what is working and what needs fixing in the recovery program, and they can thus be valuable allies in using the recovery plan as a living document. To work with our partners effectively, however, entails a significant degree of coordination and good communication. Agency biologists should employ the tools mentioned above that can lead to more interactive working relationships, and periodic reviews of recovery progress can provide opportunities to share information and to ensure that we and our partners have a common understanding of the species' recovery needs. It will be important to both notify and draw on the

experience of partners when plan modifications are scheduled.

6.4.3 Maintaining public support

If the plan has made a clear and convincing case for recovery, public support for implementing recovery actions may follow, although there will certainly be exceptions to this rule. Various tools for effectively involving interested parties in recovery are presented in section 4.3 Managing Stakeholder Involvement. Being aware of public expectations and being able to anticipate public response to recovery proposals are key points. One aspect of public expectation that needs to be carefully managed is the need for making changes to a plan that has undergone public review and comment. An understanding of the recovery plan as a living document and an understanding of implementation as a dynamic, adaptive process needs to be clearly conveyed to the public so that plan modifications will be more acceptable.

When the time comes to make substantial plan modifications, interested and affected parties will once again play an important role in recovery deliberations, and NMFS should prepare for this effort. If the case for recovery is convincing, if recovery biologists follow the plan and identify its inadequacies in an open, timely way, and if communication channels are kept open, support for the effort will be more easily mustered.

7.0 Emerging Ideas and Issues

Endangered species recovery is a dynamic, innovative, and long-lived process. It is also a learning process, through which new ideas and unforeseen issues will emerge. This section of the planning guidance is designed to accommodate supplemental materials that can inform recovery efforts. It will grow over time to include new information and ideas that arise from the practice of recovery in the field. It will also act as a placeholder for draft memoranda, policies, or other written guidance related to recovery planning or implementation.

Useful information arising from the practice of recovery may include, but is not limited to, the following:

- New scientific findings
- Legal interpretations and precedents
- New references
- Internet websites
- General items of interest
- Planning and implementation innovations, i.e., approaches to planning or implementation that have not been adopted as formal guidance but which fall within the parameters of the Recovery Planning Chapter of the Handbook and may prove useful in certain situations

One example of emerging issues may arise from recent litigation regarding the listing of the flat-tailed horned lizard (see Appendix B). The definitions of the terms "endangered species" and "threatened species" include the language "significant portion of its range." The litigation has raised questions regarding Congress' intent of this language. The resolutions of this issue may have implications for recovery criteria. If and when it is appropriate, we will append information on this issue and its potential implications for recovery planning to this section of the planning guidance.

Recovery practitioners are encouraged to share what has or has not worked for them as lessons are learned. In addition, if unprecedented problems arise that biologists should be alerted to, this section can provide a forum for generating innovative solutions. That said, all items included in this subsection will be distributed nationally only after they have been reviewed by the Office of Protected Resources (NMFS). These materials can then be inserted into this section of the Handbook at the user's discretion.

A list of items that have been distributed will be maintained on the NMFS website [http://www.nmfs.noaa.gov/prot_res] so that users can check to see if they have all current materials. In addition, the website will indicate which materials have become outmoded and can be archived. Most importantly, this section should grow from grass roots efforts to share information that can advance everyone's recovery capabilities. Recovery biologists are encouraged to submit information and ideas that may be suitable for inclusion in this section to the office listed below. Working together, we can keep each other informed and motivated.

Send recovery-related materials to:

Endangered Species Division
Office of Protected Resources
National Marine Fisheries Service
1315 East West Hwy
Silver Spring, MD 20910

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