PROCESS AND STANDARDS FOR REBUILDING PLAN

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4.0 Environmental Consequences

The following terms are used in this document to describe various aspects of rebuilding plans (RELOCATE THE FOLLOWING TERMINOLOGY DISCUSSION TO SECTION 1 OR 2).

Rebuilding Plan Terminology

Rebuilding Plan: The rebuilding plan is defined here as the composite of (1) the rebuilding actions, (2) the rebuilding policy and (3) the supporting explanatory information.

Rebuilding Actions: The rebuilding actions are those actions required under the MSA for rebuilding a stock. Rebuilding actions include management measures to regulate fisheries (MSA Section 304(e)(3)) and the specification of required rebuilding parameters such as the target time for rebuilding (MSA Section 304(e)(4)(a)). Rebuilding actions must be specified in an FMP or regulation.

Rebuilding Policy: A rebuilding policy is any Council statement that guides the Council’s future rebuilding actions but is not required to be incorporated in an FMP or regulation and that the Council chooses not to put in an FMP or regulation. Rebuilding policies are specified at the same time that rebuilding actions are specified and are detailed in the analytical documents accompanying the rebuilding actions. Rebuilding policies may be changed without a formal plan or regulatory amendment but the policy changes must be approved by NMFS. If such policy changes occur, it is likely that they will occur in the context of setting OYs and management regulations and will be accompanied by analyses and explanation of the reason for the proposed changes. As part of the final action on the process and standards FMP amendment for rebuilding plans, the Council may decide that no part of the rebuilding plan will have the status of rebuilding “policy” (all policy elements of the rebuilding plan will be in an FMP or regulation).

Rebuilding Explanatory Information: Explanatory information provides the rationale for rebuilding actions and policies. Initial explanatory information will accompany or be provided as part of the rebuilding plan. Explanatory information may be updated without a plan or regulatory amendment. After updates to explanatory information, if there are significant mismatches between the explanatory information and the rebuilding rebuilding actions or policies, an amendment to the rebuilding plan will be needed. Any update to explanatory information should evaluate the significance of any such mismatch. As part of the final action on the process and standards FMP amendment for rebuilding plans, the Council may decide that no part of the rebuilding plan will have the status of “rebuilding explanatory information” (i.e. all explanatory elements of the rebuilding plans will either be in an FMP or regulation).

Section 2 describes sets of options and sub-options under five issue areas, four of which are considered here. For the purposes of summarizing results of the analysis these options have been cast into six “scenarios” that suggest how they might be combined into an implemented package. These scenarios include the status quo and preferred alternative (the latter of which has not yet been specified by the Council). The analysis will go through each major category of impact, discussing each issue and the

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1 The fifth issue concerns several housekeeping measures, which are categorically excluded from the NEPA analysis because they will not have any direct, indirect or cumulative effects on the environment.
options under the issue. At the end of the major category, impacts will be summarized by scenario. Elements of the scenarios are summarized in Table 4-1 and described below:

Scenario 1: status quo. The first three rebuilding plans accompanying Amendment 12 were prepared in the form of environmental assessments with alternatives that described target biomass and rebuilding period as numeric values, a harvest rate policy, and bycatch control strategies. Draft rebuilding plans currently under consideration are similar in format and content. The FMP was not amended to incorporate rebuilding plan elements for specific species. All elements of the rebuilding plan are supposed to be reviewed every two years by the Council.

Scenario 2: Limited plan amendment. In this scenario rebuilding plans would be modified so that certain actions are in the FMP. All other actions in regulations governing fisheries would be derived from procedures under the existing FMP. Explanation of the derivation of elements of the rebuilding FMP amendment would be placed in the accompanying analytical documents that meet requirements to NEPA and other applicable law. The FMP is not amended to require discussion of specific issues in the rebuilding plan. The FMP is amended to incorporate the rebuilding target, T\(_{TARGET}\) (specified in years), and the harvest control rule to be employed (described by type only or specified numerically). Since only these elements would become part of the FMP (in addition to existing FMP contents related to rebuilding plans) they could be described for all overfished species in tabular form. The Secretary, not the Council, would review the amended FMP as required in MSA §304(e)(7) (Option 2a in Section 2.1.2). The rebuilding plan could be revised and updated if new information results in significantly different values for any of the various rebuilding parameters, as determined by the SSC or GMT (sub-option ii in Section 2.1.2). A change in the target year or B\(_{BEG}\) (expressed as a percent of B\(_3\)) would require another FMP amendment. All the scenarios, aside from the status quo, would include amendment language to describe how an ESA listing would be handled.

Scenario 3: Implement targets as regulations. This scenario is similar to the previous one except that the target and harvest rate policy for each overfished species is specified in federal regulations instead of in the FMP. Regulations would continue to require fisheries to be managed so that targets are reached. The FMP would be amended to require these regulatory targets and harvest policies (but the targets would not be specified in the FMP) and to require that rebuilding plans be discuss certain issues (allocation and habitat protection measures for example). If rebuilding plans established management measures related to allocation and habitat protection these would be written into regulations along with targets and control rules. Rebuilding plans would be reviewed every two years except for targets, which would be reviewed after each stock assessment (Option 2b in Section 2.1.2). The standards for modifying targets and parameters would be the same as described for Scenario 2.

Scenario 4: Full plan amendment, limited specification. This scenario would require all of the description in each rebuilding plan be incorporated into the FMP as an amendment. It would also require rebuilding plans to consider a longer list of issues. The parameters specified in the FMP would be expanded to include the maximum rebuilding year (T\(_{MAX}\)) expressed as a date and associated probability. As with Scenarios 2 and 3, rebuilding plans would be revised when new information results in a significant change to parameters or targets; this would necessitate an FMP amendment if values specified in the FMP need to be changed. The Council reviews rebuilding plans every two years and reviews targets in relation to a fixed stock assessment schedule (Option 2c or 2d). Each rebuilding plan establishes intermediate targets, which could be biomass values, for assessing rebuilding progress. (Options 3b and 3c suggest the type of targets that might be established.)

Scenario 5: Full plan amendment, full specification. This scenario is similar to Scenario 4 except that many more parameters are numerically specified in the FMP (see Table 4-1). Also, in addition to required consideration of allocation, habitat and marine reserve issues, discussion and possible adoption of more detailed harvest regulations would be a required element of rebuilding plans (and incorporated into the FMP). Time and area closures, gear restrictions, or quotas are examples of such specific measures; these measures could also be aimed at reducing bycatch of overfished species. All elements of the
rebuilding plans would be reviewed by the Council every two years (including targets). The amended FMP establishes a single method for calculating performance targets to assess rebuilding progress. (This method would be used to calculate numerical performance target values for each overfished species. Since all elements of the rebuilding plan preferred alternative would be incorporated into the FMP by subsequent amendment, these would also appear in the FMP.)

Preferred Alternative. Not identified in this draft. The Council can combine the options presented in Section 2 in any number of ways so that the preferred alternative will not necessarily correspond to any of the scenarios elucidated here for the purposes of analysis.

The options and sub-option described in Section 2 describe different ways in which rebuilding measures could be implemented by FMP amendment and/or regulations. They will not directly affect the biological or socioeconomic environment because they do not contain specific measures that control fishing mortality or affect other aspects of the natural or social environment. The specific measures with impacts on the natural environment will relate to decisions made with respect to each individual rebuilding plan. The direct, indirect, and cumulative effects of the process and standards for rebuilding plans due to the effects on administrative and public policy processes.

As indicated in Table 1-1, the process and standard options directly affect the management regime and have several other effects that should be considered in light of CEQ regulations (precedent-setting, risk and uncertainty, and controversy). These factors are organized into the following topic areas: (1) administrative capacity and other effects on the management regime; (2) capacity for adaptive management (which mitigates established precedents and addresses unknown risks); and (3) opportunity for public participation in decision making, specifically by commenting on proposed actions (which may mitigate controversy). The options described in Chapter 2 and the six scenarios described above (including the preferred alternative, although not in this draft) are analyzed comparatively under each of these topics.

4.1 Administrative Capacity and Costs

Administrative capacity is a measure of the time available to and productivity of the administrators of the management regime. This can be attributed to each element of the management system: Council members, advisory bodies, Council staff, NMFS staff and state agency staffs. Capacity is more or less a constant because the Council meets for defined periods of time and staffs have some total amount of work time. (This assumes no significant expansion in the number of staff.) Because capacity is fixed and administrative capacity fully utilized, the time cost of any management measure actually represents a tradeoff: time spent on one task means less time spent on another. Procedural measures can be assessed in terms of complexity; the more complex the task of implementing and "maintaining" the procedure the more organizational capacity will be required. This means that organizational attention and capacity is shifted away from other tasks that may be equally pressing or important. The allocation of resources among different tasks can have difficult-to-predict indirect effects on the environment if the implementation of management measures are delayed or organizations do not have the opportunity to address broad issues strategically.

Determining total capacity for each organizational component is not difficult. As noted above, this could be calculated based on the total number of staff person days (Council staff, NMFS) available annually (or any other defined time period). Capacity could also be subdivided roughly between task categories since tradeoffs are not absolute; some amount of time has to be devoted to certain tasks such as setting salmon seasons, groundfish annual specifications, administrative matters, etc. After deducting these

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A more intangible element of capacity is that of the public and policy makers to absorb and understand the materials produced to support informed decision making. Increasing staff may not facilitate good decision making if it increases the volume of information produced without improving the summarizations and clarity with which the information is presented.
commitments, what remained would be some level of fungible time that could be rationed among tasks. It is more difficult to accurately anticipate the amount of time needed to complete different tasks because while the generic elements involved in developing and implementing management actions—such as scoping, organizing meetings, drafting documents, and rule making—can be identified, the actual amount of time needed for a given instance of one of these generic tasks can vary widely depending on how complex or controversial the task is. Because of these difficulties a quantitative assessment of the administrative costs implied by the different scenarios described above will not be attempted. Instead, a qualitative comparison is made. (Table 4-2 summarizes impacts for the three analytical criteria used here.) In this analysis, only actions that are consequent of this action—amending the FMP to establish the rebuilding plan implementation process—are considered. The administrative cost of developing and implementing these procedures is not relevant because the same “sunk cost” applies equally to all of the alternatives considered here.

Given that administrative capacity is a fixed quantity and increased resources devoted to rebuilding measures represents a tradeoff against other tasks, goals outlined in the Groundfish Fishery Strategic Plan (PFMC 2000) are briefly described to suggest potential tradeoffs. [describe]

4.1.1 Issue 1 - Form and Required Elements for the Species Rebuilding Plan

The following is a recapitulation of the options provided in Section 2.1.1.

Option 1a. Status Quo - Leave all elements currently listed in the FMP as part of the annual specification process—not part of an FMP or regulation. (The court found that status quo does not meet the requirements of the MSA.

Option 1b. Complete Rebuilding Plan in Policy Document Accompanied by Plan Amendment to Specify \( T_{\text{target}} \) and Augment - The rebuilding plan will be developed as a single policy document that will contain within it or be accompanied by an FMP amendment to (1) implement any rebuilding actions required under Section 304(e) of the MSA that are not already authorized under the existing FMP, (2) specify in the FMP the rebuilding period required under Section 304(e)(4)(A) of the MSA (\( T_{\text{target}} \)) and (3) specify \( B_{\text{may}} \), Suboption (i): Specify \( B_{\text{may}} \) as an algorithm or formula. Suboption (ii): Specify \( B_{\text{may}} \) as a hard number. Augment the list with additional elements (see list following and Tables 2.1-a and 2.1-b).

Option 1c. Convert All Rebuilding Plan Elements into an FMP - For each overfished species incorporate into an FMP amendment all elements that the current FMP specifies as part of a rebuilding plan.

Option 1d. Convert All Rebuilding Plan Elements into a Regulatory Amendment - For each overfished species incorporate into a regulatory amendment all elements the current FMP specifies as part of a rebuilding plan.

Option 1e. Convert All Rebuilding Plan Elements into an FMP and Augment - For each overfished species incorporate into an FMP amendment all elements the current FMP specifies as part of a rebuilding and augment the list with additional elements (see Tables 2.1-a and 2.1-b).

Option 1f. Convert All Rebuilding Plan Elements into a Regulatory Amendment and Augment - For each overfished species incorporate into a regulatory amendment all elements the current FMP specifies as elements for a rebuilding plan and augment the list with additional elements (see Tables 2.1-a and 2.1-b).

Administrative costs associated with rebuilding plans will vary with

- the form in which each element of the rebuilding plan is set (policy document, FMP amendment, or regulatory amendment),

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the degree to which the specification of the element allows for variations and contingencies in the fishery resources (numerical values allow for less variation and contingency than formulas or algorithms),
- the elements that are included as part of the rebuilding plan.

Form

FMP amendments usually have the greatest administrative costs, taking the longest time to implement at the Secretarial level, and regulatory amendments have a somewhat lesser administrative cost, taking somewhat less time to implement at the Secretarial level. At the Council level, the administrative costs of FMP and regulatory amendments are comparable. Policy documents that are not in the form of an FMP or regulation may be modified with substantially less administrative cost than FMPs or regulations. In some cases, such as with the Council's groundfish strategic plan, a policy document may be developed without an accompanying NEPA analysis. In other cases, such as with the Council's initial rebuilding plans, policy documents may be accompanied by a NEPA analysis.

Under this issue, the Council determines elements that will be included in rebuilding plans. For each element included as part of a rebuilding plan, the administrative costs associated with including the element will be highest if it is specified as an element in an FMP, somewhat lower if it is specified as a regulation, and lowest if it is specified as a policy document. An important caveat in evaluating the tradeoff between form and administrative cost is that the form in which the element is specified must meet the requirements of the MSA. It may be possible to specify some rebuilding plan elements as regulations (for example constraints placed on fishing pursuant to the requirements of MSA, Sec 304(e)(3)) and other elements as FMP amendments (for example the time period for rebuilding required under MSA, Sec 304(e)(4)).

Numeric Value, Algorithm or Formula

To the degree to which it is allowed under the MSA and implementing regulations, the specification of elements of the rebuilding plan in a manner that allows the elements to vary based on new information (without requiring a plan amendment, regulatory amendment or an amendment to a policy document in order to implement the change) will result in lower administrative costs than if the same elements were specified as fixed values. One way to allow those elements to vary in such a manner is to specify them as algorithms, formulae or possibly as relational tables.

Elements to Be Included

The first section of the following table lists the elements required to be in rebuilding plans under status quo, Option 1a. The decision to be made is the form in which the elements in the current list will be specified (policy document, FMP or regulation). There is no option which would reduce the current list. Certain elements are required as rebuilding actions under the MSA. The required element specifically named in the MSA is the time period for rebuilding. This action must be put into an FMP or regulation. All options would maintain all of the current required elements; however, Option 1b would convert only $T_{\text{target}}$ and $B_{\text{may}}$ into an FMP or regulatory amendment, all other elements would remain in the form of a policy document.

The second section of the table includes candidates for addition to the list of required elements. Options 1e and 1f would expand the Council's list of required the rebuilding plan elements. Subjects for the expanded list include harvest regulations, allocation, bycatch controls, habitat protection measures, closed areas, and additional rebuilding parameters. With the exception of the rebuilding parameters, actions on these subjects are considered and occur under the provisions of the current FMP as part of the specification of OYs and annual management measures or as regulatory amendments. The interaction between new rebuilding plans and each of these types of management measures will likely be covered in

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the analysis of any FMP or regulatory amendment to implement a rebuilding plan, including discussion of any need for adjustment to current practices.

Expansion of the list of elements for which options are developed as part of a rebuilding plan will increase the administrative cost and likely increase the amount of time required to develop and consider a rebuilding plan. Placing additional elements rebuilding plan elements in the FMP would increase the cost of their implementation or any future modification as compared to implementing the elements as part of the specifications of OYs and annual management measures, or implementing the measures as regulations under the framework of the current FMP or under any new frameworks created by this process and standards amendment.

With respect the additional parameters considered for inclusion in rebuilding plans, most of the parameters listed in the table will need to be considered in providing a rationale to support the selection of $T_{\text{target}}$ and $B_{\text{rev}}$. The main administrative cost associated with inclusion of an item as an action of the rebuilding plan is the specification of that element as a part of an FMP or regulation and the need for amendments to the FMP or regulation if the value changes. Combining the results of the previous two sections, the administrative cost of including any of the additional parameters in a rebuilding plan might be minimized by either specifying the element as part of the explanatory text in a policy document (provided the element is not required to be in an FMP or regulation under the MSA) or—if incorporated into the FMP—specifying the elements as a algorithms, formula or procedure to be followed.

<table>
<thead>
<tr>
<th>Rebuilding Plan Element</th>
<th>Impact on Administrative Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Currently required elements</strong></td>
<td></td>
</tr>
<tr>
<td>The second paragraph of Section 5.3.6.2 (renumbered as 4.5.2.2) states that rebuilding plans will</td>
<td>Option 1a - Status Quo (baseline): Continue to require these elements as part of a policy document.</td>
</tr>
<tr>
<td>specify any individual goals and objectives including</td>
<td></td>
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<tr>
<td>a time period for ending the overfished condition and rebuilding the stock ([T_{\text{rev}}])</td>
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<tr>
<td>and the target biomass to be achieved ([B_{\text{rev}}]) (biological parameter)</td>
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<tr>
<td>explain how the rebuilding period was determined, including any calculations that demonstrate the scientific validity of the rebuilding period</td>
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<tr>
<td>identify potential or likely allocations among sectors,</td>
<td></td>
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<tr>
<td>identify the types of management measures that will likely be imposed to ensure rebuilding in the specified period,</td>
<td></td>
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<tr>
<td>provide other information that may be useful to achieve the goals and objectives.</td>
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</tr>
<tr>
<td><strong>Option 1b</strong> - Require that only the time period for rebuilding and (B_{\text{rev}}) be set as part of the rebuilding action (plan or regulatory amendment) drop all other elements. All other elements will still need to be addressed in providing a rationale to support the selection of these two parameters. Lower administrative costs than for options that include more elements in the FMP or regulation.</td>
<td></td>
</tr>
<tr>
<td><strong>Option 1c</strong> - Convert all currently required elements into an FMP. Higher administrative costs than status quo, mainly associated with the need to amend the FMP in response to changing information.</td>
<td></td>
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<tr>
<td><strong>Option 1d</strong> - Convert all currently required elements into a regulation. Higher administrative costs than status quo, mainly associated with the need to amend the regulations in response to changing information.</td>
<td></td>
</tr>
<tr>
<td>Rebuilding Plan Element</td>
<td>Impact on Administrative Costs</td>
</tr>
<tr>
<td>-------------------------</td>
<td>--------------------------------</td>
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<tr>
<td><strong>Elements to Consider Adding to Rebuilding Plans</strong></td>
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</tr>
<tr>
<td><strong>Harvest Regulations.</strong> Include specific harvest control measures (regulations) as part of the rebuilding plan (if in the form of an FMP amendment the rebuilding plan would also need to amend regulations). NOTE: Under other Options 1a-1d specific harvest regulations are established in conjunction with the annual process for setting OY.</td>
<td>Options 1e and 1f - Augment the list of required elements: These options increase administrative costs and lengthen time required for initial development of a rebuilding plan. If the plan (Option 1e) or regulatory amendments (Option 1f) would have been needed as adjustments to the rebuilding plan, this may represent a shift in when certain provisions are implemented rather than a change in total administrative costs. While lengthening the time required for development of a rebuilding plan, their may be some administrative efficiency gained by the inclusion of more actions as part of a single process. However, this also adds complexity to the process.</td>
</tr>
<tr>
<td><strong>Allocation.</strong> Include allocations or allocation priorities for overfished species where specific allocations or allocation priorities have not already been specified under the procedures of the FMP or in the FMP. NOTE: Under other Options 1a-1d specific allocations are specified under existing FMP provisions or the allocation framework and implemented in conjunction with the annual process for setting OY.</td>
<td>With the exception of the last element listed as candidates for an augmented list (additional rebuilding parameters), all elements listed here would need to include amendments to the regulations that restrict fishing activities. Under Option 1e, the actions would also be implemented as part of a plan amendment, a somewhat more administratively costly measure that takes longer to modify if adjustments are needed.</td>
</tr>
<tr>
<td><strong>Bycatch.</strong></td>
<td></td>
</tr>
<tr>
<td>Suboption (i) <strong>Include consideration of the</strong></td>
<td></td>
</tr>
<tr>
<td>• the adequacy of information on bycatch and bycatch mortality. Measures needed to acquire the bycatch information necessary to adequately implement the harvest control rule may be considered as part of the rebuilding plan or in a separate plan or regulatory amendment. Adopt risk averse harvest levels sufficient to account for uncertainty about bycatch.</td>
<td></td>
</tr>
<tr>
<td>• the need for management measures to minimize bycatch and minimize the mortality of unavoidable bycatch as part of the rebuilding plans. Measures needed to minimize bycatch or the mortality of unavoidable bycatch may be considered as part of the rebuilding plan or in a separate plan or regulatory amendment.</td>
<td></td>
</tr>
<tr>
<td>(NOTE: Bycatch measures will also be addressed as part of Amendment XX)</td>
<td></td>
</tr>
<tr>
<td>Suboption (ii) <strong>Include such measures as are needed</strong></td>
<td></td>
</tr>
<tr>
<td>• to acquire the bycatch information necessary to adequately implement the harvest control rule.</td>
<td></td>
</tr>
<tr>
<td>• to minimize bycatch and minimize the mortality of unavoidable bycatch as part of the rebuilding plans.</td>
<td></td>
</tr>
<tr>
<td>(NOTE: Bycatch measures will also be addressed as part of Amendment XX)</td>
<td></td>
</tr>
<tr>
<td><strong>Habitat.</strong> Include specific habitat protection measures.</td>
<td></td>
</tr>
<tr>
<td><strong>Close Areas.</strong> Include consideration of the contribution areas closed to groundfish fishing might make to rebuilding the stock (closed areas could range in extent to restricting all fishing, i.e., no-take marine reserves). Include such measures in the plan as appropriate.</td>
<td></td>
</tr>
<tr>
<td>Rebuilding Plan Element</td>
<td>Impact on Administrative Costs</td>
</tr>
<tr>
<td>------------------------</td>
<td>--------------------------------</td>
</tr>
<tr>
<td><strong>Parameters.</strong> The list of candidate parameters and the form in which they would be expressed “hard values” or “algorithms or formulae” is provided in Table 2.1-b. (NOTE: All parameters need not be added in the same form, i.e. some can be expressed as “hard values” others as “algorithms or formulae”. Additionally, not all parameters may need be placed in the same type of document. It may be possible to specify that some will be placed in a policy document and others in the FMP or regulation.)</td>
<td>Expanding the list of parameters in a FMP or regulation may increase the frequency with which FMP or regulations are amended. Regardless of whether or not they are included in an FMP or regulation, the parameters listed will need to be discussed in the explanation of the rebuilding plan. Specification of the parameters in FMPs or regulations as algorithms or formulas would likely result in less of a need for future amendments than if they are specified as numeric values.</td>
</tr>
</tbody>
</table>

### 4.1.2 Issue 2 - Periodic Review and Amendment of Rebuilding Plans

Under the main options, the conduct of formal rebuilding plan reviews by the Council vary from once every 2 years (Option 2a) to none (formal review only by the Secretary, Option 2e). Under Option 2e the Council would monitor progress as part of OY and management measure specification. Intermediate between the two extremes are three options which would require biannual reviews of the general rebuilding goals 2-5 every two years and review of goal 1 (achievement of B_{max}) only when new stock assessments are conducted (for a list of the goals see footnote 12 on page 2-5). The intermediate options deviate from one another in the specification of a schedule for stock assessments. Option 2b provides no such schedule. Option 2c specifies that the rebuilding plan for individual species would include specification of a schedule for stock assessments and Option 2d specifies a common stock assessment schedule for all species managed under a rebuilding plans.

In general, if the Council conducts reviews, the more rigid the schedule for the review the greater the potential administrative opportunity costs, the greater the cost of deviating from the mandated schedule in order to address priorities developing out of future situations--the nature of which cannot be predicted at this time. Deviation from rigidities in the schedule would require the incursion of administrative costs and delay while a plan or regulatory amendment is developed to allow for the deviation. Absent an amendment to allow for the deviation, if the review schedule does not mesh with the priorities of future circumstances more beneficial tasks would have to be set aside in order to conduct reviews.

<table>
<thead>
<tr>
<th>Option 2a Council Review Every 2 Years (Status Quo)</th>
<th>Option 2b Review Goals 2-5 Every 2 Years, Review Goal 1 Only With New Stock Assessments.</th>
<th>Option 2c Council Reviews Goals 2-5 Every 2 years; Review Goal 1 Only With Stock Assessments; Schedule for Stock Assessments Set in Rebuilding Plans.</th>
<th>Option 2d Council Reviews Goals 2-5 Every 2 years; Review Goal 1 Only With Stock Assessments; Stock Assessments Every 5 years or Every 2 years if T_{max} is Less than 20 Years Off</th>
<th>Option 2e No Formal Council Review</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>Impact</td>
<td>Impact</td>
<td>Impact</td>
<td>Impact</td>
</tr>
<tr>
<td>The Council conducts formal reviews on each rebuilding plan every two years. As of spring 2002 there are nine species for which rebuilding plans are needed. Secretary is required to conduct review every 2 years.</td>
<td>Some increased opportunity for the Council to address other management issues.</td>
<td>Some increased opportunity for the Council to address other management issues. Less of an increase than for Option 2b because of rigidity in schedule for stock assessments.</td>
<td>Some increased opportunity for the Council to address other management issues. Less of an increase than for Option 2b or 2c because of rigidity in schedule for stock assessments.</td>
<td>Greatest increased opportunity for the Council to address other fishery management issues.</td>
</tr>
</tbody>
</table>

Each alternative to status quo (Options 2b, 2c, 2d, and 2e) has three suboptions that define when a change in the rebuilding plans would be mandated. Under all the suboptions, the Council could recommend changes in rebuilding plans to NMFS at any time. Each suboption has different impact on
administrative costs. There are administrative costs associated with uncertainty about when an action is required to amend a rebuilding plan. These costs are associated with the agency staff and Council time necessary to debate whether action is needed.

<table>
<thead>
<tr>
<th>Conditions under which rebuilding plans will be amended.</th>
<th>Status Quo: No Guidance</th>
<th>Baseline</th>
<th>There is no standard for when a rebuilding plan would need to be amended.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suboption (i) - when progress toward rebuilding is inadequate; or when stock assessment or rebuilding analysis information is updated.</td>
<td>Suboption (ii) - when progress toward rebuilding is inadequate; or when new information indicates a significant change in rebuilding parameters</td>
<td>Suboption (iii) - when progress toward rebuilding is inadequate</td>
<td></td>
</tr>
<tr>
<td>Impact</td>
<td>Impact</td>
<td>Impact</td>
<td></td>
</tr>
</tbody>
</table>

There is no standard for when a rebuilding plan would need to be amended. Frequent amendments likely as each stock assessment is likely to entail the revisions of some rebuilding plan parameters. The degree of cost will depend on whether the parameters have been set as numeric values or some other type of algorithm and whether they are set in a plan amendment, regulation or policy document (see issue 1).

Less frequent rebuilding plan amendments than Suboption(i), administrative costs associated with by case by case determination of “significance” until such time as a standard practice is developed.

Lower administrative costs than Suptions (i) or (ii)

4.1.3 Issue 3 - Adequacy of Progress

The following displays the effects of Issue 3 options on administrative costs.
<table>
<thead>
<tr>
<th>Option 3a. No Standards for Progress (Status Quo)</th>
<th>Option 3b. Standards Based on Negative Deviations from Schedule</th>
<th>Option 3c. Standard Based on $T_{\text{max}}$</th>
<th>Option 3d. Standards Developed Under the individual Rebuilding Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Baseline</strong></td>
<td><strong>Impact</strong>: By establishing the standard for adequacy as part of the procedures and standards, the issue will not have to be deliberated in the individual rebuilding plans or during the administration of the individual rebuilding plans. On the other hand, if the standard of adequacy established here does not perform well in practice, the Council will need to revisit and revise the standards and procedures section of the FMP, expending administrative resources that may have otherwise been used to benefit the fishery in other ways.</td>
<td><strong>Impact</strong></td>
<td><strong>Impact</strong>: Given the variety of ways in which rebuilding harvest control rules might be specified and that the appropriate way of specifying the control rule may vary between stocks, it is possible that establishment of a generic adequacy of progress standard for all rebuilding plans will lead to standards that do not match well with the rebuilding harvest control rule. In such an instance, an amendment to the process and standards portion of the FMP would be required, generating more administrative costs, or there would be inefficiencies resulting from the mismatch between the control rule and adequacy standard.</td>
</tr>
<tr>
<td><strong>Status Quo Baseline:</strong> Uncertainty about level of progress required before upward or downward adjustments should be made to harvest control rules. That uncertainty will need to resolved and will be an issue of controversy until standards are established either explicitly or through practice. Development analysis and consideration of alternative management policies in an environment where the standards for those policies has not been well specified generates process that are more difficult, complex and contentious.</td>
<td>This option resolves the question of whether Council action is required if rebuilding fails behind expected levels but leaves uncertainty about what happens if rebuilding exceeds expected levels. The zero tolerance approach to negative deviations is likely to lead to frequent plan amendments given the stochasticity in the resource and the measurement of the status of the resource. While administrative costs would be lessened by reduced uncertainty, there would be a 50% likelihood that each rebuilding plan would need to be amended. Therefore, administrative costs may be higher or lower than under status quo</td>
<td>This option resolves the question of whether Council action is required if rebuilding falls behind expected levels but leaves uncertainty about what happens if rebuilding exceeds expected levels. Harvest control rules would not need to be modified unless biomass rebuilding is not sufficient to, with a 50% probability achieve rebuilding in the maximum time allowed under the MSA and National Standard Guidelines.</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** The exact specification of the adequacy standard entailed in Option 3b depend on how the control rule is specified. For example a control rule set as “maintain a 50% probability of achieving rebuilding by the year 2030 starting using a harvest rate approach” contains implicit direction on how to proceed in the event the biomass does not increase at the expected rate (decrease F to maintain target rebuilding year at the specified probability given the information available in any future year).

### 4.1.4 Issue 4 - ESA Listed Species

The following displays the effects of the Issue 4 options on administrative costs.

<table>
<thead>
<tr>
<th>Option 1 (Status Quo)</th>
<th>Option 2 If a stock is listed under the ESA, the rebuilding plan defaults to the jeopardy standard or recovery plan developed under the ESA.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Baseline</strong></td>
<td><strong>Impact</strong></td>
</tr>
<tr>
<td><strong>Baseline:</strong> The FMP and rebuilding plans will need to be amended if a rebuilding species is listed under the ESA.</td>
<td><strong>Option 2 Impact:</strong> FMPs will not need to be amended if a rebuilding species is listed under the ESA. The administrative costs associated with such and FMP amendment would be directed to other management activities to benefit the fishery.</td>
</tr>
</tbody>
</table>

4-10
4.1.5 Summary of Administrative Cost by Scenario

Scenario 1, the status quo, entails the least administrative cost. Although the status quo entails the least administrative cost, it does not conform to MSA requirements, as found by the Court. It thus only has a relevance as a baseline for comparison. Under status quo, no future amendments are required because rebuilding plan elements are not incorporated into the FMP. Rebuilding plans have to be developed in a NEPA-compliant format and reviewed by the Council. The Council must select a preferred alternative and each rebuilding plan is distributed for public review at some point during this process. The SST, GMT and GAP would likely review each plan and transmit their comments to the Council before its review. Once the Council has approved a rebuilding plan NMFS must likewise determine whether or not to adopt the plan. There is an ongoing commitment in the biennial review of the rebuilding plans. Although these reviews involve less staff time than initial development, the advisory body and Council review burden would not necessarily be unsubstantial. This depends to a large extent on whether new stock information and rebuilding analyses suggest that rebuilding trajectories are inaccurate or unrealistic. (Refer to the discussion in Section 1.3.2 on the uncertainties inherent in these analyses.)

Scenario 2 entails moderate increase in administrative burden in comparison to the status quo while meeting MSA requirements. As with the status quo and all other scenarios, rebuilding plans would be developed in a NEPA-compliant format. In addition, the FMP would be amended to incorporate the rebuilding year and harvest control rule for each overfished species. The control rule could be described (e.g., constant rate, constant harvest, or some mixed strategy) or specified numerically (as an F value and/or OY). If the control rule is specified in the FMP then it would have to be adhered to until the FMP was amended to change the specification. Future stock assessments and rebuilding analyses would likely show that the \( T_{\text{MAX}} \) probability had changed for a given harvest level. By the same token, if \( T_{\text{TARGET}} \) is defined as the median year for rebuilding, it would change (or a different probability would have to be chosen). (See Section 1.3.2 for a discussion of these tradeoffs.) In all cases the \( T_{\text{MAX}} \) probability could not fall below 50% for a given harvest rate. Thus specification of a portion of the rebuilding plan as an FMP would make the necessity of future FMP amendments more likely.

Under Scenario 2, a modest, single amendment to incorporate these specifications might suffice, depending on when rebuilding plans are completed. If all the plans are reviewed and approved in a relatively short time period then a single amendment could incorporate the targets and control rules for all of the current overfished species. The need to amend the rebuilding plans in future would be limited to changes in the targets and control rules; as noted above, changing the target to a later year would be very controversial. Alternatively, the mixed-stock exception might be invoked to allow fishing to continue without achieving targets. Because it would be controversial and National Standard guidelines (50 CFR 600.310(d)(6)) contain several analytical tests for applicability, using the exception would require substantial analysis and public debate. It would also likely require an FMP amendment to implement. Under the MSA the secretary is required to conduct review of rebuilding plans. Under Amendment 12, the Council also committed to conducting review rebuilding plans. Whether the Secretary would conduct its own review or review the adequacy of the Council review is unknown. Eliminating the formal Council review but assembling the basic information needed for a review would save administrative costs at the Council level and at best reduce duplication of effort between NMFS and the Council and at worst, shift the administrative costs of the review from the Council to NMFS. The Council would likely want the opportunity to comment on draft Secretarial reviews, so that there would not be complete relief of administrative costs for the Council.

All scenarios other than the status quo include provisions for managing stocks that are ESA-listed. The FMP is amended so that management measures consequent of the ESA process explicitly take precedence over FMP measures. (Some level of incidental take may be permitted under the ESA based on analysis in a biological opinion or similar document.) Specifying precedence in advance may obviate the need to amend the FMP in the event a species or stock were listed, reducing future administrative cost.
Scenario 3 would tend to shorten the implementation process as regulatory amendments can be implemented more quickly than plan amendments. The FMP would also require that rebuilding plans analyze allocation and habitat issues as part of a management strategies, requiring some additional staff and advisory body time to complete the requisite analyses. (The actual added cost is difficult to predict since these considerations could be discussed in rebuilding plans in Scenarios 1 and 2 even though not required.) The FMP would not be amended with rebuilding-plan-specific material (keeping in mind that this "process and standards" component would modify FMP language). As discussed above, a change to the targets and control rules contained in regulations would require substantial analysis and review so the administrative burden would be equivalent. The Council would review rebuilding plans with respect to goals contained in the FMP biennially, except for targets, which relate to the first of these goals. Reviewing goals two through five will require some analysis, but since they relate to issues that are a consequence of (or support) rebuilding, rebuilding plans would probably not require wholesale revision unless stock status had changed significantly. Information about stock status comes from assessments, and plans would be reviewed in light of the first goal only after these exercises. It is likely that many parameters would have to be respecified after stock assessments, particularly since the amended FMP would also require rebuilding plan review and revision when any parameter's value changes "significantly," as determined by the GMT and SSC (Sub-option ii under Option 2b). Taken together, these requirements imply that rebuilding plans would require substantial revision if an assessment indicates that stock status is significantly different than previously thought. This would incur a moderate administrative burden due to the need for careful review by the Council and advisory bodies, and Council and NMFS staff time needed to prepare and review documents. If stock assessments are biennial or annual then this workload would be no different than under the first two scenarios; if less frequent, administrative costs would be marginally less.

Scenario 4 adds more language to the FMP describing rebuilding measures for each overfished species. The preferred alternative in each rebuilding plan would be incorporated into the FMP. Note that in the current draft rebuilding plans the description of each alternative is relatively brief, although measures to address additional issues (allocation, habitat, bycatch) would have to be considered under this scenario; specificity is still contingent on the number and nature of parameters that are incorporated into the FMP. This scenario adds the target biomass and the maximum rebuilding time and associated probability. Since the target biomass is only expressed as a percent of unfished biomass, rather than as a quantity, it is unlikely that this parameter alone would trigger future amendments to change it. Maximum rebuilding time and its probability is a key analytical target and is causally linked to a specified harvest level. Thus, if the harvest control rule is also specified, it is very likely that the FMP would have to amended after each stock assessment because new rebuilding analyses, incorporating stock assessment data, would likely show that the $T_{\text{MAX}}$ probability for a given harvest level had changed. A stock assessment schedule would be specified either in individual rebuilding plans or as part of this process and standards amendment. Council review would be essentially the same as in the previous scenario except that the stock assessment schedule could change their frequency. As already discussed, stock assessment frequency is the main determinant of significant rebuilding plan revision, resulting FMP amendments to change targets or parameters, and as a consequence, administrative cost. The FMP would also require that rebuilding plans include intermediate targets meant to assess performance of rebuilding measures (Section 2.1.3, adequacy of progress, Option 3d). Depending on the nature of these performance targets, they could trigger FMP amendments after every stock assessment (see below).

Scenario 5 would entail the incorporation of numerous numerically-specified parameters and targets into the FMP. The Council reviews all rebuilding plan elements biennially as under the status quo. This scenario also includes performance targets, but a generic standard is described in the FMP and applied to all overfished species (either Option 3b or 3c in Section 2.1.3). Under Option 3b a rebuilding plan would have to be revised if biomass (measured relative to target biomass), as estimated by a recent stock assessment, was below a projected level in the rebuilding analysis. As noted in Section 2, it would be
very difficult to meet this performance standard. Instead, performance could be based on the "rebuilding envelope" described in rebuilding analyses. This accords with the 90% confidence interval for the relative biomass in each future year in the rebuilding period. (In other words, 90% of all simulations produced values that fell within this range in a given year.) If the measured value (from a stock assessment) falls outside this range then the rebuilding plan would have to be revised. (Note that any new rebuilding analysis made after subsequent stock assessments will almost certainly have different values for the "rebuilding envelope." Presumably, these new values would become the performance targets for subsequent years.) Option 3c is based on the \( T_{\text{MAX}} \) probability. As noted in Section 1.3.2, there is a tradeoff between this probability and the harvest level. If harvest policy is fixed (as a constant F for example) it is almost certain that the \( T_{\text{MAX}} \) probability will be different when the rebuilding analyses is redone with new stock assessment data. Alternatively, the decision maker could choose to fix the probability and vary the harvest rate. A fixed \( T_{\text{MAX}} \) probability management strategy would invalidate the type of performance target described under Option 3c because it uses the \( T_{\text{MAX}} \) probability as the measurement standard. This strategy would reduce the likelihood that rebuilding plan revision would be required due to a deviation from the performance target. Note that performance would be measured after a stock assessment provides new estimates of stock size. Performance targets would thus be set for some interval that corresponds to (or is a multiple of) assessment frequency.

The degree of detailed information incorporated into the FMP under this scenario pretty much ensures that the FMP will have to be amended after every stock assessment. As a result, the performance targets would not add substantially to administrative costs, even if measured biomass does not meet the target, because the rebuilding plan would have to be revised anyway. These revisions would have to be incorporated into the FMP by amendment. This scenario would entail the most administrative cost, although it is unclear that the biennial reviews would result in wholesale rebuilding plan revision and FMP amendment if stock assessments are less frequent.

### 4.2 Flexibility and Capacity for Adaptive Management

The concept of adaptive management was first developed in the 1970s (Holling 1973) and has been applied widely. Adaptive management assumes uncertainty, promotes "learning" strategies, and envisions a cyclical management process in which management measures are refined in response to new information and understanding of the managed system. A review of adaptive management of Columbia River salmon (Lee and Lawrence 1986) describes it as "a policy framework that recognizes biological uncertainty, while accepting the congressional mandate to proceed on the basis of the 'best available scientific knowledge.' An adaptive policy treats the program as a set of experiments designed to test and extend the scientific basis of fish and wildlife management." Gunderson (1999) argues that flexibility in management institutions and system resilience are key determinants of adaptive management success. Managing to rebuild overfished species populations is fraught with uncertainty because of the difficulty in predicting future performance. Stock performance depends on the nature of ecosystem resilience. As first described by Holling (1973), resilience may either be interpreted as a return to some "global" equilibrium following perturbation (such as fishing down one population in the system) or in terms of multiple equilibria where future states are unpredictable. Given that the role environmental regimes play in determining recruitment is at best poorly understood—and thus what is a reasonable estimate of potential unfished biomass—the ability to realistically plan for a future end state (stock recovery) may be limited. Policy makers may be tempted to replace ecosystem uncertainty with "spurious certitude": "Perhaps the

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\(^v\) Although the concept of a "rebuilding schedule" is put forward in Section 2.1.3, rebuilding analyses express future values (such as biomass relative to the target) in probabilistic terms. A "schedule" could refer to the median value for all projections in the Monte Carlo simulation for a given year. There would be a 50% probability that the measured value would fall below the median.

\(^v\) This strategy may be preferable because it would not require a sudden change in the harvest rate if the \( T_{\text{MAX}} \) probability progressively declined to the 50% "floor." Since the probability cannot fall below 50%, the harvest rate would have to be adjusted downward, probably by a substantial margin, when a future analysis generates some lower probability.
most common solution is to replace the uncertainty of resource issues with the certainty of a process, whether that process is a legal vehicle—such as a new policy, regulation, or lawsuit (Rodgers 1997)—or a new institution—such as a technical oversight committee or science advisory committee” (Gunderson 1999, p. 2). Given the long time horizons involved in rebuilding some overfished groundfish populations, uncertainty about future stock performance, and uncertainty about ecosystem performance, a flexible, or adaptive, management regime will be important.

Nyberg (1999) outlines six steps in the adaptive management cycle. (Other authors have posited similar steps; c.f. Olsen, 198x). Rebuilding mandates and the institutional structure of federal fisheries management (including the Council system) provide all the “pieces” to construct these steps: problem identification, program design, implementation, monitoring, evaluation, and adjustment of the management regime, which initiates a new round in the cycle of steps just described. Monitoring and evaluation are the key steps differentiating adaptive management; and flexibility—which makes the regime easier to change in response to new information—is a valuable attribute in these steps. The scenarios presented in this analysis all incorporate procedures to update rebuilding plans, and adjust management measures, in response to new information about overfished stocks. For all scenarios flexibility of response is constrained by the range of management tools that are both legal and practical. What varies is the procedural complexity entailed in adapting management measures in response to new data. This is a correlate of administrative cost discussed above. More complex procedures will require more administrative resources. (On the other hand, they may force better problem assessment and redesign as part of the adaptive cycle.) Generally, then, flexibility and administrative cost are inversely correlated. Recognizing this relationship, issues and the six scenarios are briefly assessed here in terms of flexibility and opportunity for development of adaptive management approaches.

4.2.1 Issue 1 - Form and Required Elements for the Species Rebuilding Plan

Flexibility varies with the form in which the element of the rebuilding plan is established. A Council policy document is the most flexible form, because it is easiest to amend; a regulation is less flexible and an FMP the least. One type of element is a parameter, which may be expressed as a measurable value. Numeric values, are by nature an inflexible way of specifying a parameter. The numeric value of a parameter remains constant even when scientists’ and managers’ understanding of the status and characteristics of the stocks changes. Parameters specified by formulas or algorithms allow output values to vary in response to changing conditions; but they are rigid in that the relationships they specify may not be modified without an amendment to the rebuilding plan. While parameters will appear in all rebuilding plans, requiring other elements to be included in a rebuilding plan, beyond those required by law, results in less flexibility because rebuilding plan elements that are not especially relevant for a rebuilding plan for a particular species cannot be omitted.

4.2.2 Issue 2 - Periodic Review and Amendment of Rebuilding Plans

The following displays the effects of the Issue 2 options on flexibility.
<table>
<thead>
<tr>
<th>Option 2a Council Review Every 2 Years (Status Quo)</th>
<th>Option 2b Review Goals 2-5 Every 2 Years; Review Goal 1 Only With New Stock Assessments.</th>
<th>Option 2c Council Reviews Goals 2-5 Every 2 years; Review Goal 1 Only With New Stock Assessments; Schedule for Stock Assessments Set in Rebuilding Plans.</th>
<th>Option 2d Council Reviews Goals 2-5 Every 2 years; Review Goal 1 Only With Stock Assessments; Stock Assessments Every 5 Years or Every 2 Years if T_max is Less than 20 Years Off</th>
<th>Option 2e No Formal Council Review</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>Impact</td>
<td>Impact</td>
<td>Impact</td>
<td>Impact</td>
</tr>
<tr>
<td>The Council conducts formal reviews on each rebuilding plan every two years. As of spring 2002 there are nine species for which rebuilding plans are needed. Secretary is required to conduct review every 2 years.</td>
<td>No increase in flexibility or opportunity for adaptive management as compared to status quo.</td>
<td>Less flexibility or opportunity for adaptive management as compared to status quo because stock assessment schedule would be predetermined. More flexibility that Option 2d because the stock assessment schedule would be set according to the situation and characteristics of the overfished species.</td>
<td>Less flexibility or opportunity for adaptive management as compared to status quo because stock assessment schedule is predetermined.</td>
<td>Most flexibility and opportunity for adaptive management. The Council would monitor critical information needed to assess rebuilding progress on an information basis. Any more formal or detailed review would be conducted as needed based on management priorities arising out of future situations.</td>
</tr>
</tbody>
</table>

Each alternative to status quo (Options 2b, 2c, 2d, and 2e) has three suboptions that define when a change in the rebuilding plans would be mandated. Under all the suboptions, the Council could recommend changes in rebuilding plans to NMFS at any time. Each suboption has different impact on flexibility.

<table>
<thead>
<tr>
<th>Conditions under which rebuilding plans will be amended.</th>
<th>Suboption (i) - when progress toward rebuilding is inadequate; or when stock assessment or rebuilding analysis information is updated.</th>
<th>Suboption (ii) - when progress toward rebuilding is inadequate; or when new information indicates a significant change in rebuilding parameters</th>
<th>Suboption (iii) - when progress toward rebuilding is inadequate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status Quo: No Guidance</td>
<td>Flexibility would be diminished in that any change in a parameter value would require a rebuilding plan amendment, unless the parameter has been specified as a formula or algorithm.</td>
<td>More flexibility than Suboption (i) in that a change in the rebuilding parameter would have to be &quot;significant&quot; before an amendment would be required.</td>
<td>More flexibility than Suboptions (i) or (ii) in that the only time an amendment to the rebuilding plan would be mandated is when progress toward rebuilding is inadequate. Less flexibility than status quo under which there is no standard for determining when an amendment to the rebuilding plan is needed.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Baseline</th>
<th>Impact</th>
<th>Impact</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>No standard is established for determining when a rebuilding plan would need to be amended therefore it appears that there is a great deal of flexibility.</td>
<td>Flexibility would be diminished in that any change in a parameter value would require a rebuilding plan amendment, unless the parameter has been specified as a formula or algorithm.</td>
<td>More flexibility than Suboption (i) in that a change in the rebuilding parameter would have to be &quot;significant&quot; before an amendment would be required.</td>
<td>More flexibility than Suboptions (i) or (ii) in that the only time an amendment to the rebuilding plan would be mandated is when progress toward rebuilding is inadequate. Less flexibility than status quo under which there is no standard for determining when an amendment to the rebuilding plan is needed.</td>
</tr>
</tbody>
</table>
### 4.2.3 Issue 3 - Adequacy of Progress

The following displays the effects of the Issue 3 options on flexibility.

<table>
<thead>
<tr>
<th>Option 3a. No Standards for Progress (Status Quo)</th>
<th>Option 3b. Standards Based on Negative Deviations from Schedule</th>
<th>Option 3c. Standard Based on $T_{max}$</th>
<th>Option 3d. Standards Developed Under the Individual Rebuilding Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Baseline</strong></td>
<td><strong>Impact</strong></td>
<td><strong>Impact</strong></td>
<td><strong>Impact</strong></td>
</tr>
<tr>
<td>Status Quo Baseline: No standard is established; therefore, the determination of adequacy of progress appears to be very flexible at present. However, because &quot;adequate progress&quot; is currently unspecified, standards could develop during the rebuilding plan review process. These ad hoc standards could be relatively inflexible in comparison to those deliberately planned in advance. Thus there is considerable uncertainty about the current baseline. This makes it difficult to use status quo as a baseline for comparison, therefore other options will be compared to Option 3d.</td>
<td>Impact: Compared to Option 3d, there would be less flexibility for developing measures of adequacy that might be more tailored to the conditions and characteristics of a particular species. This option resolves the affirmative the question of whether Council action is required if rebuilding fails behind expected levels (provides no flexibility for negative deviation from the rebuilding schedule) but nominally provides maximum flexibility for dealing with rebuilding that exceeds expected levels.</td>
<td>On the surface, this option provides less flexibility than status quo. However, the degree of flexibility depends on (1) standards for the adequacy of progress that are developed through practice in the absence of a specified guideline for such determination (see discussion under baseline in this table); and (2) the standards that are developed as part of the consideration of the rebuilding plans for individual species. This option provides some tolerance (flexibility) for a stock to fail behind its rebuilding schedule (so long as $T_{max}$ does not fall below 50%), but nominally provides maximum flexibility for dealing with rebuilding that exceeds expected levels.</td>
<td></td>
</tr>
</tbody>
</table>

### 4.2.4 Issue 4 - ESA Listed Species

By addressing the effect of ESA listing on rebuilding plans, in advance of any such occurrence, if at some point a groundfish species is listed, there will be more administrative resources available for addressing other fishery management problems than if this contingency had not been anticipated. This would provide the Council with more flexibility to address other management issues.

### 4.2.5 Summary of Adaptive Management by Scenario

The status quo is arguably the most flexible scenario because adaptive response is largely incorporated into ongoing management. Changes to rebuilding plan elements can be handled in a fashion that is parallel to current procedures for vetting stock assessments and incorporating results into annual management (or, if implemented, biennial management). It is unclear whether rebuilding plan revisions implemented as policy documents would require a NEPA analysis; but if so, it might be possible to incorporate this in the analysis conducted for annual management measures. The frequency of rebuilding plan review is an issue in all scenarios because of the MSA requirement for two-year Secretarial review. The appropriateness of this mandated review cycle for species with long rebuilding periods is questionable. The "one size fits all" approach of a legal requirement assumes that most fish can rebuild their populations rapidly (as evidenced by the maximum rebuilding period of 10 years for populations that can reach target biomass in that time if there is no fishing). Scenarios 2 and 3 may be as flexible as the status quo since a minimum set of parameters is fixed in the FMP or regulations. Scenario 3 adds additional required rebuilding plan elements. It is unclear how this would affect flexibility; consideration of certain issues may be required, but the implementation of measures to address these issues may not be. Review of rebuilding plan measures facilitates adaptive management but, as implied above, too-frequent review (that is, not appropriately matched to the rebuilding period) may reduce flexibility by preempting administrative capacity better devoted to other managerial goals. Frequent reviews may also force response to "noise" rather than information in that changes to measured values (such as relative stock size) may not overcome measurement uncertainty (or not be significant in
statistical terms). This is especially an issue with performance targets (adequacy of progress), which are incorporated in Scenarios 4 and 5. Establishing "scheduled" targets, based on discrete values for biomass (as in Option 3b as described) do not take into account the measured uncertainty that is part of rebuilding analyses. Although not explicit in the options or resulting scenarios, measures that pre-specify a management response would substantially reduce flexibility. Scenario 4, and especially Scenario 5, require additional parameters be specified in the FMP. This does not necessarily reduce flexibility, aside from reductions inherent in the demand on administrative capacity, as long as specific responses related to the parameters are not included in the FMP. Scenario 5 would add a requirement that rebuilding plans consider specific management measures to achieve rebuilding. "Preprogrammed" management measures, incorporated into the FMP along with other elements of rebuilding plan preferred alternatives, would be more difficult to modify in response to change in or new information about the resource. This would reduce flexibility and make the management regime less adaptive.

4.3 Opportunity for Public Participation in Decision Making

Public participation can help to reduce controversy if the full range of stake holders and interests feel that they had an equitable opportunity to air their concerns, and ultimately, influence decisions. Public participation in decision making can take a variety of forms, with varying levels of influence over the decisions themselves; this is reflected in the range of forums for public participation that the council process offers. Council members are the decision makers, of course, (recognizing NMFS's ultimate authority) and its membership is meant to represent a range of stakeholders (although some groups argue that representation is insufficiently diverse). The GAP reflects the perceptions and opinions of representatives of industry, recreationalists and other constituents on the committee; consensus statements from this body can directly influence Council members' decisions. (Technical bodies, such as the GMT and SSC similarly promote consensus on scientific issues.) Meetings of these bodies are open to the public, allowing limited participation by non-members and, at a minimum, public scrutiny of discussion and decisions. Comments from the public at large, through letters to the Council in advance of meetings and during comment periods at meetings can be collectively influential. The public also has the chance to lobby members of advisory bodies and the Council during meetings but outside established, formal public comment periods. Once the Council passes on its decisions to NMFS, as recommendations, there are opportunities for the submission of written comments during the rule making process. The most visible, and formalized, venues for public participation through commenting are associated with decision making (either by the Council or NMFS). Thus, the different scenarios can be evaluated by assessing the procedural complexity of future decision making. More complex decision processes (for example, involving multiple stages of review and revision by advisory bodies and the Council) generally afford more opportunity for public comment.

Trust is an important corollary of public participation that can play out in a variety of ways. Interest groups and stake holders who believe they have some influence over decisions are likely to put greater trust in the process. By reducing conflict, influence can stem controversy. (It should be emphasized that in the policy arena conflict and controversy are not necessarily bad things. They force more careful consideration of an issue from different perspectives. This may result in more equitable decisions.) On the other hand, those groups who believe themselves lacking in influence will seek greater transparency and certitude. Transparency allows the public to determine what factors (especially those that are explicitly "political") influence decision making. Certitude reassures those with less influence that decisions are constrained by explicit rules limiting their scope. Constraints may be external—imposed by legal requirements for example—or self-imposed so that a course of action is fully or permanently determined. As implied in the previous discussion of adaptive management, this type of certitude can be an institutional response to uncertainty, and one that runs counter to adaptive response. This is especially the case if interest groups see uncertainty as a means for specific groups with opposing interests to unduly influence decision making. This may be an important factor in relation to rebuilding measures because of the high degree of uncertainty about stock status in the future. Uncertainty could be seen to enlarge the range of potentially defensible decisions. Similarly, invoking adaptative strategies might be seen as an opportunity to accommodate a given set of interests. This aspect of participation, as it relates
to controversy, is also evaluated by assessing "certitude," or the degree to which decisions are constrained by established policies. (These are constraints over and above those established by the MSA an National Standard Guidelines.) This characteristic will also tend to vary inversely with flexibility (adaptability).

4.3.1 Issue 1 - Form and Required Elements for the Species Rebuilding Plan

Whether or not a particular element of rebuilding plans is included as part of an FMP or regulation is the main determinant of the amount of opportunity for public comment. In general, the development of FMP amendments and regulations tend to be more protracted processes. However, the Council is not allowed to take any action without advance notice to the public in its agenda. Moreover, most action items require at least two Council meetings: one meeting to develop options, a period between meetings to develop an analysis, and a final meeting to take action. Non-routine management measures generally require three meetings under the procedures set out in the groundfish FMP. This is the same minimum number of meetings required for a plan or regulatory amendment. Any rebuilding plan element specified for inclusion as part of a policy document may or may not require an accompanying NEPA analysis. For the Council's groundfish strategic plan there was accompanying information, but not a full NEPA analysis. For the rebuilding plans the Council developed as policy documents under the Amendment 12 procedures for establishing rebuilding plans, a NEPA analysis was developed.

All rebuilding actions that are in the form of a regulation on the fishing industry will have to go through standard review and analysis processes specified in the current groundfish FMP, the MSA, NEPA and other legislation. Because rebuilding plans are mandated actions under the MSA, interested parties seeking more certainty that the Council will take action in certain areas potentially benefitting overfished species (for example protection of habitat) may be more assured by a requirement that such an action be part of a rebuilding plan. As a required part of the rebuilding plan, NMFS would evaluate the rebuilding plan for inclusion of the element before deciding whether to approve the plan. While it may be within Council authority to take action on a particular action (continuing the example, to protect habitat) consideration of the action may be deferred because of other pressing Council priorities. Inclusion of the element as a required part of the rebuilding plan provides certainty that the element will receive high priority.

4.3.2 Issue 2 - Periodic Review and Amendment of Rebuilding Plans

Opportunity for public comment on reviews of progress under rebuilding plans may be reduced if the Council forgoes doing its own periodic review, leaving the biannual review to the Secretary (Option 2e). The Council would request an opportunity to comment on the Secretarial review but would not be the author of the documents. Under all options except 2e, the Council would conduct a formal review every two years. Secretarial review is required regardless of whether the Council conducts a review, however, if the Council conducts a formal review the Secretary could review the Council's review and adopt it as the secretarial review, if the Council's review is deemed adequate.

4.3.3 Issue 3 - Adequacy of Progress

Currently there is no definition of adequacy of progress and the specification of such a definition in a public forum does not appear to be required under the MSA. The MSA leaves determination of adequacy of progress to the Secretary of Commerce. A Council definition of adequacy of progress may not constrain the Secretary; however, Secretarial approval of the Council definition may place some additional justification burden on the Secretary if at some future time the Secretary were to select some other measure of the adequacy of progress.
4.3.4 Issue 4 - ESA Listed Species

The amendment proposed here is similar to one developed for the salmon plan to address FMP species listed under the ESA. Under this amendment there would be opportunity for public comment as NMFS develops jeopardy standards and recovery plans. These ESA-related documents are developed outside the Council process. This process and standards amendment provides opportunity for public comment on the approach for handling ESA species. Without this provision, action would need to be taken at some future time if a groundfish species were listed under the ESA and there would likely be similar opportunity at that time for public comment on the proposed provision.

4.3.5 Summary of Opportunity for Public Participation in Decision Making Adaptive Management by Scenario

To assess public comment opportunities under the scenarios, a simple division may be made between activities that would afford comment as part of the Council process and those that add the more formal notice and comment procedures that are required of agency agencies. The first three scenarios, which place more emphasis on rebuilding policies as opposed to actions (as defined at the beginning of this chapter), would result in less opportunity for formal comment opportunities. In addition, less frequent FMP amendment (or regulatory changes), by reducing procedural complexity, would probably result in fewer opportunities overall. Under all of the scenarios rebuilding plan documents would be written and they take the form of a NEPA analysis. At least some of these plans are considered together as parts of an EIS. (Depending on scoping of potential effects, subsequent plans might be prepared as environmental assessments with analyses that are tiered of the EIS.) The EIS process accommodates substantial opportunity for public scrutiny and comment. Scenario 3, because it involves writing targets and control rules into regulations, would also entail formal comment opportunity as part of the rule making process. Scenarios 4 and 5, as already discussed, would result in frequent FMP amendments, allowing substantial comment opportunity during the Council process and formal commenting to NMFS as part of the approval process.

In all of the scenarios the need to amend the FMP (or regulations) would constrain the Council’s (and NMFS’s) ability to modify their course of action in the future. (The distinction between rebuilding policies and actions is instructive in this regard. Although policies are a commitment to a course of action, it is procedurally less difficult to modify them.) Clearly, the status quo has not generated a high degree of trust as reflected in the litigation over Amendment 12. Because all rebuilding measures are described as policies, future Council behavior is only self-constrained. Scenarios 2 and 3 would commit the Council to ensure rebuilding by the target year. As discussed above, it would be difficult and controversial to change the target. The limited FMP or regulatory amendment that is part of these scenarios might demonstrate sufficient constraint on future action, but only under Scenario 5 would the Council be obligated to describe specific management measures (including measures to minimize bycatch) in the FMP. It may require this high degree of specificity to satisfy those stakeholders with the lowest level of trust in the Council process.

4.4 Cumulative Impacts

The impact of the process and standards for rebuilding plans are on the governmental processes for managing the fisheries rather than on the fishery itself. Therefore, effects of the proposed action must be evaluated in light of other reasonably anticipated actions that may have impacts in this same area. The current Council work priorities provide a list of projects the Council is currently working on and those that have been deferred due to the need to address higher priority issues (Table 4.4-a). These deferred items reflect the administrative opportunity cost of the items on which the Council is actively working. Other reasonably anticipated actions that will affect Council activities include any new mandates that may arise under the next reauthorization of the MSA.
Reference Documents
April 5, 2002

Dr. Hans Radtke, Chairman  
Pacific Fishery Management Council  
7700 NE Ambassador Place  
Portland, OR  97220

Dear Dr. Radtke:

RE: Contents of Individual Rebuilding Plans

At its April 2002 meeting, the Council will be considering its process for developing fishery management plan (FMP) amendments to address the overfished species rebuilding requirements of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). There has been much discussion within the Council family, both formal and informal, about the structuring of individual rebuilding plans. One question we have all struggled with is exactly what parts of the rebuilding timeframe and strategy are locked into the rebuilding plan and can only be changed by plan amendment, and what might change with a new stock assessment. Based on the requirements of the Magnuson-Stevens Act, the National Standard Guidelines, and examples provided by rebuilding plans from other councils, I believe that rebuilding FMP amendments should contain the following parameters:

1. A best estimate of $B_{MSY}$, or its proxy, where $B_{MSY}$ is the biomass target for achieving rebuilding. It would be helpful to the Council’s plan development process if the Scientific and Statistical Committee and the Groundfish Management Team could discuss the trade-offs of expressing $B_{MSY}$ as a formula (example: 40% of current best scientific estimate of $B_{zero}$) versus numeric quantification. The Plan should also state the conditions under which the $B_{MSY}$ calculations will be updated. This would range from a technical update with each subsequent stock assessment to a FMP amendment.

2. A fixed rebuilding period, including the minimum possible time to rebuild to the $B_{MSY}$ level in the absence of fishing with a 50% probability ($T_{MIN}$). Rebuilding plans must also include the maximum allowable time to rebuild ($T_{MAX}$) and mean generation time if the rebuilding time exceeds 10 years, as well as the target time for rebuilding ($T_{TARGET}$). These times should be expressed numerically and should be fixed within the FMP such that they are changeable only by FMP amendment. Whenever $T_{TARGET}$ is set greater than $T_{MIN}$, the socioeconomic benefits from the extended rebuilding period should be greater than the benefits that would accrue from more rapid rebuilding.

3. The probability of achieving the rebuilding goal ($B_{MSY}$) within $T_{TARGET}$ years.
4. The rebuilding harvest control rule that will annually set harvest rates for the species in question and will be applied to the most current stock assessment. Additionally, the current forecast for the rebuilding trajectory should, at a minimum, be analyzed in background documents for each rebuilding plan and be included within the FMP where appropriate for a given species. Harvest strategies may include: constant catch strategy – where catch is held constant over time until the stock reaches $B_{MSY}$; a constant fishing mortality rate – where a constant proportion of the stock is removed annually until the stock reaches $B_{MSY}$, or a combination of these strategies. Protocols for adjusting the harvest control rule should be detailed in the rebuilding plan FMP. Potential protocols range from a technical adjustment with each stock assessment to keep the probability of rebuilding from falling below 50%, to a full FMP amendment.

NMFS has provided guidance on other elements of the rebuilding plans at past Council meetings and that guidance has not changed. In this letter, we wished to highlight the above issues as an aid to your upcoming discussions. NMFS is looking forward to working with the Council in developing and implementing these rebuilding plans.

Sincerely,

William L. Robinson
Assistant Regional Administrator
for Sustainable Fisheries
104-297

(e) REBUILDING OVERFISHED FISHERIES.—

(1) The Secretary shall report annually to the Congress and the Councils on the status of fisheries within each Council's geographical area of authority and identify those fisheries that are overfished or are approaching a condition of being overfished. For those fisheries managed under a fishery management plan or international agreement, the status shall be determined using the criteria for overfishing specified in such plan or agreement. A fishery shall be classified as approaching a condition of being overfished if, based on trends in fishing effort, fishery resource size, and other appropriate factors, the Secretary estimates that the fishery will become overfished within two years.

(2) If the Secretary determines at any time that a fishery is overfished, the Secretary shall immediately notify the appropriate Council and request that action be taken to end overfishing in the fishery and to implement conservation and management measures to rebuild affected stocks of fish. The Secretary shall publish each notice under this paragraph in the Federal Register.

(3) Within one year of an identification under paragraph (1) or notification under paragraphs (2) or (7), the appropriate Council (or the Secretary, for fisheries under section 302(a)(3)) shall prepare a fishery management plan, plan amendment, or proposed regulations for the fishery to which the identification or notice applies—

(A) to end overfishing in the fishery and to rebuild affected stocks of fish; or

(B) to prevent overfishing from occurring in the fishery whenever such fishery is identified as approaching an overfished condition.

(4) For a fishery that is overfished, any fishery management plan, amendment, or proposed regulations prepared pursuant to paragraph (3) or paragraph (5) for such fishery shall—

(A) specify a time period for ending overfishing and rebuilding the fishery that shall—

(i) be as short as possible, taking into account the status and biology of any overfished stocks of fish, the needs of fishing communities, recommendations by international organizations in which the United States participates, and the interaction of the overfished stock of fish within the marine ecosystem; and

(ii) not exceed 10 years, except in cases where the biology of the stock of fish, other environmental conditions, or management measures under an international agreement in which the United States participates dictate otherwise;

(B) allocate both overfishing restrictions and recovery benefits fairly and equitably among sectors of the fishery; and

(C) for fisheries managed under an international agreement, reflect traditional participation in the fishery, relative to other nations, by fishermen of the United States.
(5) If, within the one-year period beginning on the date of identification or notification that a fishery is overfished, the Council does not submit to the Secretary a fishery management plan, plan amendment, or proposed regulations required by paragraph (3)(A), the Secretary shall prepare a fishery management plan or plan amendment and any accompanying regulations to stop overfishing and rebuild affected stocks of fish within 9 months under subsection (c).

(6) During the development of a fishery management plan, a plan amendment, or proposed regulations required by this subsection, the Council may request the Secretary to implement interim measures to reduce overfishing under section 305(c) until such measures can be replaced by such plan, amendment, or regulations. Such measures, if otherwise in compliance with the provisions of this Act, may be implemented even though they are not sufficient by themselves to stop overfishing of a fishery.

(7) The Secretary shall review any fishery management plan, plan amendment, or regulations required by this subsection at routine intervals that may not exceed two years. If the Secretary finds as a result of the review that such plan, amendment, or regulations have not resulted in adequate progress toward ending overfishing and rebuilding affected fish stocks, the Secretary shall:

(A) in the case of a fishery to which section 302(a)(3) applies, immediately make revisions necessary to achieve adequate progress; or

(B) for all other fisheries, immediately notify the appropriate Council. Such notification shall recommend further conservation and management measures which the Council should consider under paragraph (3) to achieve adequate progress.

\[\text{Footnote: Former paragraph (3) now appears at section 301(a)(3) and section 304(g).}\]
### Table 4-1: Summary of scenarios developed for environmental consequences analysis.

<table>
<thead>
<tr>
<th>Element/Option</th>
<th>Scenario 1: Status Quo</th>
<th>Scenario 2: Limited plan Amendment</th>
<th>Scenario 3: Implement targets as regulations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rebuilding plan elements</td>
<td>Target biomass and rebuilding period, specified as quantities (mt and years). Harvest rate policy, specified as a constant harvest in mt or unspecified F, or no fishing. Bycatch control strategies described. These plans are prepared in the form of an EA.</td>
<td>Status quo elements. (Allows additional elements such as discussion of allocation, habitat, marine reserves to be included at the discretion of the author.)</td>
<td>Status quo elements and additional required elements (allocation, habitat).</td>
</tr>
</tbody>
</table>
| FMP amendment elements and parameters specified in FMP amendment/regulation | None                                                                                   | T\(_{\text{TARGET}}\) as a date  
Harvest control rule (described or specified numerically)  
(FMP amended to include a table with these values for each species.) | FMP amendment requires that T\(_{\text{TARGET}}\) (as a date) and harvest control rule (described or specified numerically) be enumerated in federal regulations. (These values incorporated in regulations at 50 CFR Part 600 with regulatory language requiring that targets be met.) |
<p>| Rebuilding plan review                   | Every two years                                                                        | No formal review (Option 2a)       | With new stock assessment (Option 2b)       |
| Review Standards                         | None                                                                                   | Rebuilding plan revised if &quot;significant&quot; change in parameters. FMP amendment required for changes to T(<em>{\text{TARGET}}) or B(</em>{\min}). No standards (issue 3) established to trigger required adjustment. | Same as scenario 2 |
| ESA listing                              | No provisions                                                                         | No jeopardy standards or recovery plan supercedes rebuilding plan. | No jeopardy standards or recovery plan supercedes rebuilding plan. |</p>
<table>
<thead>
<tr>
<th>Element/Option</th>
<th>Scenario 4: full plan amendment, limited specification</th>
<th>Scenario 5: full plan amendment, full specification</th>
<th>Preferred alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rebuilding Plan elements</td>
<td>Status quo elements and additional required elements (allocation, habitat, bycatch).</td>
<td>Status quo elements and additional required elements (allocation, habitat, bycatch, specific management measures).</td>
<td></td>
</tr>
<tr>
<td>FMP amendment elements and parameters specified in FMP amendment/regulation</td>
<td>Council's preferred alternative incorporated into FMP with the following specifications: T\textsubscript{TARGET} in years [ T\text{MAX} \text{ in years with probability P}_{\text{MAX}} ] Harvest control rule</td>
<td>Council's preferred alternative incorporated into FMP with the following specifications: T\text{MAX} in years [ T\text{MAX} \text{ in years with probability P}<em>{\text{MAX}} ] B\text{in in mt} MSST in mt [ MFMT \text{ as } F</em>{\text{MST}} \text{ (e.g., } F_{\text{SST}}) ] B\text{in in mt} Harvest control specified numerically (F or OY in mt).</td>
<td></td>
</tr>
<tr>
<td>Rebuilding plan review</td>
<td>Every two years and after scheduled stock assessment for rebuilding targets (Option 2c or 2d)</td>
<td>Every two years for all elements including targets (same as status quo).</td>
<td></td>
</tr>
<tr>
<td>Review Standards</td>
<td>Rebuilding plan revised if &quot;significant&quot; change in parameters. FMP amendment required for changes to T\textsubscript{TARGET} or B\textsubscript{MST}, T\text{MAX}, or harvest control rule type. Performance standards incorporated into individual plans.</td>
<td>Rebuilding plan revised if &quot;significant&quot; change in parameters. FMP amendment required for changes to FMP-specified parameters (above). Generic performance standard for all overfished species in FMP and based on intermediate targets.</td>
<td></td>
</tr>
<tr>
<td>ESA listing</td>
<td>No jeopardy standards or recovery plan supercedes rebuilding plan.</td>
<td>No jeopardy standards or recovery plan supercedes rebuilding plan.</td>
<td></td>
</tr>
</tbody>
</table>
Table 4-2: Summary of effects of each scenario.

<table>
<thead>
<tr>
<th>Impacts</th>
<th>Scenario 1: Status Quo</th>
<th>Scenario 2: Limited plan Amendment</th>
<th>Scenario 3: Implement targets as regulations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Administrative Capacity</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FMP amendments needed to incorporate rebuilding plan elements</td>
<td>None</td>
<td>One to several, depending on the number of rebuilding plan targets/control rules incorporated into each.</td>
<td>None, NMFS must amend regulations to incorporate targets/control rules.</td>
</tr>
<tr>
<td>Amendments required to update FMP in relation to rebuilding measures, and probable frequency</td>
<td>None</td>
<td>Subsequent amendments unlikely/infrequent but controversial because they would change target and/or control rule.</td>
<td>FMP amendments not necessary. Changes to regulations controversial because they would change target and/or control rule, but infrequent.</td>
</tr>
<tr>
<td><strong>Impact on Adaptive Management</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flexibility</td>
<td>Flexible. Changes in management accomplished through ongoing procedures; no changes to FMP required. Required biennial review could trigger non-adaptive responses.</td>
<td>Similar to status quo; limited need to amend FMP to implement new management measures. Secretarial review has unpredictable impacts on flexibility, could reduce.</td>
<td>Similar to status quo; limited need to amend FMP to implement new management measures. Matching review of rebuilding progress to stock assessments should improve adaptive response.</td>
</tr>
<tr>
<td><strong>Impact on Public Participation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Opportunity for public comment</td>
<td>Public comment during rebuilding plan adoption and biennial review</td>
<td>Public comment on rebuilding plan adoption, future FMP amendments to modify target/control rule. Formal comment provisions during Secretarial biennial review.</td>
<td>Public comment on rebuilding plan adoption and periodic review. Formal comment provisions during NMFS rule making to implement regulations.</td>
</tr>
<tr>
<td>Trust engendered by constraints imposed on future decisions</td>
<td>Few constraints, except changes to rebuilding plan only follow biennial review</td>
<td>Difficult to change target and harvest policy because they are incorporated into FMP. Change in parameters requires determination by GMT, SSC.</td>
<td>Difficult to change target and harvest policy because they are incorporated into regulations. Mandatory consideration of allocation and habitat issues could produce management measures incorporated into regulations. Change in parameters requires determination by GMT, SSC.</td>
</tr>
<tr>
<td>Impacts</td>
<td>Scenario 4: full plan amendment, limited specification</td>
<td>Scenario 5: full plan amendment, full specification</td>
<td>Preferred alternative</td>
</tr>
<tr>
<td>---------</td>
<td>-----------------------------------------------------</td>
<td>-----------------------------------------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td><strong>Administrative Capacity</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FMP amendments needed to incorporate rebuilding plan elements</td>
<td>More likely that each rebuilding plan has to be incorporated in separate amendments because of the additional required elements</td>
<td>More likely that each rebuilding plan has to be incorporated in separate amendments because of the additional required elements</td>
<td></td>
</tr>
<tr>
<td>Amendments required to update FMP in relation to rebuilding measures, and probable frequency</td>
<td>Somewhat likely after stock assessment; highly likely if harvest level numerically specified. The way in which performance targets specified in rebuilding plans also determines need to amend FMP. Scheduled stock assessments every two to four years.</td>
<td>Almost certain after every stock assessment. Scheduled stock assessments every two to four years.</td>
<td></td>
</tr>
<tr>
<td><strong>Impact on Adaptive Management</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flexibility</td>
<td>Moderately flexible. Required rebuilding plan elements could reduce flexibility compared to status quo. Additional FMP-specified elements could entail more administrative burden, reducing flexibility. Review tied to scheduled stock assessments allows better match to stock characteristics, especially if schedule is species-specific.</td>
<td>Limited flexibility. Required rebuilding plan elements could reduce flexibility compared to status quo. Increased number of FMP-specified parameters further reduces flexibility. Required two-year review could affect flexibility, adaptive response as in status quo. Specification of management measures would make strategic changes difficult.</td>
<td></td>
</tr>
<tr>
<td><strong>Impact on Public Participation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Opportunity for public comment</td>
<td>Public comment during biennial review and periodic review of targets. If FMP amendments more frequent this allows additional opportunity for public comment</td>
<td>Public comment during biennial review. Likely that FMP amended after every stock assessment affords extended opportunity for public comment.</td>
<td></td>
</tr>
<tr>
<td>Trust engendered by constraints imposed on future decisions</td>
<td>More parameters incorporated into FMP, with attendant difficulty in changing. Mandatory consideration of allocation, habitat issues and marine reserves could produce management measures incorporated into FMP. Change in parameters requires determination by GMT, SSC. Performance targets force response, although not necessarily pre-programmed.</td>
<td>Future action could be very constrained, pre-programmed because of the incorporation of most rebuilding plan elements into the FMP, including possible new measures due to required consideration of specific issues and especially specific management measures.</td>
<td></td>
</tr>
</tbody>
</table>