

DRAFT FOR COMMENT

PROCEDURAL GUIDELINE FOR DETERMINING AND REEVALUATING OPTIMUM YIELD

Introduction

Section 301(a) of the Fishery Conservation and Management Act of 1976 requires fishery management plans and regulations to meet seven national standards. Among other requirements, the plans must specify the optimum yield (OY) for each fishery. The Act defines "optimum yield" as the amount of fish which will (a) provide the greatest overall benefit to the Nation, with particular reference to food production and recreational opportunities; and (b) which is based on the maximum sustainable yield (MSY), as modified by relevant economic, social, or ecological factors (Section 3(18)).

This definition gives little direction as to how OY should be determined and there is a generally recognized need to develop an accepted procedure for applying the definition to fishery management plans. To elicit regional viewpoints and to develop a common understanding of the concept of OY, a workshop was held at Houston, Texas, on June 6-10, 1977. The report of that meeting, while not providing a specific procedure for estimating OY, provided discussion and conclusions on a number of specific aspects of OY on which guidelines can be based.

General Considerations

At the Houston meeting, it was recognized that OY is an evolving concept. While much thought has been directed toward developing models that will assist in examining fishery management alternatives, few such models of the

associated analytical procedures have yet been developed to the point of practical application. There is urgent need to develop and apply such models on a "real world" basis. This includes establishing uniform and accepted measures and terminology and improving the understanding and application of fishery data, keeping in mind the need for relevance and cost limitations. It will take some time to achieve these goals. In the meantime, determination of optimum yield must proceed, using the best information available, even though it may not be fully complete.

The procedure for determining OY should be simple and sufficiently flexible to allow for the variation among fishery resources and their regional and national uses. It should recognize that OY is a dynamic concept. OY will change for any fishery as the biological, economic, and social aspects of the fishery change. Each determination of OY may be valid only over a limited period of time and there will be need for a periodic reevaluation. The relationship of OY of any fishery (where this has been separately determined) must take into account the interaction with other fisheries. It may be necessary to consider a set of related fisheries in a single plan. Nevertheless, the procedure should encourage the development of management plans which establish mechanisms for making minor changes from year to year without the need for formal amendment.

Procedure

The estimation of OY should proceed in the following steps:

1. Establish a set of short-term, intermediate, and long-term objectives for the fishery for the period of time to be covered by the plan. These should relate to the present and probably future condition of the resource and its habitat and the commercial, recreational, and subsistence fisheries which depend on it. They should also consider the processing, distributing, and supporting industry, the consumer, and the general public. The objectives should be quantitative where possible; e.g., an objective for a fishery on a depleted stock may be to restore the stock to an MSY level within ten years. The objectives, for example could cover such matters as changes in employment, increase or decrease in fishing capacity or annual harvest, impacts on related fisheries and stocks, anticipated recreational needs and needs of native fisheries, or other matters relevant to the particular fishery. The objectives should not be generalized statements, but specific for the fishery to be regulated. It is recognized that this step (as well as many of those which follow) is difficult and time-consuming. Furthermore, objectives may change and may have to be re-defined for a given fishery from time to time.

2. Identify the maximum sustainable yield (MSY) of the fishery which may be in the form of a range of values around a point estimate, the equilibrium yield (EY), and the acceptable biological catch (ABC) which have been determined in an earlier section of the plan.

3. Identify the economic factors associated with the fishery which might indicate the need for modification of the ABC. Examples of such factors are measures to increase the productivity or total landings of the fishery, measures to reduce overcapitalization, measures to reduce economic impacts on harvesters, ascertaining the impact of changes in commercial fishing on recreational fishing, and vice versa. The impact on consumers is an important factor.

4. Identify the social criteria associated with the fishery which might indicate the need for modification of the ABC. Examples of such criteria are dependence of local communities on the fishery, maintenance of cultural customs, changing recreational needs and patterns.

5. Propose options which take into account the biological, economic, and social factors in the optimum yield identified in the foregoing paragraphs. These may consist of options for priorities in objectives for the plan, for principles used to estimate equilibrium yields, for principles used to estimate allocation between U.S. and foreign fisheries, for principles for allocation among U.S. fishing interests, and for limited entry. Options may also be included for implementing regulations such as specifying seasons, size limits, gear or area limitations, where these affect optimum yield.

6. Provide estimates of the extent to which each option contributes to the biological, economic, and social objectives set forth for the plan.

7. Specify which option(s) are preferred and why.
8. Publish the draft plan and solicit public comment on the objectives, options, and other elements of the plan, using the hearing and review processes specified in the Act.
9. Modify the objectives and other aspects of the plan to respond to public comment.
10. Make a final selection of options which most nearly meet the objectives for the plan. It is recognized that no set of options may completely meet the objectives, particularly when the objectives conflict to some extent. A set of options should be selected and justified which comes closest to meeting the overall balance of the objectives.
11. Determine if any minor modifications of the options selected will enable the plan to be adjusted to fit more closely to the objectives.
12. Specify the OY for the plan based on the options selected.

Policy Criteria

The completed plan must show specifically what considerations were given to the relevant aspects of the fishery in determination of OY including, but not limited to, the following

<u>Biological</u>	Conditions of stocks
	Determination of MSY
	Areal considerations, if appropriate
	Size and sex considerations, if appropriate
	Condition and future of the habitat

Economic

Present and projected trends in U.S. commercial
capacity
Recreational capacity and trends
Employment
Industry profitability
Prices to consumers

Social

Recreational capacity and trends
Coastal zone impacts
Cultural heritage or the practice of cultural
traditions
Native rights
Organization of ownership, management, and partici-
pation in the fishery.