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Herring, Sardines, and Foreign Affairs: Determination of Optimum Yield Under the Fishery Conservation and Management Act of 1976—Maine v. Kreps, 563 F.2d 1043 (1st Cir.), remanded, No. 77-45-SD (S.D. Me. Aug. 26, 1977), aff'd, 563 F.2d 1052 (1st Cir. 1977)

William H. Beaver, Jr

RECENT DEVELOPMENTS

HERRING, SARDINES, AND FOREIGN AFFAIRS: DETERMINATION OF OPTIMUM YIELD UNDER THE FISHERY CONSERVATION AND MANAGEMENT ACT OF 1976—*Maine v. Kreps*, 563 F.2d 1043 (1st Cir.), *remanded*, No. 77-45-SD (S.D. Me. Aug. 26, 1977), *aff'd*, 563 F.2d 1052 (1st Cir. 1977).

The two decisions by the Court of Appeals for the First Circuit in *Maine v. Kreps*[1] are the first appellate decisions arising under the provisions for judicial review of fishery management plans prepared pursuant to the Fishery Conservation and Management Act of 1976 (FCMA).[2] In *Maine*, the court considered whether a preliminary management plan for the Northwest Atlantic herring fisheries complied with the requirements of the FCMA.

The FCMA establishes the right of the United States to manage all fishery resources within 200 miles of its coast,[3] many of which are presently depleted[4] due to overfishing under prior management

1. 563 F.2d 1043 (1st Cir.) [hereinafter cited as *Maine I*], *remanded*, No. 77-45-SD (S.D. Me. Aug. 26, 1977), *aff'd*, 563 F.2d 1052 (1st Cir. 1977) [hereinafter cited as *Maine II*].

2. 16 U.S.C. §§ 1801-1882 (1976) [hereinafter cited as FCMA].

3. The FCMA establishes a "fishery conservation zone," the boundaries of which are defined as follows:

> The inner boundary of the fishery conservation zone is a line coterminous with the seaward boundary of each of the coastal states, and the outer boundary of such zone is a line drawn in such a manner that each point on it is 200 nautical miles from the baseline from which the territorial sea is measured.

FCMA § 101, 16 U.S.C. § 1811 (1976). The Act provides for the exercise of exclusive fishery management authority by the United States over the following:

> (1) All fish within the fishery conservation zone.
>
> (2) All anadromous species throughout the migratory range of each such species beyond the fishery conservation zone; except that such management authority shall not extend to such species during the time they are found within any foreign nation's territorial sea or fishery conservation zone (or the equivalent), to the extent that such sea or zone is recognized by the United States.
>
> (3) All Continental Shelf fishery resources beyond the fishery conservation zone.

Id. § 102, 16 U.S.C. § 1812. The Act, however, excludes management authority over certain species of tuna. *Id.* § 103, 16 U.S.C. § 1813. *See* note 65 *infra*.

4. The House Committee on Merchant Marine and Fisheries concluded,

> [M]any of the important American fish stocks have been over-exploited, some, like haddock, to the point of essentially commercial extinction, and many others are threatened with a similar fate. The Committee concludes that the depletion of these stocks is in large measure attributable to the phenomenal increase in recent years in the number of technologically sophisticated and very efficient foreign fishing vessels in waters off United States coasts . . . .

H.R. REP. No. 94-445, 94th Cong., 1st Sess. 43-44 (1975), *reprinted in* [1976] U.S. CODE CONG. & AD. NEWS 593, 611, and SENATE COMM. ON COMMERCE & NAT'L OCEAN POLICY STUDY, 94TH CONG., 2D. SESS., A LEGISLATIVE HISTORY OF THE FISHERY CONSERVATION AND MANAGEMENT ACT OF 1976, 1051, 1094-95 (Comm. Print 1976) [hereinafter cited as LEGISLATIVE HISTORY]. The Committee then lists 81 species of fish under

schemes.[5] The Act establishes eight Regional Councils[6] and directs them to formulate a management plan for each fishery within their respective areas.[7] If a Council fails to develop a plan, the Secretary of Commerce may prepare a "preliminary" management plan for that fishery.[8] Each plan must establish the amount of fish, designated the "optimum yield,"[9] which can be harvested annually from a fishery. Optimum yield is determined by increasing or decreasing a biologically determined number, labeled the fishery's "maximum sustainable

U.S. management which are presently either "depleted," in "imminent danger of depletion," or under "intensive use." *Id.* at 95–98, *reprinted in* LEGISLATIVE HISTORY, *supra* at 1149–53. The Senate Committee on Armed Services also found that "due to massive overfishing off both the Atlantic and Pacific coasts, U.S. coastal fishery stocks have been steadily depleted. The depletion of some stocks has been so severe that they have become virtually extinct for purposes of commercial fishing." S. REP. No. 94–515, 94th Cong., 1st Sess. 4 (1975), *reprinted in* LEGISLATIVE HISTORY, *supra* at 569, 572.

5. Legislative history indicates that past state, national, and international fishery management programs have generally been unsuccessful in their efforts to conserve the fish stocks off the coast of the United States. *See* H.R. REP. No. 94–445, 94th Cong., 1st Sess. 42 (1975), *reprinted in* [1976] U.S. CODE CONG. & AD. NEWS 593, 609–10, and LEGISLATIVE HISTORY, *supra* note 4, at 1051, 1093; S. REP. No. 94–416, 94th Cong., 1st Sess. 10–11 (1975), *reprinted in* LEGISLATIVE HISTORY, *supra* note 4, at 655, 664–65; S. REP. No. 94–515, 94th Cong., 1st Sess. 5 (1975), *reprinted in* LEGISLATIVE HISTORY, *supra* note 4, at 569, 573.

6. FCMA § 302(a), 16 U.S.C. § 1852(a) (1976).

7. *Id.* § 302(h)(1), 16 U.S.C. § 1852(h)(1).

8. The FCMA authorizes the Secretary to prepare a fishery management plan if the appropriate Council fails to submit a plan within a reasonable time or if the Secretary disapproves of a plan and the Council fails to make changes requested by the Secretary. *Id.* § 304(c)(1), 16 U.S.C. § 1854(c)(1).

The management plan challenged in *Maine v. Kreps* was prepared pursuant to FCMA § 201(g), 16 U.S.C. § 1821(g) (1976). It authorized the Secretary to prepare a preliminary management plan for a fishery if a foreign nation applied for a permit for that fishery and the Secretary determined that no plan would be prepared by the applicable Regional Council by Mar. 1, 1977. *Id.*

9. Optimum yield is defined as follows:

> [T]he amount of fish—
>
> (A) which will provide the greatest overall benefit to the Nation, with particular reference to food production and recreational opportunities; and
>
> (B) which is prescribed as such on the basis of the maximum sustainable yield from such fishery, as modified by any relevant economic, social, or ecological factor.

Id. § 3, 16 U.S.C. § 1802(18). The Senate Conference Committee explained why the optimum yield figure is more desirable than the maximum sustainable yield figure:

> [M]any experts believe that use of the maximum sustainable yield objective in fisheries management may lead to substantial economic waste and may ignore important environmental relationships between stocks from which yields cannot be maximized simultaneously. It seems more desirable therefore to adopt the objective of optimum yield, defined to include the maximum yield as the basic standard of reference, as modified by relevant economic, social, and/or ecological factors.

S. REP. No. 94–416, 94th Cong., 1st Sess. 21 (1975), *reprinted in* LEGISLATIVE HISTORY, *supra* note 4, at 655, 676–77. For other views on the advantages of the "optimum yield" management goal, see OPTIMUM SUSTAINABLE YIELD AS A CONCEPT IN FISHERIES MANAGEMENT (P. Roedel ed. 1975) (proceedings of a symposium held during the 104th Annual Meeting of the American Fisheries Society, Honolulu, Hawaii, Sept. 9, 1974).

yield,"[10] to accommodate "relevant economic, social, or ecological factors" so that the "overall benefit to the Nation" derived from the fishery is maximized.[11] Judicial review of fishery management plans and preliminary management plans is provided under the FCMA and the Administrative Procedure Act.[12]

In *Maine v. Kreps*,[13] the State of Maine[14] brought suit to enjoin the

10. Maximum sustainable yield was defined by the House Committee on Merchant Marine and Fisheries as "the surplus production of the fishery; the safe upper limit of harvest which can be taken consistently year after year without diminishing the stock so that the stock is truly inexhaustible and perpetually renewable." H.R. REP. No. 94-445, 94th Cong., 1st Sess. 47 (1975), *reprinted in* [1976] U.S. CODE CONG. & AD NEWS 593, 615, and LEGISLATIVE HISTORY, *supra* note 4, at 1051, 1098. The Senate Commerce Committee also defined maximum sustainable yield as that point "when the annual catch from a fishery is at the highest level, in terms of number or weight of fish caught, which can be sustained without harming the reproductive ability of the stock and which assures a similar level of harvest in the next year." S. REP. No. 94-416, 94th Cong., 1st Sess. 21 (1975), *reprinted in* LEGISLATIVE HISTORY, *supra* note 4, at 655, 676.

11. FMCA § 3(18), 16 U.S.C. § 1802(18) (1976).

12. *Id.* § 305(d), 16 U.S.C. § 1855(d) (1976); 5 U.S.C. §§ 701-06 (1976). The FCMA provides as follows:

> *Regulations* promulgated by the Secretary under this chapter shall be subject to judicial review to the extent authorized by, and in accordance with, chapter 7 of Title 5, if a petition for such review is filed within 30 days after the date on which the regulations are promulgated; except that (1) section 705 of such title is not applicable, and (2) the appropriate court shall only set aside any such regulation on a ground specified in section 706(2)(A), (B), (C), or (D) of such title.

FCMA § 305(d), 16 U.S.C. § 1855(d) (1976) (emphasis added). Although this section provides only for a limited review of regulations, it is reasonable to conclude that the provision was also intended to include the review of management plans. Regulations are prepared in order to implement the determinations reached in management plans. *Id.* § 201(g), 16 U.S.C. § 1821(g). A party should, therefore, be able to challenge a plan to the extent that a regulation is based on that plan. Comment, *Judicial Review of Fishery Management Regulations Under the Fishery Conservation and Management Act of 1976*, 52 WASH. L. REV. 599, 631-32 (1977).

Legislative history provides little help in determining the congressional purpose behind the inclusion of § 305(d) in the FCMA. Only one sentence of legislative explanation discusses this provision:

> Regulations to implement a fishery management plan are subject to judicial review under the Administrative Procedure Act (5 U.S.C. ch. 7), if a petition for judicial review of such regulations is filed within 30 days after the date of promulgation except that the reviewing court is without authority to enjoin the implementation of those regulations pending the judicial review . . . .

S. REP. No. 94-711, 94th Cong., 2d Sess. 54 (1976), *reprinted in* [1976] U.S. CODE CONG. & AD. NEWS 660, 678, and LEGISLATIVE HISTORY, *supra* note 4, at 37, 90. However, even if § 305(d) is interpreted to apply only to the review of regulations, judicial review of management plans could still be maintained under the Administrative Procedure Act, 5 U.S.C. §§ 701-706 (1976). Recent United States Supreme Court opinions indicate that administrative actions can be insulated from judicial review only when a statute expressly precludes such review. Barlow v. Collins, 397 U.S. 159, 166 (1970); Association of Data Processing Serv. Organizations, Inc. v. Camp, 397 U.S. 150, 156-57 (1970); Abbott Laboratories v. Gardner, 387 U.S. 136, 140-141 (1967).

13. *Maine I*, 563 F.2d 1043 (1st Cir. 1977).

14. Joined as plaintiffs were the Governor of Maine, its Commissioner of Marine Resources, and a representative to the New England Regional Fishery Management Council. *Id.* at 1045 n.1.

enforcement of herring fishing quotas established to conform with the optimum yield determination presented in the preliminary management plan, prepared by Commerce Secretary Juanita Kreps, for the Northwest Atlantic herring fisheries.[15] This plan covered two separate stocks of herring, one close to the coast of Maine (the inshore fishery) and one farther from the coast (the offshore fishery).[16] For each it established an optimum yield, discussing—as the relevant economic, social, and ecological factors—the need to rebuild the herring stock,[17] the capacity of U.S. fishermen to harvest herring,[18] and the incentive of the fishermen to increase their harvesting capacity.[19] In preparing the plan the Secretary acknowledged the importance of juvenile herring in Maine's coastal sardine fishery,[20] but her calculation of optimum yield failed to weigh either that factor or the importance of herring as a food source for other species of fish.[21] The fishing quotas

15. Atlantic Herring Fishery of the Northwestern Atlantic—Preliminary Fishery Management Plans, 42 Fed. Reg. 10,495 (1977) [hereinafter cited as PMP].

16. The plan designates the inshore fishery "5Y" and the offshore fishery "5Z". *Id.* at 10,499. The line dividing the 5Y and 5Z fisheries was created originally to separate the major Georges Bank fishery from the areas where no major fishery existed. This was not a biological determination. Hearing before the U.S. Dep't of Commerce on the Preliminary Management Plan for Atlantic Herring, in Peabody, Mass., at 250 (Apr. 19–20, 1977) (testimony by Dr. Vaughn Anthony, biologist at the Northeast Fisheries Center of National Marine Fisheries Service at Woodshole, Massachusetts) (transcripts of the hearing available from the National Oceanic and Atmospheric Administration, U.S. Dep't of Commerce) [hereinafter cited as Herring Fishery Hearings]. Despite this arbitrary division, there appears to be little intermixing of adult herring between the 5Y and 5Z areas, indicating that the stocks of herring in the two areas are separate. *Id.* at 221–22, 258–59.

17. PMP, *supra* note 15, at 10,524.

18. *Id.* at 10,526.

19. *See* note 33 *infra*.

20. Nat'l Marine Fisheries Service, Nat'l Oceanic and Atmospheric Adm'n, U.S. Dep't of Commerce, Final Environmental Impact Statement/Preliminary Fishery Management Plan, Atlantic Herring Fishery of the Northwestern Atlantic at 22 (1977) [hereinafter cited as Atlantic Herring EIS]. *See* notes 52–53 *infra*.

Ichthyologists define "sardines" as only those fish belonging to the genera *Sardina, Sardinops,* and *Sardinella*. E. MIGDALSKI & G. FICHTER, THE FRESH & SALT WATER FISHES OF THE WORLD 106 (1st ed. 1976); J. NORMAN, A HISTORY OF FISHES 308 (3rd ed. 1975). However, for commercial purposes the young of the Atlantic herring (genus *Clupea*) having a length of less than five inches are also called "sardines." E. MIGDALSKI & G. FICHTER, *supra* at 105. Juvenile herring or "sardines" are found in waters close to the coast of Maine where they are harvested and marketed as canned sardines. Atlantic Herring EIS, *supra* at 22. Once the sardines mature into adult herring they migrate to deeper waters, joining both the inshore and offshore herring fisheries. *See* notes 47–48 and accompanying text *infra*. For management purposes, however, Maine's sardine fishery is separated from both the inshore and offshore adult herring fisheries. Atlantic Herring EIS, *supra* at 22.

21. *See* notes 48–65 and accompanying text *infra*.

provided by the plan allocated approximately two-thirds of the offshore fishery's optimum yield to foreign nations.[22]

Maine's complaint, which challenged only the allocation of the offshore fishery's optimum yield, alleged (1) that because the offshore herring fishery was dangerously depressed,[23] the FCMA required the prohibition of all foreign fishing to allow maximum rebuilding of the fish stocks[24] and (2) that the administrative record did not adequately support the optimum yield determination.[25] The district court re-

22. PMP, *supra* note 15, at 10,527. The optimum yield for the offshore fishery was determined to be 33,000 metric tons. *Id.* Of this, 21,000 metric tons were allocated to foreign nations in the following manner: Poland—5,100 metric tons (m.t.); German Democratic Republic—4,825 m.t.; Federal Republic of Germany—4,725 m.t.; Soviet Union—3,400 m.t.; Canada—1,000 m.t.; France—1,000 m.t.; Cuba—700 m.t.; Bulgaria—100 m.t.; Romania—100 m.t.; others—50 m.t. *Maine I,* 563 F.2d at 1046 n.3.

The total level of permissible foreign fishing in any fishery must be established pursuant to § 201(d) of the FCMA:

> The total allowable level of foreign fishing, if any, with respect to any fishery subject to the exclusive fishery management authority of the United States, shall be that portion of the optimum yield of such fishery which will not be harvested by vessels of the United States, as determined in accordance with the provisions of this chapter.

FCMA § 201(d), 16 U.S.C. § 1821(d) (1976). The Secretary must then consider four criteria in determining the extent to which various foreign nations will be able to harvest that portion of the optimum yield which is beyond domestic fishing capacity:

> (1) whether, and to what extent, the fishing vessels of such nations have traditionally engaged in fishing in such fishery;
>
> (2) whether such nations have cooperated with the United States in, and made substantial contributions to, fishery research and the identification of fishery resources;
>
> (3) whether such nations have cooperated with the United States in enforcement and with respect to the conservation and management of fishery resources; and
>
> (4) such other matters as the Secretary of State, in cooperation with the Secretary, deems appropriate.

Id. § 201(e), 16 U.S.C. § 1821(e). The foreign fishing quotas for herring were, however, established almost exclusively on the basis of past fishing activity of various foreign nations in the Northwest Atlantic herring fishery. Affidavit of David H. Wallace at 4, Maine v. Kreps, No. 77-45-SD (S.D. Me. Aug. 26, 1977) (on file with *Washington Law Review*).

23. *Maine I,* 563 F.2d at 1048. There is confusion in the record as to what the "natural" size of the stock actually was. The preliminary management plan suggests that the "optimum stock size" is about 500,000 metric tons. PMP, *supra* note 15, at 10,520. It also states that the present stock size is 218,000 metric tons, or just less than 50% the "optimum size." *Id.* at 10,527. But the plan also notes that the present stock is only 20% the size of the herring stock in the middle 1960's. *Id.* at 10,523. Evidence presented at the Apr. 19, 1977, public hearing in Peabody, Mass. showed that the greatest previous stock level was about 1.2 million metric tons, or about 5.5 times the present stock size. Herring Fishery Hearings, *supra* note 16, at 214. Other authorities have suggested that the present herring stock may be as little as 10% of its natural size. Development Sciences, Inc., *Working Paper No. 3, Marine Fisheries Stock Assessment: Issues and Needs* 70, in WORKING PAPERS: ESTABLISHING A 200-MILE FISHERIES ZONE (Office of Technology Assessment ed. 1977) [hereinafter cited as WORKING PAPERS].

24. *Maine I,* 563 F.2d at 1048.

25. *Id.* at 1049.

jected these claims and dismissed the complaint.[26] On appeal, the First Circuit affirmed the lower court's denial of an injunction, but remanded for additional statements from the Secretary of Commerce to explain the criteria considered in establishing optimum yield.[27] On remand the district court received affidavits which stated that consideration of the possible adverse effects which a reduction of foreign herring quotas might have on U.S. foreign relations strongly influenced the determination of optimum yield.[28] The district court found that the statements remedied the deficiency in the administrative record, and that foreign policy was an appropriate consideration in establishing optimum yield.[29] The Court of Appeals for the First Circuit affirmed.[30]

This note will analyze the major issue of *Maine v. Kreps,* whether Secretary Kreps fulfilled the FCMA's requirements in her determination of optimum yield. This issue is discussed in two parts. First, the criteria expressed in the preliminary management plan are analyzed in light of the relevant provisions of the FCMA. Second, the inclusion of foreign policy considerations in the optimum yield calculations (a factor not discussed in the preliminary management plan) is analyzed by (1) inferring from the *Maine* opinion the proper use of foreign policy in management decisions, and (2) suggesting criteria which may affect the role of foreign policy in the development of future management plans.

This note concludes that the need for rebuilding a fish stock and the capacity and incentive of domestic fishermen to exploit that fish stock are appropriate considerations in determining optimum yield. These considerations should, however, be treated more comprehensively than they are in Secretary Kreps' preliminary management plan. The FCMA also requires an analysis of the effects a fishing quota might have on other interrelated fish stocks whether or not those stocks are under exclusive U.S. control. The effect of fishing quotas on U.S. foreign relations is an appropriate secondary consideration in establishing optimum yield, but the possible decrease in efficiency of domestic fishermen caused by increased foreign fishing should be considered as well.

26. Maine v. Kreps, No. 77-45-SD, slip op. at 15 (S.D. Me. July 18, 1977).
27. *Maine I,* 563 F.2d at 1051.
28. *Maine II,* 563 F.2d at 1054-55. *See* notes 80-83 and accompanying text *infra.*
29. Maine v. Kreps, No. 77-45-SD (S.D. Me. Aug. 26, 1977).
30. 563 F.2d 1052 (1st Cir. 1977).

I. THE PRELIMINARY MANAGEMENT PLAN'S DETERMINATION OF OPTIMUM YIELD

In the preliminary management plan, Secretary Kreps discussed three factors considered in determining the optimum yield for the offshore herring fishery: the need to rebuild the depleted herring stock,[31] the capacity of domestic fishermen to harvest herring in the offshore area,[32] and the incentive for the fishermen to increase substantially their harvesting capacity.[33] The plan failed, however, to fully consider the effect of the offshore herring fishery upon Maine's coastal sardine fishery[34] and upon other species of fish which depend on herring as a food source.[35]

A. Factors Included in Calculating Optimum Yield

1. The need to rebuild the herring stock

The preliminary management plan noted that the Northwest Atlantic herring fisheries were in a dangerously depleted condition.[36] It therefore established an optimum yield which allows the offshore herring stock to rebuild by ten percent per year.[37] Maine argued that full compliance with the FCMA would require banning all foreign fishing in order to allow additional rebuilding.[38] In rejecting this

31. PMP, *supra* note 15, at 10,524.
32. *Id.* at 10,526. *See* Maine v. Kreps, No. 77-45-SD, slip op. at 7-8 (S.D. Me. July 18, 1977).
33. Although the preliminary management plan only implies that incentive was considered in establishing optimum yield, PMP, *supra* note 15, at 10,527, the district court concluded that "[t]he third factor on which the Secretary based her [optimum yield] determination is that the incentive to fish for herring in the Georges Bank area will not truly exist until and unless the inshore stock . . . is no longer available . . . ." Maine v. Kreps, No. 77-45-SD, slip op. at 8-9 (S.D. Me. July 18, 1977).
Although Secretary Kreps claimed that capacity and incentive were used in calculating optimum yield, both capacity and incentive might be classed more properly as factors used in determining the proper allocation of optimum yield between U.S. and foreign fishermen. *See* FCMA § 201 (d), 16 U.S.C. § 1821(d) (1976), *quoted at* note 22 *supra*. It is possible, however, that both criteria were used by Secretary Kreps in making the actual optimum yield determination. For example, in determining the allowable catch which would provide the "greatest overall benefit to the Nation," the Secretary should balance the needs of the domestic fishing community against other relevant factors such as the need to rebuild the depleted fish stocks as quickly as possible.
34. *See* notes 48-60 and accompanying text *infra*.
35. *See* PMP, *supra* note 15, at 10,526.
36. *Id.* at 10,524.
37. *Maine I*, 563 F.2d at 1047-48; PMP, *supra* note 15, at 10,527.
38. *Maine I*, 563 F.2d at 1048.

claim, the court concluded that because the Act does not prescribe an annual rate for the rebuilding of depleted fish stocks, the level of rebuilding allowed by a management plan does not have to be the highest rate possible.[39] Since the court found valid other considerations which weighed against allowing faster rebuilding (*e.g.*, foreign policy),[40] it upheld the ten percent figure.

2. *The capacity and incentive of domestic fishermen to harvest herring*

By studying the historical herring catch of both the inshore and offshore areas, the Secretary reached two conclusions: (1) domestic fishermen lack the capacity to harvest more than 12,000 metric tons of herring from the offshore fishery, and (2) there is no incentive for domestic fishermen to increase their offshore capacity because it is more economical to exploit the herring resources of the closer inshore fishery.[41] Because the average annual harvest from the inshore fishery during the past four years has been 35,000 metric tons[42] as compared with a harvest of 3,800 metric tons for the offshore fishery,[43] the Secretary's conclusions appear reasonable. However, due to the very depressed condition of the herring stocks close to Maine's coast, the preliminary management plan established a quota for the inshore fishery limiting the total harvest for the United States to only 6,000 metric tons.[44] This reduced quota may or may not force the inshore fishermen to exploit the more distant offshore fishery.[45] Factors influencing their decision will include (1) both the need and ability of the fishermen to obtain different fishing equipment, (2) the social structure of

39. *Id.* at 1048–49.
40. The validity of foreign policy as a relevant consideration in determining optimum yield is discussed in the text accompanying notes 66–91 *infra*.
41. Maine v. Kreps, No. 77-45-SD, slip op. at 8–9 (S.D. Me. July 18, 1977). *See* note 33 *supra*.
42. PMP, *supra* note 15, at 10,502.
43. *Id.* at 10,503.
44. *Id.* at 10,527.
45. The preliminary management plan indicates that possible mobility of fishermen between the two management areas should be studied in the future. *Id.* at 10,527. The plan does not, however, indicate whether its determination of optimum yield incorporates a consideration of the desire of inshore fishermen to harvest herring from the offshore fishery. Although the management plan's 12,000 metric ton quota for domestic fishing in the offshore fishery is a large increase over previous years' harvests, this increase was apparently made at least partially to allow for fishing by companies which had not previously harvested herring from either the inshore or the offshore fishery. *Id.*

the fishing community and its willingness to exploit the offshore fishery,[46] and (3) the economics of the herring industry. For example, higher costs incurred in fishing farther from shore may preclude a movement of fishermen to the offshore fishery. On the other hand, higher prices for herring which may result from the lower inshore herring quota may make exploitation of the offshore fishery profitable despite increased costs. These considerations should have been expressly discussed in the management plan to comply with the statutory mandate that optimum yield incorporate relevant economic, social, and ecological factors.[47]

B. Factors Excluded in Calculating Optimum Yield

1. Maine's coastal sardine industry

Secretary Kreps discussed evidence showing that Maine's coastal sardine fishery is composed of juvenile herring spawned by the adults of both the inshore and offshore fisheries.[48] Prior to becoming adults, the juvenile herring migrate to deeper water where they join both her-

46. A discussion of the inclusion of social data in optimum yield determinations is found in Acheson, *Working Paper No. 2, The Role of the Social Sciences in Fisheries Management Under Extended Jurisdiction* 35–38, in WORKING PAPERS, *supra* note 23. *See also* E. Miles, G. Rogers, & D. Collinsworth, Procedures and Socioeconomic Data Needs for Determination of Optimum Yields in Fishery Management Plans 9–10 (Sept. 8, 1977) (unpublished paper prepared for the Scientific and Statistical Committee, North Pacific Regional Fishery Management Council) (on file with *Washington Law Review*) [hereinafter cited as Data Needs for Determination of Optimum Yields].

47. The overly general discussion of "relevant socioeconomic" factors in the management plan is apparently the result of insufficient data rather than neglect. William G. Gordon, who as Regional Director of the Northeast Region of the National Marine Fisheries Service was primarily responsible for the preparation of the preliminary management plan, stated,

> In going through . . . the Preliminary Management Plans, . . . we [were] struck by the scarcity of hard economic data. Hard data [was lacking] on the contributions made by fisheries' related activities to the economy of geographic areas, . . . the dependence of communities on fishing as a way of life, and . . . the economic viability of the various communities up and down the Coastline.

Herring Fishery Hearings, *supra* note 16, at 115. Gordon also indicated that the FCMA's requirement that management decisions be based on the "best scientific information available," FCMA § 301(a)(2), 16 U.S.C. § 1851(a)(2) (1976), might require that a fishing industry provide solid documentation of increased harvesting capacity before a domestic fishing quota could be increased. Herring Fishery Hearings, *supra* note 16, at 115–18. Although evidence was presented to the Department of Commerce indicating that the present capacity of U.S. herring fishermen was greater than their fishing quota, it was not definite enough to support an increase in domestic herring quotas. *Id.* at 152–53, 163–69.

48. Atlantic Herring EIS, *supra* note 20, at 22, 37.

ring fisheries.[49] Due to this interrelationship, the recent depletion of the herring stocks may be a direct cause of the poor recruitment[50] of juvenile herring into the sardine fishery.[51] A successful management program for herring must take into account the effects the sardine and herring fishing industries have upon one another.

Although the Secretary acknowledged an interrelationship between the sardine and herring fisheries, she proposed no regulations for fishing in the coastal sardine fishery,[52] nor did she consider the effects upon the sardine industry of the harvest of adult herring from the inshore and offshore fisheries when calculating the optimum yield for the adult herring fisheries.[53] The Secretary failed to propose regulations for the sardine fishery on the grounds that because the sardine fishery lies exclusively within Maine's territorial waters, management control over the fishery is vested in that state. This decision was based on her concluson that under the FCMA "jurisdiction over fisheries within the territorial boundaries of a state remains with the state unless its actions or failure to take action adversely affects implementation of a Fishery Management Plan."[54]

49. *Id.* at 22.

50. "Recruitment" refers to the number of fish entering a fishery.

51. *See* Atlantic Herring EIS, *supra* note 20, at 37.

52. The Final Environmental Impact Statement/Preliminary Fishery Management Plan states that "[a] significant catch of juvenile herring forms the basis of the Maine canned sardine fishery. . . . However, the regulations proposed in this PMP do not apply to the . . . juvenile herring fishery." Atlantic Herring EIS, *supra* note 20, at 22.

53. The preliminary management plan's discussion of the "relevant socioeconomic" factors which were considered in determining optimum yield does not mention the effects the harvest of adult herring from the inshore and offshore fisheries will have upon the sardine fishery. PMP, *supra* note 15, at 10,526.

54. Atlantic Herring EIS, *supra* note 20, at 22. The Secretary's description of the limits of federal management authority over fisheries within a state's territorial waters is based on the provision of FCMA § 306 that "except as provided in subsection (b) of this section, nothing in this chapter shall be construed as extending or diminishing the jurisdiction or authority of any State within its boundaries." FCMA § 306(a), 16 U.S.C. § 1856(a) (1976). Under § 306(b) the FCMA establishes federal management of a fishery within a state's territorial waters only if the fishing in that fishery occurs predominantly within the fishery conservation zone and the state has taken action or failed to take action which would frustrate the implementation of a fishery management plan prepared for that fishery. FCMA § 306(b)(1), 16 U.S.C. § 1856(b)(1) (1976). With this limitation, the FCMA affirms exclusive state jurisdiction over fisheries within each state's territorial waters as established by § 2 of the Submerged Lands Act, 43 U.S.C. § 1301 (1970). FCMA § 306(a), 16 U.S.C. § 1856(a) (1976). *See* S. REP. No. 94-416, 94th Cong., 1st Sess. 22 (1975), *reprinted in* LEGISLATIVE HISTORY, *supra* note 4, at 655, 678. The territorial sea of all the coastal states except Texas and Florida extends three miles from the coast line. The territorial waters of Florida and Texas extend nine miles in the Gulf of Mexico. United States v. Florida, 363 U.S. 121 (1960) (Florida granted 3 leagues); United States v. Louisiana, 363 U.S. 1 (1960) (Texas granted 3 leagues).

The effect of the FCMA on state and federal management authority over fisheries

Assuming that the FCMA does preclude direct federal management control of the sardine fishery, two factors suggest that the preliminary management plan should have incorporated a consideration of the effects its management provisions might have upon the sardine fishery.[55] First, because optimum yield must be calculated to provide the nation with the greatest overall benefit,[56] management plans should compare the benefits derived from interrelated fisheries. It is possible that the overall benefit to the local fishing communities and the nation would be increased by reducing the harvest from one of the fisheries in order to increase the harvest potential of the other fishery.[57] Second, the FCMA requires that, whenever practicable, individual stocks of fish be managed as a unit throughout their range.[58] This provision was a response to the realization that conflicts might

within state territorial waters was summarized by the House Committee on Merchant Marine and Fisheries:

> [T]he Act is not intended to diminish State jurisdiction or to authorize any federal encroachment over the management or control of any natural resources within any internal waters of any State. . . . [However, f]isheries management plans may, under very limited circumstances set forth in [§ 306(b)(1)], regulate fishing within the territorial sea and supersede State regulations applicable to the territorial sea.

H.R. REP. No. 94-445, 94th Cong., 1st Sess. 50-51 (1975), *reprinted in* [1976] U.S. CODE CONG. & AD. NEWS 593, 618-19, and LEGISLATIVE HISTORY, *supra* note 4, at 1051, 1102.

55. Richard Goldsmith, Assistant to the Director of the Pacific Marine Fisheries Commission, has suggested that the FCMA allows federal planning for fisheries in state waters. He interprets the FCMA provision which authorizes the Councils to conduct any activities "which are required by, or provided for in, this chapter or which are necessary and appropriate to [each Council's] functions," FCMA § 302(h)(6), 16 U.S.C. § 1852(h)(6) (1976), to allow Councils to plan for state waters. He then argues that such planning is not an infringement of either state jurisdiction or authority. "Planning by itself is not an exercise of power; . . . it is in the Secretary's implementation of a fishery management plan that state authority *could be* threatened." Memorandum from Richard J. Goldsmith to John P. Harville, Executive Director, Pacific Marine Fisheries Commission (Oct. 24, 1977) (emphasis in original) (on file with *Washington Law Review*). Although it is probable that the FCMA does allow federal planning of fisheries within a state's territorial waters, it is clear that federal regulation of those fisheries is allowed only under the limited conditions provided in FCMA § 306(b)(1), 16 U.S.C. § 1856(b)(1) (1976), *discussed in* note 54 *supra*.

56. FCMA § 3(18), 16 U.S.C. § 1802(18) (1976), *quoted at* note 9 *supra*.

57. For example, the environmental impact statement indicates that the sardine fishery historically has been a major industry in New England. Atlantic Herring EIS, *supra* note 20, at 24-25. However, due to a lack of fish, the importance of the industry has declined steadily in recent years. *Id.* at 25. The management plan should compare the number of individuals employed in each industry, the contributions of each industry to the local and national economy, and the value of each fishery as a food source. If the harvest of "sardines," *see* note 20 *supra,* could be increased by decreasing the offshore harvest of herring, the total benefit derived from both fisheries might be increased. *See* Gates, *Working Paper No. 1, Economic Data Needs in Fisheries Management Under Extended Jurisdiction* 4, in WORKING PAPERS, *supra* note 23.

58. FCMA § 301(a)(3), 16 U.S.C. § 1851(a)(3) (1976).

arise between state and federal authorities over the proper management of fish stocks which migrate between state controlled and federally controlled waters.[59] Thus, Congress recommended that state and federal agencies cooperate in managing fishery resources on a national or regional scale instead of limiting management decisions to political boundaries.[60] Future management plans for herring should therefore incorporate the concerns of state management officials for the sardine industry to the extent that the harvest of adult herring affects the abundance of sardines in Maine's territorial waters.

2. *The importance of herring as a food source for other species of fish*

The importance of considering interrelationships among various fish stocks in determining optimum yield is clearly illustrated when the species of fish being managed is an important source of food for a second species of commercially important fish. Although the FCMA guidelines require that predator-prey relationships among various stocks of fish be considered in management decisions,[61] the preliminary management plan failed in its optimum yield determination to discuss the importance of herring as a food source for other species of fish.[62] However, environmental groups expressed concern that herring are a major source of food for Atlantic tuna.[63] Low levels of herring stock in the Northwest Atlantic may cause a decline in the tuna stock.[64] If so, future management plans for herring will be required to consider the relative benefit derived from both the herring and tuna fishing industries.[65]

59. S. REP. No. 94-416, 94th Cong., 1st Sess. 28-30 (1975), *reprinted in* LEGISLATIVE HISTORY, *supra* note 4, at 655, 684-86.

60. *Id.* at 685-86.

61. The Guidelines for Development of Fishery Management Plans require that a management plan "[d]escribe the relationship of the stock(s) with fish, animals, or plants, including discussions of relevant food chain and predator-prey relationships." 42 Fed. Reg. 36,981 (1977) (to be codified in 50 C.F.R. § 602.3(b)(5)(iii)).

62. For the plan's discussion of optimality, see PMP, *supra* note 15, at 10,524-27.

63. Atlantic Herring EIS, *supra* note 20, at 153 (comment letter of Dec. 7, 1976, from the National Coalition for Marine Conservation, Inc., to the National Marine Fisheries Service); *see id.* at 134 (comment at public hearing on the Atlantic herring preliminary management plan, held at Boston, Mass., Nov. 30, 1976), 180 (letter of Dec. 27, 1976, from the Emergency Committee to Save America's Marine Resources to the National Marine Fisheries Service). Optimum yield determinations are required to consider recreational fishing interests. FCMA § 3(18)(A), 16 U.S.C. § 1802(18)(A) (1976), *quoted at* note 9 *supra*.

64. Atlantic Herring EIS, *supra* note 20, at 153; *see id.* at 134.

65. Under the FCMA, "highly migratory species," defined as "species of tuna

II. FOREIGN POLICY AS A RELEVANT FACTOR IN CALCULATING OPTIMUM YIELD

A. The Maine *Court's Analysis*

In determining the validity of the management plan before it, the court in *Maine v. Kreps*[66] had to decide whether the effect on foreign relations of U.S. fishery management decisions was a proper consideration in determining optimum yield under the FCMA. Two interpretations of the language of the Act were presented to the court.

The interpretation presented by the appellants, and rejected by the *Maine* court, is that foreign policy can only be considered in *allocating* among foreign nations that portion of the optimum yield which fishermen of the United States will not harvest,[67] and not in calculating the optimum yield.[68] Maine's brief cited two facts to support its interpretation. First, Congress recognized that conflicting foreign interests inherent in the prior international fishery management system were significantly responsible for the depletion of fishery resources off the coast of the United States.[69] Thus, conservation of the fish stocks[70] and the needs of the domestic fishing industry[71] were made the primary management concerns of the FCMA. Second, section 205 of the FCMA specifically provides safeguards against economic retaliatory action taken by foreign nations as a result of U.S. fishery management decisions.[72] On the basis of these two facts Maine argued that Congress intended to insulate optimum yield determinations from foreign policy considerations.[73]

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which, in the course of their life cycle, spawn and migrate over great distances in waters of the ocean," FCMA § 3(14), 16 U.S.C. § 1802(14) (1976), are not covered by the United States' exclusive management authority. *Id.* § 103, 16 U.S.C. § 1813. However, because optimum yield must provide the nation with the greatest overall benefit, *id.* § 3(18), 16 U.S.C. § 1802(18), consideration of the effect of herring fishing on the tuna industry is appropriate, even when some of the species of tuna considered are not under exclusive U.S. authority.

66. *Maine I,* 563 F.2d at 1049–50.

67. *See* FCMA § 201(d), 16 U.S.C. § 1821(d) (1976), *quoted at* note 22 *supra.*

68. Brief for Appellant at 11–12, *Maine I,* 563 F.2d 1043 (1st Cir. 1977).

69. *See* H.R. REP. No. 94–445, 94th Cong., 1st Sess. 34–42 (1975), *reprinted in* [1976] U.S. CODE CONG. & AD. NEWS 593, 606–10, and LEGISLATIVE HISTORY, *supra* note 4, at 1051, 1085–93; S. REP. No. 94–515, 94th Cong., 1st Sess. 5 (1975), *reprinted in* LEGISLATIVE HISTORY, *supra* note 4, at 569–573.

70. Section 2(b)(1) of the FCMA states that a major purpose of the Act is "to take immediate action to conserve and manage the fishery resources found off the coasts of the United States." FCMA § 2(b)(1), 16 U.S.C. § 1801(b)(1) (1976).

71. *See* FCMA § 201(d), 16 U.S.C. § 1821(d) (1976), *quoted at* note 22 *supra.*

72. FCMA § 205, 16 U.S.C. § 1825 (1976).

73. Brief for Appellant at 11–12, *Maine I,* 563 F.2d 1043 (1st Cir. 1977).

The *Maine* court correctly determined that the mandate of the FCMA that optimum yield provide the "greatest overall benefit to the Nation"[74] required a different interpretation of the Act. It accepted the argument that foreign relations could be considered in the actual determination of optimum yield, stating that there is "no congressional purpose that [an optimum yield calculation] disregard the benefits to be derived from cooperating with other nations."[75] However, the court also interpreted the FCMA to preclude the establishment of an optimum yield which permits overfishing,[76] implying that conservation of fish stocks should be the primary goal of management plans.[77] Thus, the effect of fishery management decisions on U.S. foreign relations can be only a secondary consideration in establishing optimum yield. Because the preliminary management plan fulfilled the primary goal of conservation by allowing a ten percent annual rebuilding of the herring stock, the court upheld Secretary Kreps' conclusion that the United States would receive more benefit by permitting foreign fishing than by requiring faster rebuilding.[78] However, because conservation is the primary concern of the FCMA, courts should not uphold management plans in which consideration of foreign policy results in the establishment of an optimum yield that would further deplete a fishery.

Although the *Maine* court approved the use of foreign policy in fishery management decisions, its opinion provides little help to courts or to the Regional Councils in defining proper limits on the inclusion of foreign policy considerations in future management plans.

74. FCMA § 3(18), 16 U.S.C. § 1802(18) (1976), *quoted at* note 9 *supra*.
75. *Maine I*, 563 F.2d at 1049.
76. *Id.*
77. Both the language of the Act and the legislative history support this conclusion. Stated purposes of the Act include the following: "(1) to take immediate action to conserve and manage the fishery resources found off the coasts of the United States . . . [and] (3) to promote domestic commercial and recreational fishing under sound conservation and management principles." FCMA § 2(b), 16 U.S.C. § 1801(b) (1976).

The Senate Committee on Commerce reported, "The purpose of the [FCMA] is to protect and conserve valuable and necessary fishery resources. Fishery resources, which contribute to the Nation's food supply, economic strength, health, and recreation, are today threatened . . . because of overfishing, and because of the absence of adequate fishing management and conservation practices and controls." S. REP. No. 94-416, 94th Cong., 1st Sess. 1 (1975), *reprinted in* LEGISLATIVE HISTORY, *supra* note 4, at 655. The House Committee on Merchant Marine and Fisheries also reported that "[t]he purpose of [the FCMA] is to provide for the protection, conservation, and enhancement of the fisheries resources of the United States." H.R. REP. No. 94-445, 94th Cong., 1st Sess. 21 (1975), *reprinted in* [1976] U.S. CODE CONG. & AD. NEWS 593, 593, and LEGISLATIVE HISTORY, *supra* note 4, at 1051, 1072.
78. *Maine I*, 563 F.2d at 1049.

The court did suggest that because 1977 is a transitional year for the implementation of the FCMA, different criteria might be appropriate in the development of future management plans.[79] In spite of the uncertainties inherent in the court's opinion, three general conclusions concerning the use of foreign policy in calculating optimum yield can be inferred from the opinion and facts of the case. The Secretary or Regional Councils may consider (1) possible as well as certain effects on foreign affairs, (2) effects on foreign affairs unrelated to food or food production, and (3) effects on foreign affairs having no relation to the regulated area.

1. Certainty of foreign policy consequences

The effects of fishery management decisions on U.S. foreign relations need not be certain to merit consideration in the establishment of optimum yield. Affidavits presented to the court by the Secretary of Commerce[80] indicate that those responsible for preparing the preliminary management plan relied heavily upon speculation that lower foreign herring quotas might cause other nations to enact restrictive trade barriers to U.S. exports or deny U.S. fishermen access to foreign territorial waters.[81] Also considered was the possibility that any action taken by the United States which might be viewed as unreasonable could seriously jeopardize the potential success of the current United Nations Conference on the Law of the Sea.[82] The only concrete ex-

79. In holding that foreign policy is a valid consideration in determining optimum yield, the court stated,

> The commitments [made to other nations before the FCMA took effect] and the Secretary's response to them reflect the special considerations of a transitional year and the inauguration of exclusive United States management of this fishery. Different considerations would apply to international agreements made at a different time under other circumstances.

Maine II, 563 F.2d at 1055–56.

80. Affidavits were filed by Larry L. Snead, Acting Director of the Office of Fisheries Affairs, U.S. Dep't of State; William G. Gordon, Northeast Regional Director, National Marine Fisheries Service, National Oceanic and Atmospheric Administration, U.S. Dep't of Commerce; and, David H. Wallace, Associate Administrator for Marine Resources, National Oceanic and Atmospheric Administration, U.S. Dep't of Commerce.

The principal affidavit was filed by Wallace. He was responsible for the final action taken by the Department of Commerce on the preliminary management plan for the Northwestern Atlantic herring fishery. Affidavit of David H. Wallace at 1–2, Maine v. Kreps, No. 77–45–SD (S.D. Me. Aug. 26, 1977) (on file with *Washington Law Review*).

81. *Id.* at 8–10.

82. *Id.* at 5. A purpose of the FCMA is "to support and encourage continued active United States efforts to obtain an internationally acceptable treaty at the Third United Nations Conference on the Law of the Sea, which provides for effective conservation

ample of benefit to the United States derived from the foreign allocation of herring was a favorable trade agreement with the Federal Republic of Germany.[83] By upholding the management plan, the court allows the Secretary broad discretion, in making management decisions, to consider the effects on U.S. foreign relations that are uncertain or may only possibly result from a reduction in foreign fishing quotas.

2. *Foreign policy unrelated to food or food production*

Although the FCMA requires that optimum yield be determined with particular reference to food production,[84] the *Maine* court upheld Secretary Kreps' consideration of effects on foreign affairs not directly related to the production of food. An example is the Secretary's consideration of the adverse effect an abrupt prohibition of foreign fishing might have on the economies of other nations.[85] The court cautioned that our fisheries are not to be traded for a "world banking agreement,"[86] but it acknowledged that reciprocal economic benefits from foreign nations may be considered in management decisions.[87] Thus, while the FCMA specifies that factors affecting management decisions must primarily relate to food or food production,[88] the *Maine* opinion allows some consideration of effects on foreign affairs not directly related to food production in determining optimum yield.

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and management of fishery resources." FCMA § 2(c)(5), 16 U.S.C. § 1801(c)(5) (1976). For an examination of potential conflicts between the FCMA and a future Law of the Sea treaty, see Jacobson & Cameron, *Potential Conflicts Between a Future Law of the Sea Treaty and the Fishery Conservation and Management Act of 1976*, 52 WASH. L. REV. 451 (1977).

83. *See* Herring Fishery Hearings, *supra* note 16, at 102.

84. FCMA § 3(18), 16 U.S.C. § 1802(18) (1976), *quoted at* note 9 *supra*.

85. *Maine I*, 563 F.2d at 1050. William G. Gordon, the Regional Director for the National Marine Fisheries Service, testified that the foreign herring quotas were based on the belief that a gradual phaseout of foreign fishing would be more beneficial to those countries than an immediate exclusion. Herring Fishery Hearings, *supra* note 16, at 108.

86. *Maine I*, 563 F.2d at 1050.

87. *Maine II*, 563 F.2d at 1055-56; *Maine I*, 563 F.2d at 1050. *See* note 76 *supra*. An affidavit explained the optimum yield determination as follows: "[R]ecognition was given to traditional foreign fishing in order that any benefit flowing to foreign nations from such recognition might redound to the benefit of the United States, which is the premise upon which the conduct of foreign affairs relies." Affidavit of David H. Wallace at 4, Maine v. Kreps, No. 77-45-SD (S.D. Me. Aug. 26, 1977) (on file with *Washington Law Review*).

88. *Maine I*, 563 F.2d at 1050.

3. *Foreign policy unrelated to the management area*

The Secretary or a Regional Council is not limited to considering only consequences on foreign policy that affect the regulated area. Although the other factors considered by Secretary Kreps in establishing optimum yield by their nature affect the herring fishery,[89] the foreign policy consequences that were considered generally had no relation to the fishery. For example, the Secretary considered the possibility that retaliatory restrictions might be levied on U.S. fishermen fishing in foreign waters for tuna, lobster, and shrimp if the foreign herring quotas were reduced.[90] She also took into account the adverse effect that an abrupt prohibition of foreign fishing might have upon the economies of other nations.[91] The *Maine* court's acceptance of the Secretary's consideration of these effects indicates that fishing quotas established for any region may validly reflect a consideration of foreign policy consequences having no relation to that region.

B. *Use of Foreign Policy in Future Management Decisions*

Two factors may affect the role of foreign policy in future optimum yield determinations. One is the practical effect of the membership and orientation of the Regional Councils who are primarily responsible for developing management plans. The second factor is the FCMA's efficiency requirement, which Secretary Kreps failed to consider in developing her preliminary management plan for herring.

1. *Membership and orientation of the Regional Councils*

Because the Regional Councils' memberships are industry-based,[92] it is probable that the Councils will not consider foreign policy as a

89. For example, the Secretary considered the need to rebuild the herring stock, the capacity of the domestic fishermen to harvest herring, and the possibility that the fishermen would increase their harvesting capacity. *See* notes 36–47 and accompanying text *supra*.

90. Affidavit of David H. Wallace at 10, Maine v. Kreps, No. 77-45-SD (S.D. Me. Aug. 26, 1977) (on file with *Washington Law Review*).

91. Herring Fishery Hearings, *supra* note 16, at 108 (testimony by William G. Gordon, Northeast Regional Director, National Marine Fisheries Service, National Oceanic and Atmospheric Administration, U.S. Dep't of Commerce).

92. Voting membership of each Regional Council is composed of (1) the principal state official responsible for marine fishery management, FCMA § 302(b)(1)(A), 16 U.S.C. § 1852(b)(1)(A) (1976); (2) the regional director of the National Marine Fish-

significant factor in determining optimum yield and will be reluctant to allow any foreign fishing. For example, both the New England[93] and Mid-Atlantic[94] Regional Councils recommended that Secretary Kreps ban all foreign fishing for herring in the Northwest Atlantic. Even if the Councils were not biased against allowing foreign fishing, it is unlikely that the Council members have sufficient expertise to assess effects on foreign relations, especially those effects having no relation to their management region.[95]

The industry-oriented composition of the Regional Councils will not, however, preclude foreign policy from being considered in future management plans. Prior to the implementation of any management plan prepared by a Regional Council, the Secretary of Commerce must review and approve it.[96] When reviewing a plan, the Secretary is required to consult with the Secretary of State with respect to any foreign fishing in the regulated area,[97] and she may amend the plan if she determines that its provisions do not comply with the FCMA's requirements.[98] It is possible to infer from the *Maine* opinion that a failure to consider effects of management decisions on foreign relations will be a sufficient basis for the Secretary to make such a determination.[99] Given the bias of the Regional Councils in favor of ex-

eries Service, *id.* § 302(b)(1)(B), 16 U.S.C. § 1852(b)(1)(B); and (3) members appointed by the Secretary of Commerce from a list of qualified individuals submitted by the governor of each constituent state, *id.* § 302(b)(1)(C), 16 U.S.C. § 1852(b)(1)(C). Industry representation comprises approximately 79% of the total membership of the Regional Councils. Pontecorvo, *Fishery Management and the General Welfare: Implications of the New Structure,* 52 WASH. L. REV. 641, 651-55 (1977).

93. *See* Atlantic Herring EIS, *supra* note 20, at 198 (comment of the New England Regional Fishery Management Council).

94. *Id.* at 194 (comment of the Mid-Atlantic Regional Fishery Management Council).

95. For a discussion of the possible implications of the membership of the Regional Councils on fishery management policy, see Pontecorvo, *supra* note 92.

96. The FCMA provides that "[w]ithin 60 days after the Secretary receives any fishery management plan . . . which is prepared by any Council, the Secretary shall (1) review such plan . . . and (2) notify such Council in writing of his approval, disapproval, or partial disapproval of such plan . . . ." FCMA § 304(a), 16 U.S.C. § 1854(a) (1976).

97. *Id.* § 304(b)(1), 16 U.S.C. § 1854(b)(1).

98. *Id.* § 304(c)(1)(B), 16 U.S.C. § 1854(c)(1)(B). Before amending the plan, the Secretary of Commerce must give the Regional Council opportunity to correct the plan's deficiencies. *Id.*

99. A foreign nation adversely affected by fishing quotas established under the FCMA might have standing to challenge the adequacy of the underlying optimum yield calculation. Legislative history of the FCMA indicates that Congress intended to give foreign nations the opportunity to seek review of fishery management plans. The present language of FCMA § 305 eliminates the House bill's requirement that only adversely affected states or citizens of the United States could request that public hearings be conducted to determine the adequacy of a fishery management plan. *Id.* § 305, 16

cluding foreign fishing from fisheries under United States control, disagreements are likely to arise between the Secretary of Commerce and the Councils over consideration of foreign policy in optimum yield calculations.[100]

2. *The FCMA's efficiency requirement*

A significant management objective of the FCMA is to promote efficient utilization of depleted[101] fishery resources.[102] The concept of optimum yield in the FCMA encompasses more than simply specifying the total allowable catch from a fishery; it incorporates a measure of the efficiency by which that quantity of fish is caught.[103] The congressional purpose of including efficiency in the criteria for establishing optimum yield was to provide consumers with the best product at the lowest price while insuring a fair return to fishermen.[104]

Efficiency is measured by analyzing the effort (or cost) required to harvest a certain amount of fish.[105] Generally, as fishing effort increases, the cost required to catch each additional fish increases.[106] Hence, the efficiency of fishermen exploiting a depleted fishery will

U.S.C. § 1855. Contrast this provision with H.R. 200, 94th Cong., 1st Sess. § 307 (1975), *reprinted in* LEGISLATIVE HISTORY, *supra* note 4, at 753, 803–06. Also, the term "person" as used in the FCMA is defined to include any foreign government or any entity of such government. FCMA § 3(19), 16 U.S.C. § 1802(19) (1976).

100. The Senate version of the FCMA originally provided for a "Fishery Management Review Board" which would hear disputes between the Regional Councils and the Secretary of Commerce relating to fishery management decisions. S. 961, 94th Cong., 1st Sess. § 204 (1975), *discussed in* S. REP. No. 94–416, 94th Cong., 1st Sess. 38–40 (1975), *reprinted in* LEGISLATIVE HISTORY, *supra* note 4, at 655, 694–97.

101. A fishery is defined as "depleted" when an increase in fishing effort causes a reduction in that fishery's annual yield. Development Sciences, Inc., *Working Paper No. 3, Marine Fisheries Stock Assessment: Issues and Needs* 11, in WORKING PAPERS, *supra* note 23. The Northwest Atlantic herring fishery is considered a good example of a depleted fishery. Vernberg, *Working Paper No. 4, A Short Analysis of Stock Enhancement Possibilities for Certain Commercially Important Marine Species* 14, in WORKING PAPERS, *supra* note 23; H.R. REP. No. 94–445, 94th Cong., 1st Sess. 95 (1975), *reprinted in* LEGISLATIVE HISTORY, *supra* note 4, at 1051, 1149.

102. The FCMA requires that "[c]onservation and management measures shall, where practicable, promote efficiency in the utilization of fishery resources; except that no such measure shall have economic allocation as its sole purpose." FCMA § 301(a)(5), 16 U.S.C. § 1851(a)(5) (1976).

103. *See* Data Needs for Determination of Optimum Yields, *supra* note 46, at 2.

104. S. REP. No. 94–416, 94th Cong., 1st Sess. 28 (1975), *reprinted in* LEGISLATIVE HISTORY, *supra* note 4, at 655, 684.

105. This is generally called a yield-effort analysis. *See, e.g.,* Development Sciences, Inc., *Working Paper No. 3, Marine Fisheries Stock Assessment: Issues and Needs* 9, in WORKING PAPERS, *supra* note 23.

106. *Id.*

decrease rapidly as the fishing effort increases. Conversely, their efficiency will increase as the total fishing effort decreases. Because the herring fishery has been heavily exploited by foreign vessels in the past, the efficiency of domestic herring fishermen in the Northwest Atlantic would increase if all foreign fishing in the area was prohibited. Secretary Kreps did not, however, discuss the effect of foreign fishing upon the costs incurred by the U.S. fishermen in harvesting herring.[107]

Future management plans which permit foreign fishing should consider whether such an allowance will decrease the efficiency of domestic fishermen and whether resulting increases in costs incurred by the fishermen will increase consumer prices.[108] Because an additional goal of the FCMA is to develop under-utilized fisheries,[109] management plans should also consider whether increasing the efficiency of a fishing industry will increase future investments in that industry.

IV. CONCLUSION

The FCMA's requirement that optimum yield provide the greatest overall benefit to the nation places a heavy burden on those

107. *See* PMP, *supra* note 15. Secretary Kreps did conclude that it is more economical for domestic fishermen to exploit the inshore fishery than the offshore fishery. *See* Maine v. Kreps, No. 77-45-SD, slip op. at 8 (S.D. Me. July 18, 1977). She did not, however, consider the effect of eliminating foreign fishing on this disparity. *See* PMP, *supra* note 15. Fishermen presented evidence to the Department of Commerce that lower costs would allow more fishermen to exploit the offshore fishery. Herring Fishery Hearings, *supra* note 16, at 182, 187. The fishermen also indicated that the allowance of foreign fishing had a negative impact on their incentive to harvest herring in the offshore fishery. *Id.* at 150.

108. Other economic considerations should include: regional employment fluctuations, impact on the income of those employed in the various sectors of the herring industry, and impact on expenditures in other industries, especially those with strong connections with the herring industry. Gates, *Working Paper No. 1, Economic Data Needs in Fisheries Management Under Extended Jurisdiction* 4, in WORKING PAPERS, *supra* note 23.

109. A stated purpose of the FCMA is "to encourage the development of fisheries which are currently underutilized by United States fishermen." FCMA § 2(b)(6), 16 U.S.C. § 1801(b)(6) (1976).

The North Atlantic herring fishery is considered a good example of an underdeveloped fishery. Gates, *Working Paper No. 1, Economic Data Needs in Fisheries Management Under Extended Jurisdiction* 43-44, in WORKING PAPERS, *supra* note 23.

The term "underdeveloped" should not be confused with the term "depleted." Depletion refers to the actual quantity of fish in a given fishery. On the other hand, underdevelopment refers to the percentage of the total annual catch from a fishery which is harvested by domestic fishermen. For example, U.S. fishermen accounted for only about three percent of the total 144,544 metric ton herring harvest from the offshore fishery in 1975. Atlantic Herring EIS, *supra* note 20, at 30. Thus, the herring fishery is both "depleted" and "underdeveloped."

preparing fishery management plans. Not only must a plan weigh stock-rebuilding needs against domestic fishing requirements, but it must also determine if overall benefit might be enhanced by decreasing a fishing quota in order to increase the harvest potential of another interrelated fishery. This would include a determination of a management plan's effect, if any, on fisheries outside U.S. control, such as the effect of limiting the herring harvest upon the abundance of both sardines and tuna. In addition, the "greatest overall benefit" goal of the FCMA allows consideration of the adverse effect that fishery management decisions might have on U.S. foreign relations. The influence of foreign policy must, however, be weighed against the countervailing goals of conserving fish stocks and increasing the efficiency of the domestic fishing industry.

The FCMA represents an important step toward the rehabilitation of our nation's fisheries. However, as is apparent from the preliminary management plan at issue in *Maine v. Kreps,* the largest obstacle to full compliance with the FCMA is lack of necessary data. Thus, the quality of future management plans will depend on the improvement of the data base from which those plans are prepared. Only after the Secretary of Commerce and the Regional Councils are able to accurately assess the multitude of factors which affect any given fishery can the concept of optimum yield envisioned by Congress be a successful basis for fishery management decisions.

William H. Beaver, Jr.