

NATIONAL AQUACULTURE ACT OF 1979

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MAY 15, 1979.—Ordered to be printed
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Mr. MURPHY of New York, from the Committee on Merchant Marine and Fisheries, submitted the following

REPORT

[To accompany H.R. 20]

[Including Cost Estimate of the Congressional Budget Office]

The Committee on Merchant Marine and Fisheries, to whom was referred the bill (H.R. 20) to provide for the development of aquaculture in the United States, and for other purposes, having considered the same, report favorably thereon with amendments and recommend that the bill as amended do pass.

The amendments are as follows:

On page 3, line 11, insert "(b)" before the word "Purpose."

On page 5, line 2, insert "a citizen of the Trust Territory of the Pacific Islands or of the Northern Mariana Islands," after "United States,".

PURPOSE OF THE LEGISLATION

The purpose of this legislation is to promote aquaculture in the United States by establishing a National Aquaculture Plan which would coordinate domestic programs and increase the availability of fisheries resources.

To accomplish this purpose, the legislation directs the Secretary of Commerce to establish a National Aquaculture Development Plan which will identify those aquatic species with a high potential for culturing on a commercial basis. For each identified species, the plan will set forth a development program.

To further assist in promoting aquaculture, the legislation authorizes the Secretary of Commerce to make available development capital by establishing a loan guarantee program for the construction and operation of aquaculture facilities and for the acquisition of stocks of aquatic species. Also, the Secretary may establish an all risk insurance program covering such facilities and stocks.

LEGISLATIVE BACKGROUND

H.R. 20 was introduced on January 15, 1979, by Mr. Murphy of New York, Mr. Breaux, and Mr. Forsythe. Additional cosponsors of H.R. 20 are Mr. Pritchard, Mr. Biaggi, Mr. Ginn, Mr. Young of Alaska, Mr. Bauman, Mr. AuCoin, Mr. D'Amours, Mr. Lent, Mr. Hughes, Mr. Emery, Mr. Evans of Delaware, Mr. Akaka, Mr. Chappell, Mr. Weaver, Mr. Tribble, Mr. Stack, Mr. Hutto, Mr. Studds, Mr. de la Garza, and Mr. Evans of the Virgin Islands.

Joint hearings were held on the legislation by the Subcommittee on Fisheries and Wildlife Conservation and the Environment and the Subcommittee on Oceanography on April 5, 1979.

In the 94th Congress, Mr. Chappell and 27 other Members of the House introduced H.R. 370 and identical bills. The bills would have required the Secretary of Commerce to establish national objectives for aquaculture development in the United States and to coordinate all levels of aquaculture activity in the United States to ensure that such activities were consistent with the established national objectives. Approximately \$7 million per year would have been authorized to be appropriated for carrying out the purposes of that legislation. Eight days of hearings were held on this legislation.

Subsequent to the conclusion of the hearings on H.R. 370, the staff of the Subcommittees consulted with representatives of the Departments of the Interior and Commerce with a view toward drafting a bill that would incorporate the insights gained from the hearings; the ideas contained in a report prepared by the Congressional Research Service at the request of the Subcommittees; the concepts learned from visits to aquaculture facilities throughout the United States and from attendance at the World Conference on Aquaculture in Japan; and pertinent suggestions obtained from knowledgeable persons representing industry, universities, and local, State and Federal governments. The amended draft was subsequently introduced in the form of H.R. 14695. No action was taken on this bill during the 94th Congress.

Early in the 95th Congress, H.R. 1833, a bill identical to H.R. 14695 was introduced. The Departments of Commerce, Interior and Agriculture in their testimony on H.R. 1833 supported the intent of the legislation. However, each Department took the position that the bill was unnecessary.

After giving careful consideration to the evidence presented at the hearings the Departmental Reports, and the suggestions of persons from both the public and private sectors, the Subcommittees on September 15, 1977, ordered reported to the Full Committee H.R. 1833, with amendments, and a clean bill was ordered to be introduced. The new bill became H.R. 9370.

The following is a brief explanation of H.R. 9370 of the 95th Congress, as it was reported to the House:

The Secretary of Commerce, in consultation with the Secretaries of the Interior and Agriculture, the chief executive officer of any other Federal agency, and any appropriate Regional Fishery Management Council and State agency, would be required to establish a National Aquaculture Development Plan within one year.

The Secretary of Commerce would be required in developing the plan to identify each aquatic species which the Secretary determines

can be cultured on a commercial basis. Each of the Secretaries would be required to implement any program under his jurisdiction.

The Secretary of Commerce would be required to establish and maintain an Aquaculture Information Center. An Interagency Committee on Aquaculture would be established with the Secretary as Chairman. The Secretary would be authorized to guarantee loans up to \$500 million, and to establish an insurance program (total face value not to exceed \$1 billion).

There would be authorized to be appropriated not to exceed \$72 million for the Secretaries to carry out their respective responsibilities under the act, other than the assistance programs.

H.R. 9370, as it finally passed the House and Senate, was pocket vetoed by the President on October 19, 1978.

The bill, as it was sent to the President, would have created a National Aquaculture Council composed of the Secretaries of Commerce, Agriculture, and the Interior and a Coordinating Committee composed of those Secretaries and the other Department and agency heads involved with aquaculture. Chairmanship of the Council would rotate among the three Secretaries at 2-year intervals. The Council would be required to conduct an assessment and draw up a national aquaculture development plan within 18 months and to identify aquatic species which could be cultivated on a commercially viable basis. The appropriate Secretary, or any combination of them, would then be required to prepare programs for the relevant research and development of the species.

An aquaculture information center would have been established to serve as a national clearinghouse for related information. The Coordinating Committee, under the rotating chairmanship of the Council members, would insure coordination and a continuing exchange of information among all Government agencies whose actions affect aquaculture. The bill would also have authorized the Secretaries to make research grants to, or to contract with, any entity to help carry out their responsibilities under the Act.

The bill provided for a total of \$66 million to carry out the above provisions over the three years beginning with fiscal year 1980.

In addition, the Secretaries of Commerce and Agriculture were authorized to guarantee loans totaling \$300 million and to establish an insurance program to cover stock, property and liability risks when insurance is not available at reasonable rates in the private market. No insurance could be issued after the 3-year period ending September 30, 1982, and the total face value of such insurance could not exceed \$250 million.

In the President's veto message, he pointed out that while the underlying purpose of the bill was sound he was concerned that the programs established by the bill were premature and that the need for such programs should be more carefully assessed. In particular, he said that he was concerned about offering major new government subsidies such as the loan guarantee and insurance programs called for by the bill, unless and until a clear need for such programs had been established. The President also questioned the need for new legislation, since many Federal agencies are presently involved in aquaculture development efforts.

It is true that many Federal agencies are presently involved in aquaculture development. In fact, the subcommittees during their investigation discovered that at present 11 Federal agencies are directly involved with aquaculture and some 10 other agencies have programs which are indirectly related. Any coordination that has taken place thus far has been primarily to avoid undesirable overlaps. However, far more serious than the overlaps have been the gaps stemming from the lack of proper coordination and direction.

During the hearings in the 95th Congress, the subcommittees also discovered a number of other impediments to the development of aquaculture. Technical and economic information on certain species having potential for aquaculture were lacking. Both the aquaculture industry and researchers indicated more funds should be devoted to support overall aquaculture research. There is a general feeling in the venture capital sector that aquaculture has been tried and does not work, thereby making it difficult to raise private capital. This feeling has come from the past failures due primarily to natural disasters, disease, lack of operating capital and an absence of technical and economic data. The Small Business Administration (SBA) and the Farmers Home Administration (FmHA) both lent money to aquaculture enterprises, but the SBA has a very inadequate loan limit, and the FmHA does not lend to new technology, high-risk businesses.

The bill sent to the President had the support of the shellfish industry, the catfish industry, the fresh water trout industry, and all other fishermen in general, except the Pacific salmon fishermen, who were fearful that large, private salmon producers would adversely affect their industry. The intent of the bill had the support of the Departments of Commerce, Agriculture, and the Interior, but in their testimony on the legislation each Department took the position that the bill was unnecessary.

On January 15, 1979, H.R. 20 was introduced to overcome these obstacles and to provide for the establishment of a viable aquaculture development program.

The bill closely parallels the bill vetoed by the President, but changes have been made to the bill to meet some of the concerns expressed by the President and other interested persons. Where differences exist, the provision of the vetoed bill appears in parenthesis in the following synopsis.

Briefly explained, H.R. 20, as ordered reported by the Committee, would require the Secretary of Commerce, in consultation with the Secretaries of Agriculture and the Interior (a National Council composed of the three Secretaries), to prepare a national aquaculture development plan within 18 months and to identify aquatic species which can be cultivated on a commercially viable basis. The appropriate Secretary, or any combination of them, would then be required to prepare research and development programs for these priority species.

All aquatic species of fish will be covered by the legislation, including salmon, but private ocean ranching of Pacific salmon for profit would be excluded from its coverage in those States where such ranching is prohibited by law.

An aquaculture information center, established by the Secretary of Commerce (National Council), would serve as a national clearing-

house for aquaculture information. An interagency committee, under the leadership of the Secretary of Commerce (Chairman of the Council), would be established to insure coordination and a continuing exchange of information among all Federal Government agencies whose actions affect aquaculture.

To implement the development program, the three Secretaries are authorized to make research grants or contracts. There are authorized to be appropriated \$65 million (\$66 million) over a three-year period to carry out these provisions of the bill. In addition, the Secretary of Commerce is authorized to guarantee loans totaling \$150 million (\$300 million) and to establish an insurance program to cover stock, property and liability risk when such insurance is not available at reasonable rates in the private market. The total face value of such insurance could not exceed \$125 million (\$250 million) and no insurance could be issued after the 3 year period ending September 30, 1982. Premium rates could not be less than 60 percent of actual rates for such insurance.

The President, in his veto message in the 95th Congress, indicated that his Administration would continue to assess the needs of the aquaculture industry and that he would review existing programs in the hope that agreement could be reached with the Congressional sponsors of the bill. Recent Administration activities designed to enhance Federal aquaculture programs of research, development, transfer, and assistance are as follows:

1. The establishment of a Joint Subcommittee on Aquaculture.
2. The preparation of a national aquaculture plan—final draft is scheduled for September 1979.
3. The development of a study on the needs of the aquaculture industry of Federal, State, and local laws and regulations which combine to inhibit the initiation and successful operation of aquaculture enterprises—results of study scheduled for September, 1980.
4. An interagency development of a study of the extent and character for financial assistance, and the nature and magnitude of existing private and public financial assistance programs—results of study scheduled for September, 1980.
5. The preparation of a memorandum of understanding (MOU) defining the primary area of responsibilities in aquaculture of the Departments of the Interior, Commerce, and Agriculture.

After developing legislation over a period of four years that subsequently passed both the Houses of the Congress but was vetoed by the President, the committee is delighted to learn that an interagency coordinating committee has been established and that the studies and plan called for by the legislation are underway.

Nevertheless, the committee still feels that it should go forward with legislation in the form of H.R. 20 as the interagency coordinating committee, the studies, and the plan can be easily modified to meet the requirements of the legislation. In the meantime, the legislation can assist in developing aquaculture in the United States.

On May 3, 1979, the committee unanimously ordered reported to the House H.R. 20, with amendments.

Other than making a technical change, the bill was amended to include in the definition of "person" a citizen of the Northern Mariana Islands or the Trust Territory of the Pacific Islands.

BACKGROUND AND NEED FOR THE LEGISLATION

I. History

Aquaculture, the cultivation of aquatic plants and animals, in marine, brackish, and fresh water, is relatively new to the Western world. It is, however, one of the most ancient of applied sciences in the Middle Eastern and Asian countries. Some authorities believe that simplistic aquaculture practices date back as far as 2000 B.C. with the culturing of carp in China being documented as early as 475 B.C.

The first efforts in American aquaculture involved the collection and transfer of fertilized eggs, and juvenile and adult fish into depleted waters in order to renew breeding stocks. The need for a Federal fish conservation program was officially recognized in 1871 with the creation of the position of U.S. Commissioner of Fish and Fisheries and in 1878 the Commissioner began an artificial propagation program because of decreases in the catch of marine fish off the Atlantic Coast. In 1885, the first commercial marine hatchery in the United States was built at Woods Hole, Massachusetts.

Two other hatcheries were built in New England in 1905, and by 1950 these hatcheries had released three billion juvenile fish. By 1973, the U.S. Fish and Wildlife Service was operating 90 hatcheries: 49 for trout and salmon, 19 for warm water species, and 22 for various combinations.

Since the 1950's, the U.S. aquaculture effort has expanded well beyond the earlier hatchery concept and considerable effort has been directed toward rearing marine species past the period immediately following hatching. Such an approach has required the development of artificial environments and nutrient mixes that promote the growth and the survival of larval and juvenile fish.

The passage of time has seen the aquaculture industry focus on culturing oysters, mussels, shrimp, catfish, trout, clams and other marine species, and today several species of marine fish, mollusks and crustaceans have been successfully reared in aquaculture facilities.

II. World aquaculture production

According to reliable sources, world wide output from aquaculture has approximately doubled during the last five years and now amounts to some 6 million metric tons (13.2 billion pounds), or roughly 10 percent of world fisheries production. Some countries already rely on aquaculture for over 40 percent of their total fisheries supply and expect the production from aquaculture to further increase. A survey of aquaculture throughout the world revealed significant activity in such nations as China, Czechoslovakia, Russia, Poland, and Japan.

China, which leads the world in the production of fin fish, produces by aquaculture more than 50 times the aquaculture production of the United States. Russia, which also occupies a leading position in aquaculture production, is placing increased emphasis on such production each year. The Russian emphasis is increasing for two fundamental reasons: (1) an expectation that the future return from conventional fisheries operation will not keep pace with future domestic demand for fisheries products; and (2) technological and methodological advances in marine biology, genetics, ecology, and engineering have facilitated the rapid advancement of aquaculture within the Russian economy.

Japan also supports a large and ambitious aquaculture program. Increasing fishing cost, the establishment of 200-mile fisheries zones and a growing demand for fish products have prompted Japan to become one of the most advanced countries in the field of aquaculture. Today the Japanese aquaculture industry is producing a significant and increasing percentage of that nation's total fishery production. In 1965, for example, aquaculture accounted for over 6 percent of Japan's total fish and shellfish production. The comparable U.S. figure was less than one-half of 1 percent. In 1970, the respective Japanese and U.S. figures were 6.8 percent vs. 1.8 percent; in 1974 9.6 percent vs. 3.6 percent; and in 1975, approximately 10 percent vs. 3 percent. Total Japanese aquaculture production in 1974 was more than 11.5 times that of the United States.

In 1977, Japan embarked on a 7-year coastal fisheries development program and allocated \$333 million—about half of the estimated total cost—to developing aquaculture. Canada, which has also embarked on an ambitious aquaculture development program, has committed herself to a \$300 million program aimed at restoring British Columbia salmon stocks. Mexico has launched a \$1 billion fisheries program, of which more than \$200 million will be allocated to aquaculture.

III. Aquaculture in the United States

In contrast to the production in some nations, aquaculture activities in the United States have been small and insignificant for many years. Currently, the U.S. aquaculture industry accounts for only three percent of all fish and shellfish consumed domestically. On an annual basis the U.S. aquaculture industry is producing 48 million pounds of catfish; 2.6 million pounds of clam meats; 10 million pounds of crawfish; 17,000 pounds of fresh water prawns; 20 million pounds of oyster meats; 1 million pounds of pen cultured salmon; 60 million pounds of hatchery released salmon; 800,000 pounds of shrimp; and 30 million pounds of trout.

A report prepared by the Library of Congress indicated that aquaculture in the United States has grown only slightly during the period 1970-74, and insignificantly compared to aquaculture activities in other parts of the world.

IV. The demand for and supply of seafood

In the United States, most traditional fisheries resources are already being harvested at or near maximum sustainable yield levels. Despite this fact, it is expected that the demand for seafood products in the United States will increase 80 percent by the year 2000. Even allowing for the introduction of nontraditional species in domestic markets the amount of seafood which will be available to meet domestic demand will probably be severely limited.

World fishery resources, once thought to be almost unlimited are now estimated to have a maximum sustainable global harvest level of 100 to 150 million metric tons (220 to 330 billion pounds) per year. More conservative estimates rarely exceed 100 million metric tons. Considering the fact that in recent years the world catch has fluctuated between 60 and 70 million metric tons per year and given the rapid increase in the world's population and the corresponding rise in food demand, the National Oceanic and Atmospheric Administration believes that a worldwide shortage of fisheries products can be expected

within three to ten years. In this regard it is noteworthy that the Food and Agriculture Organization of the United Nations has suggested that increased aquaculture production can and should make a major contribution to alleviating projected would shortages of seafood.

V. *The U.S. seafood balance of payments deficit*

In 1977 the United States imported 4,514 billion pounds (round weight) of edible commercial fishery products (60.9 percent of the total U.S. supply) which had a value of \$2.078 billion. In the same year the U.S. imported 867 billion pounds of industrial fishery products which represented 27.4 percent of the total U.S. supply. These imports had a value of \$542 million. U.S. exports of fish in 1977 amounted to 331.1 million pounds of edible fishery products valued at \$520.5 million.

For those species which have a potential for aquaculture, the United States currently expends almost \$800 million annually on imports (See table 1). The demand for these products, coupled with the relatively static supply of domestic products and the yearly inflation in fishery product costs, requires one to predict that their value and poundage will increase in the future.

TABLE 1.—U.S. IMPORTS OF SPECIES WHICH HAVE A POTENTIAL FOR AQUACULTURE

	Pounds imported (thousands, on a product weight basis)	1976 value of imports (thousands)
Catfish.....	10,261	\$5,432
Clams.....	2,132	1,481
Freshwater prawns.....	0	0
Lobster.....	15,856	47,147
Salmon.....	10,344	16,790
Scallops.....	25,253	53,016
Shrimp.....	229,810	463,344
Spiny lobsters ¹	48,495	207,488
Trout.....	642	616
Total.....	342,793	795,314

¹ This species has yet to demonstrate its aquaculture potential.

Source: "Fisheries of the United States, 1976."

VI. *The potential for aquaculture in the United States*

A Library of Congress report prepared at the request of the Subcommittees projected that the annual per capita consumption of seafood products in the United States would increase from 12.9 pounds per year in 1976 to 15.2 pounds per year by the year 2000. This compares to the world per capita annual consumption of about 24 pounds, ranging from less than one pound in Afghanistan to over 79 pounds in Japan and Iceland.

The projected increase in the United States per capita seafood consumption indicates that a good market potential exists for aquaculture production in the United States, particularly since there is a high demand for the species likely to be produced. For example, between 1975 and 1980, the demand for domestic shrimp is projected to increase by 13 percent (55 million pounds), and by the year 2000 to increase fully 79 percent over 1975. For salmonids, demand at the turn of the century is projected to be 75 percent over 1975, and for catfish,

84 percent. For all fish and shellfish it is projected that U.S. demand will increase by 80 percent by the year 2000.

Proven techniques for rearing trout, salmon, catfish, and oysters are well known and a review of production records for these species provides a basis for estimating their potential for expansion. The aquaculture production of rainbow trout, for example, has increased from just over one million pounds (450 metric tons) in 1954 to over 30 million pounds (13,600 metric tons) in 1972. With adequate markets and acceptable feed prices, production could be doubled in the next decade.

Although oyster production in the United States has decreased during recent years and imports have increased, private oyster farmers produce twenty million pounds (9,000 metric tons) of meats annually. Production through private aquaculture could be increased by a factor of 10 in many places by suspending oysters above the bottom, a method used in Japan and experimentally tested in the United States, particularly in Maine. With adequate markets at satisfactory prices, private oyster production could be quadrupled during the next decade.

For nearly one hundred years, the salmon fishery has been enhanced by public aquaculture (hatcheries) and more than one quarter of our salmon, 60 million pounds (27,000 metric tons), now originates in these hatcheries. Over one-half of the Columbia River salmon caught by commercial and sport fishermen are reared in hatcheries. The landings of Pacific salmon could be greatly increased by expanding public aquaculture. Federal and state salmon culture experts estimate that landings attributable to public hatcheries could be increased by 50 percent during the next decade if funds were made available for expanding hatchery production.

The economic value of the public enhancement of the salmon resource can be shown by an examination of the Alaskan salmon fishery. The annual harvest of Alaskan salmon formerly exceeded 100 million salmon, but recent annual harvests have yield only 25 million with a wholesale value of \$225 million dollars. Due to the multiplier effect, economists indicate that the "new" dollars which a full harvest of 100 million salmon would represent would turn over four times in the Alaskan economy. Thus, approximately \$1 billion of additional economic activity could be generated by the enhancement of this resource.

In order to return the Alaskan salmon fishery to its former abundance, Alaska has invested approximately \$25 million in state salmon hatcheries and an additional \$25 million bond issue was recently approved. The legislature has also approved a measure to provide \$200 million in state moneys for loans to the private sector, primarily to organizations of fishermen, to construct salmon hatcheries.

Private salmon aquaculture, a new industry based on technology developed from public hatcheries, has taken two forms: (1) production of pan-sized or yearling salmon in floating net pens or in seawater ponds; and (2) ocean ranching in which juveniles are released to feed in the ocean and are recaptured when they return as adults to spawn. Private salmon aquaculture with both the net pens and ocean ranching or release return systems is just beginning, but already there are several such ventures in Washington, Oregon, California, and Maine and several are in the planning stage in Alaska. Production, which was less than one million pounds in 1974, could exceed 80 million pounds

by 1985 if certain production problems can be solved and if markets remain attractive.

Private catfish farming has been a viable American industry for several years. About 2,000 farmers and 12 processing firms located in 13 southern states produced over 50 million pounds round weight (1973). With satisfactory profit potential, the industry could at least double its present production by 1985.

In Hawaii, there are a number of aquaculture programs underway involving species such as freshwater prawns, mullet, milkfish, shrimp, moi, baitfish, oysters and clams. The State of Hawaii has launched an expanded aquaculture program, committing over \$5 million to the program during 1977.

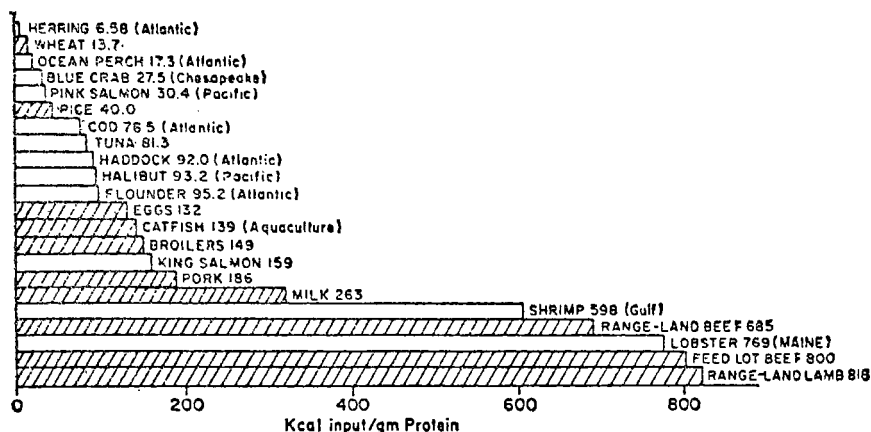
Although aquaculture in the United States has concentrated largely on species in high demand and limited supply, aquaculture need not be restricted to these species. Fish such as buffalo fish and various species of carp can be reared in ponds and processed into an acceptable low-priced food product. Supplies of such low-priced fish products exceeding United States needs could be preserved for later use in world famine areas or in the United States should an animal protein shortage develop.

The extension of the fishery jurisdiction of the United States to 200 miles also increased the potential for aquaculture. Although the 200-mile jurisdiction will provide an opportunity for U.S. fishermen to increase the landings of certain domestic species, fishermen will be unable to increase the landings of those species which are already being harvested at their maximum sustainable yield. The Committee believes the projected increase in demand for such species can largely be met through aquaculture (including restocking) in U.S. waters, thereby avoiding the competition for a limited resource in a multi-nation high seas fishery.

VII. Energy efficiency

The rapidly increasing energy costs of existing forms of food production suggest that additional methods of food production should be investigated. In light of the overall conversion efficiencies of aquatic species, aquaculture could play a more significant role in national food production. (See table 2). Fish production, including aquaculture, has a relatively low energy requirement when compared to other food products such as meat. As the U.S. adapts to higher prices for fossil fuels, energy efficient forms of food production, especially seafood products will receive more attention.

TABLE 2



Energy used to produce a gram of protein in unprocessed foods. The seafood values are from Table 1, column 1, and from the U.S. Department of Agriculture Handbook No. 8 (revised 1963, reprinted 1975) (grams of protein for whole raw seafood). Shaded bars from Pimental.

Source—Mary Lavitscher and Jean Mayer, 1977, "Nutritional Outputs and Energy Inputs in Seafood." *Science* 198, October 21, 1977, 261-264.

A major factor affecting the overall energy efficiency of aquaculture is the relatively efficient rate at which aquatic species convert dry food into edible animal protein containing the essential amino acids. For example, trout and salmon aquaculture has demonstrated food conversion ratios of approximately 1.1 pounds of dry food to 1 pound of fish product. The conversion factor for other food production systems is as follows: livestock feedlots, 10 to 1; swine production, 5 to 1; and poultry production, about 2 to 1.

VIII. Factors limiting the development of aquaculture

The Library of Congress report indicates that the stages in the development of commercial aquaculture are: (1) basic scientific and technological research; (2) experimental (applied) research and development; (3) preliminary economic assessment; (4) pilot or demonstration plant activity; and (5) economic assessment. With the exception of a few species such as catfish, trout and salmon commercial aquaculture has not progressed beyond step 3. Many species with potential have progressed to the experimental research and development stage, but have not progressed any farther partially due to lack of the necessary investment capital. Without completion of the last three stages industry has been very reluctant to invest in this developing field.

Other factors limiting the development of aquaculture may be identified by reviewing the submitted written material and the testimony that was presented at the committee hearings on this legislation during this Congress and the 95th Congress. Some of the factors which emerged were:

a. *Inadequate information.*—Testimony received from the industry indicated that technical or economic information on certain species

having potential for aquaculture is lacking. Consequently, industry has been reluctant to invest in these species. Researchers testified that in order to develop the necessary information prototype facilities are necessary.

b. *Inadequate funding.*—Both the aquaculture industry and those persons involved in aquaculture research indicated that more funds should be devoted to support aquaculture research. It was emphasized that the funds should be in addition to those now being spent and that ongoing activities should not be sacrificed.

c. *Marketing practices.*—Industry expressed the general position that more work should be done on marketing of aquaculture species; especially trout, catfish and salmon. It was felt that marketing increases would provide the incentives to further develop the industry.

d. *Existing funding sources.*—There is a generalized feeling in the venture capital sector that aquaculture has been tried many times and doesn't work. Past failures have resulted from natural disasters, disease, a lack of operating capital, and an absence of technical or economic data. Individuals or small companies wishing to enter the field of aquaculture have generally been unable to obtain the necessary venture capital from the private sector due to this over-generalized reputation.

Financial assistance programs available within the Federal sector also have been inadequate. For example, the Small Business Administration (SBA) has established an administrative limit of \$150,000 on most direct loans and guarantees. Given the fact that an aquaculture facility can cost several million dollars, it is clear that existing SBA programs do not provide an adequate source of investment capital. In fact, the level of aquaculture loans made by SBA in 1975 and 1976 clearly point up the inadequacy of their programs. In 1975, eight regular business aquaculture loans were made totaling \$185,000 and only two such loans totaling \$26,000 were made in 1976.

Furthermore, aquaculture loan programs administered by the Department of Agriculture are restricted to businesses where the technology is established and proven. Thus far, aquaculture technology has been established for only a very few species, and therefore, the number of loans the Department has made to this industry is extremely small. For example, the Farmers Home Administration (FmHA) of the Department of Agriculture makes farm ownership and operating loans to farmers for the production of fish, but only under controlled conditions such as in ponds and pens. Also, it makes emergency loans to aquaculture operators. However, because of its reporting system, FmHA was unable to provide any detailed information on these loans.

Under its Business and Industrial loan program FmHA loaned only \$7.6 million during fiscal years 1975 and 1976 to aquaculture related operations. It is noteworthy that of the seven loans made during this two-year period only two were for production: one for shrimp in Florida in the amount of \$1,175,000 and the other for oysters in Delaware in the amount of \$100,000. The remainder of the loans was for processing and storage of fisheries products.

Consequently, the aquaculture industry as presently constituted, is in dire need of venture capital which these Federal programs fail to provide.

e. *Existing laws and standards.*—A problem that was identified for almost all species was the EPA standards for waste water discharge. Witnesses stressed the need for interaction with EPA to develop a climate that will foster the development of aquaculture.

f. *Insurance.*—Testimony from the aquaculture industry indicated that every five to ten years an aquaculture facility will be struck with a severe, unforeseeable stock loss. Generally, insurance to protect against this loss is not now available or, if it is, only at a prohibitively high premium rate.

g. *Lack of trained personnel.*—There was a general feeling in both academia and industry that there was a scarcity of trained personnel to relate to industry.

h. *Water resource development.*—This point has two subsections. First, it is generally felt that it is essential to insure adequate water quality for aquaculture facilities. Second, the protection of land along the coast and adjacent to rivers and lakes from infringement from other land uses such as condominiums, boat harbors and marinas is critical when these lands are appropriate for aquaculture.

i. *Duplication and lack of coordination among Federal agencies.*—Within the Federal Government, there is inadequate coordination among the several agencies conducting aquaculture programs. There is also a lack of leadership, an absence of definitive goals and no clear cut division of responsibilities.

Eleven Federal agencies have been identified as having direct involvement with aquaculture, and some ten other agencies have programs that are indirectly related. The principal Federal aquaculture investments during 1975 in research and development were in the following Federal agencies: Department of Commerce, \$6.9 million; Department of the Interior, \$4.3 million; Department of Agriculture, \$750,000; and Environmental Protection Agency, \$50,000. The Department of Commerce programs are carried out by three agencies: Office of Economic Development, \$700,000; National Marine Fisheries Service, \$2.4 million; and the Office of Sea Grant, \$3.8 million.

Several of these departments and agencies have conducted research and development within the framework of specific missions, yet any coordination that has taken place has been primarily to avoid undesirable overlaps. However, far more serious than the overlaps have been the gaps which result, because of the lack of proper coordination and direction.

Many State and local agencies, regional commissions and universities are also involved to some degree in aquaculture. Generally, each of these entities has taken its own direction, often without regard to the activities of the others involved.

The committee believes that what is needed in order for aquaculture to achieve its full potential in the United States is the development of a national policy and a national plan for carrying out such a policy, with one agency—namely, the Department of Commerce—spearheading the plan. It is only in this way that the necessary coordination among the various Federal, State and local agencies, universities, and others involved in aquaculture can ever be achieved.

IX. The NOAA plan

In 1977, the National Oceanic and Atmospheric Administration (NOAA), of the Department of Commerce, formulated a national

aquaculture plan. The plan called for increasing the NOAA aquaculture program from the 1976 level of \$6.4 million to about \$19 million by 1979 and continuing at that level for another decade. Thereafter, funding for the program would decrease gradually to about \$5 million per year and continue at that level for perhaps another ten years. Yet, because of funding problems, environmental and legal restraints, other Governmental regulations and less than enthusiastic administration support, the plan has not become a reality.

What the bill does: Section-by-section analysis

As indicated in the legislative background of the report, the committee ordered H.R. 20 reported to the House with amendments.

There follows a section-by-section summary of H.R. 20 accompanied by discussion, where appropriate.

Section 1 provides that this Act may be cited as the National Aquaculture Act of 1979.

The Congressional findings contained in Section 2(a) note that there is an extensive seafood market in the United States, that the U.S. already imports over 50 percent of its edible fish and shellfish, that certain stocks of fish and shellfish of importance to the U.S. are depleted or are declining, that aquaculture has the potential for helping to provide U.S. consumers with high-quality aquatic foods, that serious food shortages exist in many parts of the world, that current efforts to develop aquaculture in the United States are diffuse and that the development of aquaculture in the United States has been inhibited by a number of factors including the inability of the aquaculture industry to obtain adequate capital and a reliable source of seed stock.

Section 2(b) states that it is the purpose of the National Aquaculture Act of 1979 to promote aquaculture in the United States by declaring a national aquaculture policy by establishing and implementing a national plan for aquaculture and by developing programs and encouraging activities which will result in the coordination of domestic aquaculture efforts, the conservation and increased availability of fisheries resources, the creation of new industries and job opportunities and other national benefits.

Section 2(c) notes that aquaculture has a high potential for augmenting existing commercial and sport fisheries, for providing aquatic protein to meet the present and future food needs of the U.S. and for contributing to the solution of world food problems. Section 2(c) therefore declares it to be the national policy to encourage the development of aquaculture in the United States.

Section 3 defines the terms used in the legislation. "Aquaculture" is defined as the propagation and rearing of aquatic species in controlled or selected environments, including ocean ranching except private ocean ranching of Pacific salmon for profit in those States where such ranching is prohibited by law. It should be noted that the State of Washington prohibits such ocean ranching for profit. The term "aquaculture facility" means any land, structure, or other appurtenance located within the United States which is used for aquaculture, including but not limited to any laboratory, hatchery, rearing pond, raceway, pen, incubator, or other equipment. The term "aquatic species" means any species—native or introduced—of finfish; mollusk; crustacean or other aquatic invertebrate; amphibian, reptile, or aquatic plant.

Section 4 provides for the establishment of a National Aquaculture Development Plan and clearly establishes the Department of Commerce as the lead Federal agency in coordinating and implementing this nation's aquaculture program. Section 4(a) directs the Secretary to develop the plan no later than 18 months after the date of enactment of the Act. In carrying out this responsibility the Secretary is directed to consult with the Secretary of the Interior, the Secretary of Agriculture and the chief executive officer of any other Federal agency, any appropriate Regional Fishery Management Council, and any appropriate State agency. The Secretary may, if she deems it appropriate, establish an advisory committee to assist in the initial development of the plan. The members of any such committee shall be knowledgeable or experienced in the principles or practices of aquaculture.

Section 4(b) provides that the National Aquaculture Development Plan shall identify those aquatic species which have the potential for culturing on a commercial basis or on any other basis (such as for publicly financed hatchery programs). For each such species, the plan shall contain a detailed aquaculture development program specifying those actions which the Secretary of Commerce determines should be undertaken to overcome the obstacles to the commercial or other development of that species. These actions could include: aquaculture facility design and operation; water quality management; use of waste products, including thermal effluents; nutrition and the developing of economical fees; processing and market development; development of adequate supplies of seed stock; and such other actions relating to research and development, technical assistance, demonstration, extension education, and training as it is deemed necessary and appropriate.

In establishing the aquaculture development program for each species, the plan is required to specify those actions that the Secretary determines should be undertaken and the time period within which each action should be completed by the Secretary or Secretaries, acting individually or jointly, having the responsibility for implementing the action. Secretarial responsibility would be required to be determined on the basis of the responsibilities conferred under existing authority and the experience, expertise, and appropriate resources that the Department of each such Secretary may have with respect to the action required.

A major problem which has plagued Federal aquaculture efforts has been the lack of coordination and direction. H.R. 20 remedies this deficiency by clearly vesting the responsibility for developing a National Aquaculture Plan with the Secretary of Commerce and by authorizing the Secretary to coordinate and direct the implementation of that plan.

After the national aquaculture development plan is prepared, the Secretary of Commerce, pursuant to section 4(d) is to review, on a periodic basis, each aquatic species not identified in the plan to determine if that species should be so classified. One periodic reviews are also to focus on each aquaculture development program to determine if that program should be continued and, if so, what modifications, if any, should be made.

Section 4(e) requires the Secretary to carry out a continuing assessment of aquaculture in the United States for the purpose of maintaining a complete profile for the aquaculture industry and the individuals

and institution involved in all aspects of aquaculture. An initial assessment is required to be completed within six months.

Section 5 sets forth the functions and powers of the Secretary of Commerce, the Secretary of the Interior, and the Secretary of Agriculture. Section 5(a) provides that in implementing any action under an aquaculture development program, each of the Secretaries, as the case may be, shall provide advisory, educational, and technical assistance (including training) to interested persons; consult and cooperate with interested persons, Federal and State agencies and regional commissions regarding the development of aquaculture; encourage the implementation of aquaculture technology; and prescribe necessary regulations.

Section 5(b) provides that in implementing any aquaculture development program either of the Secretaries may conduct scale tests of any aquaculture facility and if necessary for such tests, construct, operate and maintain pilot aquaculture plants; develop methods to enhance aquatic species by aquaculture; carry out such research as may be necessary and appropriate; produce, and sell at cost, seed stock for aquaculture species when privately produced seed stock is unavailable, unreliable, or insufficient to meet production or research needs; and take such other actions as may be necessary.

In addition to her other functions under this act, section 5(c) requires the Secretary of Commerce to establish and maintain an Aquaculture Information Center for the collection, analysis and distribution of scientific and other information regarding aquaculture and to exchange information relating to aquaculture with foreign nations. The Secretary shall also conduct appropriate information surveys. Any information submitted to the Secretary shall remain confidential, except that the Secretary may release the information in a summary form which does not reveal the identity of the business or person submitting the information. However, the information collected by the Secretary may be disclosed under court order and it may be released to the public in aggregate or summary form provided the identity of the individuals involved and trade secrets are protected. Section 5(d) requires the Secretary to submit a report on the results of this study with recommendations as deemed appropriate, to the Congress no later than October 1, 1981, and every 2 years thereafter.

Section 5(e) authorizes the Secretary of Commerce, the Secretary of the Interior and the Secretary of Agriculture to accept any gift, temporary donation, or devise or bequest of real or personal property, for use in carrying out their designated functions.

Section 6(a) provides for the establishment of an Interagency Coordinating Committee on Aquaculture. The Interagency Committee is to be comprised of the Secretary of Commerce, who shall be the Chairman, the Secretary of the Interior, the Secretary of Agriculture, the Administrator of the Environmental Protection Agency, the Secretary of Energy, the Commissioner of Food and Drugs, the Administrator of the Small Business Administration, the Chief of Engineers, and the Governor of the Farm Credit Administration. Section 6(b) states that the Committee is to have two functions—first, to insure that there is a continuing exchange of information among Federal agencies regarding programs which may impact on aquaculture and second to determine whether Section 6(c) is being implemented. Under section 6(c)

each Federal agency administering programs which may affect the achievement of the objectives of this Act shall, to the maximum extent practicable, carry out that program in a manner consistent with the purposes of this act.

Section 7(a) authorizes the Secretary of Commerce, the Secretary of Agriculture, and the Secretary of the Interior, to carry out any program that such Secretary is responsible for implementing under the Plan through grants to, or contracts with, any person, any other Federal department or agency, any State agency, or any regional commission. Section 7(b) prohibits any contract from being entered into or any grant from being made if such contract or grant would be in violation of any applicable State or local law. Section 7(c) limits any grant made pursuant to this section to 50 percent of the estimated cost of the project involved.

Section 8 would authorize the Secretaries of Commerce, the Interior, and Agriculture to provide financial assistance in the form of grants, not to exceed 50 percent of the cost, in carrying out demonstration projects. A demonstration project is defined to mean a project that would demonstrate in a practical manner the procedures, techniques, application, design, construction, operation, equipment and facilities that would be useful and beneficial to aquaculture producers. Anyone could apply for financial assistance, including any state agency and any regional commission. Recipients of such assistance would be required to agree with the Secretary as to the appropriate disposition of the products from the project and the proceeds from the sale of any such products. In addition, the recipient would be required to provide tours of the facility for aquaculture producers and other interested persons, to provide aquaculture information upon request, and to compile, on an annual basis, a report setting forth the income, cost, operating difficulties and other appropriate information on the operations of the project.

In order to disseminate the results obtained from each demonstration project, state cooperative extension services, the Sea Grant Marine Advisory Program, and other systems as the Secretary deems appropriate would be utilized.

Section 9 provides for the establishment of a loan guarantee program to be administered by the Secretary of Commerce. Section 9(a) authorizes the Secretary to guarantee the repayment of any loan issued for any of the following five purposes:

(1) the financing of the construction, reconstruction, or reconditioning of any aquaculture facility except that no loan may be guaranteed if it is made more than 2 years after the construction, reconstruction or reconditioning is completed;

(2) the acquisition of stocks or aquatic species for an aquaculture facility;

(3) the financing of the initial operating expenses of any aquaculture facility;

(4) the financing of marketing operations exclusively for aquaculture products; and

(5) the refinancing of existing loans issued for any purpose specified in numbers 1 through 4 above, regardless of whether the initial loan was guaranteed under this Act.

The total amount of loan guarantees outstanding at any one time shall not exceed \$150 million.

To protect the interests of the United States, section 9(b) provides that no loan guarantees shall be issued unless the Secretary determines that the applicant possesses the ability, experience, financial resources and other necessary qualifications for the adequate operation and maintenance of an aquaculture facility. Section 9(b) further provides that any guarantee made under section 9 shall be for no more than 87½ percent of the actual loan, shall have a maturity of not more than 25 years and shall be at an interest rate which the Secretary determines to be reasonable after taking into account the rates prevailing in the private market. Finally, section 9(b) states that in issuing loan guarantees, the Secretary shall give preference to any person with 40 or fewer employees which, together with its affiliates, is primarily engaged in the business of aquaculture or commercial fishing for aquatic species.

To help insure that the loan guarantee program is self-financing, section 9(c) authorizes the Secretary to charge the recipient of any guarantee a fee of not more than ½ of 1 percent per year of the outstanding principal balance of the loan. The Secretary may also charge a fee of not more than ½ of 1 percent of the original loan amount to cover the costs of processing the guarantee application and the costs of inspecting the property during the construction, reconstruction, or reconditioning of the aquaculture facility. Any moneys received from these fees shall be deposited in the Federal aquaculture assistance fund established in section 11.

Section 9(d) establishes the mechanism by which the lender can demand payment from the Secretary if the borrower has defaulted. Section 9(d) also authorizes the Secretary to take such actions as may be appropriate to recover from the borrower any monies paid out because of the borrower's default. Finally, subsection (d) provides that any person who makes any false statement or who submits any false information regarding his loan guarantee application shall be fined not more than \$5,000 or imprisoned not more than 2 years, or both.

Section 9(e) authorizes the Secretary to promulgate regulations which may be necessary for the implementation of the guarantee program. Section 9(f) contains the definition of terms for section 9.

Section 10 authorizes and directs the Secretary of Commerce to establish a Federal insurance program where such insurance is not available from the private sector. Subsection (a) defines the terms used in Section 10. "Essential liability insurance" is defined as insurance covering claims against the owner of any aquaculture facility arising from bodily injury or property damage caused by the operation of the facility or by the aquatic species cultured at such facility. This term is meant to cover all forms of liability insurance, including products liability insurance.

The term "essential property insurance" means that insurance providing protection against the destruction or damage of an aquaculture facility caused by fire, vandalism, and so forth.

"Essential stock insurance" is insurance against the loss of the aquatic species being cultured at an aquaculture facility. Such loss might result from abnormal weather conditions, disease, and so forth.

The term "direct insurance" is the umbrella term which is defined as including essential liability insurance, essential property insurance and essential stock insurance.

The term "reasonable premium rate" means that premium rate which would permit the purchase of any direct insurance by a reasonably prudent person.

Section 10(b) authorizes the Secretary of Commerce to define any other technical term necessary for the administration of this section.

Pursuant to Section 10(c), the Secretary of Commerce is directed to conduct a State-by-State study to determine if direct insurance is available at reasonable premium rates to the owners of aquaculture facilities and/or aquatic species. The initial study is required to be completed within 18 months and the Secretary shall conduct a similar study each year thereafter.

If, as a result of the study, the Secretary determines that essential property insurance or essential liability insurance is not available at reasonable premium rates in a state, the Secretary may establish a program to provide such insurance in that state. If the Secretary finds that essential stock insurance is not available at reasonable premium rates in a state, the Secretary is required to make available such insurance in that state. Any insurance provided by the Secretary shall be subject to such terms and conditions and deductibles as the Secretary deems appropriate, except that the Secretary shall not provide insurance on any aquaculture facility which the Secretary determines to be uninsurable due to the owner's failure to follow established principles for culturing aquatic species or to take reasonable steps to prevent losses.

In determining the premium rate for any direct insurance provided by the Secretary (hereinafter referred to as the actual premium rate) the Secretary is required under section 10(d) to consult with persons knowledgeable and experienced in insurance, including state insurance regulatory authorities. If insurance of the same kind as that offered by the Secretary is generally available in the state concerned, the actual premium rate established by the Secretary shall be the median rate at which the insurance is available. If the insurance offered by the Secretary is not generally available, the actual premium rate established by the Secretary shall be that rate at which the Secretary believes insurers in the State would offer such insurance. In establishing actual premium rates, the Secretary is directed to consult with the insurance regulatory authority in the state and with any rate advisory committee licensed by the state. In no event, however, may the Secretary offer the insurance at less than 60 percent of the actual premium rate established by the Secretary. It is the committee's intent that insurance offered by the Secretary shall not be offered at such prohibitive rates as would preclude owners of aquaculture facilities and aquatic stocks from participating in the program.

Section 10(e) authorizes the Secretary, where appropriate, to enter into any contract or other arrangement with any insurer or pool of insurers to provide reinsurance coverage with respect to any direct insurance offered by such insurers or pools.

Section 10(f) provides that all premiums received by the Secretary under section 10 shall be deposited in the Federal Aquaculture Assistance Fund established in section 11. Section 10(f) also confers on the Secretary the authority to institute legal action to recover any premium due and payable.

To assist the Secretary in administering this section and to provide for maximum efficiency in this regard, subsection (g) authorizes the Secretary to contract with any insurer or pool of insurers. Subsection (h) authorizes the Secretary to utilize, with reimbursement, the employees and services of other Federal agencies. Subsection (i) permits the Secretary to promulgate necessary regulations for the implementation of section 10 and subsection (j) establishes a procedure by which insured can appeal from claim awards which they believe are insufficient.

Section 10(k) provides that the face amount of all insurance issued by the Secretary shall not exceed a total of \$125 million. It should be noted at this point that the face amount of the insurance bears little, if any, relationship to the appropriations which may be required for section 10.

Section 10(1) is a sunset provision forbidding the Secretary from issuing any insurance after September 30, 1982.

Section 11 establishes in the Treasury a Federal aquaculture assistance fund which shall be available to the Secretary of Commerce as a revolving fund for the purpose of carrying out sections 9 and 10. However, no payment shall be made from the fund unless provided for in appropriations Acts. The fund is to consist of all sums appropriated to it, any fees received in connection with loan guarantees issued pursuant to section 9, all payments of principal and interest from any guarantee made in accordance with section 9, all insurance premiums paid under section 10, and any monies received from obligations issued by the Secretary of the Treasury under subsection (b).

Subsection (b) provides that if at any time the available money in the fund is insufficient to meet present obligations, the Secretary of Commerce shall issue notes to the Secretary of the Treasury who shall purchase these notes who may in turn sell the notes.

Section 12 provides for the authorization of appropriations. In subsection (a), the Department of Commerce is authorized \$11 million for fiscal year 1980 and \$14 million for each of fiscal years 1981 and 1982 for carrying out all the provisions of this Act, other than sections 9 and 10. For the Department of Agriculture, there is authorized to be appropriated \$3 million for fiscal year 1980, and \$5 million for each of fiscal years 1981 and 1982. The authorization established for the Department of the Interior is identical to that provided for the Department of Agriculture.

Section 12(b) authorizes to be appropriated to the Fund without fiscal year limitation such sums as may be necessary for carrying out the loan guarantee program established under section 9, and the insurance program established pursuant to section 10.

Section 13 makes it clear that nothing in this Act shall be construed to amend, repeal, or otherwise modify the authority of any Federal officer, department or agency to perform any function, responsibility, or activity authorized under any other provision of law.

COST OF THE LEGISLATION

In the event the legislation is enacted into law, there would be authorized to be appropriated to carry out the legislation the following amounts:

AUTHORIZATIONS FOR APPROPRIATIONS

[In millions of dollars]

Section	Current fiscal year 1979	Fiscal year—				
		1980	1981	1982	1983	1984
Sec. 9 (guarantee loans).....	0	Such sums as may be necessary but not to exceed \$150,000,000.				
Sec. 10 (insurance program).....	0	Such sums as may be necessary for fiscal years 1980, 1981 and 1982, but the face value of insurance coverage outstanding and in force at any one time could not exceed \$125,000,000. ¹				
Total, assuming the amount authorized for sec. 9 is appropriated.....		\$150,000,000 plus such sums as may be necessary for carrying out sec. 10.				
Other provisions:						
Department of Commerce.....	0	11.0	14.0	14.0	0	0
Department of the Interior.....	0	3.0	5.0	5.0	0	0
Department of Agriculture.....	0	3.0	5.0	5.0	0	0
Total, assuming the amounts authorized are appropriated.....	0	17.0	24.0	24.0	0	0

¹ In summary, the total authorized to be appropriated to carry out the legislation (not including sec. 10—the insurance provision) for the current fiscal year and the next 5 fiscal years amounts to \$215,000,000. In addition, it should be noted that such sums as may be necessary are authorized to be appropriated to carry out sec. 10.

In the event the legislation is enacted into law, the committee estimates the cost to the Federal Government (based on information supplied by the Government agencies and their representatives and the Congressional Budget Office) for the current fiscal year and for the next 5 succeeding fiscal years to be as follows:

ESTIMATED COST

[In millions of dollars]

Section	Remainder of current fiscal year 1979	Fiscal year—				
		1980	1981	1982	1983	1984
Sec. 9 (guarantee loans).....	0	0.4	0.4	1.1	2.0	2.5
Sec. 10 (insurance).....	0	.8	3.0	4.4	0	0
Other provisions.....	0	17.0	24.0	24.0	0	0
Total, cost per year.....	0	18.2	27.4	29.5	2.0	2.5
Total, cost for the next 5 fiscal years.....				79.6		

After reviewing the estimate of costs received by the committee from the Federal agencies and their representatives and the Congressional Budget Office, the committee has concluded that the estimates are reasonable and that the cost to be incurred in carrying out this legislation will be consistent with those estimates subject to the following caveats: (1) the estimate is based on fiscal year 1979 dollars; and (2) such estimate may need to be revised as circumstances change.

It should be noted that the Federal agencies and their representatives were unable to provide the committee with any estimates on the costs of carrying out the loan guarantee and the insurance programs.

Consequently, the committee relied heavily on the estimate of costs provided by the Congressional Budget Office—particularly as it relates to sections 9 and 10—in arriving at the estimated cost of carrying out the legislation.

INFLATIONARY IMPACT STATEMENT

Pursuant to clause 2(1)(4) of rule XI of the Rules of the House of Representatives, the committee estimates that the enactment of H.R. 20 would have no significant impact on the prices and cost in the national economy.

COMPLIANCE WITH CLAUSE 2 (1) (3) OF RULE XI

With respect to the requirements of clause 2(1)(3) of rule XI of the Rules of the House of Representatives—

(A) No oversight hearings were held on the administration of this act during this session of Congress. However, the Subcommittee on Fisheries and Wildlife Conservation and the Environment and the Subcommittee on Oceanography held several days of joint hearings on the predecessor legislation in the 94th and 95th Congresses. The subcommittee plan to hold oversight hearings on the administration of this act in the next session of this Congress.

(B) The requirements of section 308(a) of the Congressional Budget Act of 1974 are not applicable to this legislation.

(C) The Committee on Government Operations has sent no report to the Committee on Merchant Marine and Fisheries pursuant to clause 4(c)(2) of rule X.

(D) A letter was received from the Director of the Congressional Budget Office, pursuant to section 403 of the Congressional Budget Act of 1974 in reference to H.R. 20 and follows herewith:

CONGRESSIONAL BUDGET OFFICE,
U.S. CONGRESS,
Washington, D.C., May 10, 1979.

HON. JOHN M. MURPHY,
Chairman, Committee on Merchant Marine and Fisheries, U.S. House of Representatives, 1334 Longworth House Office Building, Washington, D.C.

DEAR MR. CHAIRMAN: Pursuant to section 403 of the Congressional Budget Act, the Congressional Budget Office has prepared the attached Cost estimate for H.R. 20, the National Aquaculture Act of 1979.

Should the committee so desire, we would be pleased to provide further details on this estimate.

Sincerely,

Alice M. Rivlin, Director.

CONGRESSIONAL BUDGET OFFICE—COST ESTIMATE

MAY 10, 1979.

1. Bill number: H.R. 20.
2. Bill title: National Aquaculture Act of 1979.
3. Bill status: As ordered reported by the House Committee on Merchant Marine and Fisheries, May 3, 1979.
4. Bill purpose: The bill provides assistance to aquaculture in the United States in several ways. It directs the Secretary of Commerce to establish within eighteen months of enactment a national aquaculture

development plan. The bill provides a framework for coordinating the activities of the agencies involved in aquaculture programs. It also calls for surveys of the industry, dissemination of information, educational and technical assistance. It allows the Secretaries of Commerce, Agriculture, and the Interior to make grants to carry out its provisions including grants for demonstration projects.

A loan guarantee program and an insurance program are also established by this bill. The bill authorizes appropriations of specific sums to the Departments of Commerce, Agriculture and the Interior for fiscal years 1980, 1981 and 1982 and authorizes the appropriation of sums necessary to carry out the provisions of sections 9 and 10. The bill establishes a revolving fund, the Federal Aquaculture Assistance Fund, to receive appropriations, fees, premiums, and other receipts from the programs authorized in Sections 9 and 10. The Secretary of Commerce is authorized to borrow from the Treasury, should amounts in the fund be insufficient to pay claims or obligations.

5. Cost estimate:

Estimated authorization level:

Fiscal year:	Millions
1980	\$18.3
1981	27.4
1982	29.4
1983	2.0
1984	2.5

Estimated outlays:

Fiscal year:	Millions
1980	6.0
1981	26.3
1982	33.4
1983	10.2
1984	3.7

The bill provides no authorization for appropriations for 1979, but requires studies, public hearings and other activities within six months of enactment, which will cost about \$200,000 in additional personnel and other resources.

The costs of this bill fall within budget function 300.

6. Basis of estimate: For the purposes of this estimate it is assumed the bill will be enacted on or about July 1, 1979. Within 6 months of enactment, the bill requires the Secretary of Commerce to hold public hearings and to complete an initial aquaculture assessment as first steps in the establishment of a national aquaculture development plan. It is expected that the Department of Commerce and the other agencies will increase resources now being devoted to the development of an aquaculture plan once this bill is enacted. The additional cost of such resources is expected to be about \$200,000 in fiscal year 1979, although no additional 1979 appropriations are authorized by this bill.

It is assumed that the specific amounts authorized in the bill will be appropriated. The bill authorizes a total of \$17 million in fiscal year 1980 and \$24 million per year for fiscal years 1981 and 1982. For the purposes of this estimate it is assumed the one-half of the amount authorized will be used for grants and the other half for salaries and expenses within the departments. After a startup lag, it is expected that the amounts spent for expenses within the agencies will spend out at a rate of 75 percent the first year and the remainder the second.

The grants will be disbursed more slowly, with only 15 percent being spent in 1980. Once the grants mechanisms are at full capacity, it is expected that grants will be spent over 3 years, with 60 percent being expended in the first year.

The budget impact of the loan guarantee program will result from the payments for defaults plus administrative expenses minus fees collected. For the purpose of this estimate, it is projected that loans will be made at a 10-percent interest rate and an average 15-year term, and that net defaults will be 6 percent spread evenly over the second, third, and fourth years. Loan originations are expected to start in 1980, peak in 1982 and drop off in 1983 and 1984 as loan guarantees outstanding reach the \$150 million maximum stated in the bill.

The expectations about default are based on the experience in several other Federal loan guarantee programs, including that of the Small Business Administration, and the Commerce Department's program for fishing vessel loan guarantees. It is expected that with the low borrower's equity requirements (only 10 percent), the 6 percent default rate can only be achieved with a substantial effort by the agency issuing the guarantees to work with the borrowers. Therefore, it was assumed that administrative costs would be 1 percent of the total amount of loans outstanding.

Receipts from fees that may be charged for this guarantee partially offset payments for defaults. These fees are assumed to be the maximum allowed by the bill, 0.5 percent per year of the total outstanding balance of loan guarantees, plus 0.5 percent of the face amount guaranteed, to be charged when the loan is made.

The estimated outlays for the loan guarantee program are as follows:

- [By fiscal years, in millions of dollars]

	1980	1981	1982	1983	1984
Net default.....		0.3	0.9	1.6	1.9
Administrative expenses.....	0.6	.5	.8	1.1	1.4
Fees.....	-2	-4	-6	-7	-8
Estimated net outlays.....	.4	.4	1.1	2.0	2.5

Section 10 allows "essential" property, stock or liability insurance to be issued if it is determined that such insurance is not available from private insurers at reasonable rates. It is expected that most of the \$125 million in insurance that can be written during the three-year period authorized will be for stock insurance. It is expected that only 5 percent of eligible stock will be insured in fiscal year 1980 because of start-up lags but that by 1982 about 40 percent of the stock eligible will actually be insured. It is expected that the loss rate for stock will be high because of the difficulty of protecting stock from the elements and from theft losses. Therefore a loss rate of 10 percent per year is anticipated.

Since most aquaculture facilities can be covered by privately written insurance, it is assumed that a maximum of \$25 million in insurance will be issued for specialized aquaculture structures. The loss rate on this type of insurance is estimated to be 3.5 percent per year. The start cost of the insurance program is estimated to be \$500,000 in fiscal

year 1980. The ongoing costs of the program will be claims paid minus premiums received, which are estimated to be 60 percent of the total cost of the insurance. This assumes the minimum allowable premium stated in the bill.

Outlays for the insurance program of section 10 are estimated as follows:

[By fiscal years, in millions of dollars]

	1980	1981	1982	1983	1984
Stand-up costs.....	0.5				
Administration costs and claims.....	.9	7.5	10.9		
Premiums.....	-6	-4.5	-6.5		
Net outlays.....	.8	3.0	4.4		

The authorization level for sections 9 and 10 is estimated to be equal to the projected outlays for the activities authorized by those sections.

7. Estimate comparison: None.

8. Previous CBO estimate: Several cost estimates were prepared in the 95th Congress for bills that provided for aquaculture development, including H.R. 9370 (ordered reported by the House Committee on Merchant Marine and Fisheries) and S. 2762. The most recent estimate was prepared for S. 3408, as ordered reported by the Senate Committee on Commerce, Science and Transportation on August 15, 1978. That bill provided lower specific authorizations for 1980, 1981 and 1982. It included a loan guarantee program but did not provide for an insurance program as does this bill.

9. Estimate prepared by: Susan Cirillo.

10. Estimate approved by:

JAMES L. BLUM,
Assistant Director for Budget Analysis.

CHANGES IN EXISTING LAW

If enacted, this bill would make no changes in existing law.

DEPARTMENTAL REPORTS

Reports were received on H.R. 20 from the Departments of Commerce and the Interior and follow herewith:

GENERAL COUNSEL OF THE
U.S. DEPARTMENT OF COMMERCE,
Washington, D.C. April 17, 1979.

HON. JOHN M. MURPHY,
Chairman, Merchant Marine and Fisheries Committee, House of Representatives, Washington, D.C.

DEAR MR. CHAIRMAN: This is in response to your request for our comments on H.R. 20, a bill to provide for the development of aquaculture in the United States, and for other purposes.

H.R. 20 would provide that the Secretary of Commerce be responsible for developing a National Aquaculture Development Plan in

consultation with the Secretaries of Agriculture and the Interior, other interested Federal and state agencies, and appropriate regional fishery management councils. The three Secretaries would be responsible for implementing programs that come under their respective jurisdictions. An Interagency Aquaculture Coordinating Committee would be established, consisting of the three Secretaries and representatives of six other Federal agencies, to ensure an exchange of information and to ensure that all Federal agencies involved with aquaculture are carrying out their activities in a manner consistent with the purposes of the Act. The Secretary of Commerce would be responsible for information on aquaculture and for a biennial report to Congress on the status of aquaculture in the United States.

The three Secretaries would be authorized to make contracts or grants to carry out their responsibilities under the plan, including aquaculture demonstration projects, on a matching fund basis. The Secretary of Commerce would be authorized to provide loan guarantees and to administer direct insurance or reinsurance programs for stocks, property, and liability. The Secretary would conduct a study annually to determine if such insurance is available at reasonable rates in the commercial market. If the study indicates a need, the stock insurance program would be mandatory; the property and liability would be discretionary. No insurance could be issued after September 30, 1982.

A Federal Aquaculture Assistance Fund would be created in the Treasury to be used to carry out and administer the loan guarantee and insurance programs. Appropriations to the fund for such sums as may be necessary would be authorized beginning with fiscal year 1980. For purposes other than the fund, appropriations would be authorized for Commerce (\$11 million, FY 1980; \$14 million, FY 1981 and 1982) and Agriculture and Interior (\$3 million, FY 1980; \$5 million, FY 1981 and 1982, each).

Our Department has no objection to the concept of simple legislation designed to ensure that Federal programs and policies related to aquaculture fulfill their potential for supplying food, employment, and recreation, and contribute to the Nation's economy. However, we are strongly opposed to the bill in its present form and recommend that modifications be made in several provisions of the bill.

Under the President's Federal Coordinating Council on Science, Engineering, and Technology, two committees—the Committee on Atmosphere and Oceans and the Committee on Food and Renewable Resources—have formed the Joint Subcommittee on Aquaculture. Representatives of the three major agencies involved, Commerce, Agriculture, and Interior, as well as the President's Office of Science and Technology Policy, believe that the responsibility for various activities in aquaculture can be defined logically. We are confident that adequate coordination can be provided through the mechanism of the Joint Subcommittee on Aquaculture and, therefore, we suggest that H.R. 20 be changed to reflect the agreement that will be reached among the three principal agencies.

We believe that subsection 5(b)(2), relating to production and sale of seed stock by Government facilities, must be modified or deleted. Government hatcheries could be obliged to devote an inordinate amount of their effort to supplying seed stock, and once seed is made available for sale, it may be difficult or impossible to halt this practice even though private sources might be able to develop the capability.

Further, continued production of seed stock might interfere with research and other activities which are more appropriately the Government's role.

Section 6, relating to an Interagency Aquaculture Coordinating Committee, should be changed to coincide with the membership and functions of the existing Joint Subcommittee on Aquaculture.

The Administration continues to believe that it would be premature to offer major new Government subsidies to the aquaculture industry until a clear need for them has been established. The Federal efforts should address basic research questions and provide for the initial testing of laboratory results. The private sector should be expected to undertake and construct the necessary facilities for production. In addition, a comprehensive study designed to determine the need for loan guarantees and insurance is underway within the Executive Branch and it is expected that the results will be available in about 12 months. Consequently, we recommend that sections 8, 9, 10 and 11 be deleted from the bill at this time.

The Department of Commerce attaches considerable importance to the development of United States aquaculture. We have been working with the President's Office of Science and Technology Policy on this important matter, and are ready to assist the Congress in producing legislation that would accomplish the objectives of producing a national aquaculture plan and promoting the development of aquaculture in the United States.

We have been advised by the Office of Management and Budget that there would be no objection to the submission of our report from the standpoint of the Administration's program.

Sincerely,

C. L. HASLAM, *General Counsel.*

U.S. DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D.C., April 4, 1979.

HON. JOHN M. MURPHY,
Chairman, Committee on Merchant Marine and Fisheries,
U.S. House of Representatives, Washington, D.C.

DEAR MR. CHAIRMAN: This responds to your request for our views on H.R. 20, a bill "To provide for the development of aquaculture in the United States, and for other purposes."

We strongly recommend against the enactment of this legislation. We, however, would have no objection to a simple bill which would state an aquaculture policy, call for a national aquaculture plan, and reaffirm the existing organizational coordination mechanisms.

H.R. 20 directs the Secretary of Commerce to make an assessment of aquaculture in the United States and, in consultation with the Secretaries of the Interior and Agriculture, to prepare a National Aquaculture Development Plan within 18 months of enactment. The plan is to identify aquatic species which can be cultured on a commercial or other basis, and for each species so identified, set forth a program of necessary research, development, technical assistance, education demonstration, and training activities, identify the research needed on the effect of aquaculture in estuarine and other waters, and analyze the

legal and regulatory constraints on the industry. The plan is to specify a timetable, and assign responsibility for implementation, to the Departments of Commerce, Interior, or Agriculture as appropriate. The Secretaries are authorized to use grants and contracts to carry out any program and specifically, to provide financial assistance for aquaculture demonstration projects in the form of grants not to exceed 50 percent of the estimated cost. The bill authorizes appropriations to the Department of Commerce to carry out these duties in the amount of \$11 million for fiscal year 1980 and \$14 million for each fiscal year 1981 and 1982, and to the Departments of the Interior and Agriculture each, \$3 million in fiscal year 1980 and \$5 million per year in fiscal years 1981 and 1982.

This legislation also empowers the Secretary of Commerce to guarantee loans for aquaculture facilities up to a total of \$150 million. In addition, if after an 18 month study, the Secretary of Commerce finds that essential property and liability insurance for aquaculture ventures is not available at reasonable rates, she is empowered to establish an insurance program. The face value of this insurance would be limited to \$125 million. A Federal Aquaculture Assistance Fund is set up in the U.S. Treasury to carry out the loan guarantee and insurance provisions and such funds as may be necessary are authorized to be appropriated, beginning with fiscal year 1980.

Finally, H.R. 20 creates the Interagency Aquaculture Coordinating Committee, chaired by the Secretary of Commerce with a membership roster including the Secretary of the Interior. The Committee is to assure a continual exchange of information among Federal agencies involved in aquaculture activities.

While we recognize the importance of aquaculture, the need for efficient and appropriate programs to support this, and an assessment of the aquaculture industry, many of the actions required by H.R. 20 are already underway. Since the first authorization for two fish hatcheries in 1872, aquaculture has been a prime function of the U.S. Fish and Wildlife Service. The National Fish Hatchery System has grown to 89 installations producing over 40 species of fish. In 1975, the National Fish Hatchery System produced 268 million fish and fish eggs weighing over 6 million pounds; the effort was equally divided between warm water and cold water species in terms of numbers of fish produced. Each hatchery also demonstrates to fish farmers and the general public the most up-to-date, tried and tested techniques in fish culture as well as fundamental concepts in biology and conservation. In addition, five Service development centers carry out basic and applied research to solve production problems found at the hatcheries. These centers are presently working in the areas of environmental control, pollution abatement, diet formulation, quality control, production methods and equipment, and training (workshops and short courses).

At 10 locations across the country, the National Fish Hatchery System has approximately 20 hatchery biologists who function as fish disease and fish husbandry specialists for Service and State problems. In addition, there are two aquaculture schools which offer advanced training which is not available elsewhere in the country. While these schools primarily train Service personnel, they are open to State, private and foreign personnel.

The Fish and Wildlife Service has nine research laboratories which actively support the aquaculture effort. Two disease laboratories and two nutrition laboratories have received international recognition. The Service also has two Fish Farming Experimental Stations which are completely oriented to development of freshwater aquaculture practices. The vast majority of the research necessary to obtain Food and Drug Administration approval of chemical compounds used in aquaculture is performed at the fish control laboratory. The fish pesticide laboratory researches aquaculture problems associated with pesticides. In addition, the Service is constructing another research laboratory to investigate the propagation of sport and food fishes indigenous to the Eastern United States.

In cooperation with State universities and conservation agencies, the Fish and Wildlife Service operates 25 Cooperative Fishery Units. Over 50 percent of these units conduct investigations concerning various aspects of aquaculture. In addition, a number of Indian tribes, particularly in the Northwest, have with our assistance engaged in aquaculture development in recent years and we expect these programs will become active business enterprises. The Fish and Wildlife Service has demonstrated its capabilities in the technical research and development of finfish, and continues its existing efforts in finfish nutrition, fish health, genetics, drug and chemicals clearance, and environmental/water quality problems.

As you know, the Department of Commerce has the most expertise in the area of marine shellfish (mollusca and crustacea) and in the commercial aspects of fisheries, i.e. loan guarantees, disaster loans, marketing and product quality, and the Agriculture Department provides a complete range of information and technical assistance related to aquaculture. Thus, there is an array of existing Federal activities related to aquaculture, and we do not believe there exists a need for additional Federal programs at this time.

The Office of Management and Budget has advised that there is no objection to the presentation of this report from the standpoint of the Administration's program.

Sincerely,

BOB HERBST,
Secretary.

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