



One Industry, One Voice

November 8, 2002

Admiral James D. Watkins, USN (Ret.)
U.S. Commission on Ocean Policy
1120 20th Street, NW (Suite 200 North)
Washington, D.C. 20036

Re: Further Comments of the National Aquaculture Association

Dear Admiral Watkins:

The National Aquaculture Association ("NAA") is pleased to respond to the Commission's questions concerning the Association's testimony on aquaculture issues. We have also taken this opportunity to offer the Commission additional details of our perspective on offshore aquaculture issues, including those aquaculture related issues in the Commission's working draft of *Ocean Policy Topics and Related Issues*.¹

I. The United States Must Facilitate Development of a Marine Aquaculture Program

The Commission has asked whether the federal government should upgrade and better implement a marine aquaculture program.² The NAA urges the Commission to recommend federal implementation of a supportive and efficient marine aquaculture development program. The U.S. consumer demand for fish and shellfish continues to rise, and both marine and freshwater aquaculture will be needed to meet this demand. Seafood consumption in the U.S. has risen to 14.8 pounds (6.7 kg) per person and reflects consumer spending of \$55 billion per annum.³ However, foreign imports have continued to increase and currently supply 70 per cent of the U.S. seafood market, greatly surpassing U.S. sources. The majority of fish and shellfish consumed in this country are imported, and our dependence on imports adversely affects the national balance of payments and contributes to the uncertainty of supplies.⁴ Food security is now a central concern for all countries, and the United States is no exception. Congress has declared that it is in the national interest, and our national policy, to encourage the development of aquaculture in the United States.⁵ A supportive and efficient marine aquaculture development program will require a rational regulatory program, federal support for research and technology development and a coordinated approach to federal oversight.

II. The Federal Government Should Perform Multiple Roles in Offshore Marine Aquaculture⁶

A. Performance of Multiple Roles is Appropriate

The federal government can and should undertake multiple roles in a government infrastructure for offshore marine aquaculture. Neither the private sector nor state and local governments has the legal authority or industry support resources needed to achieve required objectives without federal participation. Aquaculture facilities in federal jurisdiction waters will have to be regulated by federal agencies. Federal authorities must also maintain and enhance their support for development of a viable offshore aquaculture industry. Instances of dual federal roles of regulator and supporter are commonplace, and can be readily provided in the aquaculture setting⁷.

Federal agencies currently serve a critical function in the promotion of water-based agriculture. This role should be continued and expanded. Internationally, aquaculture is growing at a rate of 10% annually. In the United States, aquaculture is expanding at a rate of only 1% per year with most of that occurring in fresh water. The NAA recommends the United States consider a policy of investing annually an amount equal to 1 per cent of the seafood trade deficit for aquaculture research and development. This approach will also allow for a corresponding reduction in investment as U.S. aquaculture expands and reduces the trade deficit.

Development of a natural resource-based industry in today's environmentally-conscience world will require a significant amount of environmental impact information and research. The federal government should contribute to support this research and make it available to all. Federal agencies also provide significant support for aquaculture research, education, extension services, project development, insurance, and product promotion. These roles include examples of both federal direct research and funding of outside research in aquaculture production facility designs, evaluation of candidate species for aquaculture, juvenile stock culturing techniques and other research and development projects. The National Oceanic and Atmospheric Administration ("NOAA") efforts include research by the National Marine Fisheries Service and Sea Grant research and assistance for projects in the Exclusive Economic Zone ("EEZ").⁸ The Department of Agriculture ("USDA") also operates five regional aquaculture centers, nationwide extension assistance (land-grant universities and CSREES⁹), industry statistics services (NASS), and aquatic animal health services and regulation (APHIS). The role of regulator and permit authority for marine aquaculture facilities in federal waters can and should be performed by federal agencies without affecting the support functions provided at the federal level.

B. A Single Marine Aquaculture Agency is not the Best Approach¹⁰

The Commission has asked whether there should be a "lead Federal agency" for offshore marine aquaculture. The role of a "lead" agency can be defined in many ways. The NAA does not support the creation of a "lead agency" with sole authority to regulate and manage all aspects of offshore aquaculture development and operation. However, there should be a single agency that

coordinates the review and decision-making process of the several agencies involved in the approval of offshore facility permits.

A single, federal authority for managing all marine aquaculture programs does not appear to be advantageous or present a reasonable likelihood of creation. In some instances, internal conflicts could even paralyze all programs if a single agency held responsibility for all aspects of federal management of the marine environment.

Several well-established, long-term statutory programs would have to be amended to transfer existing Federal agency programs to a single agency. In addition, the professional staff with greatest experience in addressing the issues delegated to their agencies would need to be consolidated into a single agency. Such a dramatic change does not appear to provide an identifiable benefit to a marine aquaculture industry.

A coordinated permit application review process that collects and reviews the comments of several agencies or agency program staff is an effective model which has been used in other instances and would work for offshore aquaculture. We have provided below a recommendation for alternative paths for approval of offshore production facilities that includes an agency coordination component.¹¹

Any new federal requirements can be delegated to the agency that would best perform the task without concern for consolidation if a single agency model were not employed. The "benefits" that might have been thought to arise from a single lead agency can be achieved by effective coordination of information between different agencies. Coordination of agency efforts has been achieved in numerous instances by regulation or administrative agreements between agencies. Such agreements are frequently used between federal agencies, and between federal and state agencies, that participate in federally-created regulatory programs.

The agency coordination measures need not be a lock-step, single-permit approach. A "global" permit process would complicate the public participation and agency review procedures. As noted, the expert agencies would still be responsible for their particular field.

A more practical and useful alternative might be for one federal agency to develop an information package for applicants that explains the various permits and procedures for approving a marine aquaculture facility and provides a suggested path for the applicant. Such approaches have been used successfully by state economic development agencies to advise businesses of the several state and local requirements for development of new commercial and industrial operations.

III. A Recommended Coordinated Review Process for Offshore Projects

The National Aquaculture Association recommends that proven existing programs be coordinated with necessary new programs for development of a marine aquaculture facility

permit infrastructure. This approach would integrate the participation of all federal and appropriate state agencies into a lead agency permit review process. This process would be employed for permitting individual sites selected by project proponents. Other comments below present recommendations for a pre-authorization of aquaculture project sites.

A. The Permit Application Role of the Army Corps of Engineers¹²

The U.S. Army Corps of Engineers (“Corps”) has sole authority for federal approval of proposed structures located in waters of the United States including river, inland and coastal marine waters. The Corps has the experience of having evaluated thousands of applications for a tremendously broad variety of structures. These projects include everything from single private boat docks to massive port facilities and marine aquaculture facilities in state marine waters.

The regulatory staffs of the Corps regional offices are intimately familiar with the particular navigation, national security, biological and other resource conflict issues that apply to waters in their regions. These offices have well-established working relationships with the permitting agencies of state government in their region. The Commission is urged to recommend that we capitalize on the coastal permitting experience of this professional Federal staff by authorizing the Corps of Engineers to manage structures permit review of marine aquaculture facilities at the regional level.

Naturally, an important component of an effective permit system is appropriate funding levels to perform the required tasks. The Corps regional office budgets should receive additional funding to avoid permit delays that would arise if other program demands consume staff resources disproportionately. Enhancement of the existing Corps system offers the most efficient means of maximizing a return on supplemental funding to ensure a timely review of aquaculture applications.

The existing Corps regulations provide an appropriate framework for review of the impacts of proposed offshore facilities. The Corps’ permit procedures include a “Public Interest Review” process for the evaluation of the probable impacts, including cumulative impacts, of the proposed activity and its use of public trust resources.¹³ The Corps’ regulations also identify fifteen relevant federal statutory programs, and incorporate project review of such program issues into its permit review process.¹⁴ In addition, the Corps regulations also include public notice, comment, and public meeting and hearing procedures. Public comments received by the Corps are directed to project applicants to respond to significant questions or issues on the record. The Corps also performs the single federal review required under the National Environmental Policy Act (“NEPA”) on behalf of all federal agencies as part of the permit application review process.¹⁵ The use of this existing program prevents having to “reinvent the wheel” by creation of a new or parallel permit analysis processes or multiple NEPA reviews of individual marine facilities.

Application materials submitted to the Corps are circulated to other federal agencies under existing regulations. These federal agencies have the opportunity to formally comment on proposed projects, and the Corps has a regulatory obligation to give “full consideration” to such comments.¹⁶ Typically, the nature of the project dictates the parties that must be consulted. Currently, the Corps communicates with the National Marine Fisheries Service, the Fish and Wildlife Service, the U.S. Environmental Protection Agency, the Department of the Interior, the Department of Agriculture (wetlands cases), state and local agencies and others.¹⁷ The U.S. Department of Agriculture should be included in this process for purposes of federal consultation regarding offshore marine aquaculture facilities.

States also have an interest in the development of offshore aquaculture and may have aquaculture experience that would assist the evaluation of offshore marine aquaculture projects. The federal process for review of offshore marine facilities must include State participation procedures. However, unlike some other projects that create greater, wide-range, potential impacts to state water quality, such as offshore oil and gas production facilities, marine aquaculture facilities well beyond the limits of state waters are unlikely to create similar concerns. Offshore marine facilities should not be required to receive a formal state consistency determination under the Coastal Zone Management Act unless it is determined that the facility could violate state marine water quality standards or would violate an approved state coastal management program requirement in state jurisdiction waters.¹⁸ Any land-based operations or related industries that support offshore aquaculture should be reviewed under the applicable local zoning regulations and related coastal zone management standards that are part of that review.

The Corps regulations promulgated under §10 of the Rivers and Harbors Act apply to all structures in waters of the United States, including aquaculture facilities in fresh or marine waters. Except for obvious factual distinctions that arise in the evaluation of fresh and marine waters facilities under current regulations (e.g. marine mammal interactions versus alligator interactions) there should be no need to differentiate between facilities based on water salinity. The use of the existing Corps program ensures consistency in the evaluation of marine and freshwater projects that may not be available if jurisdiction over structures was split between agencies based on water salinity.

B. NOAA’s Leasing and Planning Role for Offshore Aquaculture

The National Oceanic and Atmospheric Administration should be called upon to expand its role in the federal framework for offshore aquaculture. In addition to participating in the permit process noted above, NOAA should undertake the task of designating offshore aquaculture sites and developing the business relationship framework for all aquaculture facility operations.

Pre-designation of Ocean Area Uses

One means of fostering an offshore aquaculture production industry and coordinating aquaculture activities with other marine users is the designation of pre-approved sites for

aquaculture activities. Sometimes referred to as a “zoning” approach for aquaculture, this system should go beyond simple zoning analogies, and provide a coordinated facility approval and contracting system. Such a system could greatly facilitate development of offshore aquaculture production facilities, while retaining the flexibility of an individual permit process for use at other locations.

The aquaculture site designation process is intended to identify possible aquaculture sites, select sites for positive aquaculture attributes and minimized resource impacts and make a sufficient number of sites available on an ongoing basis to meet projected food production requirements.¹⁹ However, this process is not intended to be the sole means of facility authorization. The site designation process will require years of effort to promulgate required regulations, evaluate potential sites and provide the required public participation to develop such a system of pre-approved aquaculture sites. In addition, the ability of individual entrepreneurs to identify opportunities for aquaculture operations in appropriate locations must not be extinguished, and the individual permit process should be retained as well.

If pre-designation of aquaculture sites is going to be most productive, it should avoid creation of expanded or duplicative permitting requirements. The goal of the NOAA program should be to create an inventory of areas approved for aquaculture operations, and approved facility designs that could be employed in approved areas without the need for individual facility permitting procedures.

The site designation process should incorporate all the user conflict and federal program coordination procedures followed by the Corps for individual permits. A standard set of design and operational parameters also would be developed by NOAA as part of the program for site designation. Proposed facilities that meet those standards would pre-qualify for operation in the designated sites without the need to go through an individual structures permit application process.

The Financial Relationship and Leasing Procedures

Those interested in offshore aquaculture issues have presumed a need for a contract of some type to provide the authority for exclusive use of a portion of the ocean and a means for collection of a fee for such rights. A lease has been suggested as a means to address the business relationship (rent) as well the establishment of the legal right to use the space (similar to the permit). Unless a permit is expanded to incorporate the business relationship terms, a lease or another instrument will be needed to address these matters. A lease establishes an interest in real property. The legal basis for use of such a contract must be consistent with the position of the United States regarding property interests in the Exclusive Economic Zone and may have to be distinguished from lease relationships that concern only mineral interests in the EEZ.

The NOAA could fill the role of leasing authority for offshore aquaculture beyond state jurisdiction waters. Consideration also should be given to the use of the lease as the “permit” for

aquaculture activities in the designated aquaculture areas established by NOAA, without need for an additional permit from the Corps. In other areas, the lease would address business terms, and the structures permit (and any required discharge permit from the USEPA) would address regulatory requirements.

At this time, the potential form of a financial relationship between the government and the aquaculturist is undefined. We do not know if offshore leases will be granted by means of competitive bids, on standard rate schedules or with the government choosing a tenant/operator based on other criteria. This is one reason why retaining the option of an individual site permit is needed in order to avoid stifling the industry or barring businesses that could not outbid competitors. A limited number of pre-approved sites may not fulfill our national needs for food production, innovation and diversity. Revenue generation should not be a controlling factor in development of a federal system for management of offshore aquaculture.

The Government Should not Serve as a Business Manager

The government's role in offshore aquaculture should focus on the management of resources, coordination of competing uses and the collection of established fees. Neither federal agencies nor the public need to evaluate a proposed facility operator's business plan in the leasing or permitting process.²⁰ The management of the business should be left to the facility operator. NOAA and other Federal agencies should not be responsible for evaluating a business plan, providing the imprimatur of approval of such plans, or disputing an applicant's projections of a viable business approach for offshore aquaculture. Nor should NOAA be seen by lenders and others who contract with a facility operator as playing the role of business plan guarantor.

If NOAA or another agency does actually lend or guarantee project funds, such as through an aquaculture-specific program similar to the Fisheries Finance Program, then a business plan evaluation is appropriate. But the role of leasing or permitting authority is not the same as that of lender or loan guarantor. With respect to financial obligations, if a tenant fails to pay rent, fees or royalties under a lease or a permit condition, they should risk losing the site under the terms of the lease or permit.

A business plan is nothing more than that, a plan. It may or may not be found accurate after construction or operation has begun, and in fact is always subject to modification to adapt to changes in markets or other business factors.

The government should not be in the business of ensuring or projecting the potential profitability of an offshore aquaculture business, but it should ensure that the misfortunes of business will not have adverse effects on public resources. There are other measures that are more effective and reliable than business plans to ensure protection of public resources. For example, current U.S. EPA regulations address a similar concern with respect to ensuring environmental protection and proper closure of waste facilities. The EPA regulations require that financial assurances are established for commercial hazardous waste management facilities.²¹ The Minerals Management

Act also includes a financial assurance mechanism.²² The offshore facility lease or permit could require similar financial mechanisms to properly close and address the environmental impacts of an offshore facility. The single greatest advantage of this approach over a business plan approval process is that the financial condition of the facility operator at the time of required closure is irrelevant. Instead, financial insurance, letters of credits, performance bonds, or corporate guarantees can be made a permit or lease condition. These options provide continuing environmental protection regardless of changing financial conditions.

The Expert Advisor Role

Within NOAA, the National Marine Fisheries Service is charged with responsibility for administration of the various programs relevant to coastal permitting projects, including the Marine Mammals Protection Act, Endangered Species Act, and Essential Fish Habitat responsibilities under the Sustainable Fisheries Act. In addition, the NMFS is called upon to provide expert review and comments on all proposed structures authorized by the Corps of Engineers. As an outside agency responsible for the referenced resource-protection programs, the NMFS is well positioned to evaluate projects submitted to the Corps for regulatory approval. However, unlike combining financial and permitting programs within one agency, combining the roles of expert commenter and final decision-maker for permit applications presents significant issues of an internal agency conflict of interest. The inclusion of an offshore aquaculture permitting authority within NOAA presents conflicts issues that will be difficult to address in a manner that provides public confidence. The NMFS review of individual permits applications under the Corps regulations should be maintained.

C. The USEPA Role in Permitting Offshore Facilities

Offshore facilities will have to be evaluated for their potential impacts from discharges of pollutants. Such discharges beyond state jurisdiction in the territorial seas, the waters of the contiguous zone or the oceans are subject to the ocean discharge criteria of the Clean Water Act.²³ The current USEPA guidelines require evidence that the discharge will not cause unreasonable degradation of the marine environment when any necessary conditions required to meet Ocean Dumping Criteria are implemented, and an appropriate monitoring plan is conducted.²⁴ The USEPA has continued to evaluate the requirements and procedures of the Ocean Dumping permit program as more technical information has become available. This body of information is dynamic, and the agency will no doubt continue to amend the permit standards to address the changing body of knowledge, as it has in other areas of regulation. The USEPA has the experience and authority needed to address discharges of pollutants from offshore aquaculture facilities, and a coordinated program for regulation of offshore facilities should confirm the USEPA's role in this regard.

D. The Department of Agriculture Role

Designated as permanent chair of the interagency Joint Subcommittee on Aquaculture under the National Aquaculture Act of 1980, the USDA currently has an important role coordinating Federal interagency programs and policies, dissemination of national aquaculture information, and encouraging, coordinating, monitoring and assessing the industry. The USDA also plays a crucial role in research, education and extension. Finally USDA has regulatory responsibilities relating to animal health.

The USDA provides research support and industry services that the NAA considers invaluable. The five Regional Aquaculture Centers have been focused since their inception on applied research of direct benefit to the industry, technology transfer and extension education. The only downside of this program is that it has been level funded at 53% of the authorized \$7.5 million for fifteen years. The NAA respectfully requests the Commission on Ocean Policy recommend to Congress that the RAC centers be funded at a minimum at their authorized \$7.5 million level.

Other important services currently provided by USDA which the NAA believes should remain with USDA include export and promotion assistance, crop insurance, financing, predator deterrence, marketing and economic analysis, disaster assistance, information and statistics including the Aquaculture Information Center of the National Agriculture Library and a census of aquaculture and the purchase and distribution of surplus commodities.

A key role for USDA in EEZ aquaculture and all aquaculture is aquatic animal health. The USDA Animal and Plant Health Inspection Service (APHIS) establishes import requirements for aquatic plants to prevent the importation and dissemination of plant pests and diseases and noxious weeds, and assists producers with facility damage and depredation by migratory birds and other animals. APHIS licenses veterinary biologics for prevention, diagnosis, and/or treatment of diseases of animals. An increasingly important role for APHIS relates to international fish health regulations and negotiations related to imports and exports.

IV. Other Federal Aquaculture Management Recommendations and Comments

A. Aquaculture is Not a Fisheries Management Issue

The NAA strongly urges the Commission to recommend that offshore commercial aquaculture not be regulated under wild fisheries management programs such as the Magnuson-Stevens Fishery Conservation and Management Act²⁵. The only proper application of this program with respect to offshore aquaculture concerns the regulation of farmed fish that are released for purposes of wild stock enhancement programs. Otherwise, aquaculture fish stocks are private property, and not part of a wild fishery resource. Unfortunately, there are recent examples of the tortured application of fisheries management requirements to aquaculture operations. Several offshore experimental aquaculture projects have had to apply for exemptions from wild fisheries management regulations, including the daily wild catch limits that strangely were applied to the harvesting of fish from aquaculture facilities. Commenters have compared the management of

fish farming under wild capture fishing regulations to dairy farming being managed by wildlife regulations, or a chicken farm being managed under migratory bird game laws.²⁶ Aquaculture operations and aquaculture stock should be exempted from the jurisdiction of Regional Fisheries Councils' Fisheries Management Plans (FMPs). Misapplication of these wild fisheries programs must cease, as efforts to impose barriers to potential competition for capture fisheries are not a means for proper management of ocean uses.

B. The Precautionary Principle Lacks Sufficient Definition as a Management Tool.²⁷

The Commission should recommend against the use of the so-called, precautionary principle, or the related "precautionary approach" as offshore development management standards. The precautionary principle is not sufficiently defined to serve as a clear management principle. The details of the definition of this concept, its means of application in decision-making and the options for proceeding with projects under such a management standard, subject to conditions, should be left to agency rulemaking.

Academic discussion and regulatory application of a "precautionary principle" have been ongoing for approximately twenty years.²⁸ One significant hurdle to use of the precautionary principle is that the concept means different things to different people and makes a poor shorthand for a governmental regulatory standard without significant clarification and a framework for application.

The Rio Declaration sets forth the "Precautionary Principle" as follows:

In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.²⁹

On its face, the principle is a generally laudatory concept. The principle appears to require that there be at least some reliable scientific support for allegations of serious or irreversible environmental damage from aquaculture before action must be taken to mitigate such risks. As such, one could envision several examples of reasonably identifiable significant risks that should be avoided in the design of offshore projects, or that could be addressed by post-development monitoring and contingency measures. However, there are other expressed interpretations of this principle that would very differently read the standard, and would prohibit development in cases of alleged potential risks that lack any identified scientific foundation. Other interpretations also would not allow conditional development to occur subject to monitoring the operation and use of contingency measures, if necessary. An untold number of our greatest technological advancements might never have been realized if those efforts were regulated by such an interpretation of the precautionary principle.

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Project applicants always have the burden of proof in permit proceedings. The real issue is what an applicant will be required to prove before proceeding. Proving a negative can be difficult if not impossible in many instances. Project applications should not be denied because an opponent submitted a question that could not be definitively answered before a facility is developed. The precautionary principle fails to set a standard for deciding what threshold probability is required for an alleged risk to defeat a project.

Whether we call it a “precautionary principle” or not, the requirements for approval of offshore projects should include a well-defined and reasonable standard for addressing legitimate concerns through both pre-approval evaluation and post-approval monitoring and management measures. The wholesale incorporation into law of hotly debated and disputed “principles” as a decision-making tool should not be accepted.

C. Aquaculture Development in a Global Market

Large-scale marine aquaculture of the type likely to be considered for development in the U.S. EEZ is being undertaken in many other countries as we speak. In fact, we must recognize that this type of operation will be a much larger scale and more capital intensive than most other forms of aquaculture in the United States. As such, those who would consider undertaking these projects will typically consider foreign development locations as alternatives to development in the United States. To the extent that we create obstacles to development in this country, marine aquaculture projects will be located in Australia, Canada, Chile, Mexico, Norway, New Zealand, Scotland, Spain, Vietnam and other countries. The transportation requirements do not present a significant barrier to U.S. markets from these locations, particularly when we consider the disparity in labor costs and regulatory costs. If we have any hope of creating an offshore aquaculture industry in the United States, and addressing food security requirements and the current seafood trade imbalance, we will have to eliminate existing unwarranted barriers to development (such as misapplication of the U.S. fisheries regulatory standards), and create a reasonable program for evaluation and approval of offshore aquaculture projects.

Once again, the National Aquaculture Association wishes to express our members’ appreciation of the efforts of the Commission to address the issues of ocean policy that are so critical to the future of us all.

Sincerely,
/s/ John R. MacMillan
John R. MacMillan, Ph.D.
President

Enclosure: Endnotes

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¹ U.S. Commission on Ocean Policy, Ocean Policy Topics & Related Issues, July 16, 2002 (Hereinafter “OPT, T. __, Issue __.”).

² OPT, T. 1, Issue 12.

³ U.S. Department of Commerce, NOAA, Fisheries of the United States 2001, 126 pp. (<http://www.st.nmfs.gov/fus/fus01/index.html>, visited October 2002)

⁴ National Aquaculture Act of 1980, 16 U.S.C. 2801 et seq., 16 U.S.C. 2801(a) (2).

⁵ 16 U.S.C. 2801(c).

⁶ OPT, T. 1, Issue 12(c).

⁷ For example, the USEPA provides billions of dollars worth of financial support for public sewage treatment plant construction under the Clean Water Fund. At the same time, the USEPA or the delegated state authority also maintains civil and criminal enforcement responsibility for enforcing compliance of such facilities with Clean Water Act discharge (NPDES) permits.

⁸ For more information, visit http://www.nmfs.noaa.gov/sfa/sfweb/SP_aquaculture.htm.

⁹ Cooperative State Research, Education, and Extension Service

¹⁰ OPT, T. 1, Issue 12(c).

¹¹ See, Section III, below.

¹² See also, OPT, Topic 2, Issue 7.

¹³ 33 CFR 320.4. This process considers both reasonably expected benefits and reasonably foreseeable detriments of a project. The factors considered in the review process include conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership and, in general, the needs and welfare of the people. (§320.4 (a)(1)).

¹⁴ 33 CFR 320.3, 320.4(b)-(r).

¹⁵ 33 CFR 325.2(a) (4), 33 CFR Part 230, Appendix B.

¹⁶ 33 CFR 320.4(a) (3), 33 CFR 320.4 (c).

¹⁷ See, 33 CFR 320.4(a), (c), (f), (h), (i), (j).

¹⁸ OPT, T. 4, Q. 6; See, 16 USC §1456(c)(3)(A) which discusses the need to submit coastal consistency certification for projects in or outside the coastal zone that affect land, water use or natural resources of the coastal zone of a State. Presumably, any proposal to require consistency determinations and state concurrence for “offshore” projects beyond 3 nm. or 9 nm. (as applicable) not affecting such state interests would necessitate amendment of the Coastal Zone Management Act to extend the legal jurisdiction of the coastal State to so act. See, 16 U.S.C. §1453 (1).

¹⁹ The Federal government must make a concerted effort to map the EEZ on a fine scale, determine existing use patterns, natural resources, bathymetry, sediment types and, ideally, living marine resources as well. Both NOAA and the Department of the Interior have resources that could address such a need. This mapping program would have tangible benefits for many users of the EEZ, including aquaculturists, fishers, and Marine Protected Areas advocates.

²⁰ In fact, the Corps’ regulations specifically direct that the economic viability of a project is not part of the evaluation criteria. (33 CFR 320.4(g)).

²¹ See, 40 CFR Part 264, Subpart H, and specifically, 40 CFR 264.143 (Financial Assurance For Closure).

²² 30 CFR Part 256, Subpart I, 30 CFR 256 through 259.

²³ 33 USC 1251, 1343(a).

²⁴ 40 CFR 125.120 et seq.

²⁵ 16 USC 1801 et seq.

²⁶ Neill, R, et al, “Canadian Aquaculture: Drowning in Regulation”, Atlantic Institute for Market Studies (June 2002) *citing*, Hicks, B., “Fish Farming is Farming not Fishing,” *Northern Aquaculture* (August 2001).

²⁷ See, OP, Topic 1, Issue 1a.

²⁸ See, Sandin, P., “Dimensions of the Precautionary Principle” in *Human and Ecological Risk Assessment*, Vol. 5 No.5, pp. 889-907, Appendix II (1999).

²⁹ The Rio Declaration of the UN Conference on Environment and Development (UNCED), Section 15, (1992).