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REPORT OF THE JOINT SELECT COMMITTEE ON MARINE RESOURCES ON SHELLFISH MONITORING

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I. Introduction

A. Origin of the study

Shellfish harvesting is an important source of economic activity in the State of Maine. It supplies employment and income for a sizable number of people, and it contributes to the gross product and export base of the state. Shellfishing is an important renewable resource having an estimated landed value exceeding $20 million annually. Maine is a leading exporter of shellfish.

The State has two responsibilites with regard to shellfish harvesting. Paramount is the need to ensure the safety of shellfish to the health of the consuming public. The State has also taken a role in assisting the shellfish industry to maximize its potential for harvesting activities which are economically beneficial to the state. Legislation introduced in the First Regular Session of the 113th Legislature resulted in the identification of two major concerns about the State's role in protecting the integrity of the shellfish resource and increasing its availability for harvest. These concerns are the subject of this report.

In the First Regular Session of the 113th Legislature, the Joint Standing Committee on Marine Resources considered LD 1328, An Act to Establish a Tax to Provide for the Comprehensive Monitoring of Paralytic Shellfish Poison sponsored by Rep. Harry Vose of Eastport. This bill proposed the repeal of the mahogany quahog tax enacted the previous year and replacing it with a 50¢ per bushel tax on applicable shellfish species (clams, mussels, and oysters) with the anticipated revenues appropriated to provide the Department of Marine Resources with the resources to monitor paralytic shellfish poisoning (PSP) more comprehensively and effectively. It was estimated that the shellfish tax would raise approximately $350,000 annually.

Under a volume based tax, species which require greater expense and effort to monitor such as blue mussels, pay a higher percent tax relative to the cost per bushel of the species. Conversely, a tax based on percentage of value, favored by some proponents, would have shifted the tax burden onto the soft-shell clam, a relatively easy species to monitor.

Opponents of LD 1328 acknowledged the importance of the PSP program but cited hardship to dealers (the point of tax collection) who operate in a highly competitive multistate market and the difficulty in enforcing the tax because of unreported sales.

B. Study procedure

The Marine Resources Committee, noting the importance of accurate PSP monitoring, voted to hold LD 1328 over to the Second Regular Session and requested approval of the Legislative Council to meet during the interim to study the issue. Study approval was granted and a subcommittee composed of six members met four times during the interim to develop recommendations for funding an expanded PSP monitoring program. One meeting included a visit to the DMR testing lab in Boothbay Harbor. The subcommittee also reviewed the State's current shellfish sanitation program and how this program fulfills DMR's mandate to protect public health. This report is a product of that study effort.

II. Paralytic Shellfish Poison

A. Background of problem

LD 1328 was presented for the purposes of raising revenues to provide resources to intensify the State's efforts in monitoring shellfish for paralytic shellfish poison (PSP). Currently, major portions of the Maine coast are closed to shellfish harvesting each year by the Department of Marine Resources because of the dangers of contamination from PSP or environmental pollutants. Commonly, the southern coast from Casco Bay to the New Hampshire border may be closed from June through September with more sporadic closings downeast. It is generally agreed that the extent of coastal closures is greater than absolutely necessary because the Department of Marine Resources does not have the resources to consistently monitor the coast to determine the precise time and location where closures are necessary. Without sufficient resources to provide optimum precision in monitoring, the Department errs on the side of closing or keeping closed all questionable areas. These conservative closures deprive the shellfish industry of income for significant portions of the year.

B. History of PSP Outbreaks and Program

Paralytic shellfish poison, commonly referred to as "red tide," is a toxin occurring in certain shellfish following ingestion of toxic algae known as dinoflagellates. Dinoflagellate "blooms" occur from time to time in various locations along the coast throughout the spring and summer. Algae increases may occur and be cleansed from shellfish tissues quite rapidly. The exact cause of flare-ups is not known. When ingested by shellfish, the toxin in the dinoflagellate algae is concentrated in the shellfish and, in sufficient quantities, results in the shellfish becoming hazardous, even deadly, to humans. PSP affects primarily clams, oysters and mussels.

State monitoring of shellfish for PSP began in the late 1950s. Following an epidemic of shellfish poisoning in New Brunswick, Canada in 1957, Maine was requested by the U.S. Public Health Service to investigate the presence of PSP in shellfish areas adjacent to Canada (Hurst, 1974). The presence of shellfish poisoning was confirmed and shellfish toxin assays have been conducted by the Maine Department of Marine Resources since 1958. Cobscook Bay was closed nearly every year although other parts of the coast were monitored only sporadically. In 1972, the entire coast was closed because of red tide as well as the coasts of New Hampshire and Massachusetts. A similar outbreak in 1974 prompted the establishment of a comprehensive monitoring program in 1975 which continues to date.

C. Current program

The Paralytic Shellfish Poison Monitoring Program was formalized into law in 1986. Title 12, Section 6076 provides for a comprehensive program "... to protect the public health while providing for the harvest of susceptible species of marine mollusks in areas not shown to be affected by contamination."

The Department of Marine Resources is charged with implementing the program and currently provides the following level of activity in the paralytic shellfish poison monitoring program.

1. Personnel.

Currently, there are two people with primary responsibility for the PSP program. In addition there are 17 samplers active through the summer, spending between 5% and 50% of their time collecting and handling samples for the program. To supplement their efforts, 4 conservation aides are hired by the department for the summer months. Support staff is shared with the Bureau of Marine Development. Lab preparatory work and media services are also shared. During the summer, the PSP program pulls people off other programs and work to collect samples.

2. Budget.

According to the Department, the current (fiscal year 1986-87) PSP program costs $246,457, apportioned as follows:

Personal Services	$160,192
All Other	86,265
Capital	-0-
Total	$246,457

3. Funding.

Funding for the program is derived from $177,782 in General Fund appropriation, $27,000 from the dedicated Shellfish Fund and $68,675 "borrowed" from other programs. When the PSP program was statutorily required in 1986, it was accompanied in the same legislation by the enactment of a mahogany quahog tax which was estimated to raise approximately $240,000 per year that would have covered the cost of the PSP program. The new tax law contained a definitional error which made collection of the tax impossible. In October 1987, a bill was enacted to correct the error. The tax was also changed at that time from a tax of 8% of "landed value" to $1.20 per bushel of mahogany quahogs. Although the $1.20 per bushel tax was estimated to generate approximately $140,000 in revenues, the change in the tax was not anticipated to result in any reduction

in revenues because it was believed that the original estimate on the tax at 8% was too high. The change was made primarily for purposes of administrative efficiency.

D. Testing procedure

The current monitoring procedure provides for 18 primary sampling points where PSP has been particularly troublesome in the past, with approximately 200 secondary sites. Primary sites are sampled weekly from April to October, although there is some monitoring of surf clams and ocean quahogs through the winter months because of their long retention rates. If a PSP problem is detected at a primary site, secondary sites in the area are also sampled. Coastal closures are publicized in newspapers and on National Weather Service broadcasts.

The sampling protocol for PSP consists of shucking 10 to 12 clams or up to 30 mussels to get a 100 gram sample. Meats are mixed with a weak hydrochloric acid solution, boiled for 5 minutes and injected into a mouse. Based on how quickly the mouse dies, and using established tables, DMR staff determines whether the toxin is present and at what concentrations. This method is the only sampling protocol currently approved by the U.S. Food and Drug Administration (Plante, 1987).

The frequency of sampling varies. "Runners" start at each end of the coast and pick up samples on their way to the DMR lab in Boothbay Harbor where the tests are conducted. The frequency of these trips depends upon the severity of the problem. It is typically once or twice per week in the summer months.

E. Standards

Shellfish areas are closed when the toxicity reaches 80 micrograms of toxin per 100 grams of shellfish. The 80 microgram limit is set by the U.S. Food and Drug Administration. Although shellfish are not toxic at that level, it provides an adequate margin of safety (DMR, 1987). Within 24 hours, a mildly contaminated area can experience an explosion of dinoflagellate bloom.

III. Shellfish sanitation

A. Background of the problem

In the course of the subcommittee's study of the PSP program, an additional problem relating to shellfish sanitation became apparent. The Department of Marine Resources also has responsibility for protecting the public against shellfish conditions other than PSP which could be hazardous to persons who consume shellfish. Other sources of contamination include environmental pollutants of many forms which find their ways to the waters and beds where shellfish are found. Pollution may be in the form of fertilizer or road salt run off, sewerage, or industrial discharges.

Shellfish sanitation and safety are governed by the National Shellfish Sanitation Program (NSSP), a system of public health principles and program controls, voluntarily accepted by the federal government, shellfish producing states and the shellfish industry through the Interstate Shellfish Sanitation Conference (ISSC). State compliance with NSSP standards is monitored by the federal Food and Drug Administration. States which are not in compliance with NSSP standards run a serious risk of boycott by purchasers in other states.

Protection of the public from shellfish contamination is the joint responsibility of DMR and the Department of Environmental Protection. Through its shellfish sanitation program, DMR monitors shellfish beds for bacteriological contaminants. When pollutants are discovered in sufficient concentrations, the area is closed. Attempts are made to locate the source, and the problem is referred to the DEP which enforces the laws relating to water quality.

In the Spring of 1987, the federal Food and Drug Administration identified Maine as having major "nonconformities" with the National Shellfish Sanitation Program. These deficiencies were mainly in the area of inadequate monitoring of shellfish harvesting areas for pollutants. As a result of those nonconformities, there was a substantial risk that Maine shellfish would be boycotted by other states and the Maine shellfish industry could have been severly damaged. As a result of this risk, DMR intensified its monitoring activities to meet NSSP requirements, in some instances by borrowing resources from other Department activities.

There are two ways in which the problem with the shellfish sanitation program has been identified. The first is a recognition by DMR that inadequate staffing results in excess closings of some harvesting areas and inadequate alleviation of the sources of pollution. DMR believes that identifying and

alleviating the sources of contamination would be greatly improved by increased department efforts and that more timely handling of cases by the DEP could provide less extensive closings.

The second way in which the problem has been identified is through the FDA determination of major program nonconformities in its shellfish sanitation program. An action plan was developed to address those nonconformities; however, additional resources will be required by DMR to meet national standards. If the State continues in nonconformance, it risks boycott by the ISSC with the result that Maine dealers would be unable to market their shellfish outside of Maine. In fact, at least one out-of-state purchaser threatened to discontinue buying Maine shellfish as a result of its nonconformities. In response, DMR made a special effort to recertify the area in question and the threat was alleviated. The ISSC boycott threat is a real one as evidenced by the boycott of Maryland shellfish this past summer when that state failed to take action to address nonconformities. Maryland has since responded positively, and Maryland shellfish are again marketable interstate.

B. The current shellfish sanitation program

1. The program.

The shellfish sanitation program of DMR monitors shellfish and shellfish harvesting areas for bacteriological contamination and other forms of pollution. Two full time persons are currently allocated to shellfish testing. They monitor shellfish testing as well as bacteriological analysis. They also classify harvesting areas as open, closed or conditional. Assistance is also available from other DMR personnel. The program is required by the NSSP to perform a complete shoreline survey every twelve years and periodic surveys at less frequent intervals including when a reclassification of an area is made. Shoreline surveys consist of walking the shoreline in search of both point and non-point discharges.

2. Budget.

The budget for the shellfish sanitation program for fiscal year 1987-88 is $323,614. This amount pays for four positions in water quality, two positions in industry services, four positions in area management, and four positions in shellfish inspection.

3. Funding.

The cost of the shellfish sanitation program is covered by General Fund appropriations.

IV. Proposed solution

A. The proposal

DMR made a proposal to the subcommittee of its suggested method of meeting the need for increased PSP monitoring. The Boothbay Harbor lab is now crowded. Increasing the number of samples will require additional lab space as well as additional personnel. DMR has proposed converting space in a barn in Lamoine State Park into additional lab space. The building belongs to the Department of Conservation which would lease the space to DMR. A portion of the building is currently used by the marine patrol. Substantial renovations would be required.

DMR also considered the possibility of locating additional lab facilities at its location in Augusta. Augusta was not considered appropriate because DMR has outgrown its space there already. Transportation of samples is easier along the coast, and persons transporting the samples frequently have other business which brings them to the lab anyway.

A new lab in Lamoine would require remodeling part of the barn, insulation, and changes in the heating system. The lab would also be equipped to do water quality sampling for the downeast area. This would cost approximately $20,000 more than to equip the lab for only PSP monitoring and would provide an effective way to increase sanitation efforts. The lab staff could do surveys and water quality monitoring in the off season.

John Hurst, currently running the program in Boothbay would still be in charge of making the recommendations for closure under this scheme.

B. Advantages and disadvantages of locating in Lamoine.

Disadvantages- Two locations create the potential for lack of uniformity and communication between labs.

Advantages- A new facility in Lamoine would provide a DMR presence in the Downeast area beyond the marine patrol, transportation time and problems would be alleviated, space would be freed up in the Boothbay Harbor lab. It would cover the area east of the Penobscot, savings in transportation costs would offset increased communication and organizational costs, and samples could be processed more quickly after collection.

C. Cost of Proposal

DMR estimates their expanded program costs to be $345,661 per year. This includes the cost of additional personnel and of developing, equipping and staffing a lab in Lamoine.

Estimated expanded program costs (in addition to current appropriations)would be broken down as follows:

Chart 1

Year One

Personal Services	$162,355
All Other	140,306
Capital	43,000
Total	$345,661

Personal services includes 6 new positions:

1 Scientist I
3 Marine Resource Technicians
1 Marine Specialist I
1 Marine Specialist II

All Other includes the cost of constructing the Lamoine Lab, operating the lab and contracting boats and crews for sampling.

Capital includes equipment purchases for the lab (both for PSP monitoring and shellfish sanitation) and vehicles.

Year Two

Personal Services	$225,355
All Other	120,306
Capital	-0-
Total	$345,661

Personal Services includes 8 new positions as follows:

1 Scientist I
5 Marine Resource Technicians
1 Marine Specialist I
1 Marine Specialist II

Two additional Marine Resource Technicians are added to staff the lab in Lamoine. They are not hired until Year 2 because they are not needed while the lab is under construction.

All Other includes the costs of running both labs and contracting boats for sampling.

The cost of constructing a new facility is not substantially more expensive than expanding the present lab facilities at Boothbay Harbor. Any expansion of the existing program will require more space.

According to DMR, a rough comparison of the costs for building an additional facility compared with expanding the capacity at Boothbay are as follows:

Chart 2

Comparison of New Facility with Boothbay Harbor Lab

	Add'l Lab (Lamoine)	Boothbay Expansion
Construction Costs	$19,500	$30,000
Personnel Costs		No substantial difference, perhaps one less person
Equipment Costs - PSP	$ 5,000	less than $ 5,000
Shellfish Sanitation Equipment	$20,000-$25,000	$ 5,000 less than additional lab.
"All Other" Costs (phone, transportation, postage, etc.)		No substantial difference

During the course of the Committee's consideration of the need for additional PSP monitoring resources, the DMR suggested that some of the increased resources could be used to enhance its shellfish sanitation efforts to bring the state into compliance with national standards. The Department proposed that in year two of the PSP expansion, 30% of new personnel time could be spent on the shellfish sanitation program.

V. Funding Options

The subcommittee considered ways in which the suggested expansion of DMR efforts could be funded. Three options were considered as potential sources of funding. They are

1. An excise on shellfish dealers as proposed in LD 1328;

2. Increased General Fund appropriations; and

3. Increases in shellfish license fees.

    a. Proportional to current fee structure

    b. Equal increase per license

    c. All shellfish licenses or a portion

These options are compared below:

A. Excise tax.

LD 1328, from which this study originated, proposed to fund the increased effort required to strengthen the PSP program through an excise tax of 50 cents per bushel on the sale of all forms of shellfish. That tax would have raised approximately $350,000, the amount required to fund the additional lab proposal suggested by DMR. This amount assumes that the new excise tax would include mahogany quahogs and repeals the existing separate tax that applies to that species. The mahogany quahog tax is currently estimated to raise $140,000 which goes into the General Fund and has been appropriated for other purposes.

Reasons favoring excise tax

+ An excise tax raises revenues based upon the volume of shellfish harvested, thereby placing the greatest financial burden on those who have benefited the greatest from State protection and monitoring of shellfish to ensure marketability and consumer safety.

Reasons opposing excise tax

+ Excise taxes cause administrative problem for DMR.

+ Excise taxes may aggravate the already existing problem of underreporting of shellfish harvests.

+ Excise revenues fluctuate with the volume of shellfish harvested and may not provide a reliable source of revenue.

B. General Fund appropriation.

An increase in General Fund appropriations to DMR of $345,000 would provide sufficient funding to cover the additional laboratory proposed by DMR.

Reasons favoring a General Fund appropriation

+ Protection of shellfish from sources of pollution is an obligation of the State to its citizens. Therefore, it should be paid for from the General Fund.

+ Additional PSP monitoring is necessary in order to provide an important industry with the maximum possible availability of shellfish harvesting sites. It is an economic development issue which should be paid from the General Fund

Reasons opposing a General Fund appropriation

+ Additional PSP monitoring does not provide a general public benefit. It is requested by a particular industry and should be paid for by that industry.

+ There are many demands on the General Fund. The additional lab proposed by DMR may not be able to successfully compete with other demands.

C. Increased license fees.

DMR currently issues several types of shell fish licenses. These include:

+ Scallop licenses

+ Wholesale seafood license

+ Retail seafood license

+ Shellfish transportation license

+ Shellfish license

+ Mussel license

A portion (53%) of all fees from certain licenses are paid into the dedicated Shellfish Fund which may be used for "management, enforcement, restoration, development and conservation of shellfish in the intertidal zone or coastal waters." This dedication pertains to shellfish licenses, shellfish transportation licenses; mussel licenses and wholesale seafood licenses. Some funds are currently allocated out of the Shellfish Fund for purposes of the PSP program.

There are several ways in which licenses could be increased to produce revenues sufficient to fund the expanded programs proposed by DMR. Chart 3 lists the cost, number and revenue from licenses of DMR.

Chart 3

CURRENT LICENSE FEE STRUCTURE

License	Cost	# of Licenses (3 yr. average)	Total Fees
Shellfish Harvester	$ 13	3,872	$ 50,336
Wholesale[1] Seafood	130	749	97,370
Retail[1] Seafood	26	2,137[2]	55,562
Shellfish Transport	130	199	25,870
Hand Mussel	13	87[3]	1,131
Boat Mussel	53	130[3]	6,890
TOTAL		7,174	$211,289
		(4,288[4])	

[1] Might not sell shellfish

[2] Excludes 1984

[3] DMR estimates

[4] Excluding wholesale and retail seafood licenses

It would be possible to raise the entire $345,000 necessary to fund the expanded programs proposed by DMR in the following ways:

1. Proportional increase. An increase of 163% in each license category.

2. Flat increase. A flat increase in each fee of $48.

3. Partial flat increase. The subcommittee considered an option which would increase licenses other than wholesale and retail seafood licenses because holders of those licenses might not handle shellfish and therefore would receive no benefit from increased shellfish monitoring. A flat increase of $81 in each license fee excluding wholesale and retail seafood licenses.

Other, more complicated, variations could be devised.

Arguments in favor of license increase

+ Arguments in favor of increased license fees maintain that the State's efforts in the area of PSP monitoring are adequate to ensure public health and safety, and that the demand for increased activity results from commercial harvesters desiring greater access to harvesting areas. According to this argument, since the need is commercial rather than public health, the shellfish industry should pay the State's increased costs for expanded monitoring.

+ Licence fee increases would be easier to administer than excise taxes and would not encourage underreporting of the amount of shellfish harvested.

Arguments opposing license increases

+ License fee increases would need to be quite large relative to current fees in order to produce the amount of revenue required.

D. Combination.

The expanded programs proposed by DMR could also be funded by any combination of the above options.

VI. Recommendations of the subcommittee

THE SUBCOMMITTEE RECOMMENDS THAT DEPARTMENT OF MARINE RESOURCES FUNDING BE INCREASED BY $352,214 IN FISCAL YEAR 1988-89 TO EXPAND THE CURRENT PARALYTIC SHELLFISH POISON AND SHELLFISH SANITATION MONITORING PROGRAMS

The Department's recent difficulties in meeting national shellfish sanitation standards indicates a serious need to upgrade monitoring activities to ensure adequate protection of the public from potentially contaminated shellfish. As long as the Department is unable to meet its public health responsibilities at the program's current funding levels, a serious situation exists which is a threat to consumers of shellfish as well as to the shellfish industry.

The importance of the department's public health responsibilities is emphasized by the recent outbreak of an, as yet, unidentified toxin in mussels in Prince Edward Island. Although the toxin has not appeared in other locations, constant vigilance is necessary to protect the public from the potential spread of the contamination. Recent years of reduced incidence of public illness from PSP due to effective monitoring do not reduce the need for continued vigilence.

In addition to its public health responsibilities, the role of the Department in maximizing the availability of shellfish harvesting sites is vital to the well being of the shellfish industry which makes a valuable contribution to the economy of the State. Shellfish harvesters suffer needlessly from the closing of harvesting areas due to PSP or pollution. The economy of the State is unduly harmed due to the decreased harvesting activity resulting from the State's inability to locate and alleviate sources of pollution and the State runs a serious risk of noncompliance with national standards. Additional efforts are necessary to avoid unnecessarily over-broad restrictions on shellfish harvesting areas and encourage more rapid reopening of suspected toxin sites.

THE SUBCOMMITTEE RECOMMENDS THAT THE DEPARTMENT OF MARINE RESOURCE EXPAND ITS SHELLFISH MONITORING CAPABILITIES BY THE ADDITION OF A NEW LAB AS PROPOSED BY THE DEPARTMENT AT LAMOINE

It was clear to the subcommittee from the information provided by the Department that additional monitoring facilities are necessary if the Department is to meet its responsibilities adequately. The subcommittee compared the costs of expanding the present lab at Boothbay Harbor with adding of a new lab at Lamoine and found the Lamoine option to be both cost effective an to provide a useful opportunity to expand DMR presence along the eastern coastal area. The recommended expansion of the program provides the capability to the Department, in the form of increased personnel and laboratory facilities, to monitor shellfish for both PSP and environmental contaminants.

THE SUBCOMMITTEE RECOMMENDS AN INCREASE OF $25 IN SHELLFISH LICENSES, SHELLFISH TRANSPORTATION LICENSES AND HAND AND BOAT MUSSEL LICENSES TO PAY FOR THE PORTION OF THE EXPANDED MONITORING PROGRAM WHICH IS ATTRIBUTABLE TO INDUSTRY REQUESTS FOR MORE SPECIFIC MONITORING

The subcommittee believes that the expansion of shellfish monitoring activities by DMR should be funded by a combination of increased shellfish licenses and General Fund appropriations. It recommends a licence fee increase of $25 in shellfish licenses, shellfish transportation licenses and hand and boat mussel licenses and an increase in General Fund appropriations of an additional $245,014.

A majority of the need for increased shellfish monitoring is attributable to the State's responsibility to protect the health of its citizens. That responsibility is currently funded from General Fund sources and should appropriately continue to be so funded.

It would not be appropriate to tax a special industry for State activities which are directed toward protecting the health of all Maine's citizens. The subcommittee strongly recommends that the Governor increase the amount budgeted for shellfish monitoring in the amount of $245,014 to fund adequately the State's public health responsiblities. A portion of the recommended expansion results from industry desires for increased monitoring, not to protect against the harvesting of contaminated shellfish but to ensure that the State's restrictions on harvesting in the interest of public safety do not remain in effect for areas and periods of time when they could be removed if greater resources were available for retesting and more specific testing of restricted sites. This portion of the program should be funded by increased levies on the industry which benefits from the program. The recommended increase in license fees will raise approximately $107,000. This additional amount would go directly to the General Fund to compensate it for the portion of increased program costs attributable to industry requests.

VII.

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