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FINAL REPORT OF THE JOINT STANDING COMMITTEE ON MARINE RESOURCES ON LOBSTER TRAP LIMITS

FEBRUARY 1985

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March 27, 1985

Honorable John Diamond
Chair, Legislative Council
Maine Legislature
Augusta, Maine

Dear Rep. Diamond,

The Joint Standing Committee on Marine Resources is pleased to submit for your use its study of lobster management issues including the question of trap limits. The committee worked throughout the summer of 1984 and into the early months of this session to review the current status of the lobster industry and the fishery on which it depends.

While the call for trap limits and limited entry sounded very loudly at the beginning of the summer, the committee observed that as the summer wore on and catch levels recovered, support and the apparent need for hasty movement on a trap limit program dwindled. The committee finds that the Department of Marine Resources has underway a constructive long-term effort to test and implement adequate lobster management strategies.

The committee's study report provides the Legislature with a useful primer of the lobster industry issues that will come before it this session and next.

Sincerely,

Sen. Jean Chalmers, Senate Chair

Rep. Nathaniel Crowley, House Chair

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INTRODUCTION

This is the report of the Joint Standing Committee on Marine Resources on the subject of lobster trap limits and related options for managing the lobster stocks of the state. It draws on the information collected at the three hearings held during the summer and on research conducted by the Committee's staff.

The report covers four areas:

1. The historical background to the debate;

2. The perceived problems in the lobster fishery and lobster industry;

3. The possible management objectives that could be established by the Legislature as policy; and

4. The options for management strategy along with the pros and cons of each option.

The discussion focusses on issues that relate directly to the question of trap limits. Thus, other issues, such as gear conflict, are not covered in any detail.

During the summer of 1984, the Joint Standing Committee on Marine Resources conducted a study of lobster trap limits. The subject has been before the Legislature repeatedly. In 1975, a bill was considered which would have established a comprehensive trap limit and limited entry program. It was withdrawn after considerable controversy. In 1983, a bill was introduced to simply limit the number of traps per license; initially to 800 traps/license, decreasing to 600 traps/license over several years. It was also withdrawn. In 1984, a bill was introduced to study the subject of trap limits. This bill was withdrawn when the Committee agreed to conduct its own study of the issue.

In addition to the Committee's study, the Maine Department of Marine Resources is conducting a pilot trap limit program in the waters around Swan's Island. This is part of a long term project to test and evaluate administrative procedures needed for a trap limit and limited entry. The project will also attempt to examine the impacts on the local lobster population although this will be very difficult.

BACKGROUND

Before discussing the nature of the problems and possible solutions, it is useful to briefly review the recent trends in the lobster industry. These trends have an impact on both the

underlying structure of the industry and on the public debate over management strategies. For example, the last comprehensive trap limit/limited entry proposal coincided with several of the lowest lobster harvests in recent memory and with record high numbers of lobster licenses.

Industry trends

The annual lobster harvest (in lbs) has been relatively constant over the past 35 years with a slight trend up in the past ten years (figure 1). At the same time, the number of lobstermen, as measured by the number of licenses issued, has grown and the reported number of lobster traps fished has increased dramatically (figure 2).

It would appear then that the catch per trap must be declining over this period (figure 3). According to the simple trend information presented here, catch/trap has declined from 35.4 lbs in 1947 to 11 lbs in 1983. It has been argued that the economic impact of this decline has been offset by the increases in lobster price over the same period. However, the enormous price increases have been largely the result of general inflation which has also affected all the other costs a lobsterman must bear. If the effects of inflation are removed, it is evident that the "real" price of lobster, measured in constant dollars, has risen only slightly over the period 1947-1983. This gentle price rise has not been sufficient to offset the impact of the decline in the catch per trap. The bottom line is that the annual value of the catch per trap has declined, in real terms, from $19.47 in 1947 to $8.68 in 1983 (figure 4).

The decline in per trap yield has not been steady. In fact, catch per trap was more or less stable throughout the fifties and early sixties. As late as 1968, the catch per trap was even with that in 1947. The drop discussed above has all occurred since the late sixties.

The large increase in the number of traps reported represents a substantial investment by lobstermen. Most of this increase has occurred since the late sixties (figure 2). What has been happening in the industry to encourage this? First of all, the "traps fished" figures must be viewed with caution. They are voluntarily reported and may represent over or underestimates of the actual number of traps. Independant surveys conducted annually by the DMR since 1967 confirm a significant increase in the numbers of traps.

As a second caveat, the serious discussion of a trap limit in 1974-75 appears to have provoked a huge increase in the number of licenses issued, presumably to protect the licensees' access to the fishery. At the same time, the number of traps reported was also increasing rapidly, perhaps in part for the same reasons. While the number of licensees fell off after 1975, it did not fall to the previous levels. The reported numbers of traps did not fall.

FIGURE 1

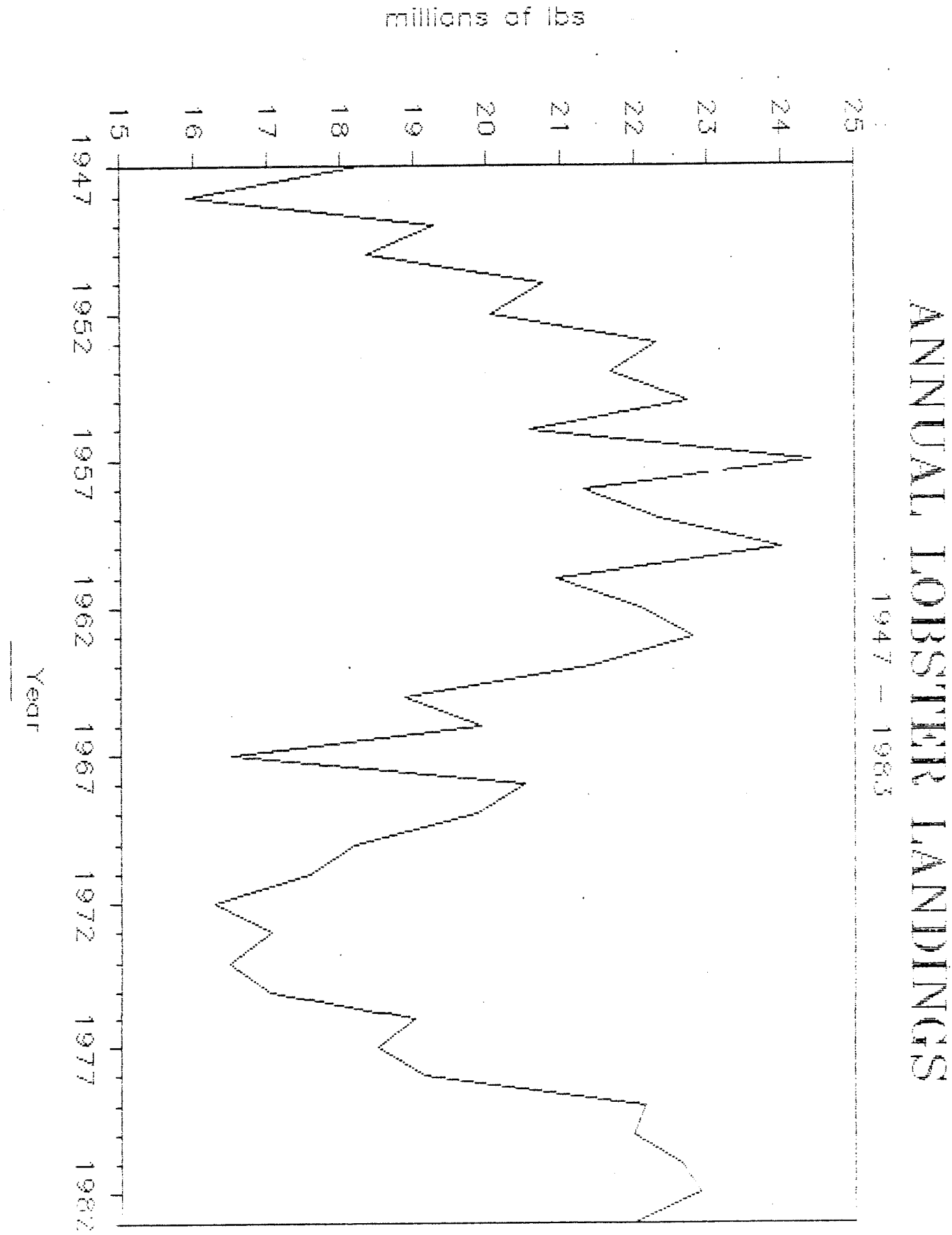

millions of lbs
15
16
17
18
19
20
21
22
23
24
25
1947
1952
1957
1962
1967
1972
1977
1982
Year
ANNUAL LOBSTER LANDINGS
1947 - 1983

FIGURE 2

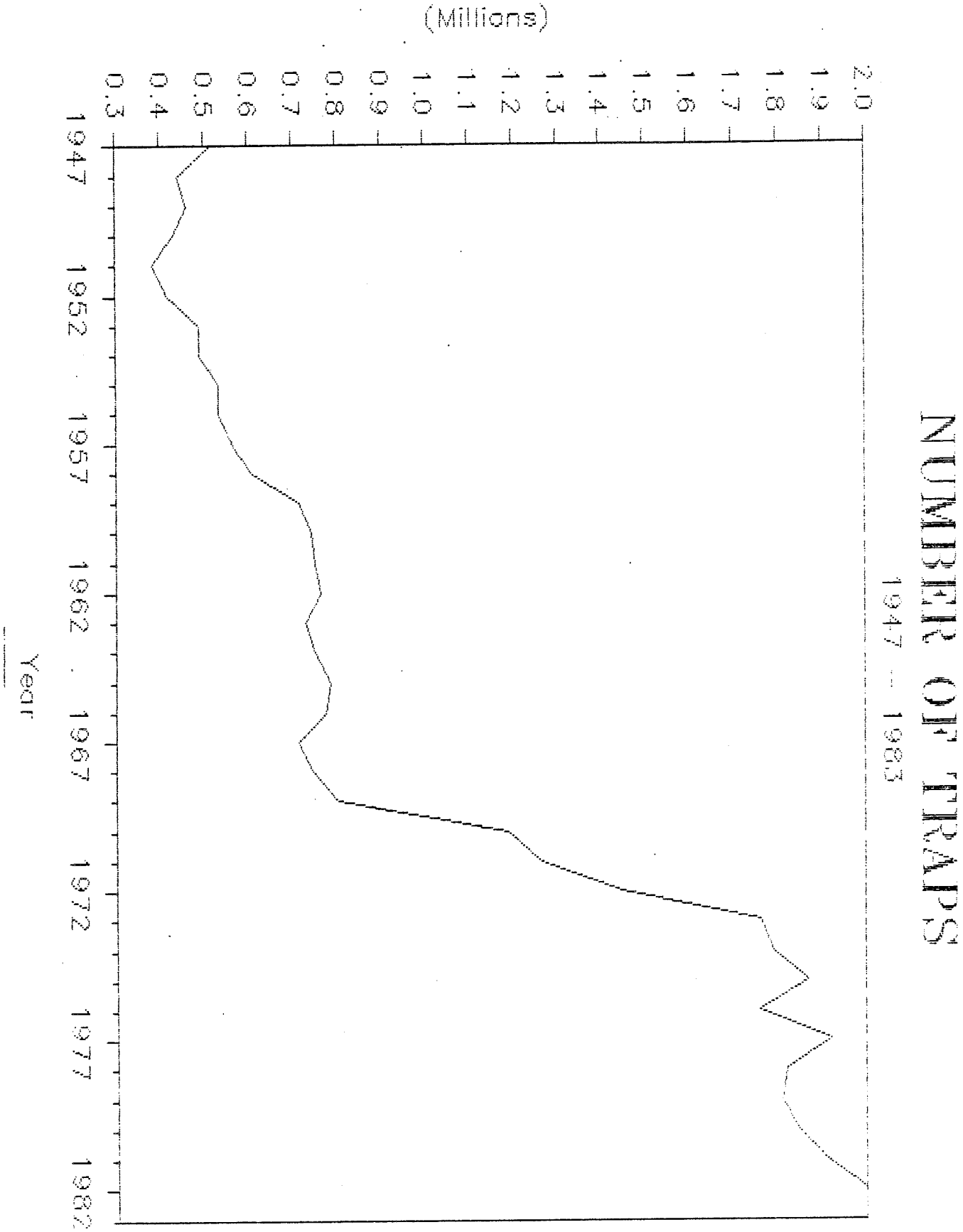
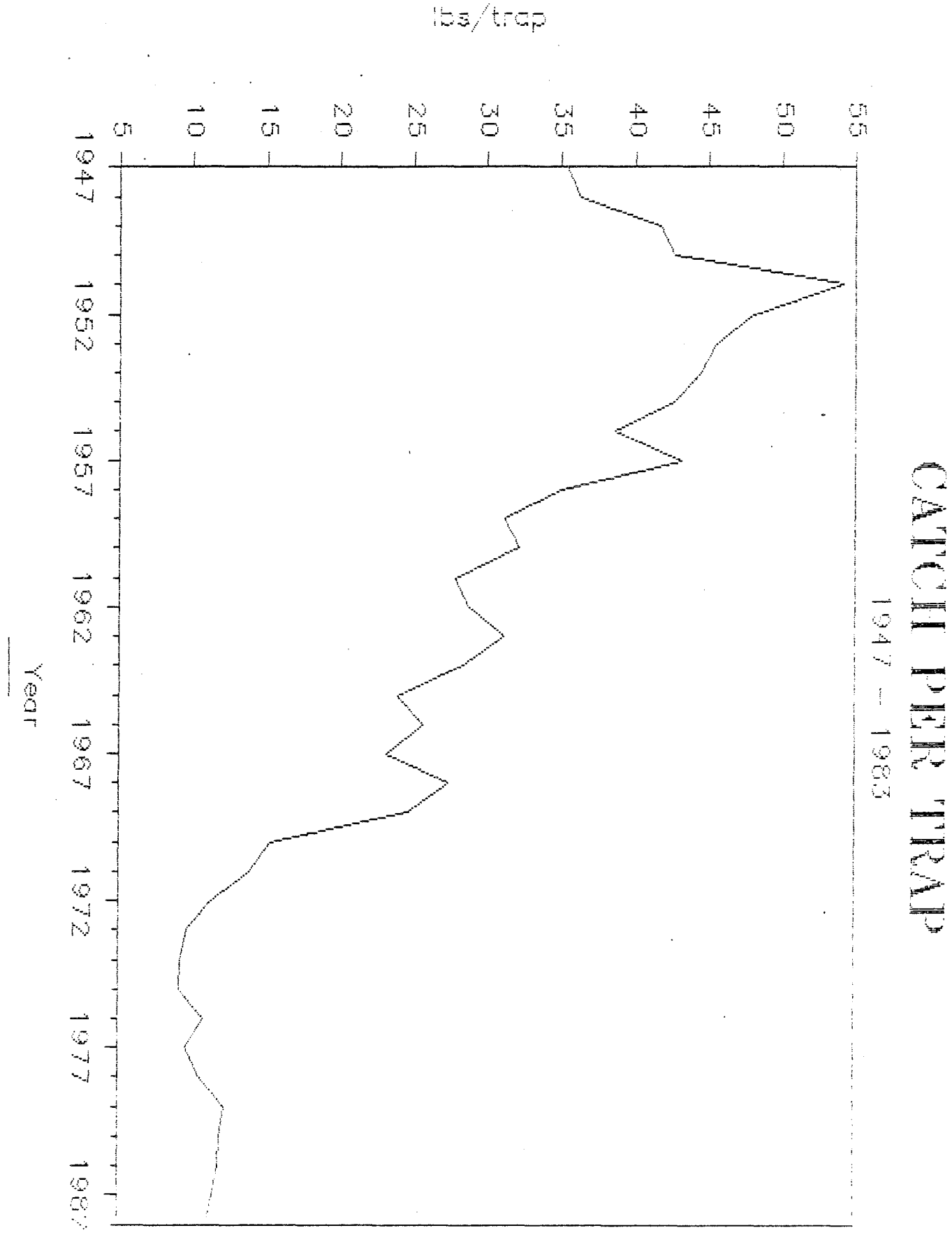
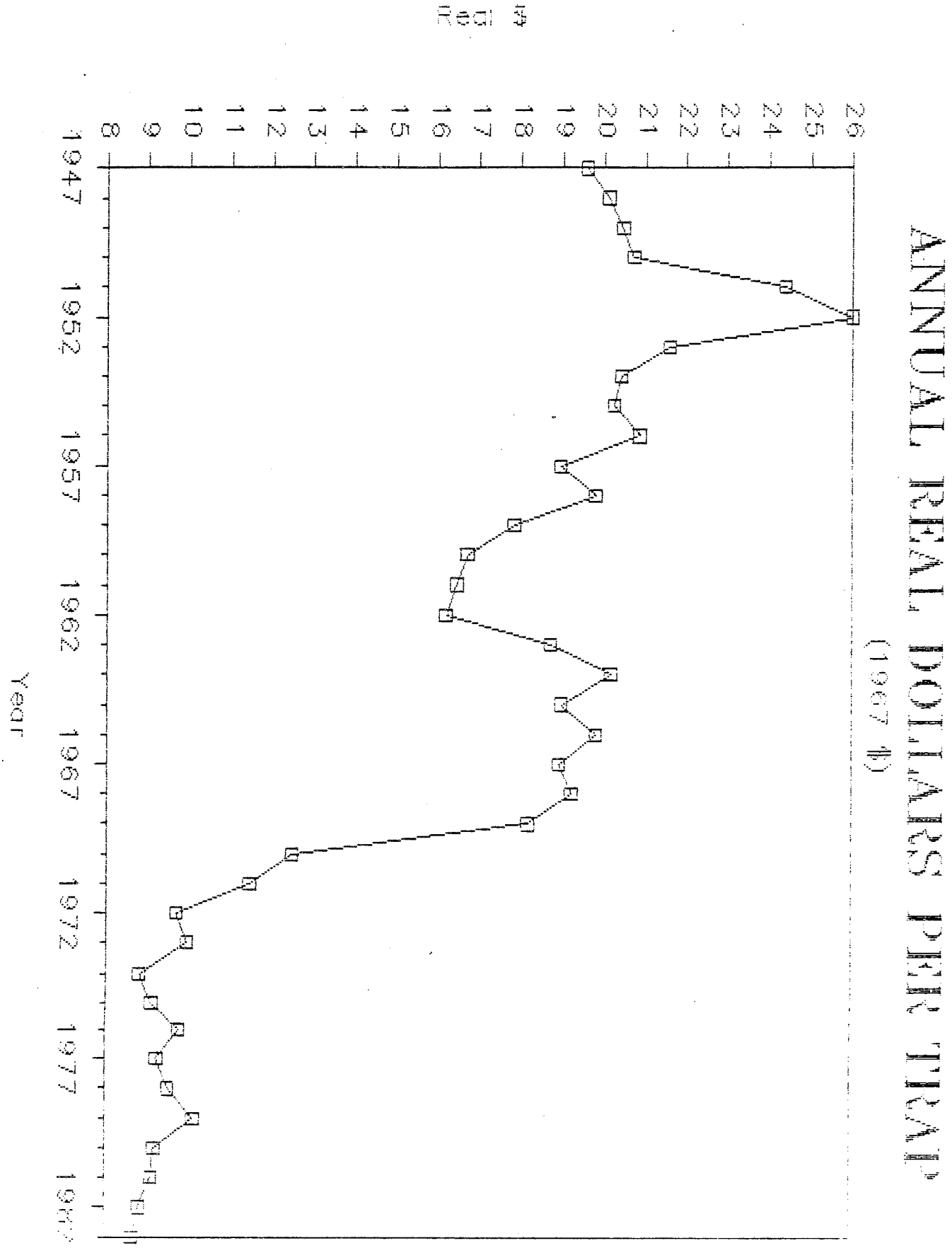

NUMBER OF TRAPS
1947 - 1982
(Millions)
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
1.6
1.7
1.8
1.9
2.0
1947
1952
1957
1962
1967
1972
1977
1982
Year

FIGURE 3


lbs/trap
5
10
15
20
25
30
35
40
45
50
55
1947
1952
1957
1962
1967
1972
1977
1982
Year
CATCH PER TRAP
1947 - 1982


Real $
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
1947
1952
1957
1962
1967
1972
1977
1982
Year
ANNUAL REAL DOLLARS PER TRAIT
(1967 $)

Despite these warnings on interpretation, the trends in licenses, traps and harvest do reflect basic changes in the stucture of the lobster industry. The introduction of hydraulic trap hauling gear, faster boats and better navigational equipment allowed lobstermen to handle more gear efficiently. This process started in the early sixties. At this point, the yield per trap was still relatively high. It was thus reasonable for lobstermen to increase their trap gangs in the pursuit of higher incomes. This increase, however, has not resulted in a proportional rise in the total harvest. As a direct result, the catch and financial return per trap has fallen.

As the number of traps has continued to increase and the return per trap to fall, the industry has moved into a position of over investment. The danger of this position is that it generates a demand for increased revenues that can only be raised by increasing the number of traps fished. A vicious downward spiral may be thus established.

Annual DMR surveys have partially confirmed the decline in the catch per trap. However, the DMR has also created an index of fishing effort that incorporates the number of set over days and the number of traps. The yield as measured by this index is more or less constant with a very slight downward trend since 1968. Interestingly, this index has shown a strong upward trend since 1977.

Lobster population trends

Most of the preceding discussion has concerned the lobstering industry; how much gear, how many lobstermen and so on. What has been happening with the lobsters themselves? The DMR estimates, on the basis of annual surveys, that between 70 and 80% of the annual catch are new recruits; that is, these lobsters have molted to legal size in the past year. At least 90% of the catch is less than 3 3/4 inches long. The average weight of a lobster in 1981 was 1.2 lbs. Furthermore, the DMR estimates that a substantial majority of the female lobsters coming to legal size are caught before they reach sexual maturity and reproduce. There is no hard evidence to date that the V-notch and maximum size measures have contributed significantly to conservation objectives.

While the historical data on catch indicates that the lobster stocks can withstand heavy fishing pressure, there is no doubt that the pressure is just that, heavy. The major question on the biological side, which has not yet been answered, concerns how the lobster stocks sustain themselves. Since the basis of the fishery appears to be the annual new recruits, a bad year for reproduction could translate into a poor harvest four to six years later. Furthermore, the small number of females reaching sexual maturity introduces a potential for instability into the lobster population.

Alternative hypotheses abound over migration patterns and other aspects of the lobsters' life cycle. To date none of them offer a clear explanation of the patterns in size and yield that have been observed over the years.

PROBLEM STATEMENT

Two separate problem statements guided the Committee's deliberations. They are not mutually exclusive; they are both be real issues worthy of attention. The purpose of this section is not to debate the merits of these two positions but rather to draw a clear distinction between them. The options discussed in the following sections address one or the other or both of these problems. It is important to know with which ones they really deal. That said, what are the two possible problems?

The biological problem

The basis of this problem is that the lobster stocks are being over-fished. There is substantial evidence (presented above) that the industry relies very heavily on lobsters that are just above the legal minimum size. In addition, the reproductive base of the stock seems to be very narrow and thus unstable. Although there has not been a collapse, there is concern that the industry is cutting into its "biological capital", leaving little left over for the "rainy year" of poor reproduction or other natural factors.

The socioeconomic problem

This problem can be summarized as "too many lobstermen with too many traps competing for a relatively 'fixed' number of lobsters". It is possible for a fishing industry with heavy participation to become over capitalized. The profits decline and are divided among a greater number of lobstermen. In addition, this situation can eventually have an impact on the biological side through over-fishing. There is evidence that the lobster industry in Maine is well past the point of "diminishing return" and that a similar level of harvest could be obtained with a substantially reduced level of effort (less lobstermen and many less traps).

MANAGEMENT OBJECTIVES

The next logical step is to establish management or policy objectives that address the roots of the problems above. Such objectives should also have broad support among the public and the industry itself.

Two primary objectives can be stated as follows:

1. Insure the sustainable yield of the lobster stocks, at least at the current levels.

2. Encourage overall economic efficiency in the industry as a whole and thus a reasonable level of income for lobstermen and reasonable lobster prices for the public.

LOBSTER MANAGEMENT OPTIONS

The range of options that might be applied to Maine's lobster fishery is virtually unlimited. There is a vast literature on license auctions, quota systems, progressive fee structures, trap limits and so on. This discussion will be limited to options that have received some recent consideration in Maine, particularly those raised in the three public hearings held by the Committee during the summer of 1984. Broadly speaking, the four major categories of management options are as follows:

1. Trap limits

2. Limited entry

3. Increased minimum size (measure)

4. Periods closed to lobstering

Each of these categories and possible combinations are covered below together with the basic pros and cons of each.

Trap limits: per license

The term, "trap limits" generally means a limit on the number of traps fished per license although limits on the number of traps per trawl will also be covered here. Taking the per license concept first, trap limits are a method of limiting the fishing effort of individual lobstermen. They may be implemented on a statewide or regional basis, on a seasonal basis, or some other variation. In theory, a trap limit is intended to achieve the conservation objective (#1).

Pros:

1. The primary advantage to a simple trap limit program is that the necessary legal authority is in place. There are no apparent constitutional issues.

2. A trap limit per license should discourage so-called "production hauling" and encourage more efficient use of gear. This should reduce the number of traps used simply to hold bottom or otherwise neglected.

Cons:

1. The ostensible goal of a trap limit, to reduce the total number of traps fished, is likely to fail. Any reductions achieved will be offset by the entry of new

lobstermen and by trap increases among existing lobstermen fishing below the limit. For these reasons, a simple trap limit is not likely to have any beneficial conservation impact on lobster stocks.

2. Administration and enforcement of trap limits will require a substantial effort, far in excess of the effort currently devoted by the DMR to the lobster fishery now.

3. A simple trap limit could encourage further over investment in the industry by encouraging new entrants. This would act to the detriment of existing lobstermen by further diluting the net revenues of the industry as a whole.

Trap limits: per trawl

Limiting the number of traps per trawl is essentially a way of building a level of inefficiency into the lobstering business. Such a limit is intended to slow a lobsterman down and reduce the number of traps fished. Like the previous trap limit, it can be implemented with regional adjustments. In fact, such a trap limit is in force in several areas along the coast. Conservation is really a secondary objective of this type of limit; the primary objective is to reduce gear conflict.

Pros:

1. This approach is administratively simpler than the previous trap limit concept since no trap tags would be required to count the number of traps per lobsterman.

2. This approach is already familiar to many lobstermen and would accomodate regional variations readily.

3. A per trawl limit has more or less the same impact on all lobstermen. It should not encourage new entrants or expansion.

Cons:

1. A per trawl limit could have the unintended effect of increasing set overs. Instead of fishing less traps, lobstermen might choose to simply not get to them as frequently. Conservation objectives are thus undermined.

2. A per trawl limit restricts the lobsterman's ability to adjust fishing effort to the most productive level. This planned inefficiency thus runs counter to objective #2.

Limited Entry

A fishery can be managed by controlling access to it. A pure limited entry program does not limit the level of fishing

effort directly. Rather, it concentrates the effort into a smaller number of fishermen. A limited entry program can be designed to meet both conservation and economic objectives if the fishery is well understood. The limits on entry however may have to be very stringent. Massachusetts currently employs a limited entry program with the goal of conserving the lobster stocks. It is not clear, however that the level of effort has been cut sufficiently to benefit the lobster stocks.

A major question in a limited entry program is the method of allocating fishing priviledges. Options include systems based on historical fishing patterns, lobstering experience, family connections, license auctions and license lotteries. The Commissioner's (DMR) statutory authority to implement a limited program is not clear.

Pros:

1. Limited entry programs have the advantage of controlling the overall size of the fishery without interfering in the individual lobsterman's choice of fishing practices. This should result in the most economically efficient operations at the level of the individual lobsterman.

Cons:

1. The obvious disadvantage to limited entry is that some people who would like to fish for won't be able to. The state would have to establish clear criteria and a careful process for allocating the available licenses. Although there are constitutional concerns with such a program, experience at the federal level and in other states indicates that it is feasible. In any event, such a program will be a large administrative burden.

2. While limited entry by itself might partially meet the economic objective, it is very unlikely that the number of lobstermen and overall level of fishing effort would be reduced sufficiently to achieve the conservation objective.

Trap limits with Limited entry

The most frequently discussed management option today is a combination of trap limits and limited entry. Most of the pros and cons are covered in the previous pages. The combination does, in theory, hold most of the advantages while dealing with most of the disadvantages. Several important problems remain, however.

1. The constitutional requirements for clear allocation criteria and procedure remain important and difficult.

2. The administrative burden of running the allocation procedure and enforcing the trap limit program would be high.

3. The problem of setting a trap limit low enough to have a real conservation effect remains. Note that a limited entry program with a relatively high trap limit (say 600 traps) will not address the conservation objective; it will simply be a way to reduce competition.

Increased Minimum Size

The conservation objective can be dealt with in several ways. One, as noted previously, is to reduce the level of effort directed to catching lobsters. A second way is to increase the minimum size of legal lobsters.

Pros:

1. As discussed in the background section, the industry relies very heavily on new recruits. In addition, the majority of the females reaching legal size are caught before they reach sexual maturity. An increase in the minimum size would broaden the reproductive base of the lobster stocks and increase the stock's stability. Such an increase would also allow the young lobsters to add a substantial amount of additional weight. This weight gain would offset the initial loss in catch within 2-3 years.

Cons:

1. The short term draw back to an increase in the measure is the initial reduction in catch. As noted above, this drop would be offset by the added growth the uncaught lobsters would be able to attain.

2. There is some concern over potential disruptions in lobster markets if the smallest lobsters became unavailable. This topic warrants further study although it is useful to note that the lobster market is generally considered a "seller's market". Demand almost always outstrips supply.

3. While an increase in the measure would address the conservation objective, the possibility for over investment and an inefficient lobster industry remains.

4. An increase in the minimum size would make Maine's measure the most stingent on the east coast. While Maine has been in this position before without obvious ill effects, there is concern that this will put Maine lobstermen at a competitive disadvantage with out-of-state lobstermen.

Closed Fishing Periods

The final major alternative is the establishment of a period closed to lobstering. There three variations on this option; time-of-day limits, day-of-week limits and a closed season of several months duration. The first two options are aimed primarily at excluding so-called "part-timers" from lobstering. They are not likely to have any beneficial conservation effect. The closed season option is primarily intended to reduce gear conflict with other fisherman, particularly scallopers. The conservation effect would be limited to amount of harvest foregone. The most common proposal is for a closed season from December until April. These months account for about 10% of the average annual catch although these months are likely to be much more important for the few lobsterman that actually lobster year round.

Pros:

1. To the extent that time-of-day and day-of-week restrictions limit the participation of "part-timers", these options might improve the economic efficiency of the industry and reduce the overall level of investment.

2. A closed season from December to April would reduce the harvest pressure and thus provide some conservation benefit. This benefit might be offset, however, by heavier summer lobstering.

Cons:

1. Time-of-day and day-of-week restrictions could have the unintended effect of increasing set overs and thus increasing the number of culls and in-trap mortality.

CONCLUSIONS

While it is not possible to pick a preferred option at this time, several important findings do emerge.

1. The Committee is not prepared at this time to recommend a statewide trap limit and limited entry program.

2. The Committee finds that Maine's lobster stocks are subject to substantial fishing pressure and that some biologically based conservation measures may be required in the near future.

3. The Committee finds that there is evidence of a long term decline in the economic return per unit of effort in the lobster industry. Further attention to the impact of this issue on the full-time lobsterman is warranted.

4. The committee supports the joint state/industry effort on the Swan's Island pilot program to test trap limit mechanisms. The committee expects that the Commissioner of DMR will report annually on the program with specific attention to points of interest to the committee including:

a. administartive difficulties in tag allocation and distribution;
b. enforcement records and difficulties;
c. catch;
d. design of the apprenticeship program;
e. level of participation; and
f. revenues generated by license and tag sales.

Should future action on trap limit and limited entry issues be taken by the Department of Marine Resources or other parties, the Committee recommends that the following considerations be closely examined prior to making any decision.

1. The objectives of each option must be carefully scrutinized. Many so-called conservation proposals are in reality attempts to limit access to the lobster fishery and will do no more than shift income from one pocket to another.

2. Any genuine conservation proposal must make a substantial reduction in the overall level of effort or further restrict the definition of a legal lobster.

3. All proposals should be carefully scutinized to guard against implementing further inadvertant incentives for over-investment in harvesting capacity in the lobster industry.

4. The current problems with over-investment are worthy of further study. This issue lies at the heart of the socioeconomic problems in the industry and has a direct impact on the biological stability of the stocks as well.

5. The scope of DMR authority to implement any limited entry program should be clarified.

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