

PARTICIPANTS IN THE 5th ANNUAL OYSTER MORTALITY CONFERENCE

BUREAU OF COMMERCIAL FISHERIES BIOLOGICAL LABORATORY

OXFORD, MARYLAND

JANUARY 29 - 30, 1963

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Summary of Oyster Mortality Studies - 1962

Rutgers Oyster Research Laboratory

N. J. Agricultural Experiment Station

and Department of Zoology

Rutgers - The State University of New Jersey

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I Trends in Oyster Mortality in Delaware Bay, 1962

Harold H. Haskin

Oyster mortality studies begun in 1958 have continued through 1962. These have included monthly samples on seed beds and leased grounds, extensive tray studies with a variety of native and imported stocks, and histopathological studies associated with the sampling and experimental programs.

In the spring of 1962 the Delaware Bay seed beds were opened to the industry for a short season and approximately 170,000 bushels of seed oysters were planted. These reached market size by fall and every ground planted has already been harvested. Meat quality was excellent, and the grounds yielded an average of 1 bushel of market oysters for each bushel of seed planted. Non-drill mortalities on 3 grounds sampled have not exceeded 4.5% monthly and were usually less than 2%. This is about the same situation as reported for 1961.

Monthly non-drill mortality rates on the Seed Beds has not exceeded 2% and is usually less than 1%.

"MSX" mortality in tray stocks continues low in all importations since the spring of 1961 in contrast to earlier importations. Details will be presented in III, below.

II "MSX" Infection Levels, Delaware Bay Oyster Grounds, 1958-62

John Myhre

Throughout the period from early 1958 to the end of 1962 selected oyster grounds have been sampled monthly. Based on new box counts monthly mortalities have been calculated. Samples of 20 oysters from each ground have been routinely examined and fixed. Some of these have been processed and studied and are the basis of this report.

Up through 1959 MSX infection levels ranged as high as 70% prior to periods of peak kill and monthly mortality rates at these peaks approached 20%. Compared with these figures for the epidemic period are infections up to 30% in 1960 with monthly mortality rates not exceeding 10% and usually less than 6.5%. Bay plants in spring 1961 and 1962 show negligible infection levels through late fall of their first season. By January 1962, however, 1961 spring plants had 25-50% infection levels but,

significantly, monthly non-drill mortality rates on these grounds has never exceeded 5%. By December, 4 grounds of 1962 spring plants are showing 5 to 35% infection levels with no appreciable mortality to date.

It is apparent that 1) there is a significant reservoir of MSX infection in Delaware Bay; 2) that selection of oyster stocks for resistance to this disease is continuing. We interpret the low mortality rates, relative to MSX infection levels, to indicate high resistance levels in Delaware Bay native stocks.

III Patterns of Mortality in Tray Stocks and Levels of "MSX" Infection, 1958-62

Walter J. Canzonier

Stocks of oysters introduced into Cape Shore trays in the spring and early summer 1958-1960 had heavy epizootic mortalities later in the same summer and fall, with secondary peaks of kill in the following late winter and succeeding summer. "MSX" incidence reached 50-70% in living oysters preceding the heavy kills and 85-100% in gapers during the kills.

This pattern changed for all introductions in 1961-62. No significant mortalities occurred in the spring 1961 imports until August-September 1962. "MSX" incidence in living oysters reached 7-15% by the first September and diminished during that fall to 5%. In gapers of August-September 1962 "MSX" incidence approximated 50%. Stocks introduced after mid-May 1961 did not develop appreciable levels of "MSX" (21%) until late July of 1962.

Virginia Seaside oysters introduced in 1961 had no detectable "MSX" through June 1962. Mortality to date has been exceptionally low in this group and only one "MSX"-positive gaper has been recovered.

Old tray stocks, survivors of the 1958-59 mortalities, retain an "MSX" incidence in living oysters of at least 25%, but in 1961-62 the incidence in groups of gapers is less than 30%, and frequently 0. Late summer mortalities in old stocks are associated with massive infections with Dermocystidium.

IV Analysis of Mortalities in Selected Tray Stocks, Summer 1962

Sung Yen Feng

During July, August, and September 1962, gapers recovered from four stocks of oysters: Virginia imports (1961), Arnold's seed (1961), Old stocks (1958, 1959) and Cape Shore natives (1959, 1960) were selected for analysis of causes of mortalities in trays held at Cape Shore flats. Results obtained by examining fresh gaper materials, prepared slides and thioglycollate cultures indicated that the MSX incidence decreases with time while the corresponding Dermocystidium incidence increases. In the

Arnold's seed transplants, the MSX incidence in gapers dropped from 24% in July to 12% in August and 0% in September while the Dermocystidium incidence in gapers for the same period was 26%, 66% and 100%. However, if one applies the gaper incidence figures to the total kill for the respective stocks, the number of oysters attributable to MSX kill increases from July to August, the month of peak MSX kill. This is essentially the pattern of the 1958 kill although the peak is much depressed. It is apparent that much of the MSX infection in the gapers was masked by heavy Dermocystidium infection especially during August and September. The high percentage of unexplained mortality (19%-55%) in July was probably associated with subpatent Dermocystidium infection.