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Potential Effects of the 1980-81 Drought on Oyster Diseases and Predators

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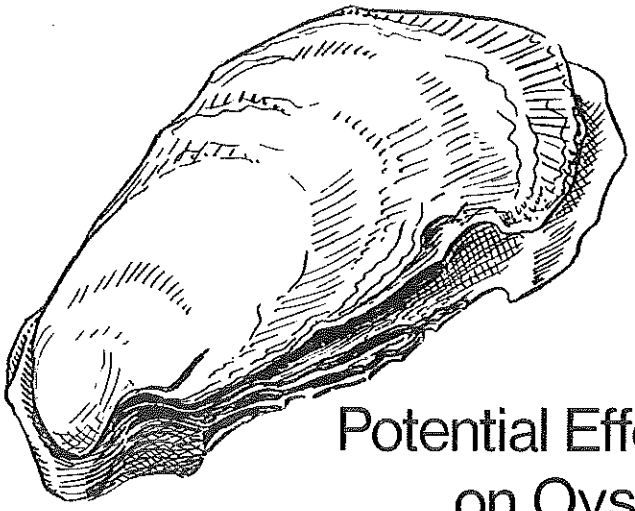

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by J. D. Andrews

THE CHIEF THREAT TO OYSTERS from the record high salinities, now occurring in Virginia rivers and almost sure to continue during the warm season of 1981, is from MSX disease. MSX has demonstrated an ability to move tens of miles up the Bay in one year and retreat as rapidly. It did this in 1965 in Maryland and in the Rappahannock River and killed many oysters.

There is much less threat from Dermo disease and oyster drills if only a one-year span of high salinities occurs. If dry weather is prolonged, without wet years such as 1979-80 (wet year and spring) that control and limit the distribution of pests, then wider distribution and greater damage can be expected.

Some facts that cause concern are:

1) Oysters now infected with MSX in the James or Rappahannock rivers will probably die by June-July 1981. Fortunately, the infection levels are low both in James River seed area and the Rappahannock River.

   A significant point to consider is that, generally, seed casts off MSX once it is planted in the rivers where salinities are

below 10 parts per thousand. However, during the spring of 1981 there will probably be no oyster beds in Virginia rivers with salinities this low.

2) Oysters in a large part of the James River seed area may be exposed to MSX infections in the summer of 1981. Deaths from MSX probably will be occurring from September through October of 1981 at greater death rates than occurred in 1980. High salinities in the summer of 1981 may permit MSX to infect oysters in nearly all oyster-growing areas in Virginia south of the Potomac River.

Transplanting of infected seed oysters from James River from October to May of 1981-1982 could set up high losses on private grounds and perhaps cause greater epizootic kills by increasing infection pressure from local sources.

3) Dermo is slow to spread naturally but it is easily established in new areas by transplanting infected oysters. It depends upon spreading from dying oysters to living ones where dense populations of oysters occur. Regular harvesting on private beds tends to keep Dermo in check. Oysters should be harvested as early as possible when they achieve good market size and provide high yields (good condition - glycogen). Leaving oysters on beds beyond the second summer involves high risk of Dermo kills in beds with infected oysters.

High temperature levels and duration of the warm season are as important as salinities in causing epizootic kills by Dermo. If warm periods extend into October, Dermo is permitted to complete second generation infections and heavier mortalities occur. This accelerates the spread of Dermo and increases chances of greater numbers of overwintering infections.

4) Oyster drills have been absent from the Rappahannock River since Tropical Storm Agnes eliminated them with freshwater in 1972. In areas of adequate salinites drills are back to pre-1972 population levels but the distribution is below average range now. Drills are no threat to the James River seed area now and most oyster planting is done above the drill range or where conditions are marginal for them. An exception is Mobjack Bay and its tributaries which have regular recruitment of oysters and little runoff to inhibit drills even in wet years.

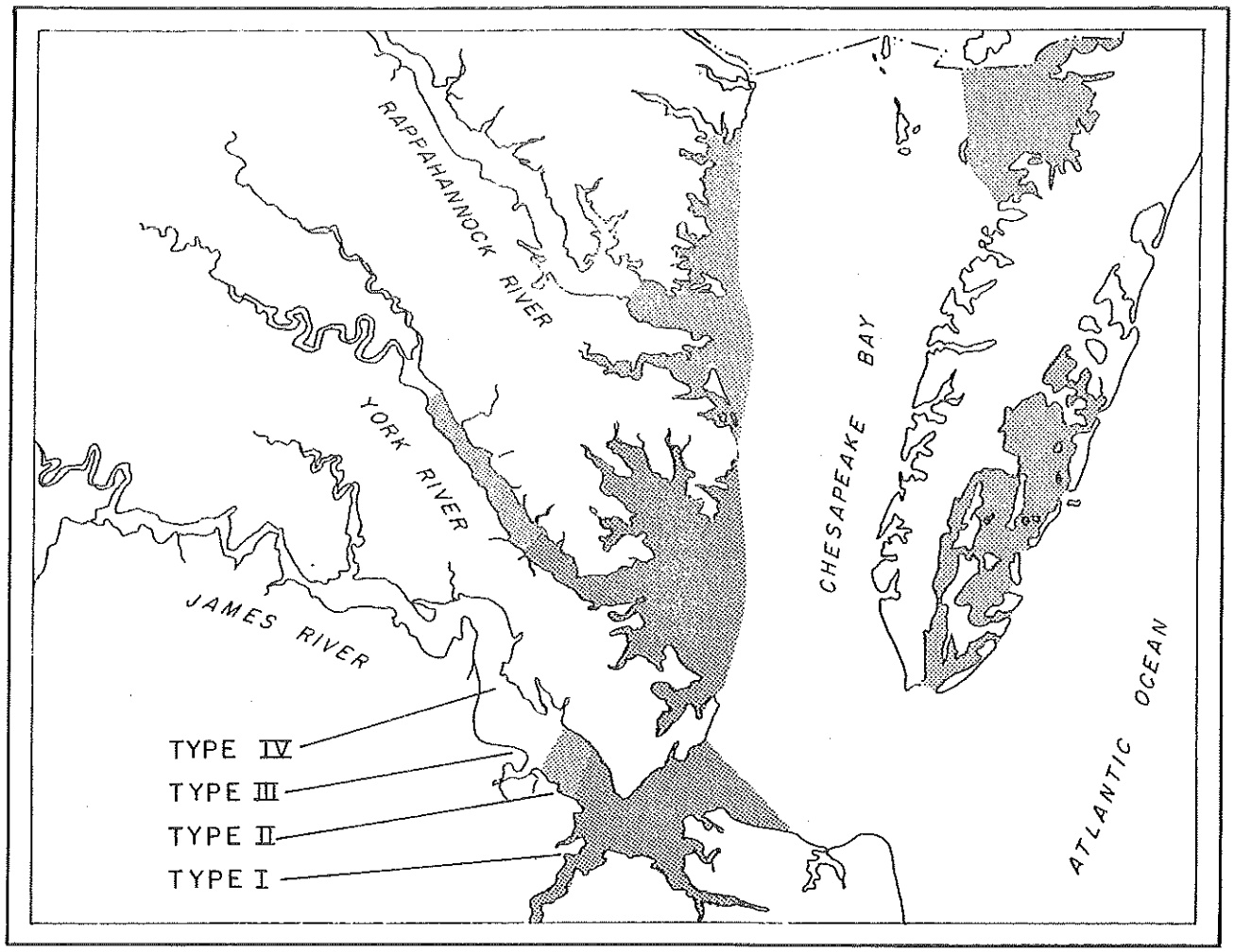
Virginia's oyster planting and growing grounds have been classified by VIMS scientists into four types of areas according to intensity of MSX activity. (See map.)

Type I. Areas with high-level MSX activity. Having prevalences of 30 per cent or higher, with late-summer deaths from mid-July to late August, and at least 20 to 50 per cent mortality by December of the first year. (Heavily shaded)

Type II. Areas with low-level MSX activity. Exhibiting the same timing but at lower levels of prevalence and mortality (less than 20 per cent for both usually). Activity fluctuates considerably from year to year. (Moderately shaded)

Type III. Areas with late-appearing infections (October and November) and little or no mortality. Typically, oysters in these areas have light infections which are carried through winter but are discharged by oysters in spring without deaths. In dry years, these areas may become Type II, or even Type I, areas. (Lightly shaded)

Type IV. Areas free of MSX. These are always low-salinity areas usually free of predators and other diseases. (No shading)



MSX ON VIRGINIA OYSTER GROUNDS

Classification of Virginia oyster grounds by intensity of a normal year of MSX activity. Four types of areas are designated ranging from high-level MSX activity to none (see discussion). Due to the recent drought, Type I areas designated on the map will probably extend into Type II and III areas in 1981.

Marine Resource Advisory

Kym Young . . . . . .Editor

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