

Reports

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## Status of the Major Oyster Diseases in Virginia

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VIMS

# Marine Resource Advisory

NO. 32

VIRGINIA SEA GRANT MARINE ADVISORY SERVICES AT VIMS/WILLIAM & MARY

October 1986

## STATUS OF MAJOR OYSTER DISEASES IN VIRGINIA

### SUMMARY:

The prolonged drought and unusually warm fall weather during 1985 and 1986 were conducive to the development of both major oyster diseases in Virginia, Perkinsus marinus (Dermo) and Haplosporidium nelsoni (MSX). Abundance of MSX during 1986 is very high, reminiscent of the early 1960's; but, because oysters are no longer transplanted to areas known to have high levels of MSX, this disease has not caused extensive oyster mortality except on some public beds. Apparently, MSX has not yet moved up-Bay in response to increased salinity. Dermo is causing serious mortality in transplanted James River seed oysters in the York River and tributaries of the Potomac River. This seed may have been infected when transplanted. If this was the case, mortality would have been accelerated resulting in even higher mortalities the second year after planting. Oysters at and below Thomas Rock in the James River have a high prevalence of Dermo and should not be transplanted to other areas unless they will be harvested within 12-18 months. Oysters at Wreck Shoal and above are not infected with Dermo.

### STATUS OF PERKINSUS MARINUS (DERMO)

This protozoan parasite, popularly known as "Dermo," has not been a serious problem in recent years because low winter salinity has kept abundance low. Dermo spreads slowly into beds of uninfected transplanted seed oysters and significant mortality doesn't typically occur until the third summer after transplanting. Mortality occurs during late summer and fall as long as water temperature is above 68°F. The combination of unusually warm fall weather during 1985 and 1986 and the increased salinity due to lack of rainfall has produced conditions very favorable for development of Dermo. Dermo is not eliminated from oysters as readily as MSX in low salinity.

Very high levels of Dermo are now present in transplanted James River seed oysters collected from the upper York River and from tributaries near the mouth of the Potomac River (Coan and Yeocomico Rivers and Machodoc Creek) (see accompanying data table). Mortality from Dermo has been high in these areas and oyster growers can expect continued mortality this fall until water temperature drops below 68° F. Dermo is also present to a lesser extent in the Great Wicomico River. It is important to understand that Dermo is also abundant on the north side of the lower James River at and below Thomas Rock (see data table). If oysters from these areas are transplanted to other grounds, significant mortality could result from Dermo the second summer after transplanting. Therefore, oysters from Thomas Rock and below should not be used as seed this year unless they will be harvested within 12-18 months (before the second summer). Low oyster mortality will occur the first summer. Oysters from Wreck Shoal and above are not infected with Dermo based upon mid-August samples.

When uninfected oysters are planted in areas where Dermo is present, the disease spreads slowly, and generally results in low mortality (10-20%) the second summer after planting and high mortality (over 50%) the third summer after planting. Thus oysters should be harvested prior to the third summer after transplanting to minimize mortality. If infected oysters are transplanted, mortality patterns are accelerated and high mortality could occur the second summer after planting. Oyster beds that suffer high mortality from Dermo should be cleaned as thoroughly as possible and should not be replanted for two years. Seed oysters should be planted 200-300 yards away from Dermo-infested beds to prevent rapid transfer of the disease.

#### STATUS OF HAPLOSPORIDIUM NELSONI (MSX)

The higher than normal salinity and warm weather also have been conducive to the development of MSX. James River seed oysters held in monitoring trays in the lower York River near VIMS since May, 1986 had the highest abundance and mortality observed in many years. In these trays, 80% of the oysters were infected with MSX in early September, and mortality during August and September averaged 30.5% per month. The increased abundance of MSX is reflected in the sample from Deep Rock near the mouth of the Rappahannock River (see table) where 60% of the oysters were infected with MSX, and most infections were moderate or heavy. High mortality was also observed at this location.


However, based on the samples collected in August and September, MSX has not moved up-Bay to any significant extent. Increased salinity allows MSX to survive in areas where normal low salinity (less than 15 ppt) would prevent survival of the parasite. MSX was present in very low numbers at Wreck Shoal and Horsehead Rock in the James River, but these infections should not cause any significant mortality in transplanted oysters. MSX was also present in the Great Wicomico River, but prevalence was low and infections were light. If rainfall continues below normal, MSX may be present in these areas in higher numbers next spring.

Location	Date	Sample Size	Origin	Prevalence of MSX H-M-L	% MSX	Prevalence Dermo H-M-L	% Dermo
Wreck Shoal James River	12 Aug 86	25	J	0-0-2	8	0-0-0	0
Horsehead James River	12 Aug 86	25	J	0-0-1	4	0-0-0	0
Poropotank River	25 Aug 86	21	J	0-0-0	0	2-12-0	67
Poropotank River	25 Aug 86	25	J	0-0-0	0	0-18-0	72
Deep Rock Rappahannock River	25 Aug 86	25	N	8-3-4	60	0-1-0	4
Machodoc Creek	10 Sept 25	25	J	0-0-0	0	11-8-6	100
Yeocomico River	10 Sept 86	25	J	0-0-0	0	13-5-6	96
Coan River	11 Sept 86	25	J	0-0-0	0	7-8-8	92
Cranes Creek Great Wicomico River	12 Sept 86	25	N	0-0-4	16	0-1-7	32
Haynie Bar Great Wicomico River	12 Sept 86	25	N	1-0-3	16	2-2-16	80
Fleeton Point Great Wicomico River	12 Sept 86	25	N	0-1-1	8	6-5-9	80
Tucker Ground York River	22 Sept 86	25	J	0-0-0	0	16-3-6	100
Below Thomas Rock James River	25 Sept 86	25	J	3-0-4	28	1-3-20	96

H = heavy infestation  
M = moderate infestation  
L = light or rare infestation  
J = James River Seed  
N = Native

Information in this Marine Resource Advisory was developed by Dr. Gene Burrenson from the ongoing VIMS Oyster Monitoring Program. Cooperation from members of the Virginia oyster industry is gratefully acknowledged.

Further advisories will be issued to the oyster industry as more information becomes available. For additional information contact Sea Grant Marine Advisory Services, Virginia Institute of Marine Science, Gloucester Point, Virginia 23062.

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C. M. Plummer . . . . . Editor	
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