



VIMS

Marine Resource Advisory

No. 34

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

August 1988

1988 STATUS OF MAJOR OYSTER DISEASES IN VIRGINIA

Summary.

The increased streamflow associated with the above average rainfall in May lowered salinity in Virginia tributaries and appears to have significantly reduced the abundance of MSX in many areas where the disease caused mortality during 1986 and 1987. Unfortunately, the low salinity had no effect on Perkinsus (Dermo) and this disease continues its advance up rivers. Perkinsus is very abundant in most growing areas except the upper portion of the James River seed area, and it is presently the most serious disease threat to oyster populations in the Bay.

Haplosporidium nelsoni (MSX).

During the summer of 1987, MSX was present in all but the uppermost regions of Virginia tributaries and prevalence was the highest on record. Significant oyster mortality occurred throughout summer and early fall and, based on samples from Wreck Shoal in the James River, mortality from MSX continued through February, 1988.

Rainfall was well above average during May, 1988 and resulted in decreased salinity in most large tributaries. For example, salinity at Wreck Shoal in the James River decreased to 10 ppt during early June. A salinity of 10 ppt for 10 days is sufficient to greatly reduce, if not eliminate, MSX from oysters, and the low June salinity appears to have eliminated most infections from tributaries where it had spread during 1986 and 1987. Table 1 shows that both prevalence (percent infected) and intensity of MSX were low in the area of Wreck and Dry Shoal on July 27th. During the summer of 1987, the prevalence of MSX at Wreck Shoal was about 50%. Prevalence of MSX was also low in Mobjack Bay and the Great Wicomico River.

By early July salinity had returned to favorable levels for MSX in many tributaries and the disease may gradually move upriver, but oyster mortality from MSX should be much less than during the previous two years because of the more restricted distribution. In the high salinity areas of the lower Bay where MSX is always present, its abundance remains high.

Perkinsus marinus (Dermo).

Perkinsus has been steadily advancing up the Bay and increasing in intensity during the 1980s, possibly as a result of increased salinity resulting from prolonged drought conditions. The spread of Perkinsus into areas with dense populations of susceptible oysters and favorable salinities (12-15 ppt or greater) has allowed a rapid intensification of infections and unusually rapid transmission from bed to bed rather than the more typical situation of confinement to a single bed with slow transmission from oyster to oyster. The historic pattern has been a slow development during summer from a few over-wintering infections and no resulting oyster mortality until fall each year. During the last two years, however, rapid development has occurred in early June as soon as water temperature has reached about 65° F, with mortality throughout the summer and fall.

Perkinsus is now abundant at almost all locations in the Bay that were sampled, including the three locations near Sharps in the Rappahannock River (Table 1) and also near Morattico. These latter samples were, however, old market oysters that had been exposed for many years. In the James River, prevalence of Perkinsus is high at Wreck and Dry Shoal with a high proportion of heavy infections. Oyster mortality has occurred in these areas since early July and will continue through early October. The south side of the upper James, near Horsehead and Point of Shoal is free of Perkinsus or has low prevalence, but near Mulberry Island, on the north side of the river, prevalence has increased and is now high (Table 1).

Perkinsus has also been found on seaside of the Eastern Shore in Burtons Bay and in the Machipongo River (Table 1). This is cause for concern because Perkinsus has previously been rare in these areas. Seaside Bays will be monitored closely in the future.

Table 1. Prevalence and intensity of MSX and Perkinsus at selected Virginia locations.

LOCATION	DATE	MSX			<u>Perkinsus</u>		
		INF./EXAM. - %	H-M-L*	INF./EXAM. - %	H-M-L*		
Yeocomico							
Site 1	7/13/88	0/25	0		7/24	29	0-1-6
	8/04/88	0/25	0		21/25	84	0-5-16
Site 2	7/13/88	0/25	0		20/25	80	2-5-13
Site 3	7/13/88	0/25	0		22/25	88	1-4-17
Coan	8/04/88				24/25	96	8-3-13
Great Wicomico							
Fleeton	6/08/88	2/25	8	0-0-2	16/25	64	0-2-14
Cranes Crk	6/08/88	3/25	12	1-0-2	19/25	76	1-3-15
Haynie	6/08/88	0/25	0		10/25	40	0-3-7
Rappahannock							
Sharps 1	8/04/88				19/25	76	4-3-12
Sharps 2	8/04/88				19/25	76	2-3-14
Sharps 3	8/04/88				17/25	68	1-1-16
Morattico	8/04/88	0/25	0		16/25	64	2-2-12
Mobjack Bay	8/05/88	2/25	8	0-0-2	22/25	80	3-1-18
James River							
Horsehead	7/06/88	0/25	0		0/25	0	
Pt. of Shoal	7/27/88	0/25	0		4/25	16	0-0-4
Long Rock	7/27/88	0/25	0		3/25	12	1-1-1
Dry Shoal	7/27/88	5/25	20	1-0-4	20/25	80	8-2-10
Wreck Shoal	7/27/88	3/25	12	0-0-3	22/25	88	10-3-9
Mulberry Is.	6/30/88	0/25	0		6/25	24	1-0-5
	8/04/88	0/25	0		21/25	84	9-0-12
Eastern Shore							
Hog Is. Bay 1	8/02/88	0/25	0		0/25	0	
Hog Is. Bay 2	8/02/88	0/25	0		0/25	0	
Burtons Bay	7/29/88	1/25	4	0-1-0	6/25	24	0-0-6
Machipongo R.	8/02/88	0/25	0		14/25	56	3-3-8

*H=number of heavy infections, M=number of moderate infections, L=number of light infections.

Information in this Marine Resource Advisory was developed by Dr. Gene Burreson 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.



Marine Resource Advisory

No. 34

August 1988

Susan Waters Editor

Marine Resource Advisories are produced by the Virginia Sea Grant College Program Marine Advisory Services at the Virginia Institute of Marine Science of The College of William and Mary. Single copies of this Advisory are available free. Write Sea Grant Communications, VIMS, Gloucester Point, VA 23062.

Dr. Frank O. Perkins Dean/Director
Virginia Institute of Marine Science

Dr. William L. Rickards Director
Virginia Sea Grant College Program

Dr. William D. DuPaul Director
Marine Advisory Services