

PARALYTIC SHELLFISH POISONING
IN THE NORTH SHORE AREA OF
MASSACHUSETTS -
September - October 1972

During early September 1972, the Parker River National Wildlife Refuge located on the North Shore of Massachusetts began to receive reports of large numbers of dead black ducks, Anas rubripes, being seen in tidal areas in and around the refuge. These reports were immediately checked out and were found to be valid. A regular system of surveillance, patrol and pickup of birds was started using small boats and 4-wheel drive vehicles in and around the Parker River Refuge. When the final tally was made in mid-October of birds actually picked up dead in this die-off of unknown cause, 391 black ducks, 180 gulls and a scattering of other species of water birds had been found. The final estimated total of black ducks killed in this die-off was 1,600 over 95% of which were adult birds.

What was the cause of this mortality? The culprit in this case turned out to be a microscopic one-celled planktonic organism called Gonyaulax tamarensis. This marine dinoflagellate, which normally is present in sea water along the Atlantic coast in modest numbers, apparently found environmental conditions ideal in late summer and early fall of 1972 and underwent a massive "population explosion." The number of organisms were so abundant during a portion of the outbreak that they gave a noticeable reddish color to the water, even though the problem was not considered a true "red tide" such as is seen in Florida and Gulf Coast area of the United States. These organisms flooded into the intertidal zone with the tides and were ingested by various species of molluscs, particularly the filter feeding soft-shell clams, Mya arenaria and blue mussels, Mytilus edulis. When these shellfish ingest and accumulate the one-celled dinoflagellate in their systems and the organism dies, it releases a potent neuro-toxin, which causes respiratory failure and cardiac arrest and can be lethal to man and certain species of birds when they feed upon the infected shellfish. This poison is known as Paralytic Shellfish Poisoning (PSP) and was a new and unique experience to the refuge.

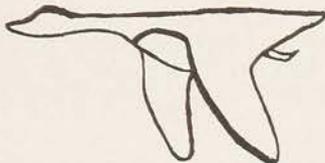
Adult black ducks of the coastal region in this locale are conditioned to feeding on blue mussels and other molluscs as available in the intertidal zone. Stomach analysis of a sample of over 20 adults killed in the outbreak revealed blue mussels in over 80% of those checked, and indicated their importance in the feeding ecology of this segment of the waterfowl population at this time of year. Young birds in contrast must learn and develop this feeding pattern as they spend their first fall and winter along the coast. This is an important factor in why the early fall kill was confined largely to adult waterfowl. The young birds had not learned to feed on mussels yet!

Coincidentally with the bird kill, 30 cases of PSP in humans were noted during the outbreak and fortunately there were no fatalities. The Massachusetts Department of Public Health instituted a closure on the digging of shellfish as a result of the problem. The states of New Hampshire and Maine followed this procedure at this time also. In late December the clam flats were still closed and samples

were being tested on a weekly schedule to measure the detoxification rate.

Paralytic Shellfish Poisoning is a natural phenomenon which has proven to be very lethal under certain conditions to coastal black ducks and other species of mollusc-eating birds in this area. It remains to be seen if this is a "one shot" problem (1972 only) or if it develops into an endemic condition which may occur in future years.

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WINTERING BALD EAGLES AT QUABBIN RESERVOIR

Herman D'Entremont, Newton

Quabbin Reservoir is located on Route 9 in Ware, about 40 miles west of Worcester. When its waters freeze, the deer that summer on its islands, try to go ashore to find food. Sometimes they fall on the ice, breaking a leg. Unable to move, the deer starve to death, providing a ready supply of meat for the eagles.

The best sites for viewing these birds are from the Headquarters parking lot, near Winsor Dam at the south end of the reservoir, or, even better, from Enfield Lookout, between the dam and Quabbin Dike near the stone tower. The latter has a large parking lot, where there is a green wooden sign that tells the history of the area.

But - during winter - Quabbin Reservoir is one of the coldest and windiest places I know!

JOKE

Once there was a boy who wanted a bird. He went down to the store and said to the man, "I want some bird seed." The man said, "What kind of bird do you have?" The boy said, "I want to grow one."

Holly Butler

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