

Take a Second Look  
42 Baker Avenue  
Lexington, MA 02173

1997-98 Winter TASL Census dates: November 16, January 11  
February 8, March 8; for more information, call (781) 863-2392 or (617) 268-7571

web: <http://world.std.com/~sz/tasl.htm>  
email: [sz@world.std.com](mailto:sz@world.std.com)

## Worms, Fish, Birds, Mammals and the Harbor Clean-up

*[During September and October a rapid sequence of email messages flowed among people on the massbird list. It all started out with an innocent question by Jim Barton asking whether anyone knew of any concentrations of Greater Scaup in the larger Massachusetts Bay region, since he knew that the numbers had quite disappeared in Boston Harbor. Soon the discussion turned to the question of when the scaup had disappeared, why, and where they were now.]*

*Several people suggested that a cleaner harbor, due to the construction of MWRA's new secondary sewage treatment plant at Deer Island, was perhaps responsible for lower numbers of scaup, whereas others immediately protested that such a clean-up could only result in more birds, not less. There were also discussions of water clarity and salinity as affected by the activities at Deer Island. I passed most of the correspondence on to Maury Hall, and disseminated his response via massbird. For those on the TASL mailing who do not receive email (or massbird), here is a reprint of Maury's response.]*

### Greater Scaup

TASL data clearly indicate a substantial decrease since 1980. In my conversations with Dr. John S. Barclay (University of Connecticut at Storrs) he noted a virtual collapse of Greater Scaup in Connecticut. Anecdotal reports from Narragansett Bay also indicate sharp drops. Barclay has found very high concentrations of contaminants (metals and organics) in their tissue. He believes they may be more sensitive than other waterfowl species to these chemicals and as a result have suffered reduced reproduction. His research is ongoing. (See *Scaupnet*, page 3)

The last time I talked with Barclay he noted that there was another potential threat. Over the past

several years, Zebra Mussels have taken over the Great Lakes and provide an abundant food source for the scaup. As a result, scaup tend to linger longer into the fall/winter than they once did. While there, they are being hunted very heavily by the Canadians who have much more relaxed bag limits than hunters in the US. I would like to verify this.

A third potential cause for reduced numbers in the harbor may be the Blizzard of '78. There is anecdotal information from lobstermen that the sediments in outer Quincy Bay were changed dramatically as a result of the storm. Mussel beds were supposedly buried under inches of silt and fine sand. Historically, there had been huge concentrations of eider, scaup and scoter in those waters, but they disappeared in the late '70s. No mussels: no birds. A similar phenomena may have occurred after the Halloween storm of '91. TASL data shows that from 1980 to 1991 most of the eider in the harbor were found off Deer Island. Now they are found throughout the southern harbor, wherever there are mussel beds. The Halloween storm had the highest storm surge of any event since the Blizzard of '78 and MWRA data shows it impacted tremendously the sediments and bottom fauna in the harbor. I can only assume that mussel beds off Deer Island were buried or torn up. Again, fewer mussels: fewer birds.

In any case, the decrease in scaup numbers is *at least* regional. Changes in Boston Harbor alone aren't likely to bring them back in the numbers once observed.



### Changes in Boston Harbor

Very little good historical data exists about bird concentrations in the harbor. The 17-year TASL database is by far the best. The harbor clean-up has received so much publicity that people assumed there was no life in the harbor prior to the clean-up and when they saw anything they assumed it must be a result of the clean-up. Seals,

*Continued on next page*



## Worms, Fish, Birds, etc. (continued from page 1)

porpoises, starfish, cormorants, jellyfish, striped bass and mergansers have been reported as indicating improvement in the harbor. Unfortunately for such reports, all were in the harbor throughout the last several decades and in some cases in higher abundances.

**Seals** have increased along the coast since the late '70s when an epidemic killed off a high percentage of the animals. Passage of the Marine Mammal protection Act in the '70s provided further protection. TASL data indicates that the peak seal concentrations in the harbor were in 1987-'89 when 50 seals were being observed at haul-out sites in the Quincy area in the wake of the Nut Island wastewater discharge. I believe there are currently 50 or so seals that can be found at haul-out sites at the outer harbor islands. These are the seals we see routinely in the embayments and inner harbor. If they are the same wintering population as were observed in Quincy, it would be interesting to know why they moved farther east. Disturbance? Shooting by fisherman? More food?

**Porpoises** Not much is known about porpoises, especially in Boston Harbor. In the late seventies a friend who fished off Hull routinely reported small pods in the outer harbor in the spring. The first indication they moved into the harbor in any numbers was in 1992, when they would come into the inner harbor to feed on the fish stunned by the blasting for the third harbor tunnel. In the spring of 1995 large numbers (as high as 40) were seen off the Coast Guard station in the North End. Coincidentally, 1995 was a very good year for river herring moving into the Charles River. Cormorants were abundant at the same location. 1996 and 1997 were so-so years for the herring and fewer cormorants and fewer porpoises (*maxima* of 2 and 4, respectively) were seen on my daily censuses.

**Water clarity** in the harbor appears to be determined mainly by resuspended sediment particles and *phytoplankton* (algae) concentrations. Unfortunately, the data base does not allow for good comparisons before and after the cessation of sludge discharge. We know that the Nut

Island sludge discharge at the tip of Long Island was visible from boats in the area and it is now gone. The Deer Island sludge could really never be distinguished from the effluent solids with which it was discharged (75% of the particles were effluent). The sludge was heavier and appears to have dropped relatively quickly to the sediments whereas the effluent solids were lighter and stayed in suspension longer. To see improved water clarity away from the immediate vicinity of the discharge is unlikely. Since sludge really never got into the inner harbor except by sediment creeping, improvements in water quality in the inner harbor due to the cessation of sludge discharge is really reaching for an effect that I don't believe is there.

Actually water clarity during the summer of 1997, as measured by MWRA's routine harbor-wide surveys, was well below the average of the previous three years. Dry, sunny weather appears to increase algae growth and decrease clarity.

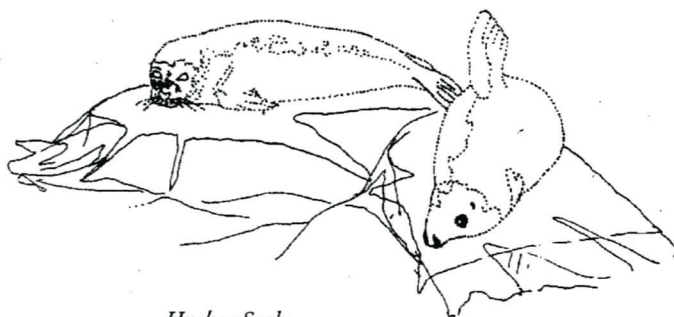
## What about the fish?

**I**mprovements in the health of winter flounder (*i.e.*, reductions in liver tumors) began with fish spawned in the mid 1980s (1983-1986). Presumably, this was due to the banning of pesticides (DDT and chlordane) and PCBs. More recent reductions in the incidence of liver disease in flounder collected off Deer Island may be linked to the sludge cessation. However, the fish collected for these studies have been younger than pre-1991 fish. Younger fish have had less exposure to contaminants, and therefore are usually less diseased. We can't be absolutely sure these improvements are due to the cessation of sludge discharge.

What we do know is the catch per unit of effort in a ten-year study of flounder off Deer Island has decreased dramatically since sludge discharge stopped. To some degree this follows the general decline of flounder throughout the region due to overfishing. However, we collect flounder from Broad Sound, Massachusetts Bay, Nantasket and Cape Cod Bay and have no problem getting the 50 fish we need. At Deer Island we trawl for 2 hours and get only 20 to 30 fish. In the late '80s you could easily get 100 fish in an hour.

We know that mud worms ate the sludge. After spawning in April, flounder eat voraciously for weeks (they do not eat while spawning). In April and May the flounder pigged out on the worms. Now there are no mud worms and flounder stomachs are found to be mainly empty or partially filled with colonial hydroids which have only half the calories of the worm. A similar phenomena occurred at the New York Bight when sludge ceased to be dumped there.

As much as we don't like to admit it, the sewage we discharge has provided a food source for many of the animals we associate with a healthy harbor.



Harbor Seals

Illustration by Mike Payne

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Worms, Fish, Birds, *etc.* (continued from page 2)

## What will happen once the discharge moves offshore?

One reason why the waters of Boston Harbor were never as polluted as people thought (the sediments were and are a mess) and were able to support an abundant and highly diverse fauna was the rapid flushing of the harbor. The tidal currents off Deer Island are supposedly second only to the currents around Provincetown in their flushing capacity. Fresh water is rapidly mixed with ocean water and flushed out of the harbor, with many of the pollutants in tow. Salinity differences between Massachusetts Bay and the harbor are quite small. Relocation of the discharge should have no impact on the salinity of the offshore waters. The slightly higher salinity in the harbor after relocation should have no impact on where waterfowl are found. Changes in food availability will.

The key to marine food chains is *phytoplankton* production. The Deer and Nut Island effluents provide an abundant food source for the plankton in the form of ammonia (the by-product of human wastes). Removing this rich source of food may reduce *phytoplankton* concentrations and in turn reduce the harbor's carrying capacity for fish and birds. MWRA staff scientists continue to collect information to help us understand whatever happens.

Maury Hall

[Maury is co-organizer and data-compiler for the TASL winter censuses. He is employed by the Massachusetts Water Resources Authority (MWRA) as staff biologist.]



Sketch by Denise Braunhardt Cabral

## What is TASL?

Take a Second Look (TASL) was started in the winter of 1980 by a local group of environmentally concerned birdwatchers; our primary focus has been to survey and census the bird population of Boston Harbor throughout the year.

The 1997-98 TASL census dates shown on page 1 are chosen to coincide with high or incoming tide during the morning. This is an excellent opportunity to learn—and teach—about the common water birds of the Harbor. You do not have to be an expert to participate. Each area will be led by at least one competent birder. That person will need help with navigation, driving and record-keeping. So make yourselves useful and learn something in the process.

TASL (Take Second Look) is organized and staffed entirely by volunteers. TASL data is compiled by Maury Hall. This newsletter is produced by Soheil Zendeheb.

## Scaupnet

Dr. John S. Barclay and graduate research assistant Jonathan Cohen are the principal investigators and coordinators of the Long Island Sound Greater Scaup Study at University of Connecticut/Storrs. Jim Barton kindly supplied me with a few copies of their quarterly newsletter, *Scaupnet*, from which I excerpted the following:

The Greater Scaup nests mainly in grasses and sedges along the margins of large lakes in the treeless coastal tundra of western Alaska and northern Canada. The greatest concentration of breeding scaup occurs in western Alaska. In the fall, around 60% of the Greater Scaup migrate southeast across North America to spend their winter on the east coast. Long Island Sound historically has been home to the highest concentration of wintering scaup in North America.



Banding data, hunting returns and population surveys have delineated the migration corridors used by Greater Scaup on their annual journey from Alaska to the east coast. It is thought that the long chain of lakes extending from northwest Canada to the Great Lakes is the main Greater Scaup migrational highway. Unfortunately, it is unknown exactly which lakes are the most important, and also when they are used.



Between 1955 and 1995, the five year average number of Greater Scaup wintering on Long Island Sound declined 82%, from 40,000 to 7,600 birds. [Our] current scaup research... is aimed at discovering the reasons for this more or less steady decline.



In addition to the decline of scaup wintering on Long Island Sound, the estimated breeding population of these ducks in Alaska has declined by at least 23% in the last 40 years. Much research remains to be done, but actions may be required soon to protect this important part of the Sound's natural heritage.



# 1996-97 Winter TASL Censuses in Boston Harbor

Species	11/24/96	1/12/97	2/9/97	3/9/97
Red-th Loon	41	4	11	15
Com Loon	6	3	4	9
Ar/Pa Loon			1	
P-b Grebe	1			
Horned Grebe	158	40	81	128
Red-nec Grebe	6	12	13	53
No Gannet			2	2
Gr Cormorant	85	4	7	11
D-c Cormorant	18			
cormorant (sp)		1		
G B Heron	4	2		2
Mute Swan	5	15	20	11
Brant	945	692	873	1489
Can Goose	186	547	389	181
A Bl Duck	651	1128	1097	948
Mallard	78	295	255	191
No Pintail				2
Gadwall	1			
Am Wigeon		3		
Gr Scaup	52	96	990	697
Co Eider	10,825	6195	9491	7676
Oldsquaw	41	4	27	42
Bl Scoter	1			1
Surf Scoter	78	27	46	121
W-w Scoter	651	243	621	218
Co Goldeneye	174	337	675	668
Ba Goldeneye		3	1	
Bufflehead	1416	953	1484	1559
Ho Merganser	10	1	1	1
Com Merganser			8	26
R-br Merganser	966	524	716	1375
Ruddy Duck	29			
No Harrier		1		
S-s Hawk	1		1	1
Coop Hawk	1			
R-t Hawk	2			4
Am Kestrel	2	3		
Merlin				1
Peregrine			1	
B-b Plover	31			
Killdeer				15
Sanderling	63	208	72	5
Pu Sandpiper		29	11	5
Dunlin	2	184	15	
sm shorebird	75			
Bl-h Gull	1		3	
Bon Gull	445	32	13	4
Mew Gull			1	1
Iceland Gull				1
Bl Guillemot	1		1	2
G H Owl	2			
Snowy Owl		1	1	2
No Shrike	1			
Palm Warbler	1			
Field Spar				5
Sn Bunting	54			
Harbor Seal	9	6	3	9
Weather	Sunny	Sunny	Clear	Partly cloudy
Wind	NW 15 to 5	WNW 10-15 (in AM) WNW 25-30 (in PM)	NE 15-NNW15	ENE 10-15
Temperature	35-45°F 2-8°C	18-30°F -9- -1°C	20-34°F -8-+1°C	20-32°F -8-0°C
High tide	10 AM	11 AM	12:15 PM	11:07 AM

Fortunately, the world need not choose between catastrophic climate change and economic growth. Sound economic analysis shows that there are policy options that would slow climate change without harming American living standards, and these measures may in fact improve US productivity in the long run.

*Senator John Chafee (R-RI)*

*commenting on the economic objections*

*to action on global warming*

*[Boston Globe, 1997]*



## Participants in the 1996-97 winter TASL Censuses:

Ken Barney, JoAnne Benard, Fred Bouchard, Bob Bowker, Paula Chasan, Ronnie Donovan, Mike Fager, Rick Fisher, Paul Fitzgerald, Kathy Foley, Hope Green, Maury Hall, Joan Labby, John Lane, Dave Lange, Ted Mara, Terrence Mulligan, Jane Nalwalk, Dennis Oliver, Michelle Parham, Pat Randall, Polly Stevens, Bob Stymeist, Nancy Swicha, Fay & Peter Vale, Soheil Zendehe, Bill Zuzevich.

*Thanks to all, and apologies to anyone whose name got left off inadvertently or misspelled.*

TASL data is distributed in the following ways:

After each census the data is compiled and posted electronically to **massbird**. I also email it to anyone on the TASL mailing list who does not subscribe to massbird. If I do not have your email address drop me a line at [sz@world.std.com](mailto:sz@world.std.com).

I try to publish and mail *TASL News* at least a couple of times a year, and I maintain *TASL OnLine* (<http://world.std.com/~sz/tasl.htm>) up to date with the latest data. Both publications need your assistance. If you would like to write for or illustrate either, call Soheil Zendehe at (781)863-2392H or (617) 923-0941W, or email me.