



# Massachusetts Water Resources Authority

## Effluent and Fish and Shellfish Monitoring Results 2009 Andrea Rex

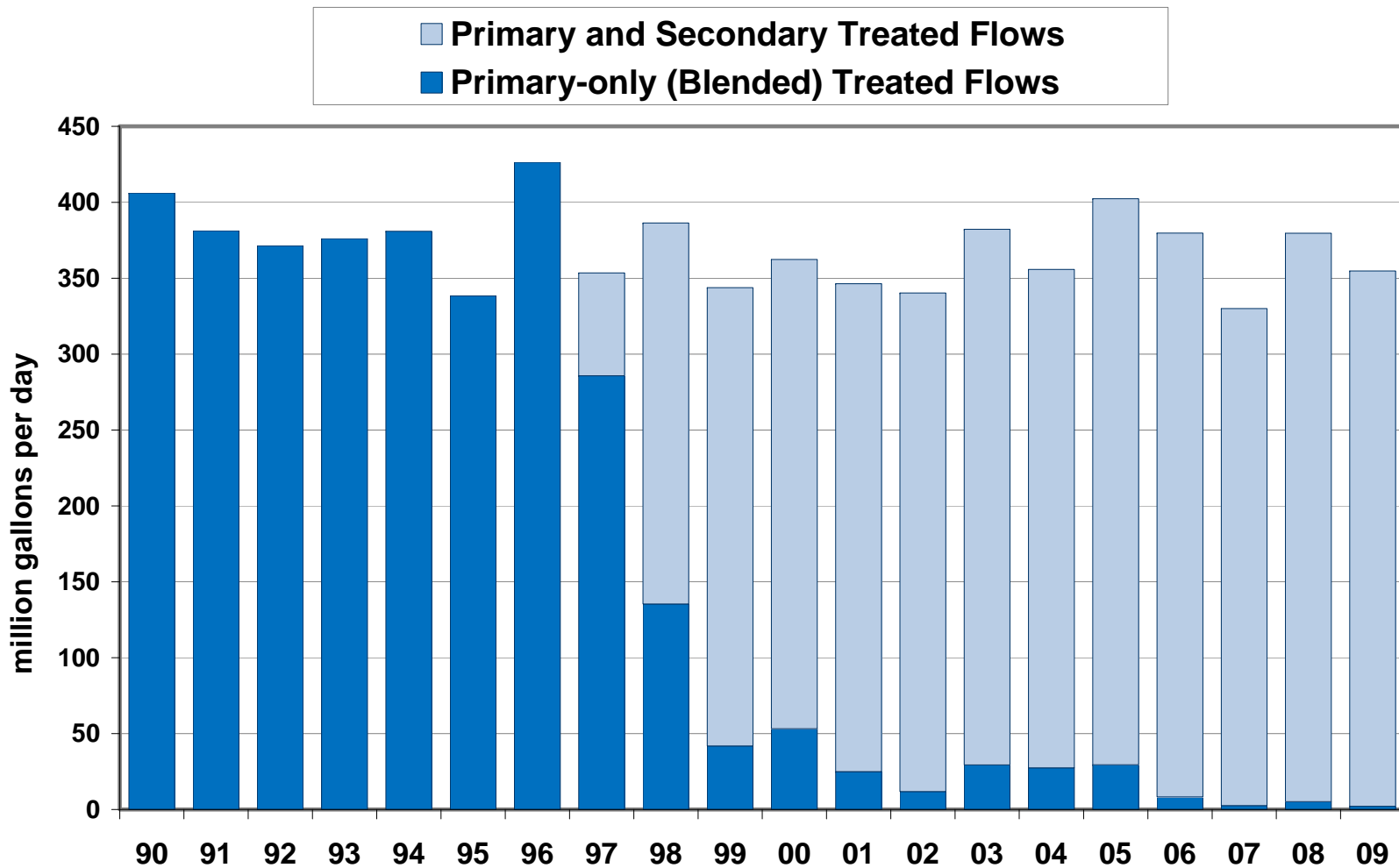
Wastewater Advisory  
Committee  
January 7, 2011





# Almost all flow received complete primary and secondary treatment in 2009

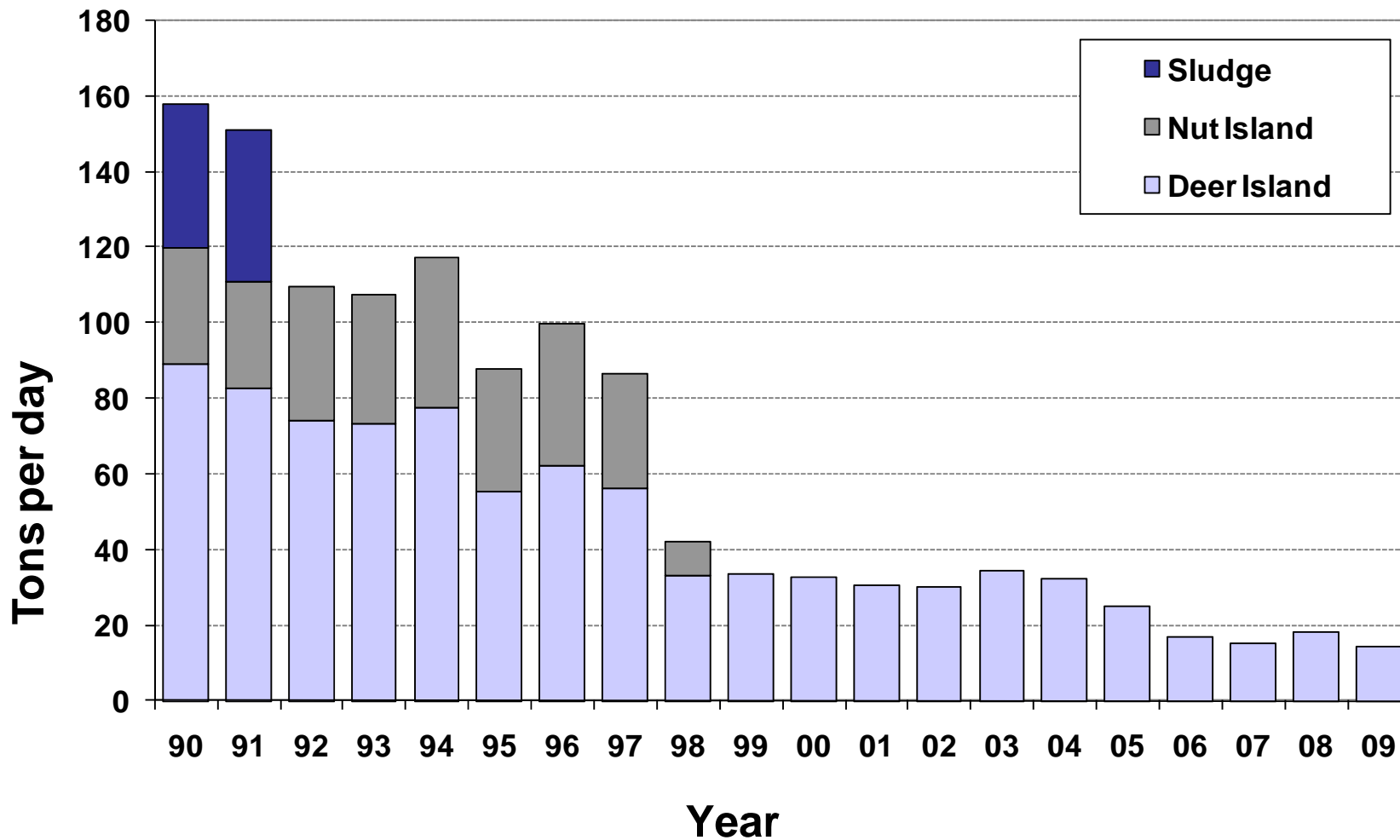
## MWRA Primary and Secondary Flows 1990-2009





# Record low solids discharged in 2009

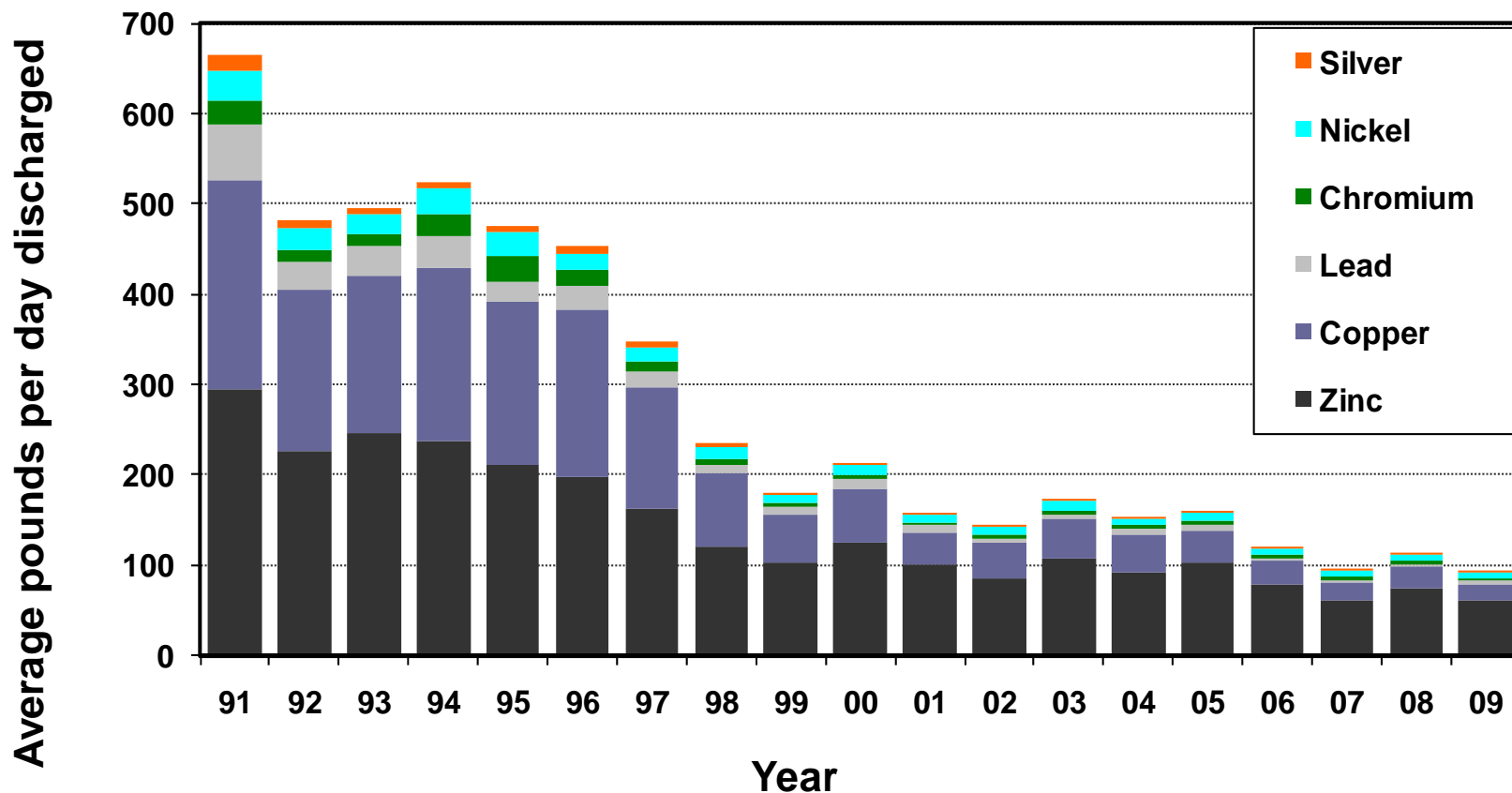
## Solids in MWRA Treatment Plant Discharges 1990-2009





# Metals discharges low: most meet water quality standards in-pipe

## Metals in MWRA Treatment Plant Discharges 1992-2009





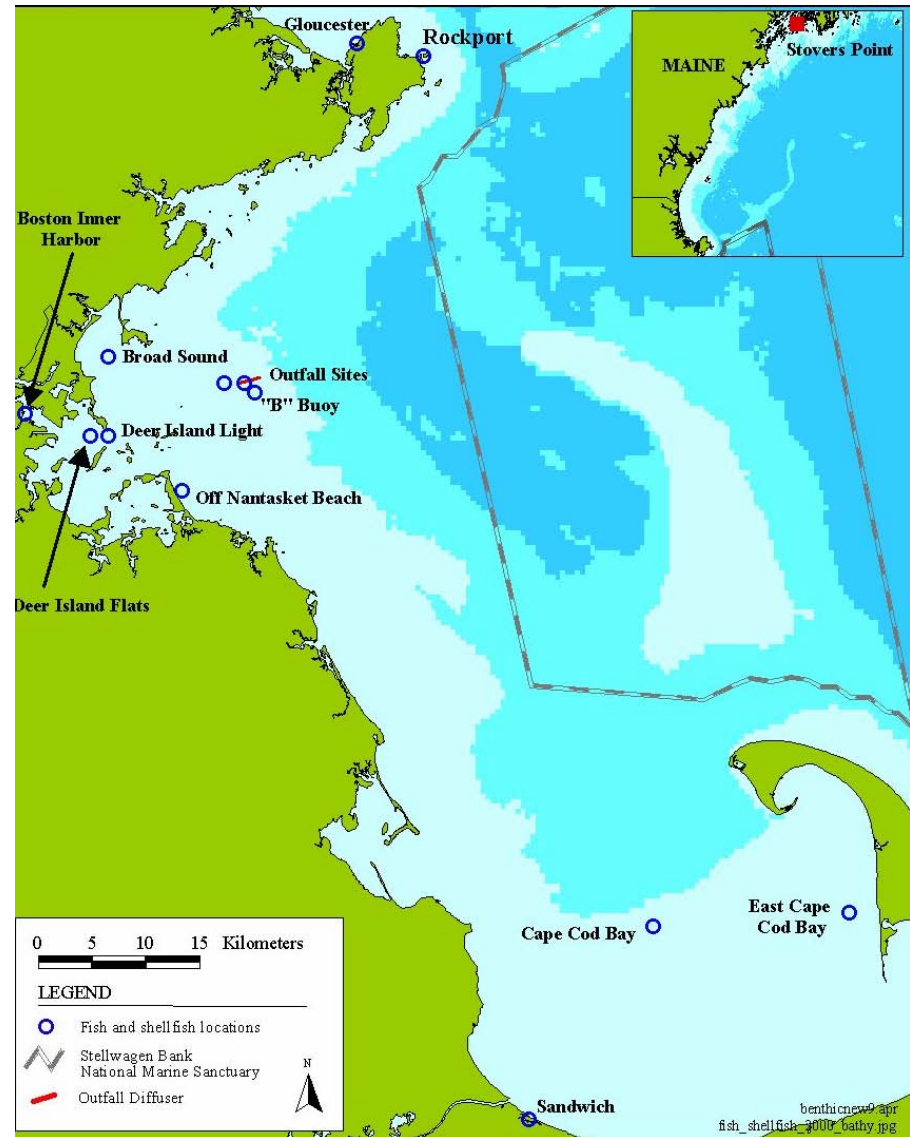
## Actual (2005-2009) priority pollutant load compared to projected (1988)

<b>Parameter</b>	<b>Projected Load kg/year</b>	<b>Actual Load kg/year</b>
Cadmium	697	29
Chromium	3,517	481
Copper	11,945	3,253
Lead	4,961	674
Mercury	216	5.1
Nickel	8,926	1,150
Silver	299	67
Total PCB	50	0.52
4-4' DDT	28	0.31



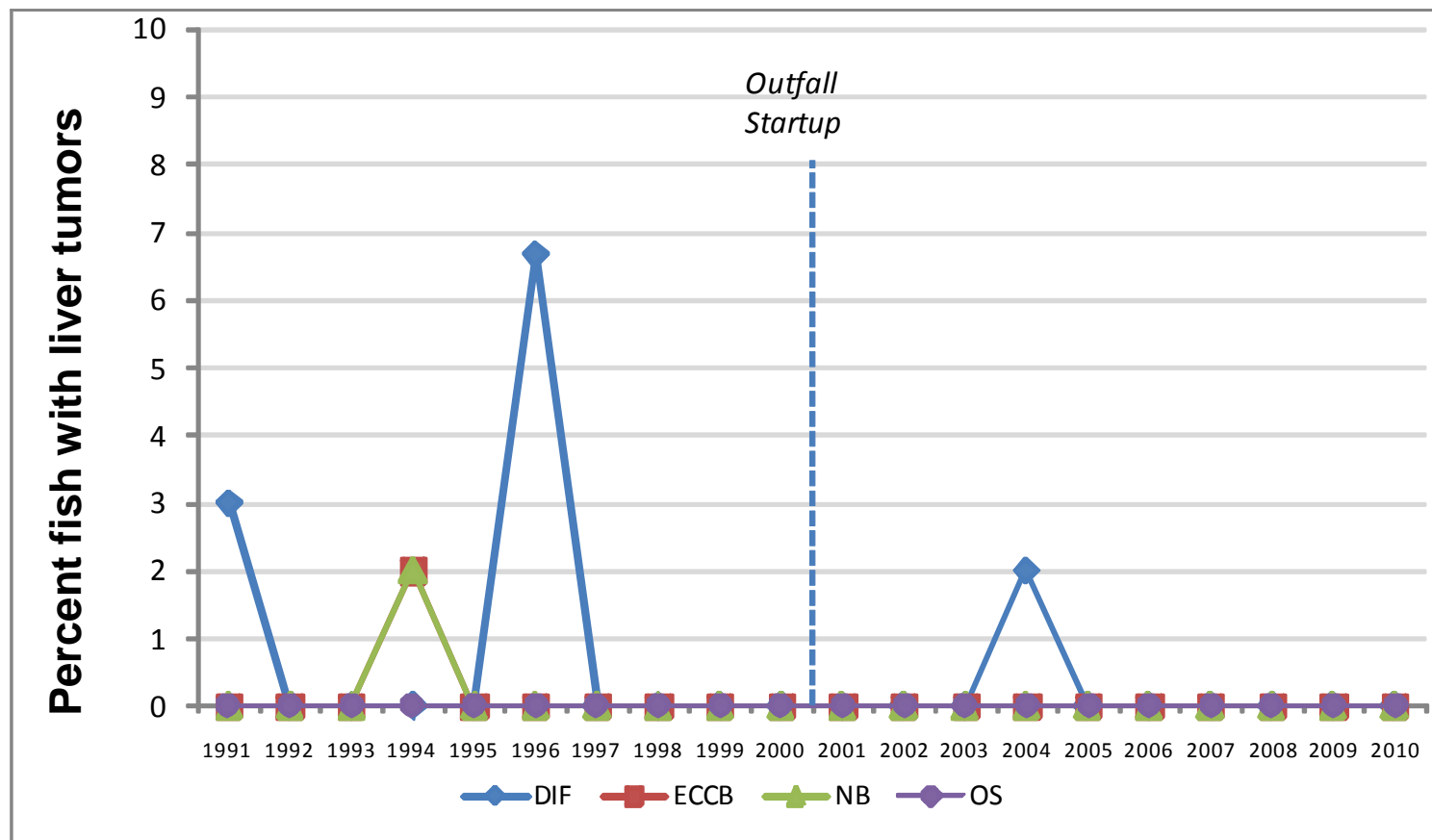
# Fish and shellfish sampling locations

- **Flounder health monitored annually**
- **Tissue chemistry in flounder, mussels and lobster every three years-2009 was a chemistry year**
- **Outfall Site**
- **Harbor**
- **Cape Cod Bay**
- **Flounder includes Nantasket Beach**





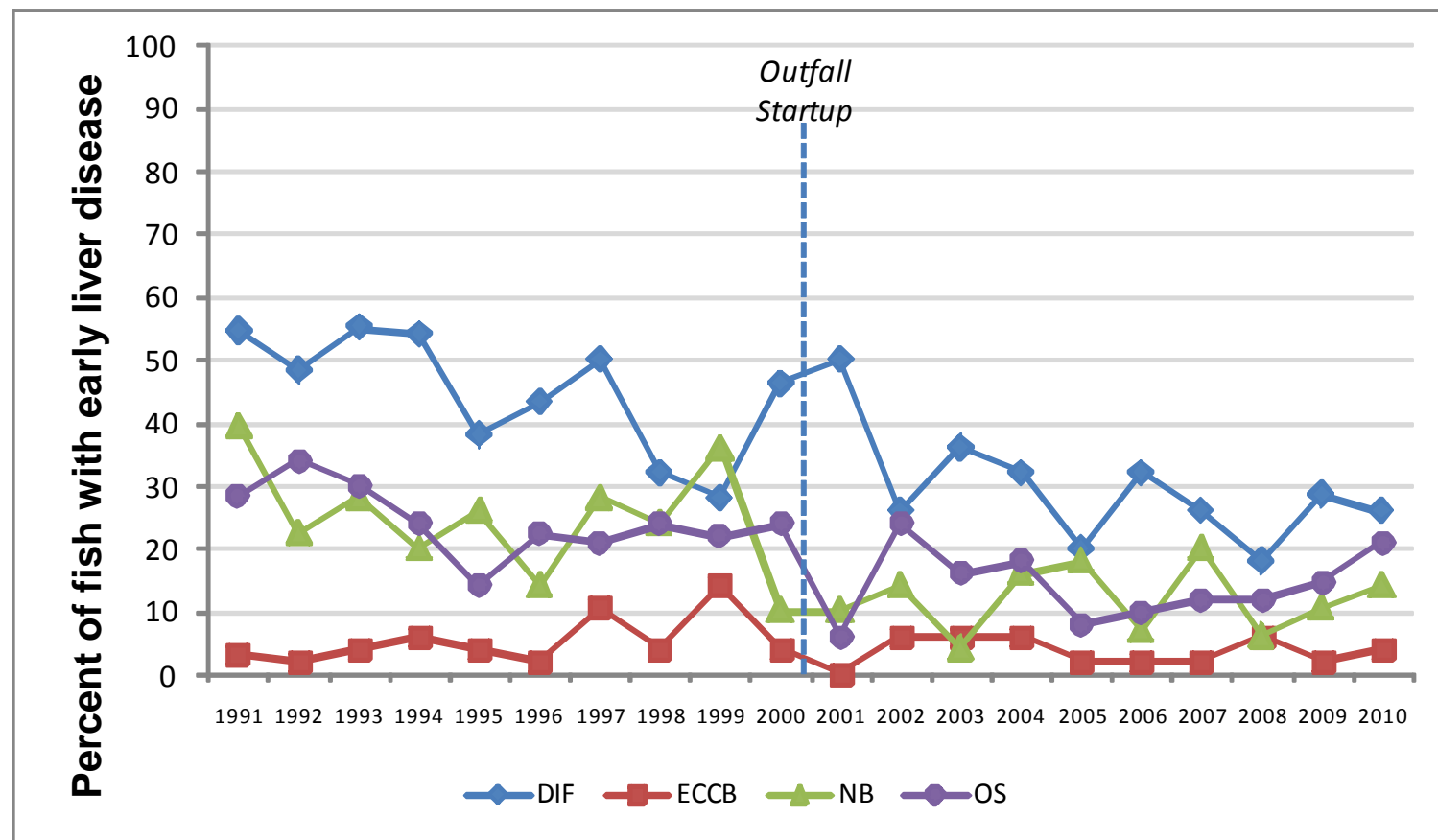
Since 2006, no liver tumors in flounder at any location  
(includes 2010 results)



**Only 1 fish, from Deer Island flats, had skin ulcer in 2010; all other sites were free of ulcers**



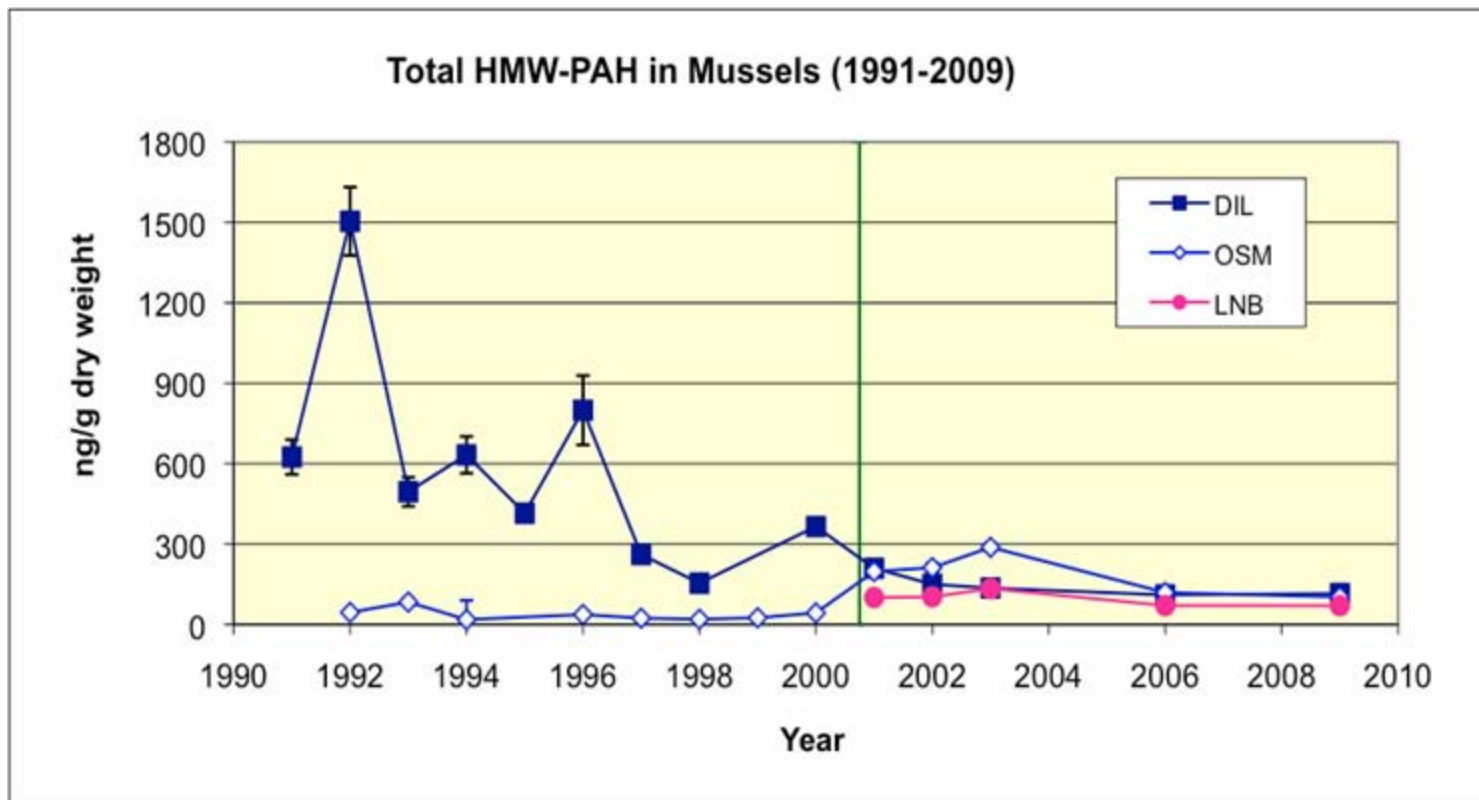
## Flounder early liver disease remains at low levels (includes 2010 results)







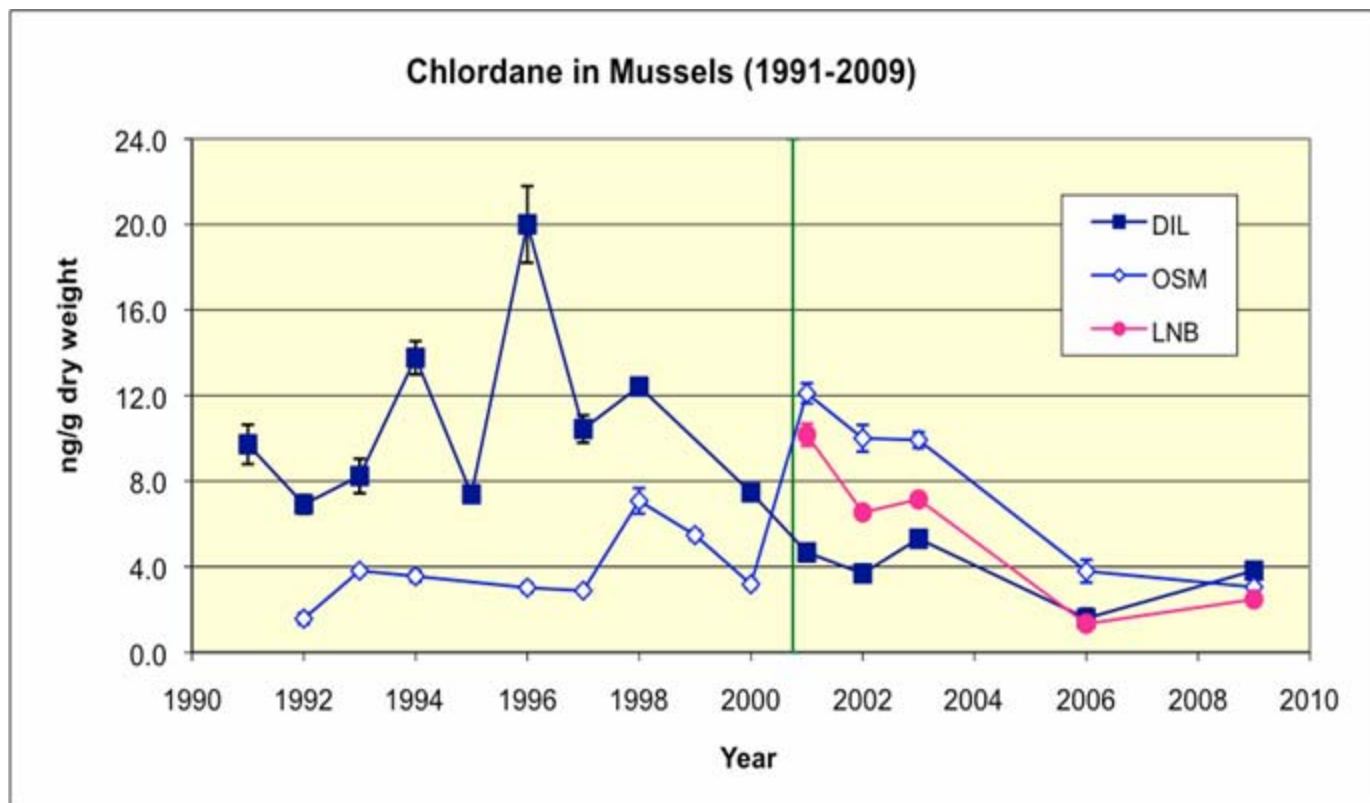
# Mussel tissue chemistry: PAHs low all sites



**Improvement in flounder liver health is consistent with improved water quality for PAH's measured by mussel testing**



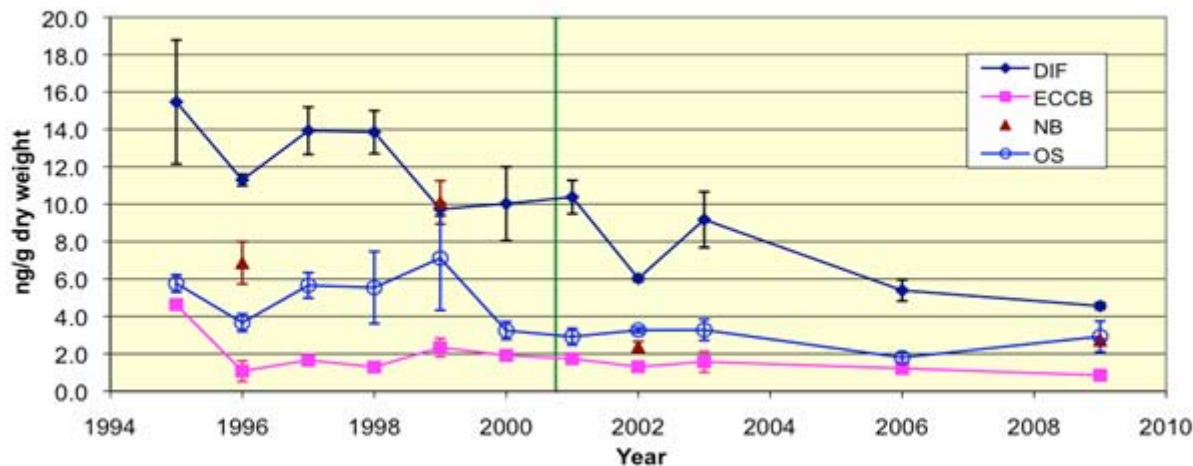
## Mussel data shows improvements in water quality for chlordane





# Overall decrease in chlordane since mid-90's can be seen in meat of both lobster and flounder

### Total Chlordane in Flounder Fillets 1995-2009



### Total Chlordane in Lobster Meat (1994-2009)

