



South Bay Suspended- Sediment Concentrations and Supply

David Schoellhamer

Greg Shellenbarger

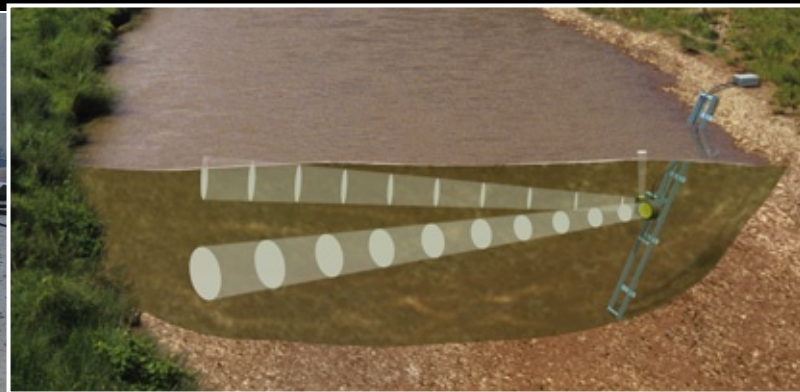
Maureen Downing-Kunz

USGS California Water Science Center, Sacramento

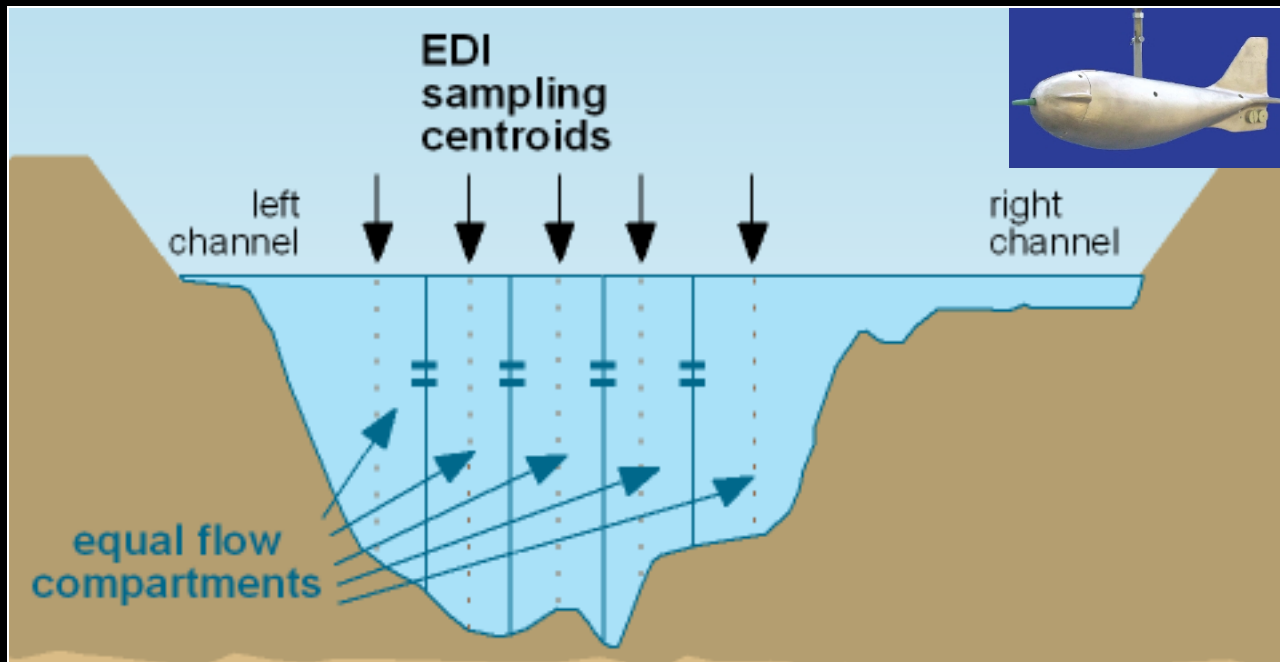
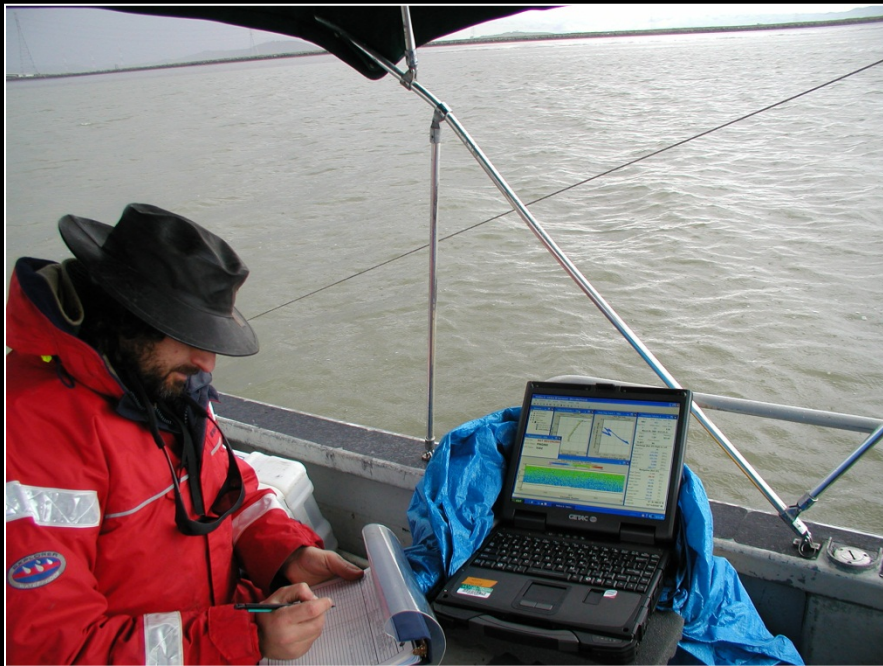
Sediment Supply



Aquadopp ADCP



YSI Turbidity Probe
with wiper

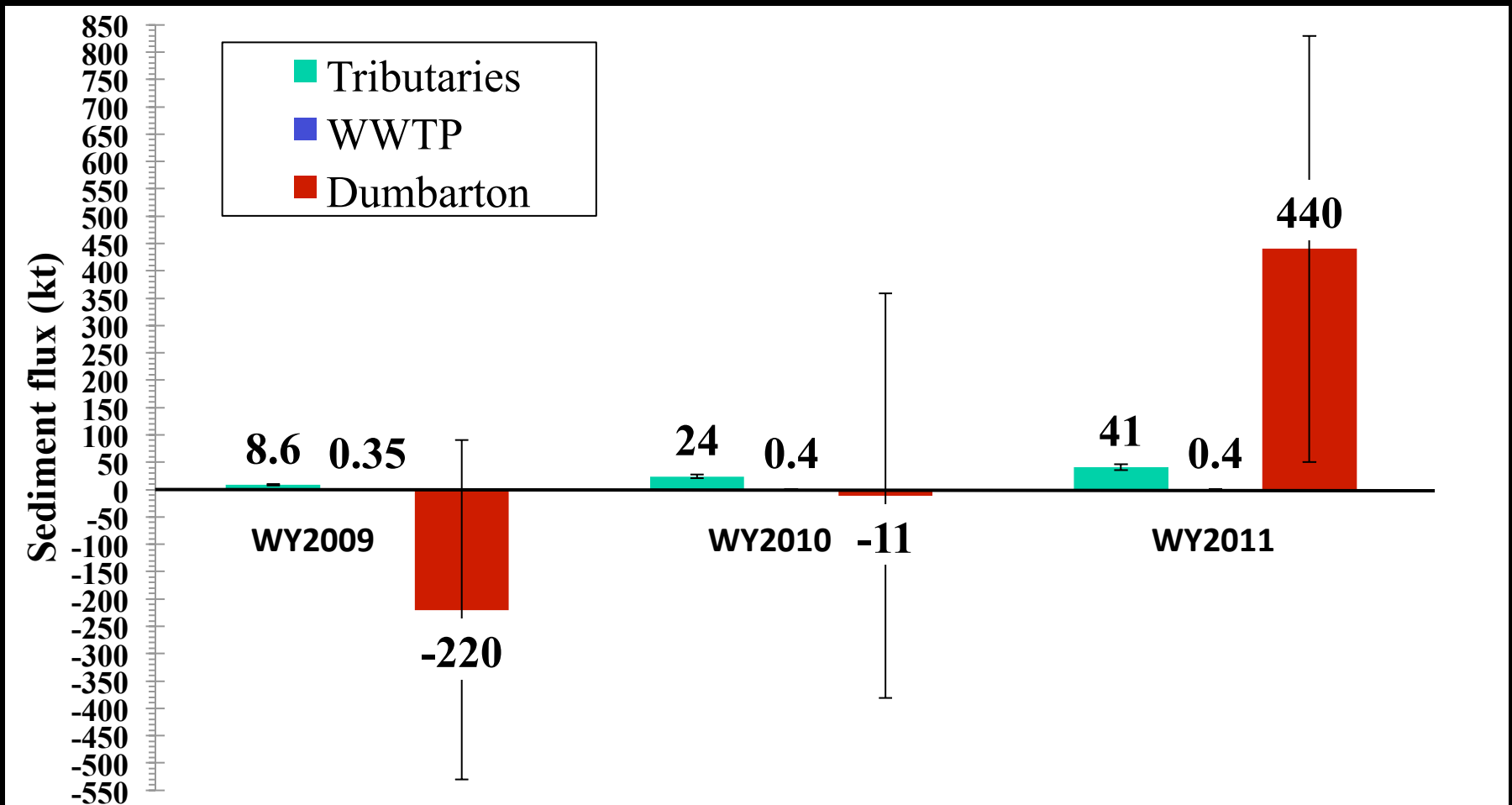


Acknowledgements

- Paul Buchanan, Mike Farber, Amber Forest, Larry Freeman, Jeff Gartner, Tara Morgan-King, Emily Novick, Amber Powell, David Senn, Chris Silva, Travis von Dessoneck, Kurt Weidich, Brooks Weisser, Daniel Whealdon-Haught, Rob Wilson, and Scott Wright
- US Army Corps of Engineers
- San Francisco Bay Regional Monitoring Program
- California Coastal Conservancy
- San Francisco Estuary Institute
- US Geological Survey Priority Ecosystem Science Program, Office of Water Quality, and San Francisco Bay Pilot Study for the National Water Quality Monitoring Network for U.S. Coastal Waters and their Tributaries
- Santa Clara Valley Water District
- City of San Jose Environmental Services Department

Comparison of Sediment Fluxes

Positive values are seaward

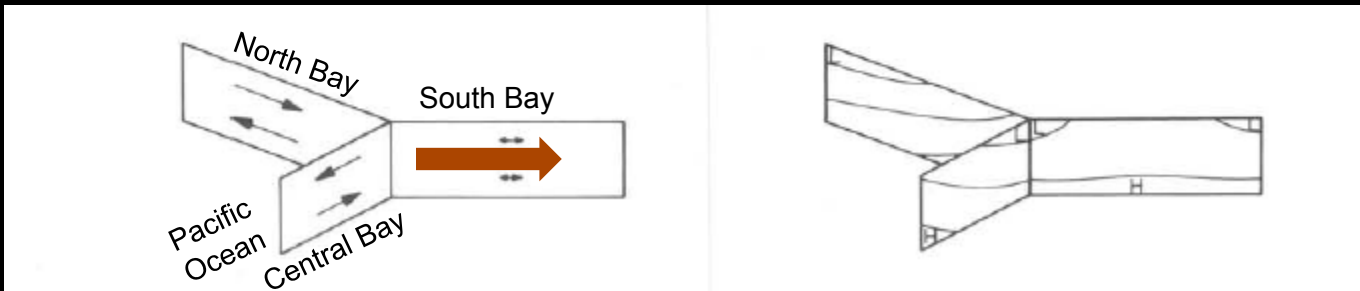


Springtime flushing of South Bay

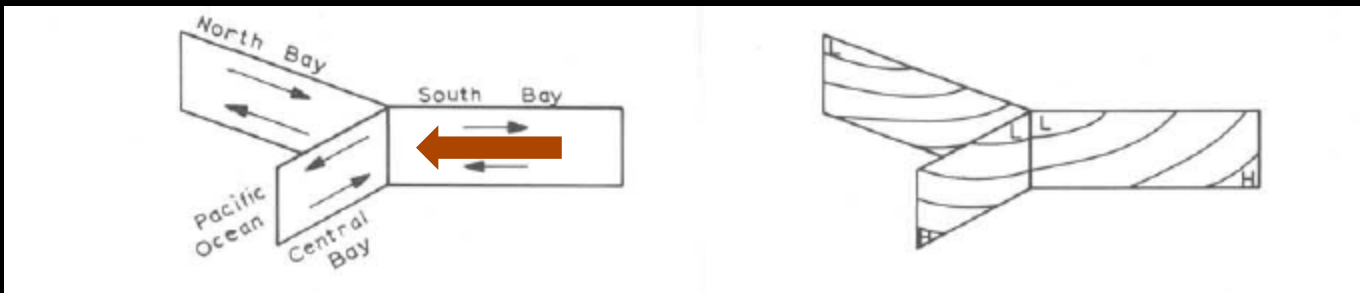
Surface and bottom currents

Salinity gradient

Dry
spring
2009

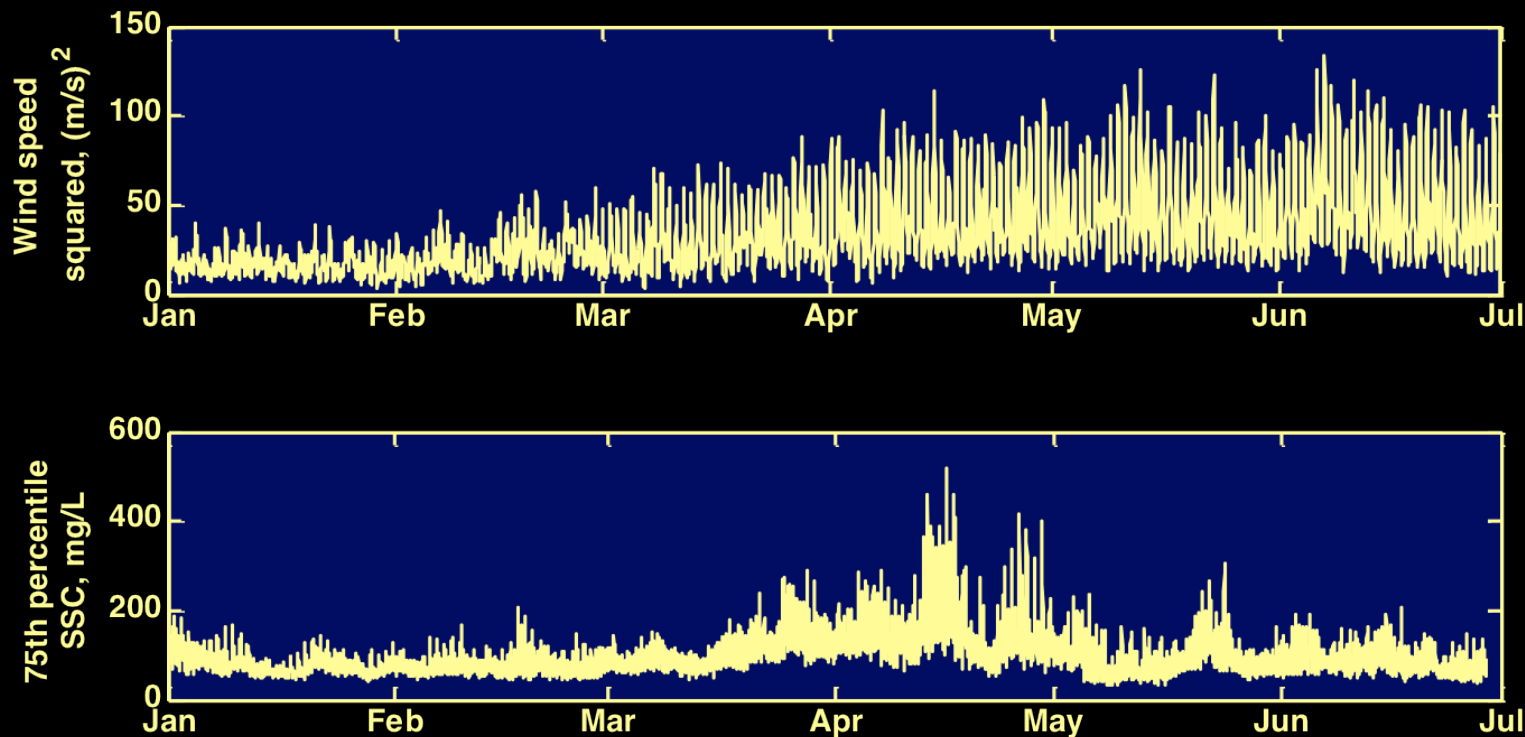


Wet
spring
2011



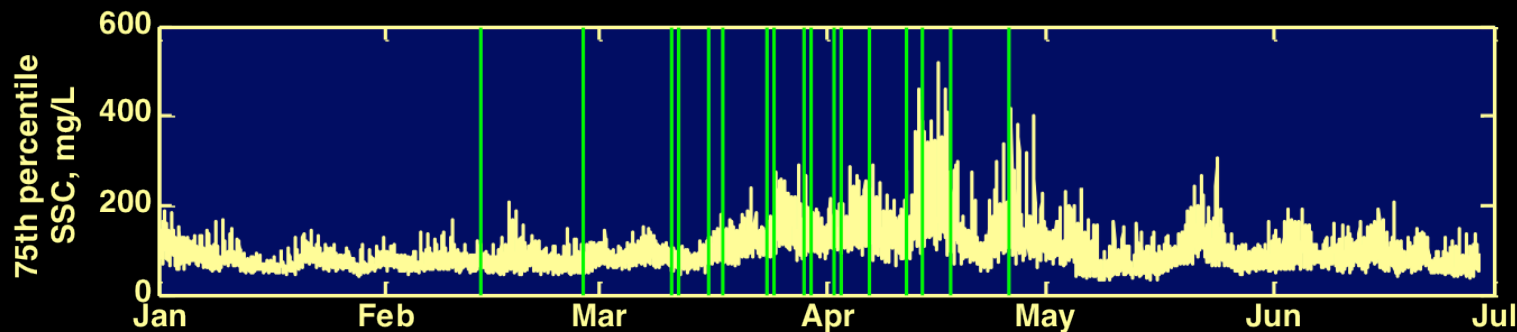
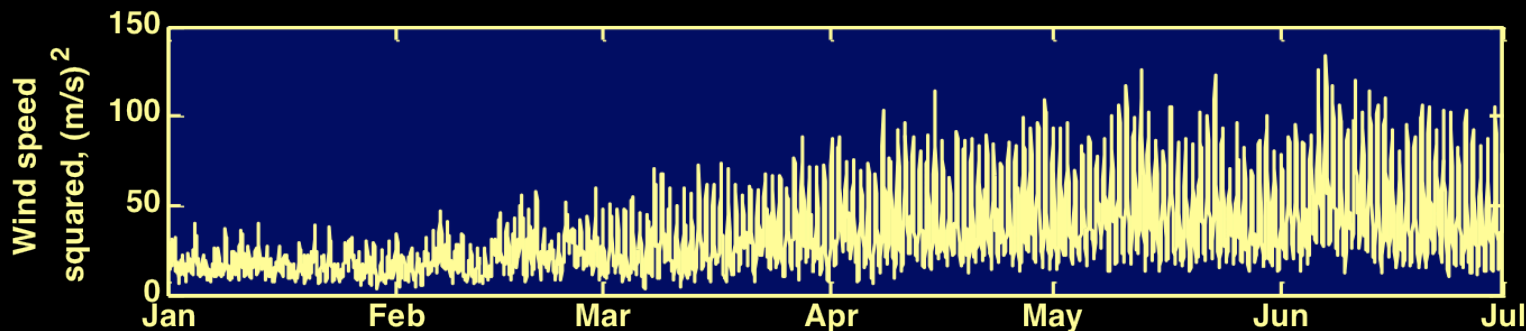
Springtime: wind and suspended sediment

Dumbarton Bridge 1992-2011



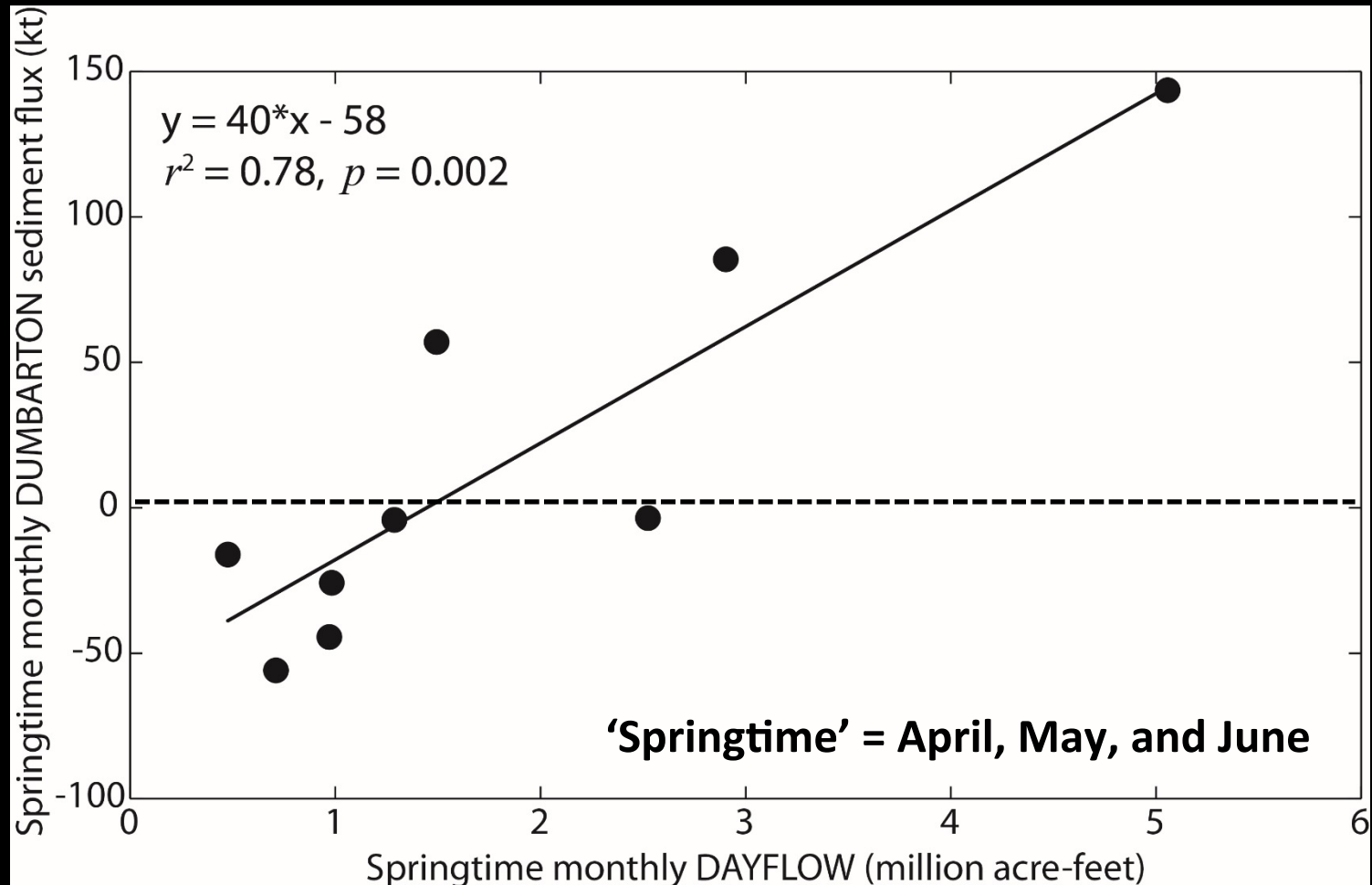
Springtime: wind and suspended sediment and phytoplankton bloom

Dumbarton Bridge 1992-2011

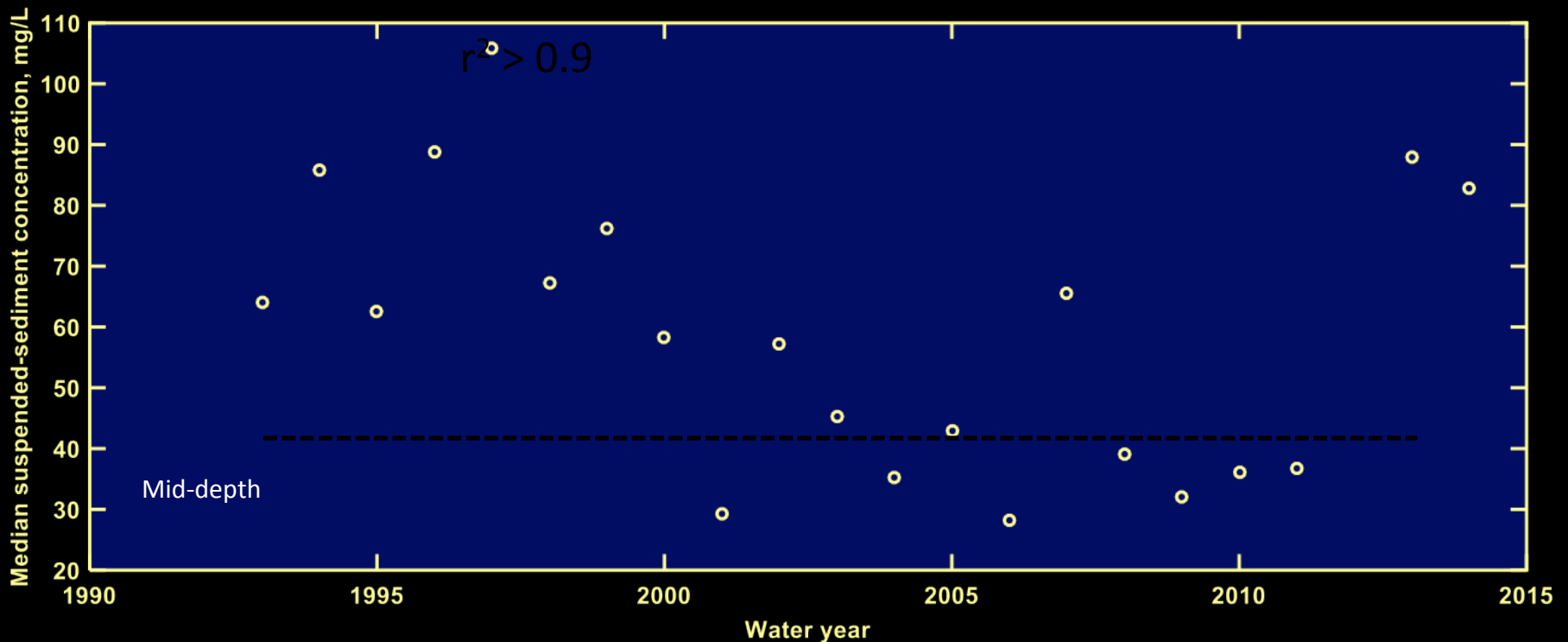


Flux - Flow Relationship (WY09-WY11)

Positive values are seaward



Newer data: Dumbarton suspended-sediment concentration doubled 2013 & 2014

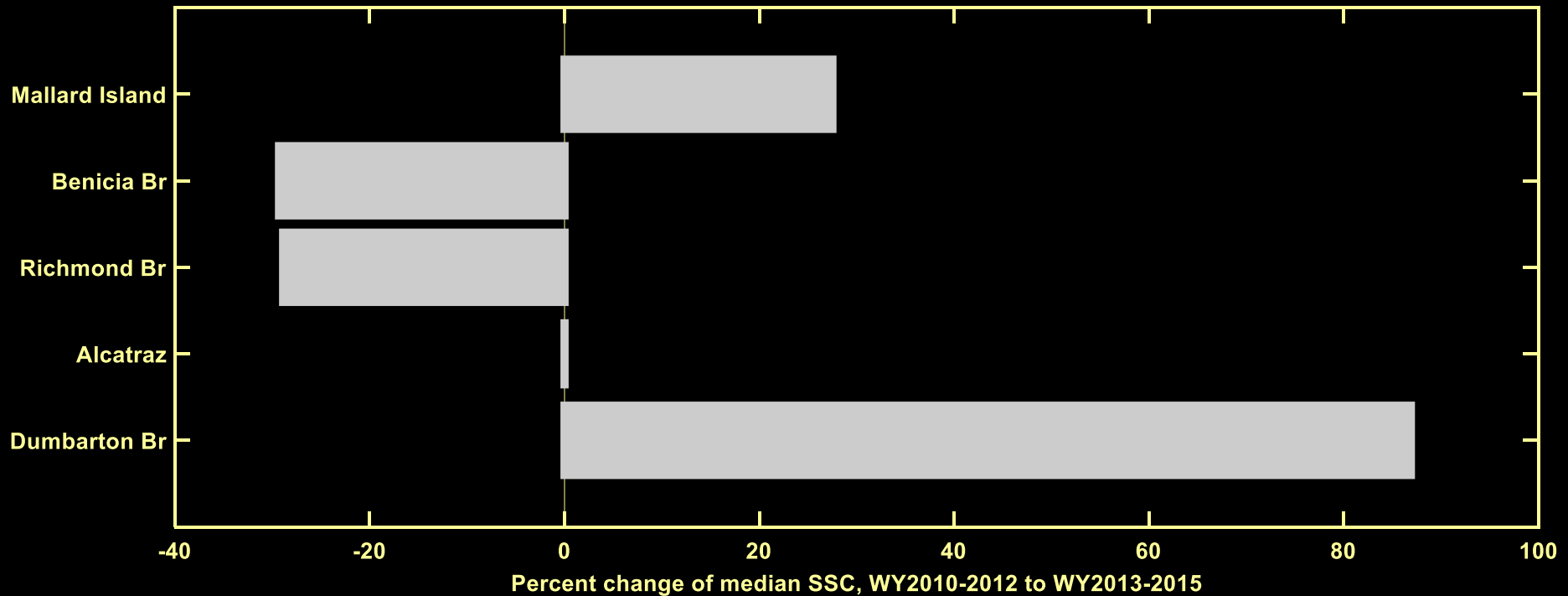


Until mid-2012 north of the Dumbarton Bridge was
'more of a shell hash station, now it is more of a stinky dark mud'
-Jeff Crauder, USGS Menlo Park

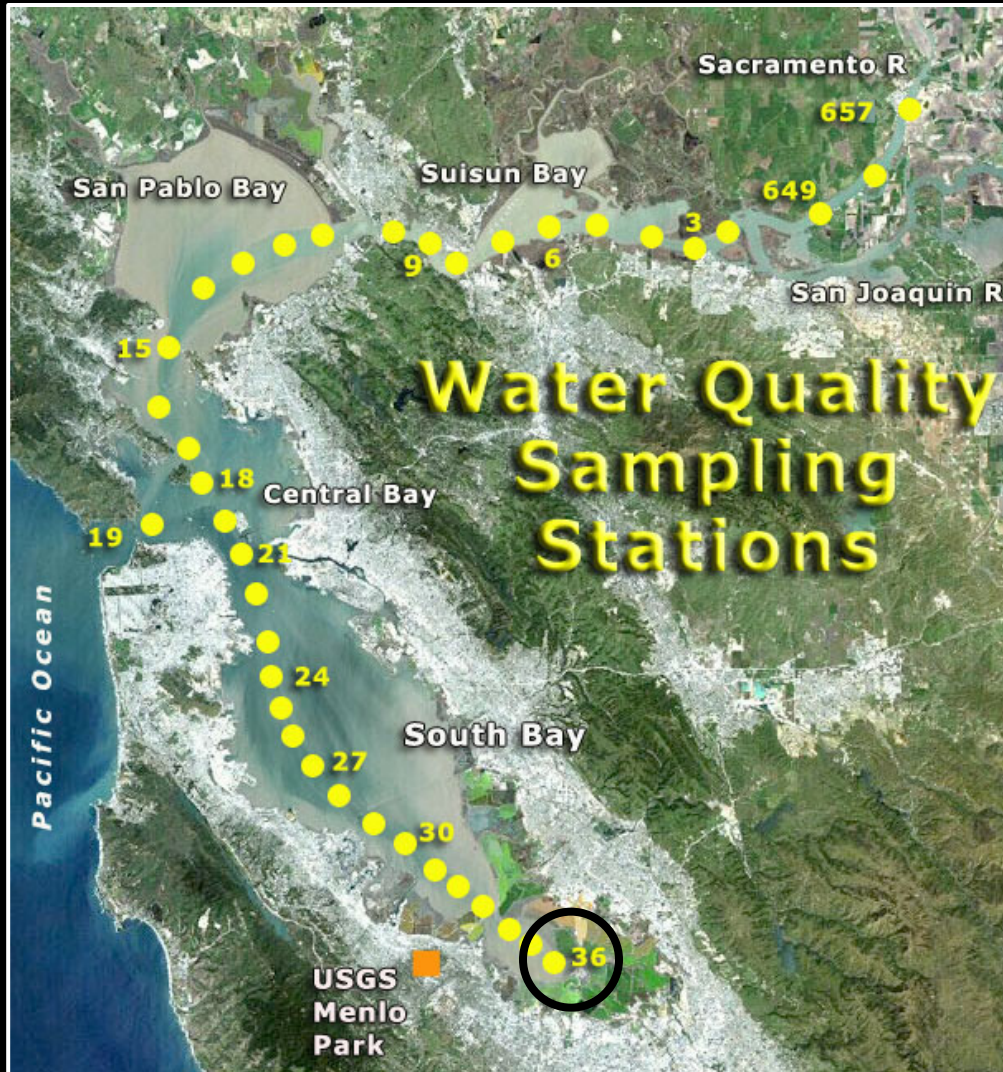
512 water samples at 5 SF Bay stations water years 2010-2015



Biggest increase in suspended-sediment concentration at Dumbarton Bridge

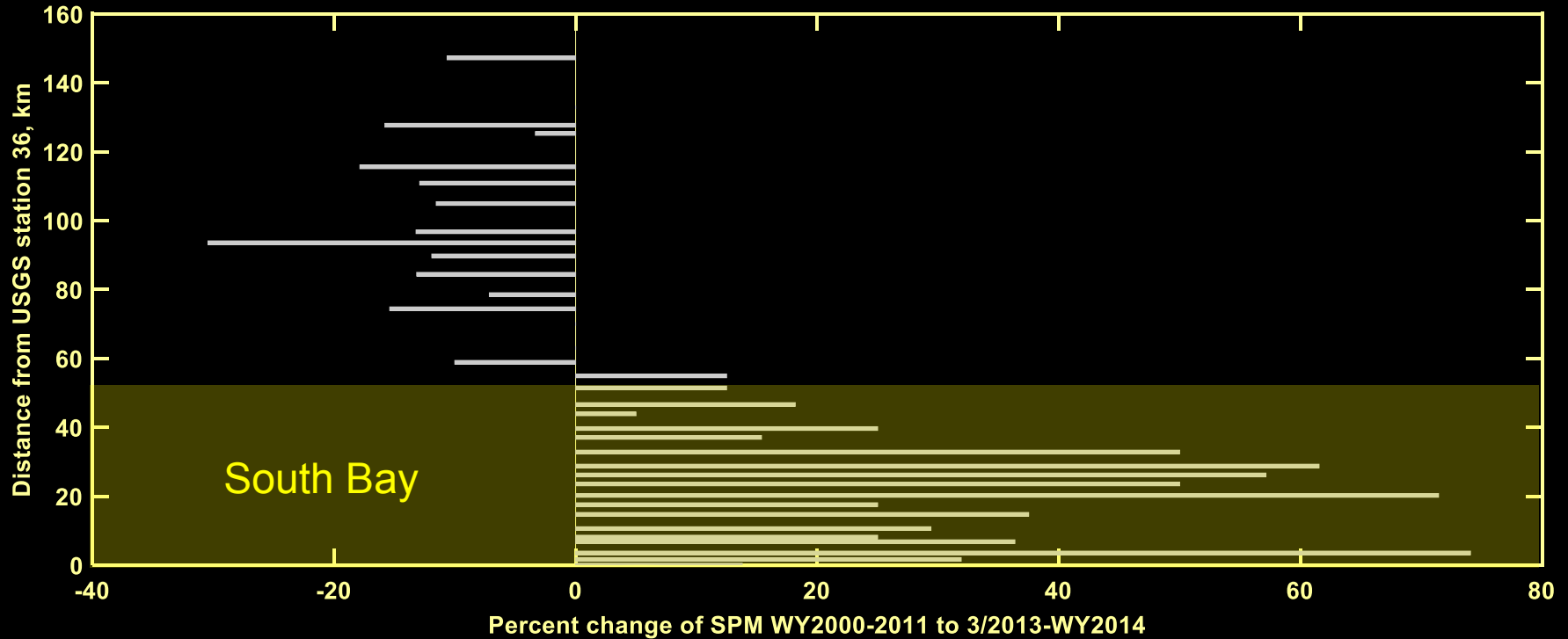


259 cruises water years 2000-2014 USGS Menlo Park



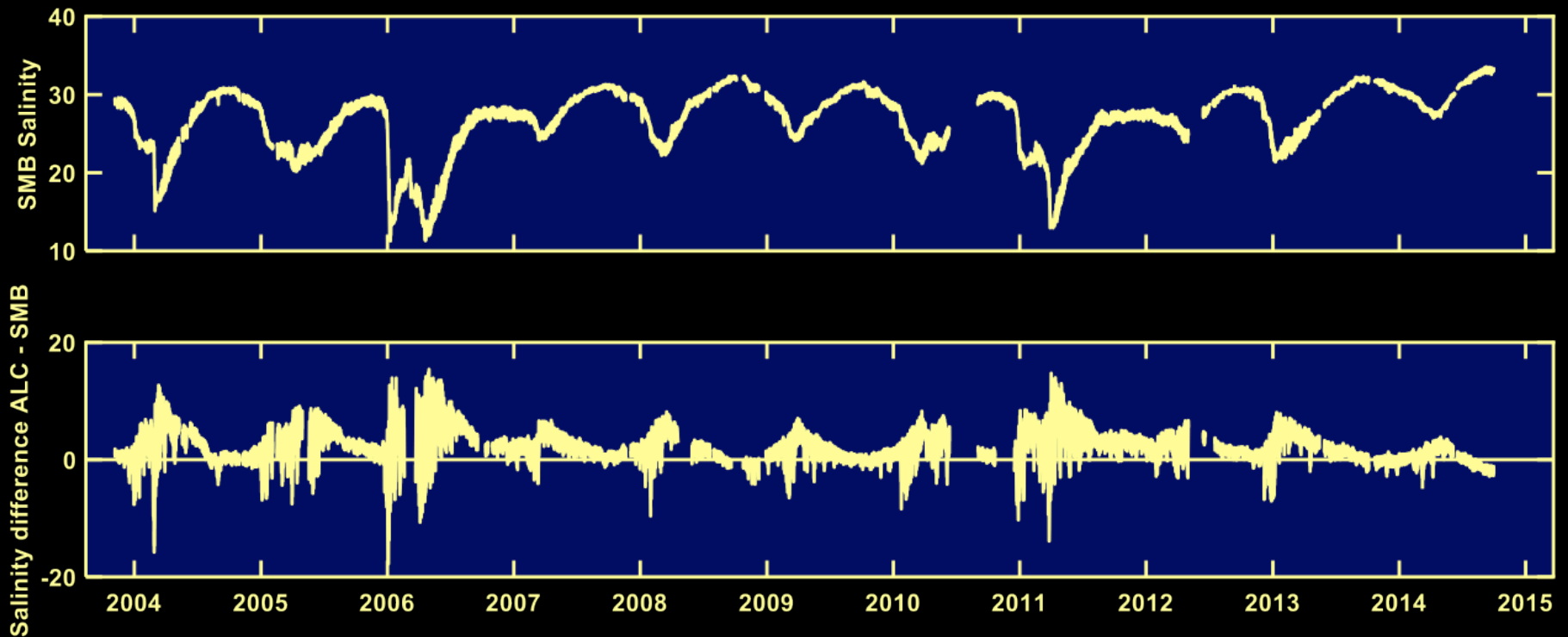
<http://sfbay.wr.usgs.gov/access/wqdata/index.html>

Increased suspended sediment in South Bay



<http://sfbay.wr.usgs.gov/access/wqdata/index.html>

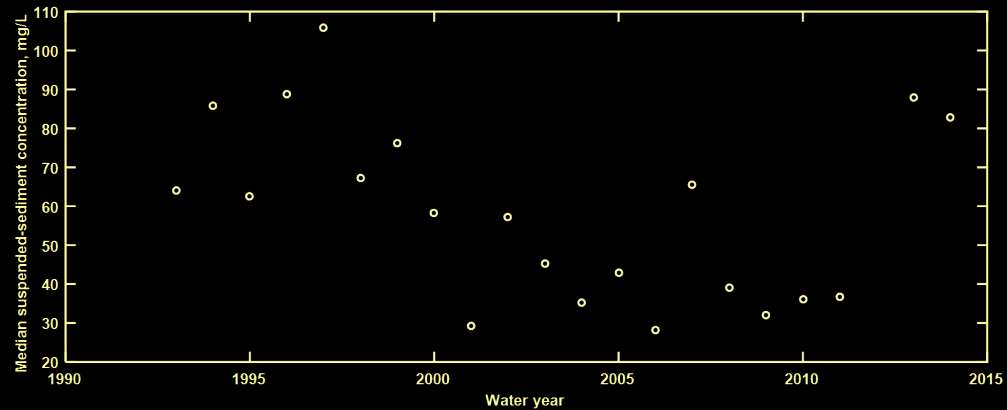
San Mateo Bridge salinity: spring freshets, drought



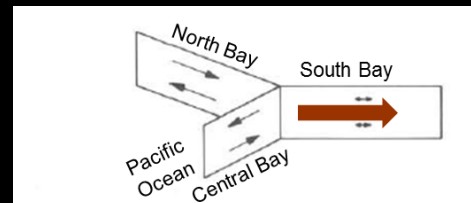
Conclusion

We hypothesize that the recent increase in South Bay suspended sediment may be due to the ongoing drought in California.

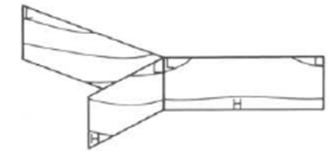
During a drought, net landward sediment transport in lower South Bay likely persists throughout the year and erodible sediment accumulates.



Surface and bottom currents



Salinity gradient



McCulloch et al. 1970

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