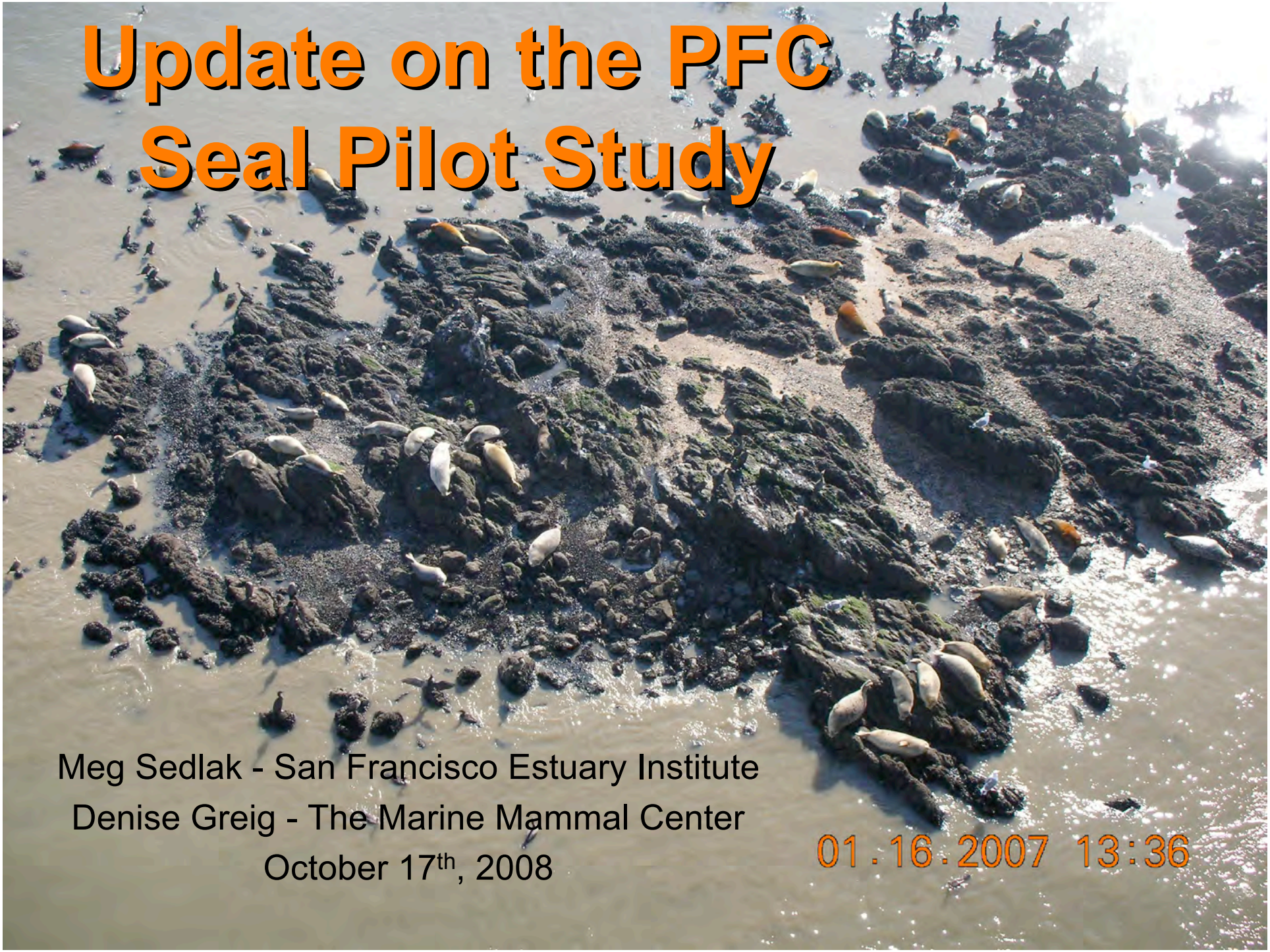
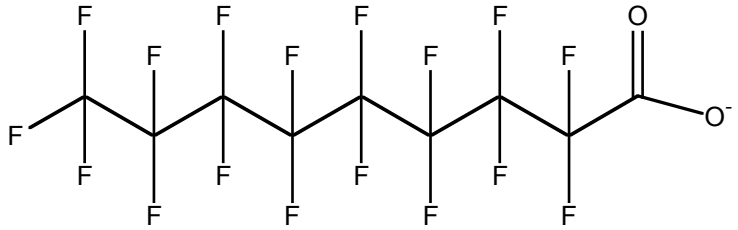
Update on the PFC Seal Pilot Study



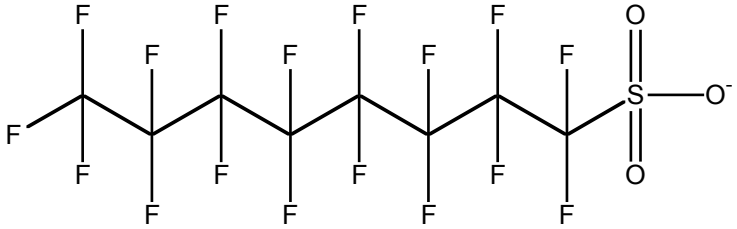
Meg Sedlak - San Francisco Estuary Institute
Denise Greig - The Marine Mammal Center
October 17th, 2008

Perfluorinated Compounds



PFOA

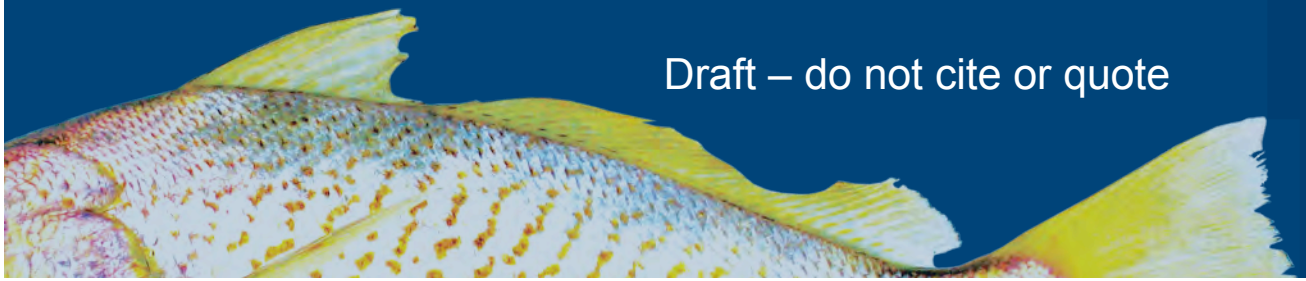
Perfluorinated carboxylic acids



PFOS

Perfluorinated alkyl sulfonates

- Long-chained compounds
- PFOS banned
- Precursors still available



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Pilot Study of Apex Predators

- Collaborating with Marine Mammal Center
  - Analysis of harbor seals blood for PFC
  - Part of larger study examining health and well being

The Marine Mammal Center™
Advancing Rehabilitation, Scientific Discovery and Education

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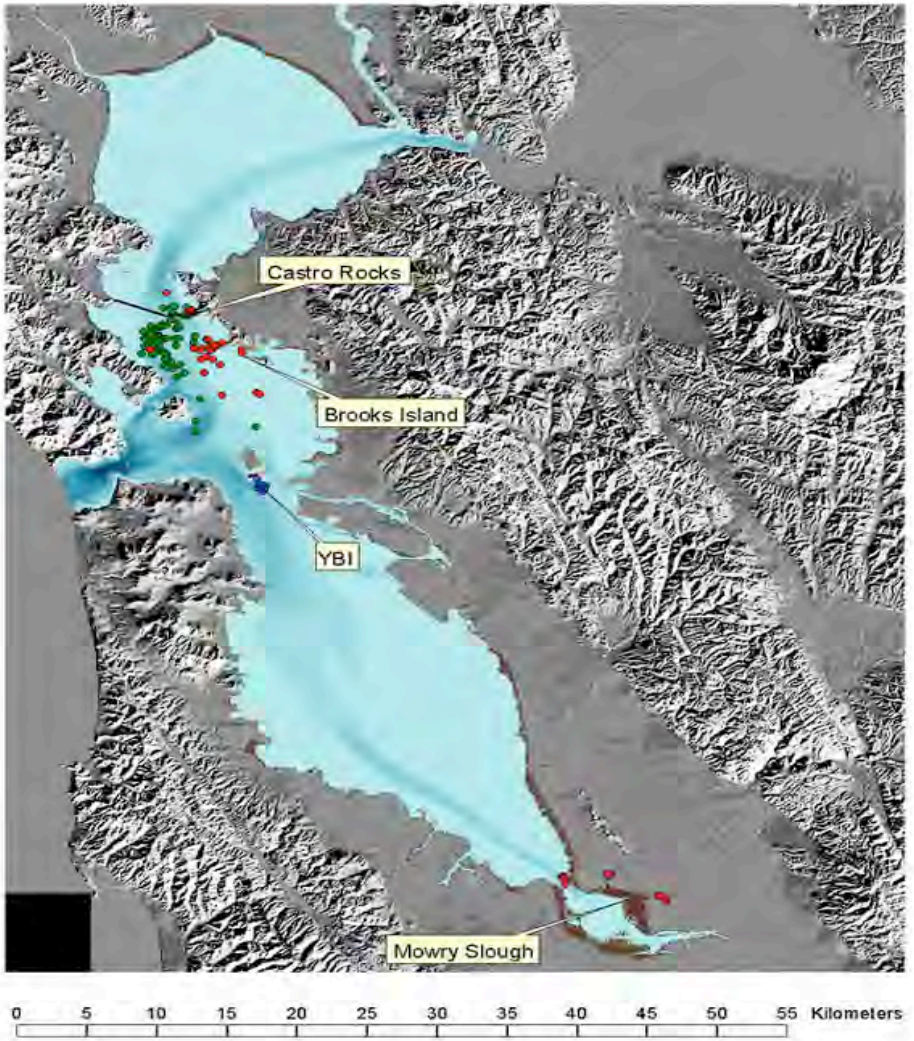
Seal Haul-out Sites

- Three major sites:
  - Richmond Bridge/Castro Rocks
  - Mowry Slough
  - Yerba Buena Island



Draft Interim Report to NOAA Fisheries/NMFS, April 2001.
http://userwww.sfsu.edu/~halmark/tagging.htm

Draft – do not cite or quote

Sampling 2006 & 2007

- 21 seals sampled
  - 14 in SF Bay
    - Castro Rocks
    - 7 males; 7 females
  - 7 at Tomales
    - 3 males; 4 females
- Four age classes
  - Weaner (1 to 12 months)
  - Yearling
  - Subadult (older than yr)
  - Adult

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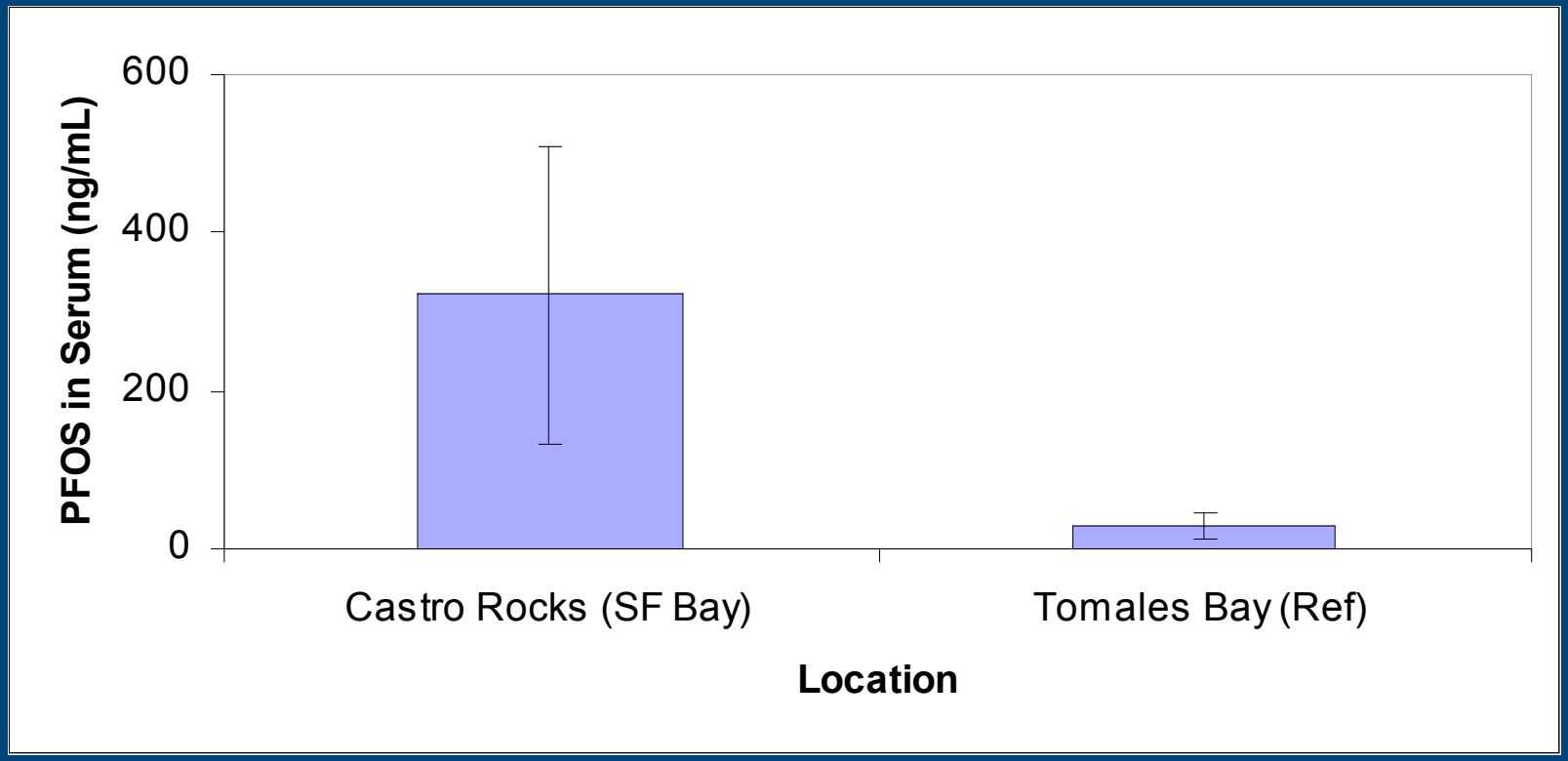
PFOS is major PFC detected



Location is statistically significant

Too few samples to ascertain whether gender is significant (470 vs 174 ng/mL)

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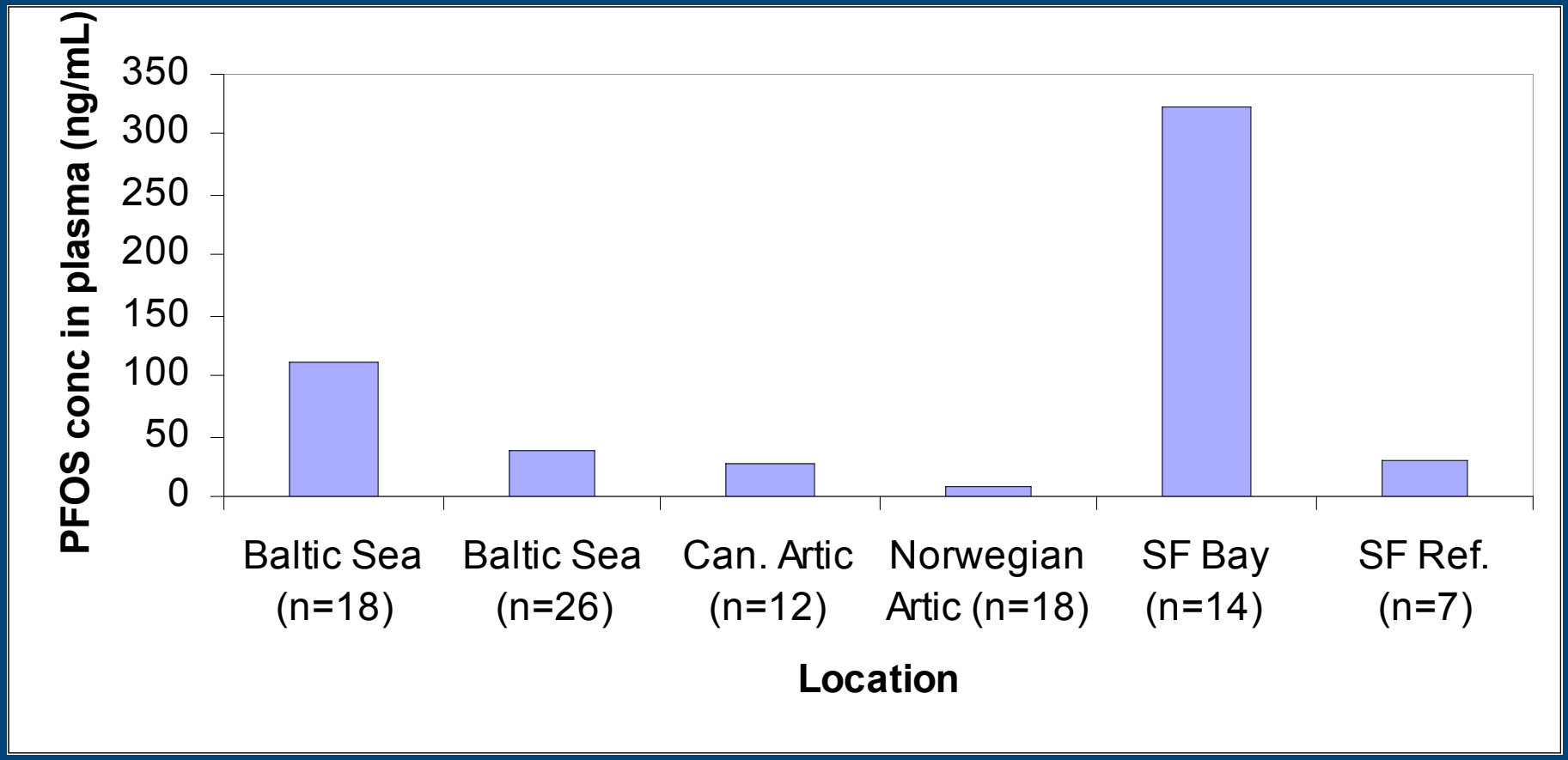
PFOS in SF Bay Seals and Elsewhere



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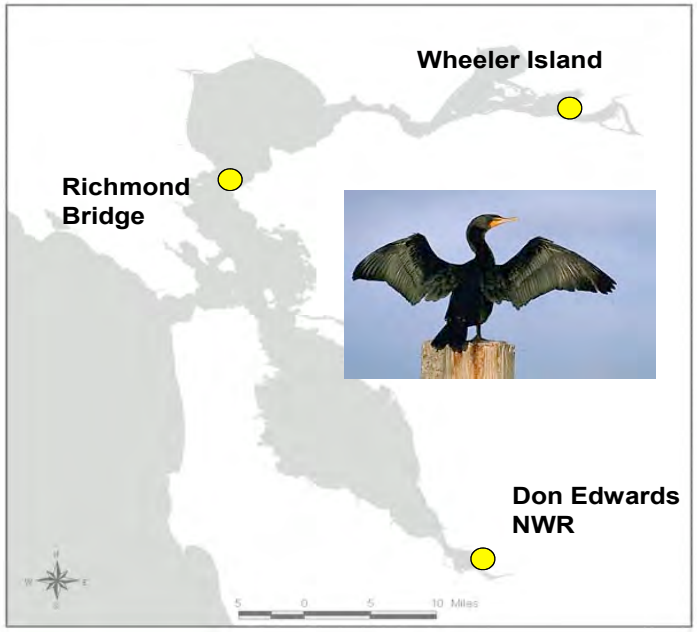

PFOS in Cormorant Eggs

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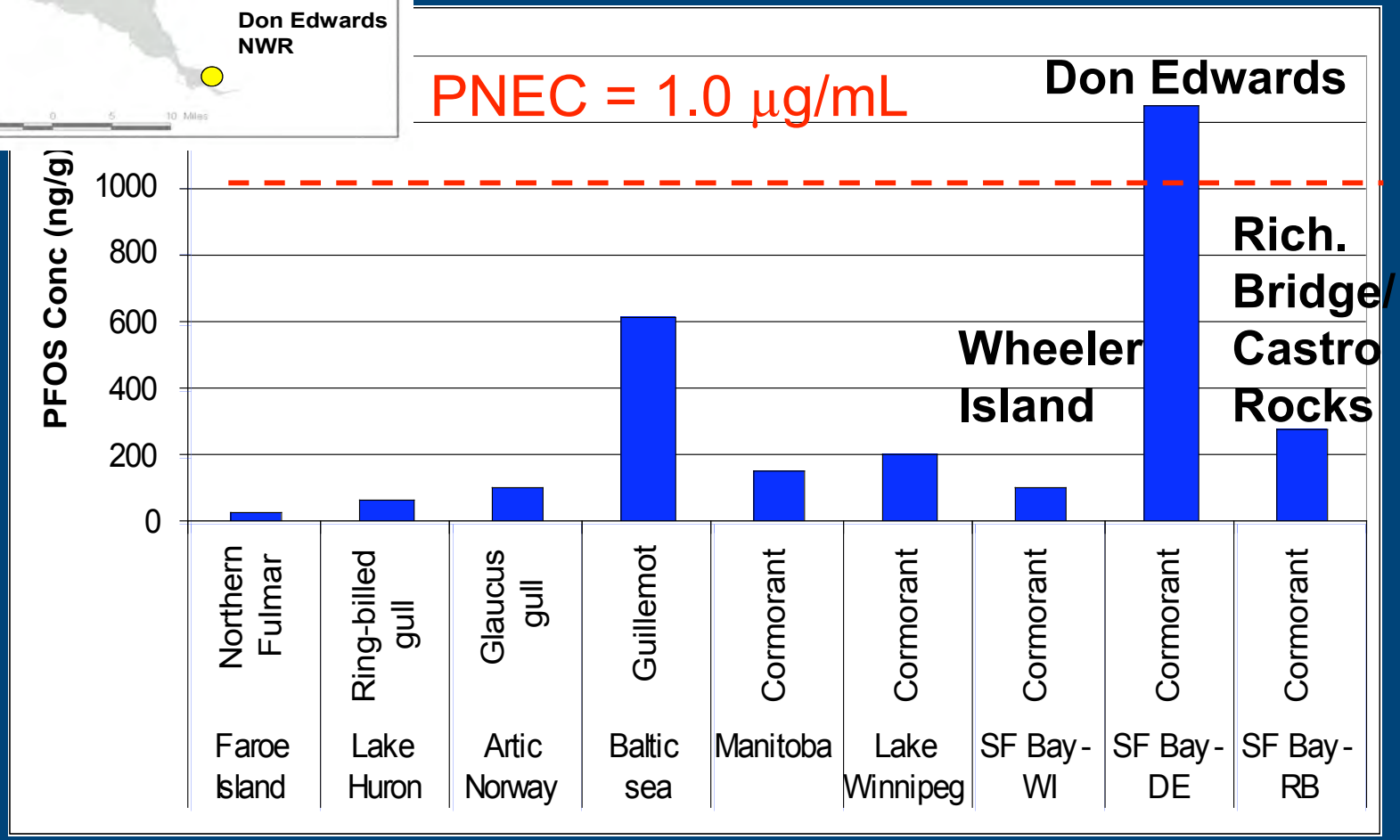

Sampling 2008

- Analysis of archived 2007 samples
  - 4 in SF Bay (Castro Rocks)
    - 2 males; 2 females
  - 6 at Tomales
    - 2 males; 4 females
- Analysis of archived 2004 Mowry seals
    - 2 males; 4 females
- May 2008 event
  - 16 in SF Bay
    - 8 males; 8 females
  - 8 at Tomales
    - 5 males; 3 females

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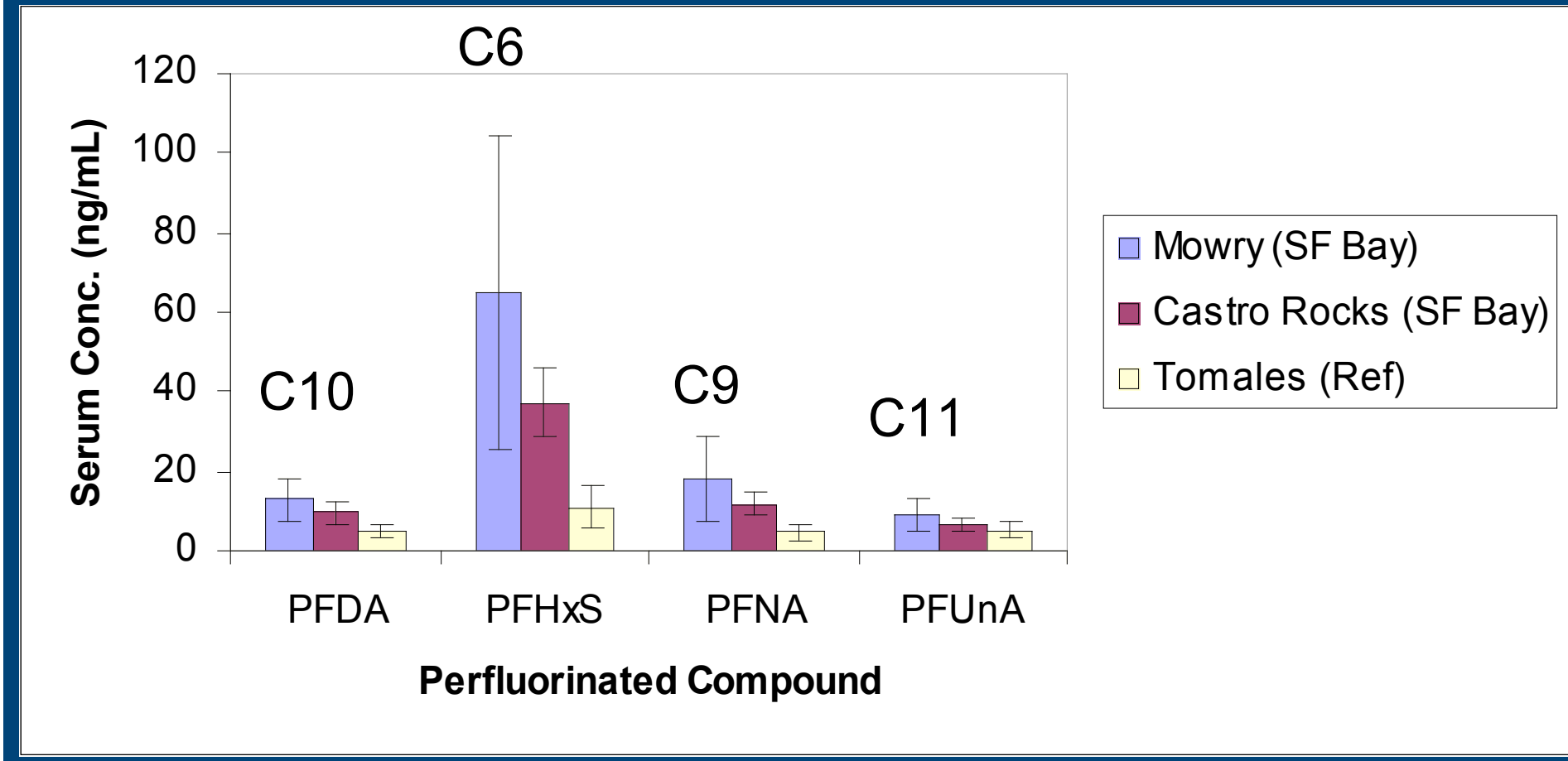
What compounds were detected?



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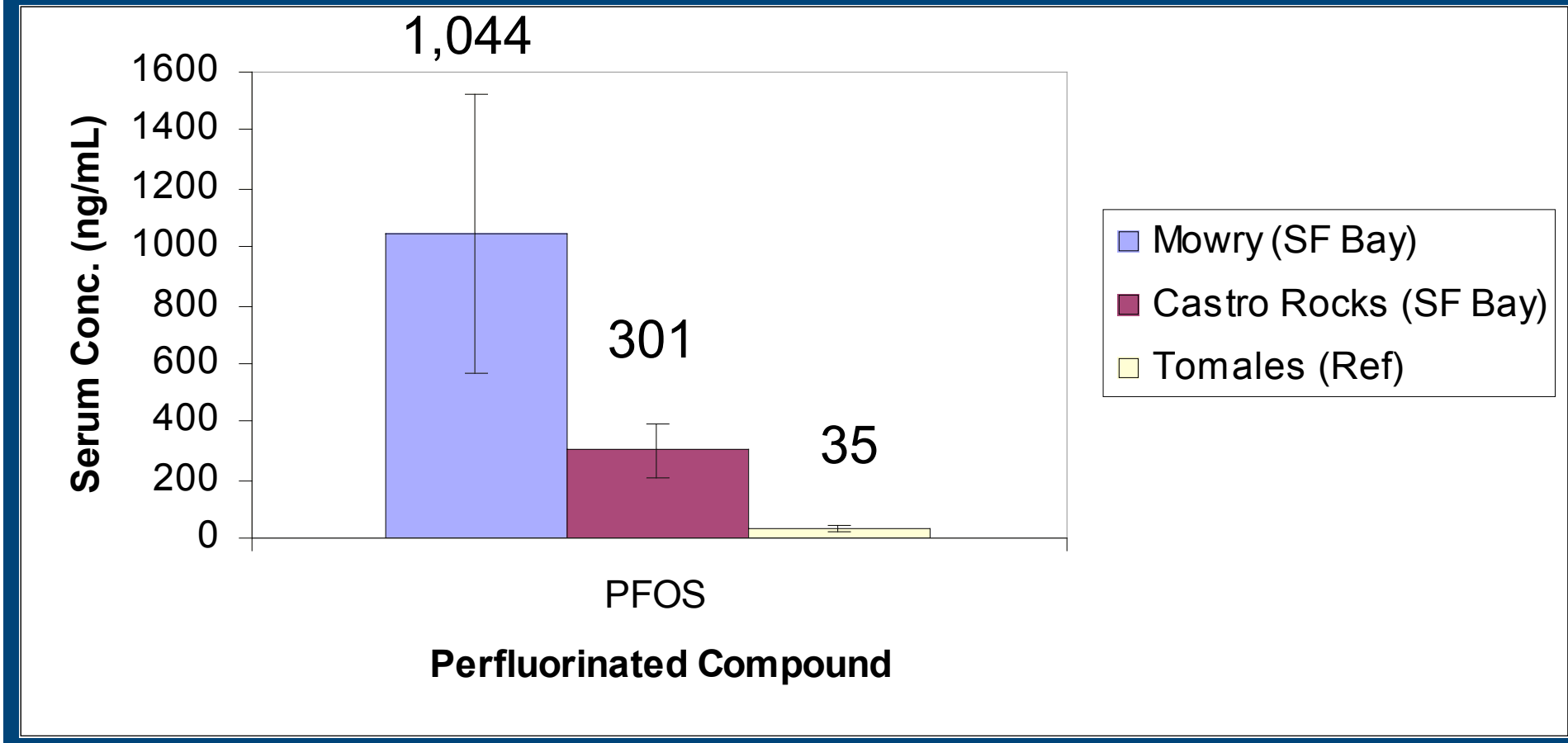
All PFOS data by Site



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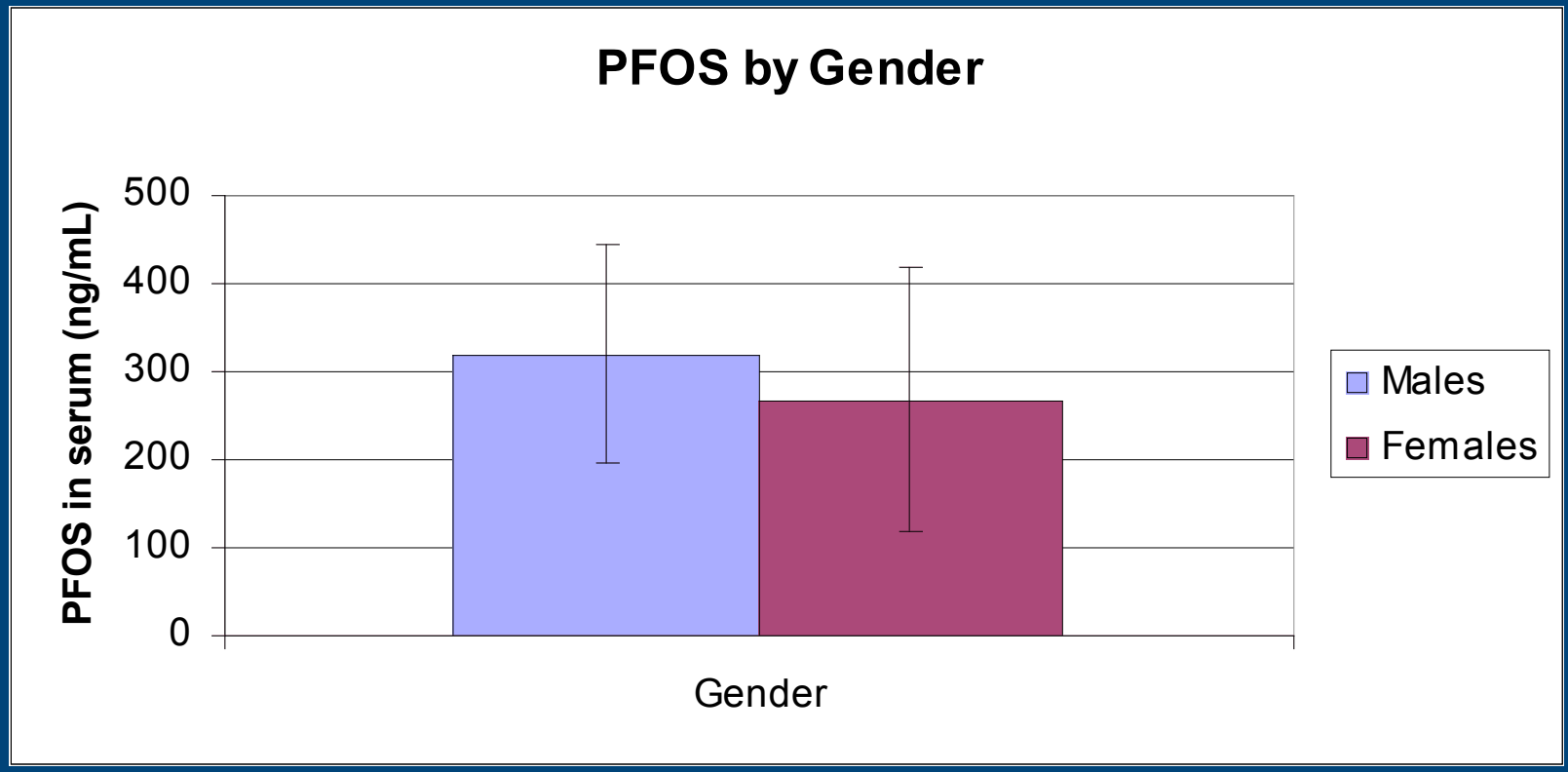
All PFOS data by Gender



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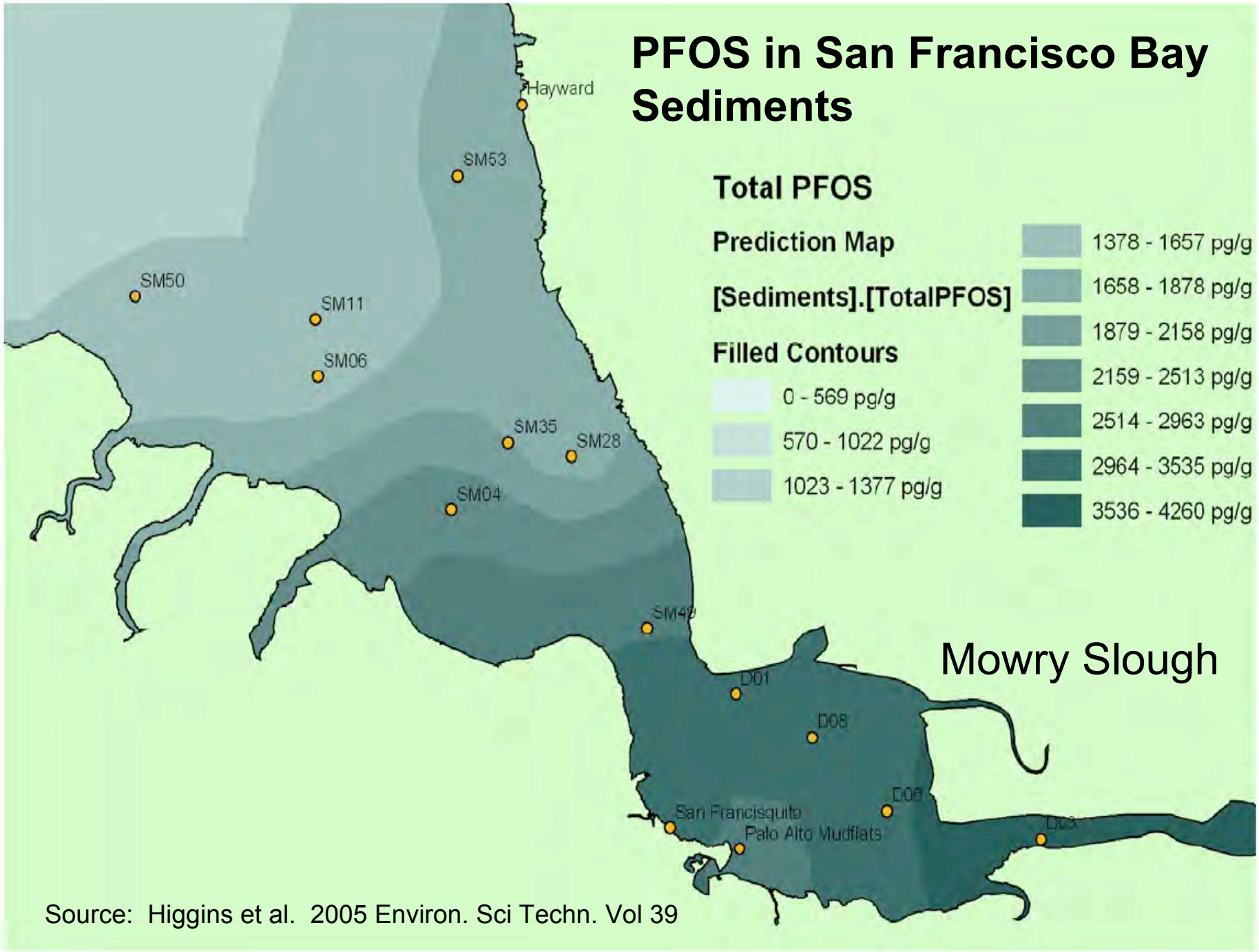

Source: Higgins et al. 2005 Environ. Sci Techn. Vol 39