

# 2009 Emerging Contaminant Activities

- Sources of PFCs
  - Ambient Bay samples (5 sites)
  - Wastewater treatment facilities (5 sites)
  - Small fish (13 sites plus Tomales)
  - Tributaries (3 sites, loading)
  - Hot spots (5 sites)
  - Report in June 2010
- White Paper on ECs
  - Priority for monitoring
  - Flame retardants, PFCs, alkylphenol ethoxylates, pesticides (fipronil), hormones
  - Report in early 2010



# 2009 Emerging Contaminant Activities

## Alternative/Non-PBDE Flame Retardants

- Organophosphate sediment and biosolids data (pro bono from Duke)
- Still waiting on HBCD isomers; more samples to VIMS
- Manuscripts in 2010: SF Bay data, biosolids data (lead by Duke)

## Managing CECs Workshop (April 2009)

- Develop processes for prioritizing, monitoring, determining thresholds
- Facilitate communication b/w scientists, managers, stakeholders
- Formulate a path forward for integrating science into an effective management strategy

## Co-organizing CEC Session at ACS Meeting (March 21-25 2010)

- ECs in CA Coastal and Estuarine Ecosystems
- 3 half day sessions
- Management and policy, research (occurrence, fate, toxicity)



# NOAA Mussel Watch CEC CA Pilot

- Meeting with NOAA, NIST, US EPA, SCCWRP, Water Board, USGS to determine target CECs and design

Analyte	Lab	# of sites in CA
Standard Mussel Watch list	TDI Brooks	25
PBDEs	TDI Brooks	80
Perfluorinated compounds	TDI Brooks	80
Pharmaceuticals, Pers. Care Products (PPCPs)	AXYS	80
Alkylphenoethoxylates (APEOs)	AXYS	80
Pesticides	USGS	80
'New' flame retardants (TDCPP)	Cal EPA/DTSC	20
Nanoparticles?	?	10
PPCPs/APEOs/Pest/hormones - POCIS	USGS	20

- Collections: 25 MW sites by March; 55 others by summer 2010
- 55 sites: POTWs, agricultural, urban, non-urban, stormwater discharges, ASBS, marine sanctuaries, NERRs
- Data: as soon as possible



# AXYS Pro Bono Work: CECs in Bay Mussels

- Provides more CEC data for us
- Are there other CECs that should be on the NOAA CA pilot list?
- Methods are new, what can we expect from them?
  - Of chemicals present, which are bioaccumulative?
  - Parent or metabolite bioaccumulation?
  - Work out method details (e.g. MDLs)
  - Opportunity for AXYS to demonstrate capability

## Approach:

- Collect resident mussels, water, sediment from sites in North, Central, and South Bays (n = 5)
- Analyze expanded lists of PFCs and PPCPs, and APEOs
- Results by March to guide NOAA CA Pilot



# 2010 Pilot Study: Screening of Bay Mussels and Harbor Seal Tissues for Anthropogenic Pollutants

- SFEI, NIST, The Marine Mammal Center
- Complements targeted CEC analysis in NOAA Mussel Watch CA Pilot
- Year 1:
  - Method development with NIST standard reference materials
  - Collection of Bay samples
    - 2010 RMP mussel deployments (n=3 sites)
    - Seal blubber, liver, blood from patients at TMMC
    - Bodega Bay, Tomales Bay, or Farallon Is. as reference site
    - Chemical identification when possible
- Year 2: Chemical identification and quantification



# AXYS Pro Bono Work: Brominated dioxins

Analyze 2,3,7,8 dioxin/furan congeners in:

- Sediments (n= 6; 2009 samples)
- Sport fish (n = 6; 2009 white croaker and/or surfperch)
- Harbor seal blubber (n = 6; 2009)
- Target depositional areas and sites most likely to be influenced by wastewater, stormwater, and industrial activities (Central, South Bays)
- PBDD/DFs will be analyzed in samples already targeted for PCDD/DF analysis (fish and sediment)



# Dioxin Update

Matrix	Status
QAPP	Completed
2009 surface water and sediment	Data soon
2009/2010 tributary loadings*	Collected 4-5 samples during first storm event from Lower Guadalupe, Zone 4 Line A; 3 more events at these + Upper Guadalupe, Mallard Is
2009 sport fish	Collected; homogenization in Jan
Atmospheric deposition	Received CARB ambient air data; modeling in 2010
Sediment cores, 2008 surface sediment	Awaiting funding

\* 209 PCB analysis in a subset

