

Delta Methylmercury TMDL Nonpoint Sources Workgroup

Building the Workplan





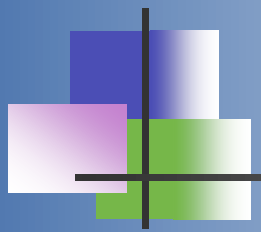
Meeting Agenda

Item	Description / Desired Outcome	Allotted Time (min)
Welcome and Introductions	<ul style="list-style-type: none">• Welcome and introductions• Preview agenda	10
TAC Feedback	<ul style="list-style-type: none">• Key messages & workplan comments	20
Control Study Sites	<ul style="list-style-type: none">• Review and add to MP projects table & map• Evaluate spatial and MP priority coverage	60
Funding	<ul style="list-style-type: none">• Budget expectations in TMDL• Funding opportunities and needs	30
Wrap-Up	<ul style="list-style-type: none">• Review action items• Review project schedule• Project presentations?• Site visit opportunities?• Next meeting date and agenda items	15



Overall Questions

- Where should we focus attention?
- Who is doing what now?
- What are the data gaps addressed—and not—by proposed studies?
- How much \$ is needed and where could it come from?



Comments and Suggestions

TAC FEEDBACK



General Suggestions

- Conceptual → Mechanistic → Scale
- SMART objectives, testable hypotheses, clear rationale
- Address long-term needs & interests
 - Sea level rise
 - Numerical modeling
 - Attainability assessment
 - Cost-benefit analysis



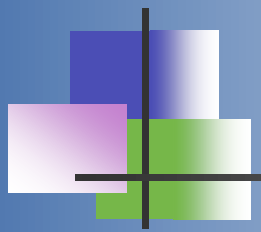
Workplan Scope

- NPS WG workplan supports all Cooperating Entities
 - **Knowledge:** Synthesis, GIS, MPs
 - **Strategy:** Study Sites & MPs
 - **Template:** SAP & QAPP (standard monitoring)
- Project proponents design and attach site-specific studies



NPS WG Workplan Comments

- Explain why & how MPs may work long term (then publish)
- Appreciate site vs discharge concern
- Clarify link w/ flood mgmt.
- Recognize permanent pond variability (veg. vs open, methyl. mechanisms)
- Consider MP of inorg. Hg load reduction



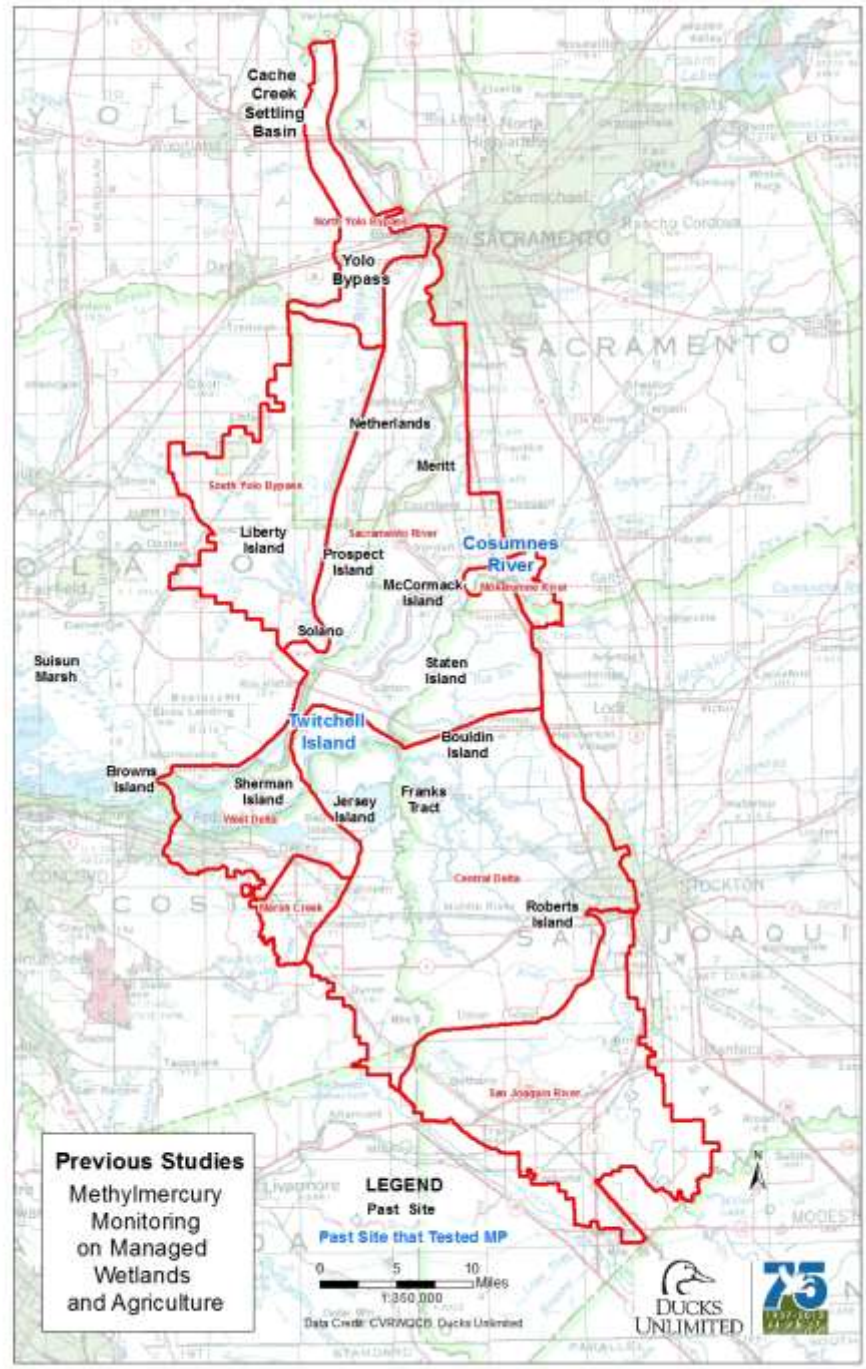
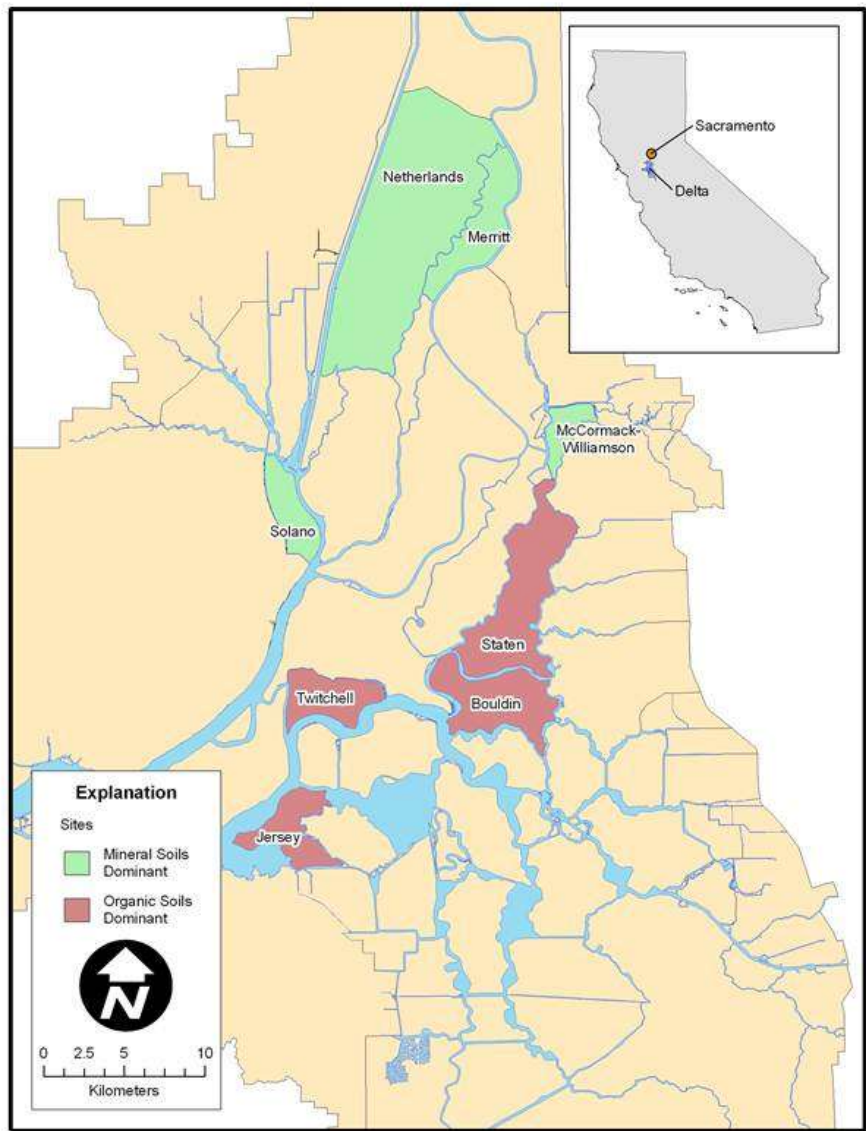
CONTROL STUDY SITES



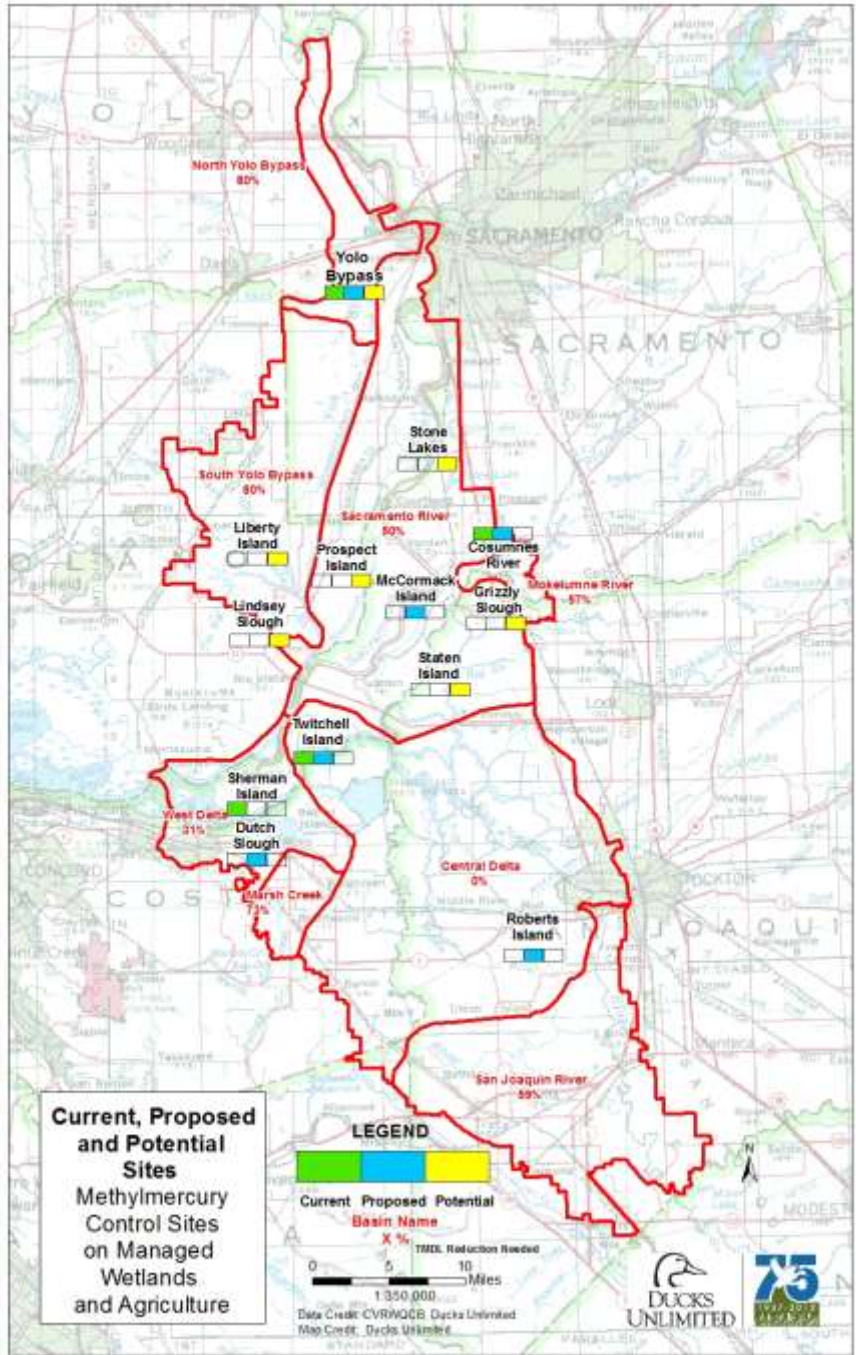
How Comprehensive Are We?

- Are our hypotheses...
 - Consistent with knowledge base?
 - Addressing knowledge gaps?
- Do our studies address priority...
 - Subareas?
 - Land uses?
 - MPs?

Control Study Sites - Past



Control Study Sites - Future





Is Everyone “Covered”?

Land Use Category	Dischargers									
	Federal Agencies			State Agencies			Non-profit Organizations			Private
	USBR	USFWS	BLM ⁽²⁾	DWR	DFG	CA Rice Comm.	ILRP Coalitions ⁽¹⁾	Ducks Unlimited	The Nature Conserv.	Westervelt
Managed Wetlands – Permanent Wetlands		X	X	X	X		X	X	X	X ⁽³⁾
Managed Wetlands – Seasonal Wetlands		X	X		X		X	X	X	X ⁽³⁾
Agricultural Lands – Flooded Agricultural Lands ⁽⁵⁾			X	X ⁽⁴⁾	X	X	X		X	
Agricultural Lands – Irrigated Crop Lands		X	X	X ⁽⁴⁾	X		X		X	
Natural Hydrology Systems – Floodplains	X	X	X		X				X	X
Natural Hydrology Systems – Brackish-Fresh Tidal Marsh				X	X				X	X

(1) Irrigated agricultural discharges are monitoring and assessed via two coalitions (Sacramento Valley and San Joaquin County & Delta). While they also monitor wetlands and rice fields in the Delta, they primarily represent non-rice farmland in the Delta.

(2) BLM manages the Cosumnes River Preserve.

(3) Westervelt is not currently involved in this land use categories in the Delta, but could be during Phase 1.

(4) DWR participates in both coalitions (see footnote #1)

(5) Flooded agriculture includes any lands used for agriculture that get flooded at some point of the year, whether during or after crop growth.



Control Study Proposals

Who	What	Where
SRWP, USGS	NPS Workgroup	n/a
BLM, USGS	Seasonal wetland MeHg controls	Cosumnes R Preserve
USGS, TT	LICD testing	Twitchell Island
USGS	LICD feasibility study	Multiple sites' discharges
SDWA / SJDWQC	Ag runoff monitoring	San Joaquin subarea
DFG	Yolo Seasonal Wetlands & Mesocosms	Yolo Bypass
DWR, DFG, TNC?	Tidal wetlands	Uncertain

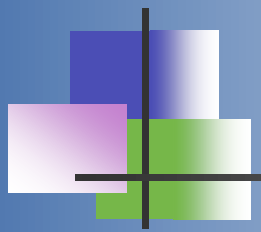
MP Type Coverage

Management Practice	Managed Wetlands – Permanent Wetlands	Managed Wetlands – Seasonal Wetlands	Agricultural Lands – Flooded Agricultural Lands	Agricultural Lands – Irrigated Crop Lands ^[1]	Natural Hydrology Systems – Floodplains ^[2]	Natural Hydrology Systems – Brackish-Fresh Tidal Marsh ^[2]
Apply coagulant in treatment ponds	+	+	+	+		
Increase water residence time	√ +	√ +	√ +			
Increase water depth	√ +					
Increase water velocity	+	+				
Timing water discharge	√ +	√	√			
Pre-flood wetland		+				
Flood and hold		√ +				
Delay fall flood up		+				
Stagger flood/drain events		+	+			
Recirculate drainage water	+	+	√ +			
Use permanent wetlands as treatment ponds		√ +	√ +	+		
Manipulate flooding period		√ +	+			
Irrigate fields in series versus parallel			+			
Raise depth of drainage ditches			√ +			
Irrigate fields with drip irrigation systems				√		
Burn vegetation and soil		+	+		√ +	
Till vegetation below soil surface		+	+		√ +	
Bale and remove vegetation		+	+		√ +	
Graze fields with livestock		+			√ +	
Design of new/ restored tidal wetlands						√ +



Related Control Studies

- Open Water – Modeling, including flood conveyances and some monitoring
- Cache Creek Settling Basin – loads, in-basin
- New Projects – for 401 certif., coordinated & representative pre-/post-monitoring



Needs and Opportunities

FUNDING

RWQCB BPA Cost Estimate

Component	Low	High	Term
<i>Wetlands</i>			
Compliance Monitoring	\$14,000	\$25,000	Annual
Control Studies	\$730,000	\$4.7mill	Total
Management Practices	\$212,000	\$289,000	Annual
<i>Irrigated Agriculture</i>			
Compliance Monitoring	\$14,000	\$25,000	Annual
Control Studies	\$290,000	\$1.4mill	Total
Management Practices	\$220,000	\$460,000	Annual



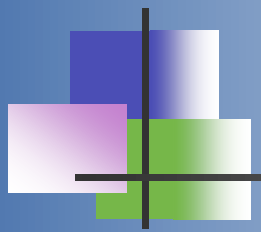
Costs for Existing Characterization Studies

- 3-year study on 10 wetlands = \$1.0-1.9 million (MLML, 2006; PWA, 2006; J. Cain, 2006)
- 3-year study on 4 wetlands = \$243,000 - \$920,000 (MLML, 2006)
- 2-year Cosumnes study: ~\$1.5 million
- Yolo Rice study: ~\$2 million
- Yolo by DFG: \$1.5 million
- Twitchell Is: \$750,000 + \$300,000
- NPS Workgroup: \$125,000



Funding Sources

- Review draft funding table



WRAP-UP



Next Steps

- DTMC meeting: November 13 (at DWR)
- Next NPS Workgroup meeting: **Nov. 27**
 - Sites
 - Budgets & funding opportunities
- Workplan draft: **February 2013**
- Individ. workplans: April 20, 2013



Coordinate to Cross-Pollinate

- Compile study facts
- Study presentations
- Site visits
- Review proposals & workplans



Two Useful Web-based Tools

- CA Estuaries Monitoring Workgroup site/tool
- Estuaries “My Water Quality” portal