

THE SAN FRANCISCO BAY REGIONAL MONITORING PROGRAM AFTER 25 YEARS: AN EXTERNAL PERSPECTIVE

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REGIONAL MONITORING IS A GOOD INVESTMENT

- **Trends provide assessment of management effectiveness**
- **Recognize problems before they become acute**
 - Late recognition constrains remediation options
- **Allows prioritization among potential management issues**
 - What pollutants are most problematic?
 - Which habitats to target?
- **Aids development of remediation targets**
 - Provides understanding of natural spatial/temporal variability
- **It's not about whether monitoring is worth doing**
 - It's about whether it's being done well

THE RMP IS DOING IT WELL

- **Clear objectives**
 - Defined by the user community
 - Tied to management needs
- **Adaptive to changing needs**
- **The science is conducted collaboratively**
- **Effective communication of findings**
- **Long-term commitment**
 - Both financially and among your participants

MANY PEOPLE HAVE BEEN WITH THE PROGRAM FOR >20 YEARS

Steering Committee

Tom Mumley

RMP Staff

Jay Davis

Technical Review Committee

Karen Taberski

Bridgette DeShields

Investigators

Brian Anderson

Jim Cloern

Dave Schoellhamer

Bryn Phillips

Paul Salop

Rusty Fairey

Science Advisor

Frank Gobas

BENEFITS OF SCIENTIFIC COLLABORATION

- **More bright people leads to more bright ideas**
- **Cost-sharing**
 - Your many leveraged projects enhance the value of the dischargers monetary contributions
- **Breeds scientific consensus**
 - Consensus is key to management adoption of your findings
 - Management reliance on your results is key to programmatic longevity

COLLABORATION IS EXTENSIVE IN THE RMP

- **67 organizations contribute funding**
- **Over 50 organizations sit on the programmatic committees**
- **41 organizations have been funded by the program in the last 4 years alone**
- **These large numbers are not happenstance - It's a mindset**

THE RMP MAKES PROGRAMS AROUND THEM BETTER

- **There are many scientists working around the Bay**
- **The RMP staff doesn't try to compete and assert themselves as the smartest person in the room**
 - Even if they sometimes are!
- **The RMP knows its role is to be the focal point for science to management translation**
 - How to entrain scientists into solving the management challenges?
 - Enhances relevance of work being conducted by the whole community
- **The USGS is a great example**
 - Stay tuned for the next talk

MANAGEMENT COLLABORATION

- **Your collaborations are not just among scientists**
 - You have an incredibly healthy mix of regulators, regulated and advocacy group participation in defining the program
- **This collaboration may seem like endless meetings**
 - But congratulations on recognizing the value of that interaction
- **Ensures that the science is targeted towards relevant questions**
- **Creates a community trust that extends well beyond the outcomes of a monitoring program**
 - You may disagree about solutions, but you have a common science foundation from which to frame the policy dialog

ADAPTIVE PROGRAM

- **The program conducts periodic external reviews**
 - And has been responsive to those reviews
- **1997 Review: Don't limit sampling to the Bay's spine**
 - You responded with a revitalized sampling design and found there was a lot of action on the Bay margins
 - 1997 review also led you to incorporate loadings and pathways
- **2004 Review: Add a biological component to provide context for the chemistry data**
 - You added fish tissue contamination, bird egg contamination, toxicity, and benthic invertebrate community condition
- **Frequent external input from standing committees**
- **The program is better for these changes**

HAS THERE BEEN SOCIETAL GAIN?

- **It's not just about getting technical details right**
- **It's also about assessing whether the RMP has been a good financial investment**
 - You have spent almost \$100M
- **Have you produced a societal gain?**
 - Are people safer?
 - Is the environment healthier?
 - Have regulatory programs become more effective?
 - Have your advances improved other programs around the country?

YES!

- **You have scientifically-founded TMDLs for mercury, PCBs and selenium**
 - Would not have happened without RMP-fueled models
- **You have appropriate fish consumption advisories**
 - And more effective communication of the advisories
- **PBDEs levels are declining**
 - The RMP was one of the programs to document PBDE pervasiveness
 - RMP data contributed to a CA legislative ban of PBDEs
 - Levels in biota have been reduced by 95%
- **CEC strategy**
 - RMP data has been instrumental in implementing a cost-effective CEC strategy that extends beyond PBDEs

YOU HAVE ALSO ELIMINATED SOME RED HERRING ISSUES

- **RMP was the scientific foundation for identifying that TMDLs are not the right avenue for some contaminants**
- **Copper is a great example**
 - Copper in the Bay clearly exceeded the ocean plan criteria
 - However, the RMP allowed you to identify that this was not translating to substantial biological effects
 - Instead, you developed scientifically appropriate site-specific objectives
- **The RMP provides you a safety net**
 - A means to ensure copper doesn't trend upward or become a future biological problem
 - An opportunity to revisit the site-specific objectives if conditions don't progress as expected

WHAT ARE YOUR FUTURE CHALLENGES?

- **Evolving your mission as scientific methods and scientific issues advance**
- **Transitioning your vision to the next generation**
- **Interestingly, finances are not high on this list**
 - They would be for most other parts of the nation
 - You have a stable funding mechanism that people seem to have accepted
 - People must be seeing value from the investment

EVOLUTION OF SCIENCE NEEDS

- **New contaminants**
 - CECs
 - Microplastics
 - Antibiotic resistance genes
- **Climate change**
 - Acidification
 - Sea level rise
 - Rainfall and flow patterns
 - Temperature
- **Advances in measurement techniques**
 - Real-time moored options
 - Remote sensing
 - DNA based measurements

EVOLUTION CHALLENGES

- **Finding a balance between short-term management needs and long-term scientific vision**
 - My organization's review panel referred to this as a “healthy tension”
- **Adopting new, better methods while retaining the ability to describe historical trends**
 - Avoid jumping on every new bandwagon
 - Recognizing the investment needed to develop a translation between old and new methods
- **Beware not to become a victim of your own success**
 - People may want you to tackle additional issues for the same amount of funding

YOU SEEM TO HAVE A GOOD FORMULA

- **Continued programmatic reviews that help you identify changes to consider**
- **Good governance to ensure that evolution is well-linked to management questions**
- **Dedicated funding to piloting new issues**
 - Core repeated sampling represents 27% of your expenditures
 - 32% of your budget is focused on special studies
 - That is a great ratio

VISION CHALLENGES

- **The RMP began with a few visionaries**
 - Can you maintain the momentum as those initiators retire?
- **Shared governance is one of the things that sets you apart**
 - Scientists are crucial to implementing the program, but multi-sector managers need to own the program to make it effective
- **The solution is effectively capturing and communicating the value of the program**
 - Define the compelling reasons to continue the process
 - Make sure you have a narrative that everyone agrees with
- **Your 25th anniversary celebration is a wonderful opportunity to share that narrative across generations**