# Quantitative approaches to understand nutrient pollution in estuaries: An example for the upper San Francisco Estuary

Marcus W. Beck, PhD

USEPA National Health and Environmental Effects Research Laboratory, Gulf Ecology Division, beck.marcus@epa.gov, Phone: 8509342480

Aug. 26, 2016

## Assessing estuarine condition

How do we collect and use data?

The foundation of environmental management is a strong monitoring network [National Research Council, 1990]

Monitoring provides information for decision-making based on apparent trends...

What are the changes in environmental condition over time?

Are these changes 'good' or 'bad' based on our management objectives?

What may have caused these changes?

#### Acknowledgments:

Research staff and employees at USEPA Gulf Ecology Division

#### Funding sources and contact:



beck.marcus@epa.gov

Phone: 8509342480

### References

National Research Council. 1990. Managing Troubled Waters: The Role of Environmental Monitoring. National Academy Press, Washington, DC.