

Integrated Modeling of Estuarine Systems: Lessons for the Sacramento-San Joaquin Delta

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<http://integratedmodeling.ucdavis.edu>

White Paper Integrated Modeling Estuarine Systems



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Summary

Complexity in estuarine systems calls for integrated and community-based approaches for using and developing models and data. Environmental and hydrodynamic models have helped organize and extend knowledge and predictions for physical, biological, and chemical aspects. However, specialization has often steered science and management to fragmentation among models, data, and management of estuarine systems. Integration of models and data in platforms that increase collaboration, interdisciplinary work, organization and transparency have been successful in other systems.

A Delta Modeling *Collaboratory*

- Physical location
- Minimum staff
- Venue for collaborative work
- Model repository
- Conceptual model development
- Forum for problem solving:
 - algorithms,
 - data infrastructure,
 - web service interface



A Business Case

Attribute	Current Practice	Proposed Approach
Financial costs and financing	Project specific	Economies of scale for general capability and staff for specific project,
Fragmentation and inefficiency	Costs of fragmented modeling high	Reduce fragmentation
Maintaining capabilities	Costly for entities to maintain	Lower costs distributed across entities
Timeframe of information	Drawn out, discussion on details, small group	Common models
Integrated understanding	Discipline specialization	Multidisciplinary
Prioritizing model and data	Difficult to achieve	Coordination committee
Access to modeling expertise	Institutional barriers	Broad access, available resources, rapid to deploy
Building and retaining long term talent	Limited career paths, misalignments, mentoring	Opens career path, collaboration to build expertise supports agency program

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