Appendix B: Delta Science Fellows 2018 High Priority Science Actions

Action Area 1: Invest in assessing the human dimensions of natural resource management decisions
A. Investigate the most cost-effective methods to improve species' habitat on working lands.
B. Develop tools to assist adaptive management in the Delta.
C. Initiate a research program on the Delta as an evolving place that integrates the physical and natural sciences with the social sciences.
Action Area 2: Capitalize on existing data through increasing science synthesis
A. Strategically build the capacity to do collaborative science and science synthesis through implementing the science synthesis mechanisms outlined in the Delta Science Plan.
B. Identify and prioritize important data sources that should be interconnected to promote collaboration and provide the technology necessary to allow this information to be easily accessed.
Action Area 3: Develop tools and methods to support and evaluate habitat restoration
A. Develop methods for evaluating long-term benefits of habitat restoration based on current understanding of how species use restored areas and how use changes over time as habitats evolve.
B. Estimate and assess the system-wide effects of location and sequence of tidal marsh habitat restoration projects in regions where sea-level is rising and climate is changing.
Action Area 4: Improve understanding of interactions between stressors and managed species and their communities
A. Implement studies to better understand the ecosystem response before, during, and after major changes in the amount and type of effluent from large point sources in the Delta including water treatment facilities.
B. Identify areas that act as refugia for species of concern during extreme conditions, particularly drought and flood, to inform management decisions and priorities during extreme climate events.
C. Understand mechanisms for observed relationships between flows and aquatic species.
D. Evaluate the effects of toxicity (e.g., contaminant mixtures, pharmaceutical products, HABs) on aquatic species' survival including possible effects on predation.
Action Area 5: Modernize monitoring, data management, and modeling
A. Advance integrated modeling through efforts such as an open Delta Collaboratory (physical or virtual) that promotes the use of models in guiding policy.
B. Explore innovative technologies and cost-effective methods for scientific monitoring and analysis of flow, water quality, and ecosystem characteristics (e.g., improved tools for fish monitoring, LiDAR, high-resolution bathymetry technology, new measurements for Delta levee hazards, and citizen scientist monitoring programs).