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ACCLIMATIZING TO A NEW BAY AREA: ECOSYSTEM-BASED TOOLS AND RECOMMENDATIONS

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San Francisco Bay is the largest estuary on the Pacific Coast making it one of the world's great natural resources. The Bay provides food and shelter for a wide variety of fish and wildlife, contains numerous plants and sub-aquatic vegetation, and makes many contributions – economically, socially, and ecologically – to human welfare. As expressed by the Pew Oceans Commission and the U.S. Commission on Ocean Policy, successful management of marine resources requires consideration of the entire system, acknowledging that inherent complexity and managing different places in different ways while maintaining the processes that connect them. More recently, the Oceans 21 Act calls for "promoting ecosystem-based approaches to management" to address a suite of environmental problems. However, translating this attractive concept of ecosystem-based management into full operational on-the-ground reality has so far been a struggle due to fragmentation of governance, and spatial and temporal mismatches between biophysical processes and the institutional framework – the jurisdictions, regulations, and decision-making practices – created to manage human interactions with the natural processes.

At the same time, climate change has the ability to profoundly impact and alter marine ecosystems in ways that may trump even the best environmental management efforts of the past. What is needed in this new age are new tools to help adapt to climate change while ensuring the provision of ecological goods and services for humans and wildlife now and into the future.

Fortunately, new technologies and databases, such as the marine cadastre, satellite remote sensing, and advances in GPS- and GIS-based technology, are building the capacity to increase the scientific knowledge base. In addition, tools found under the EBM umbrella, such as marine spatial planning, adaptive management, place-based management, integrated watershed planning, and ocean observing and monitoring, are being implemented on a piecemeal basis around the country. As a NOAA Coastal Fellow, research was undertaken to assess the potential for EBM in the San Francisco Bay area and the feasibility of BCDC moving beyond the conceptual framework into actual on-the-ground implementation. More recently, work was undertaken to identify concrete ways in which EBM might assist the BCDC in managing in a climactically altered future. The San Pablo Bay Marine Spatial Planning Pilot Project was created to delve into one aspect of EBM in more detail. The pilot goal was to better understand - and then examine through specific use zone scenarios - how marine spatial planning can address the cumulative impacts of human uses in the Bay; separate incompatible uses; ensure future uses, such as the proposed dredged material Aquatic Transfer Facility or increased ferry transits, are compatible with present uses and do not negatively affect ecological goods

and services; and protect marine biodiversity and habitats (including the largest eelgrass bed in the SF Bay) for future generations. Zoning scenarios, plans, results and recommendations to be announced at Coastal Zone ’09.

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