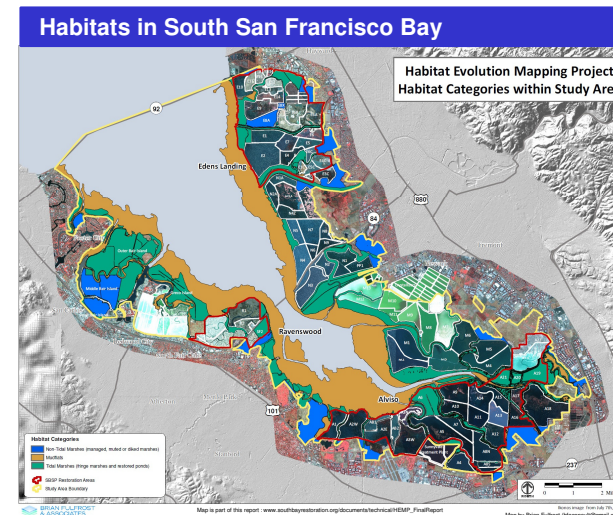
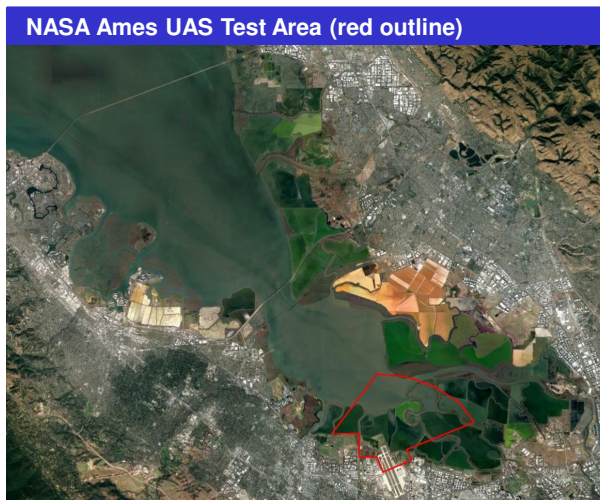
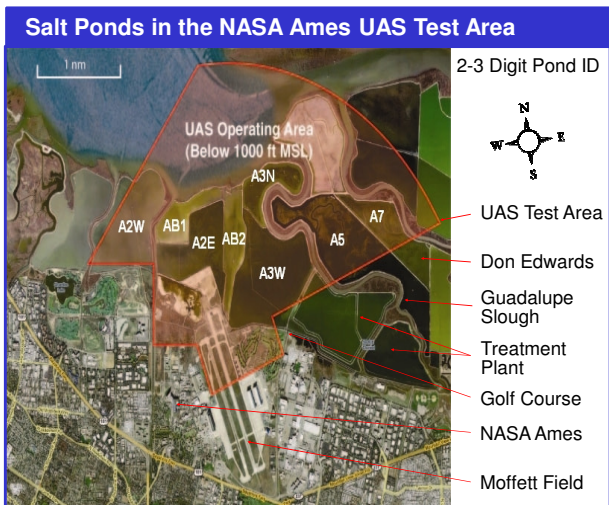




The Don Edwards San Francisco Bay National Wildlife Refuge: A Natural Laboratory for Federal Agencies and Partners

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Don Edwards SF Bay National Wildlife Refuge

- The Refuge encompasses a rich mosaic of habitats and is a fecund and convenient field site for Earth science research.
 - Tidal salt marsh, open ponds, shallow water, mudflat habitat
 - Variety of tide, salinity, elevation, slope, and other conditions
- Proximity to the UAS test area creates a unique natural laboratory that can support a variety of research and benefit the Refuge in monitoring wildlife changes and habitat evolution over time.
- Attractive locale for citizens science and crowdsourcing.

Working with NASA Ames

- Direct costs for NASA civil servant labor and travel if any.
 - Typical flight crew: Pilot and Range Safety Officer (RSO).
- \$2,000 for airworthiness and flight readiness review boards.
- Inter-agency agreement (IAA), military interagency purchase request (MIPR), or reimbursable space act agreement (SAA).

NASA Ames Services

- UAS operations and training in this area since 2013.
- Access to sUAS fleet (AeroVironment, DJI, etc.) and flight crew.
- Access to world class airborne science and operations expertise.
- Engineering evaluation of platforms, payloads, and integration.
- Statements of airworthiness and flight readiness.
- Support of complex deployments and proposal development.
- Coordinated remote sensing satellite data and/or in situ data.

Working with the Don Edwards Refuge

- No costs are associated with working on the Refuge. The PI must comply with FAA regs and obtain a Refuge Special Use Permit.
- The PI must work with the Refuge on NEPA clearance and comply with all endangered species and other wildlife issues.
- Areas open to public access, including seasonal waterfowl hunting, must be taken into account.

Science Collaboration Opportunities

- Natural Hazards**
 - King tide studies
 - Inundation studies.
 - Coastal subsidence
 - Storm response
- Wildlife Management**
 - Bird disturbance study
 - Waterbird census
 - Mudflat biofilms
- Land Use Management**
 - Salt pond management
 - Land use decisions
 - Climate change / sea level rise
- Estuarine Science**
 - Vegetation mapping
 - Mudflat quality, transport
 - Mudflat extent, response
 - Marsh restoration
 - Marsh erosion
- Ecological Research**
 - Water sampling, quality
 - Blue carbon, coastal carbon
 - Greenhouse gas
 - Halophiles, HABs
 - Subsurface imaging

Contact Information

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