INTRODUCTION

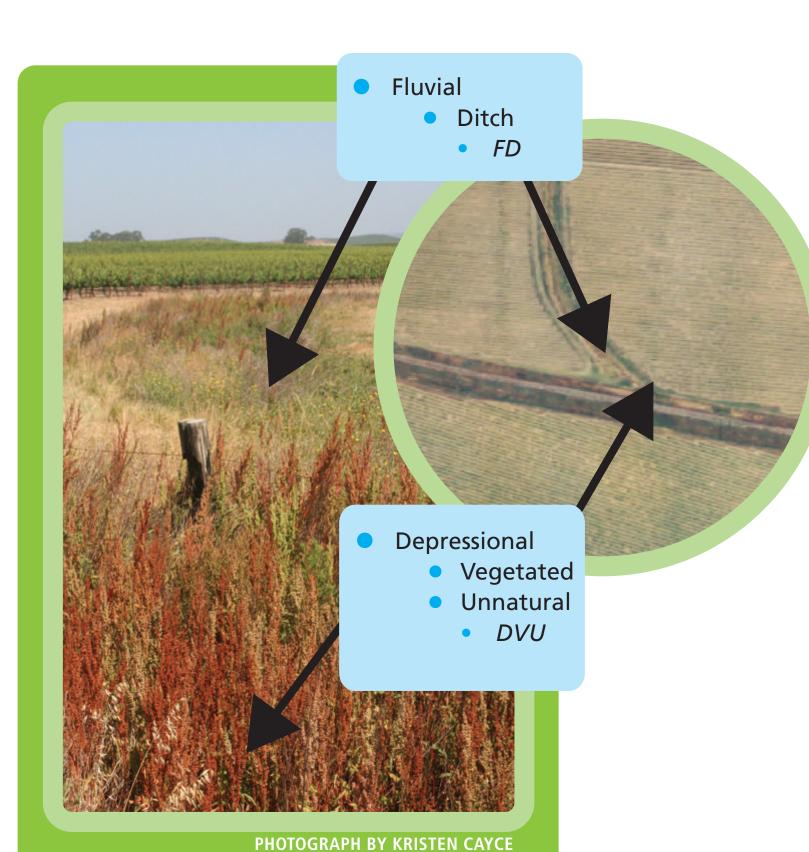
The San Francisco Estuary Institute has created a new map of aquatic habitat for the San Francisco Bay Area called the Bay Area Aquatic Resource Inventory or BAARI. Aquatic resource information is captured through a combination of methodologies including: aerial photo interpretation, field work, and landscape modeling. The mapping resolution exceeds existing national standards and has undergone extensive internal quality control to meet regional and local needs. BAARI serves a variety of purposes for local managers and planners including: fostering the development of protocols for statewide mapping wetlands and riparian habitats, functioning as Bay Area regional base map for displaying spatial data. This Base Map must meet the needs of local agencies for detail and accuracy while complying with federal and state mapping standards.

Key features of the base map: Stream flow direction Stream order High level of detail State and Federal standards

Riparian mapping

Extensive classification

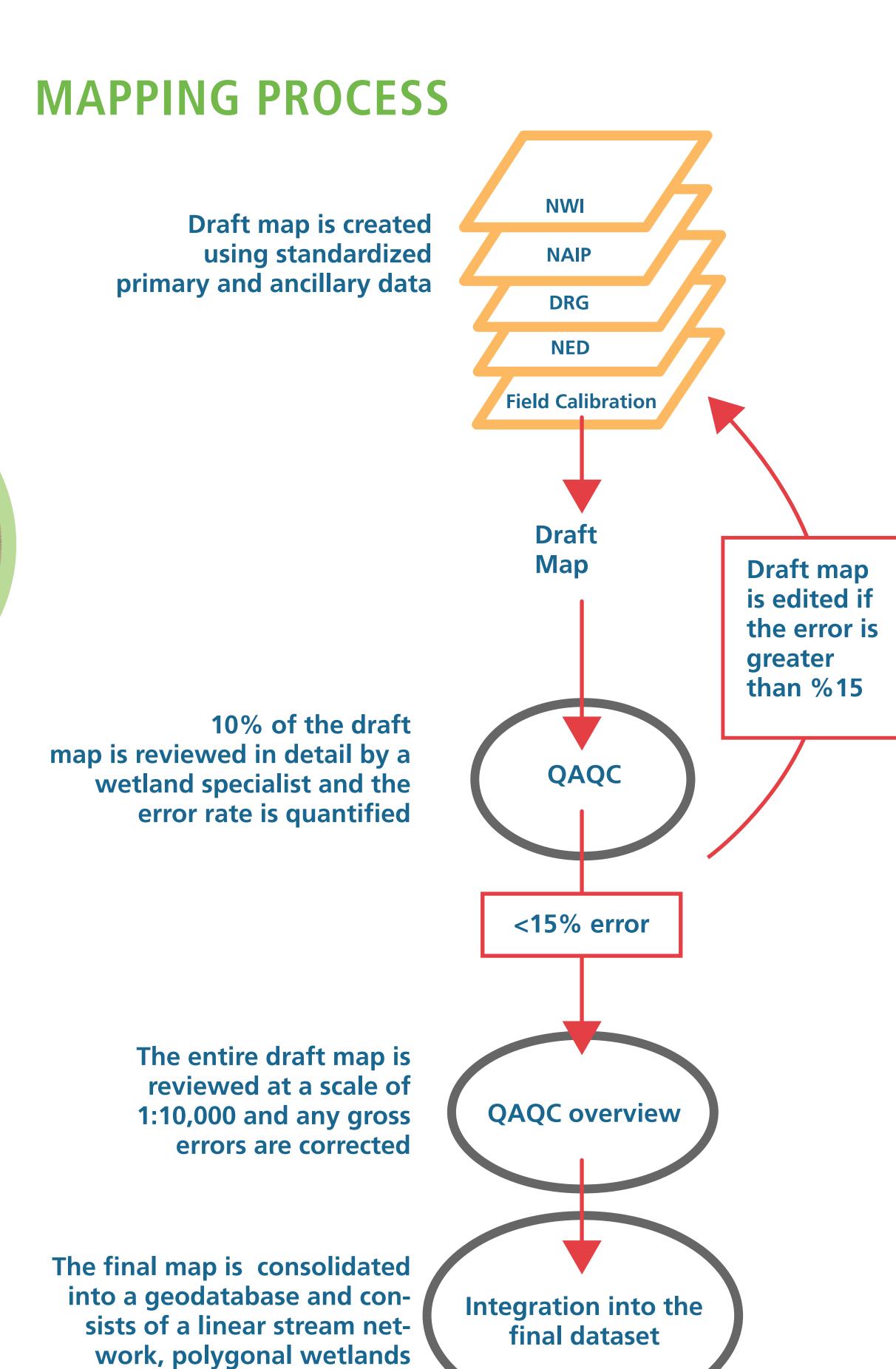
37 wetland types, 6 stream type



QAQC Fieldwork

- Field work is used to calibrate aerial photo signature to aquatic features in an ecoregion
- Field work is used to verify wetland identification and map delineations
- Plant samples, photos, and notes are taken at the site to help with classification
- BAARI reflects information found through field verification
- A small sample of the SF Bay region has been field checked





and riparian functional areas

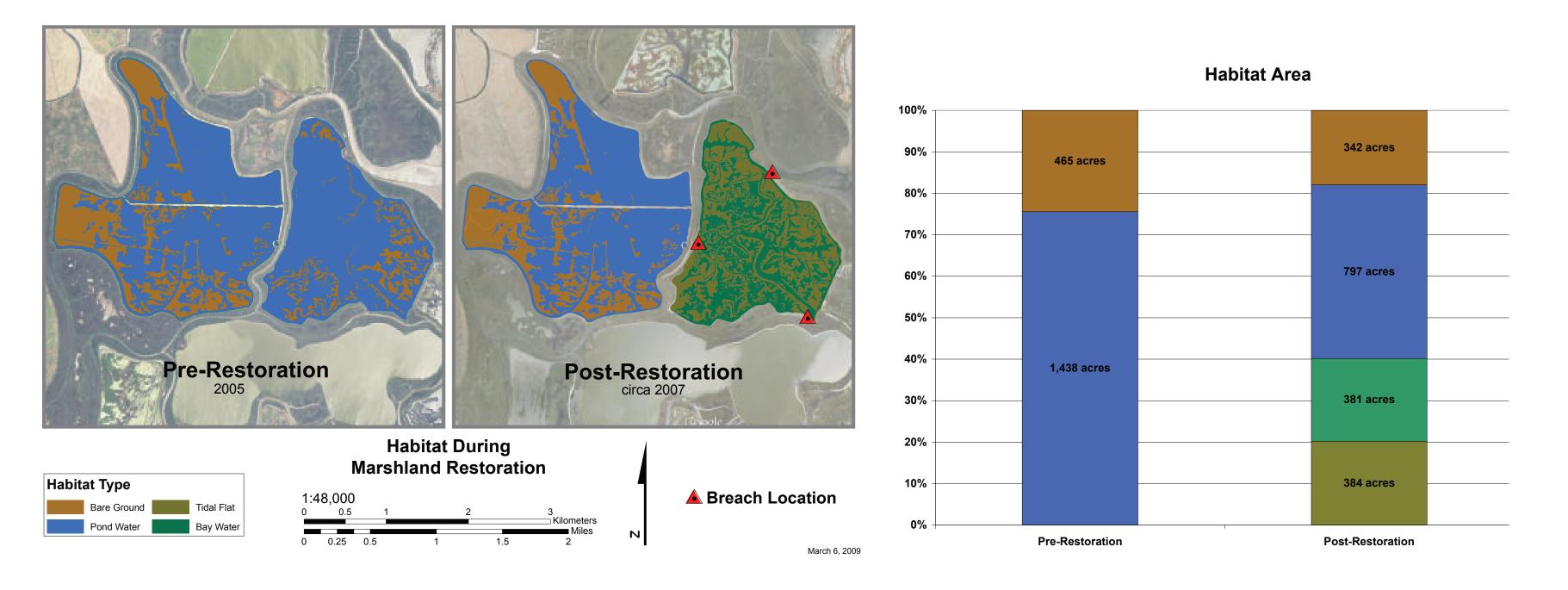
BAY AREA AQUATIC RESOURCE INVENTORY

Kristen Cayce, Marcus Klatt, Jamie Kass Meredith Williams, and Josh Collins SAN FRANCISCO ESTUARY INSTITUTE, OAKLAND, CA



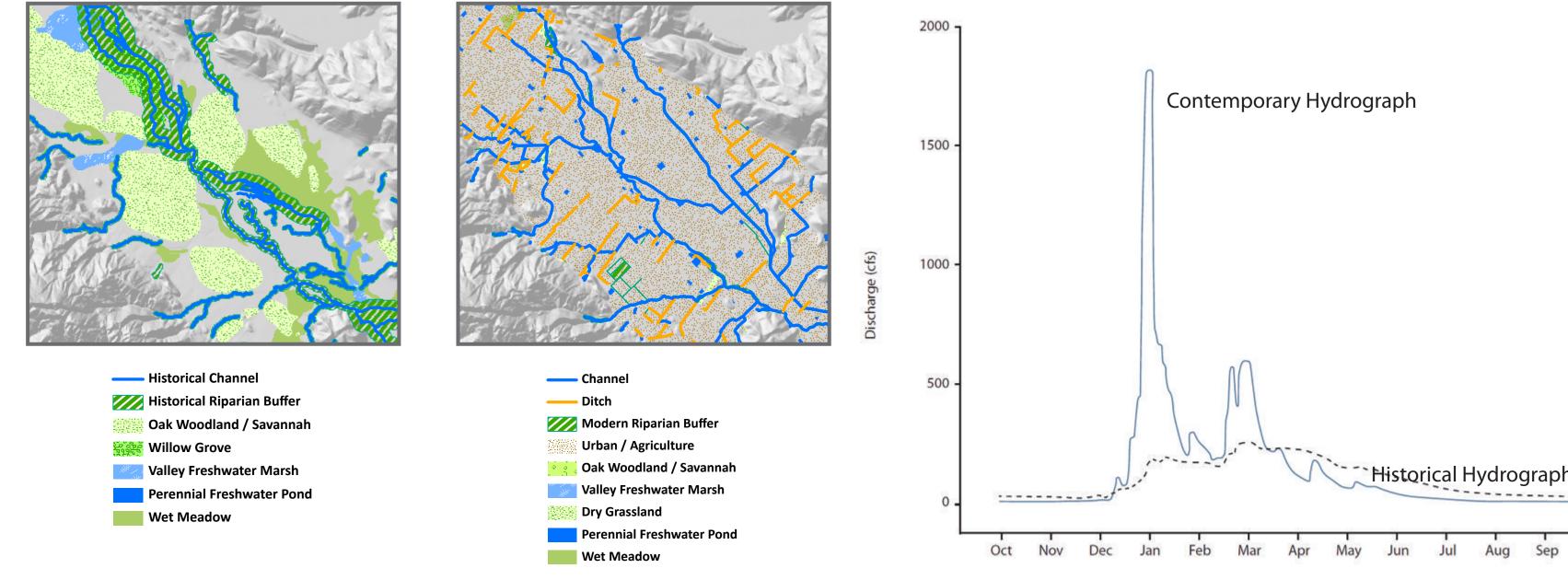


APPLICATIONS OF BAARI



HABITAT CHANGE - NAPA SONOMA MARSH RESTORATION

BAARI is used to quantify recent changes in aquatic habitats after restoration activities in the Napa Sonoma Marsh Restoration Project. The project breached levees of pond 5 in 2006, reconnecting it to tidal flow. SFEI mapped this area using NAIP 2005 imagery, prior to the restoration effort, and remapped the same area using georectified 2007 Google Earth™ imagery after Pond 5 the breaching with similar tide levels.



HABITAT CHANGE - NAPA VALLEY

Comparison of the historical¹ and contemporary² aquatic resources in Napa Valley allows better understanding and quantification of changes to the hydrology and landscape in the watershed. 1/3 of the historical drainage network has been filled or buried. Despite the loss, there has been a 25% increase in the total length of channel on the Valley floor. The increased connectivity dramatically changes the characteristics of storm water run-off and drained the majority of the valley wetlands in the valley.

1 Napa Valley Historical Ecology Study [www.sfei.org/NapaRiverHE]
2 Bay Area Aquatic Resources Inventory (BAARI) [www.sfei.org/baari]



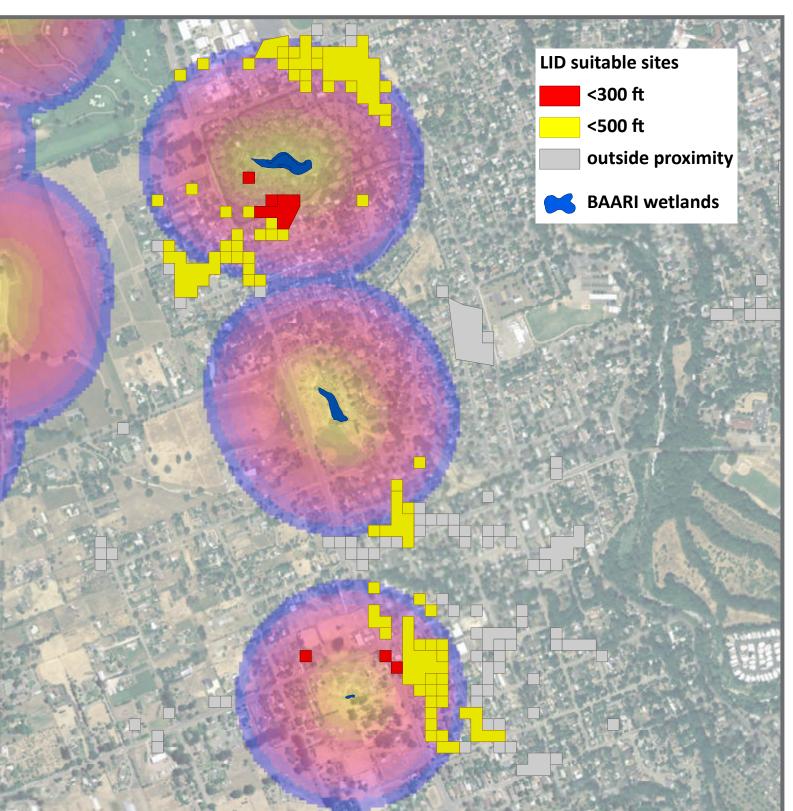
National Hydrography
Dataset



BAARI

SITE EVALUATION

BAARI was used to evaluate the amount of aquatic habitat within a proposed development project. The total length of streams in this potential project area was calculated and compared to existing data. The National Hydrography Dataset calculated 5,000 linear feet. The BAARI estimate was 22,600 linear feetapproximately 4.5 times that of NHD. BAARI more accurately depicted the catchment's aquatic habitat thus leading to better evaluation of the proposed project by Water Board staff.

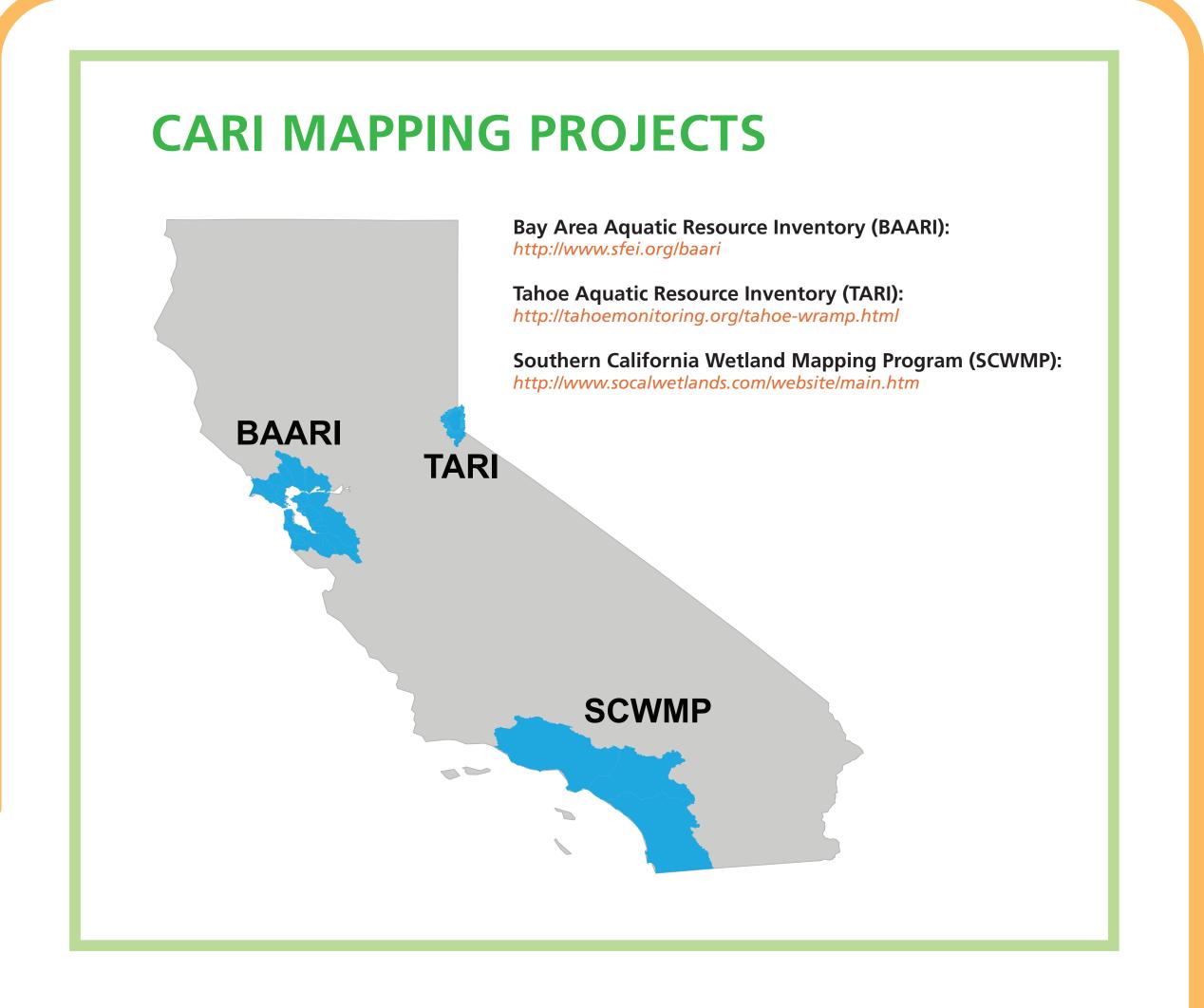


SITE SUITABILITY

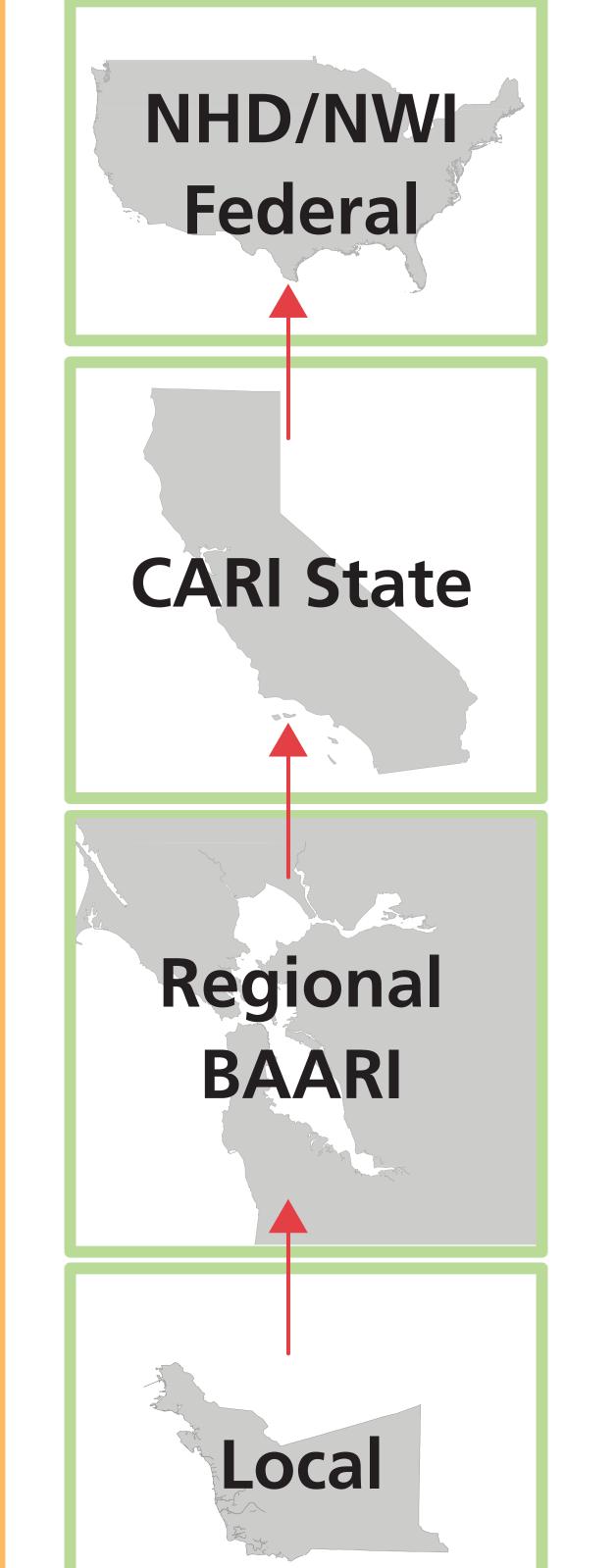
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DATA INTEGRATION AND STEWARDSHIP



Why aren't we all looking at the same map?

Integration of aquatic resource data among the levels of government provides the accuracy of local knowledge with the standardization of a regional and state-wide dataset and the national acceptance from federal dataset into one map.

Local Stewardship

- Partnerships with local agencies and organizations
- Update BAARI with local data and knowledge through a standardized process
- Make BAARI a living map
- Document changes in the landscape
- Current partners: Marin County Planning Dept.,
 Santa Clara Valley Water District, Sonoma Ecology Center

BAARI Stewardship

- Provides a region-wide, standardized, and high resolution basemap of aquatic resources
- BAARI 1.0 complete and GIS data is available
- Integrates regional data into state and national datasets
- Base map of streams and channels, freshwater and tidal wetlands, and riparian functional areas

CARI Stewardship

- Mapping methods (BAARI, NWI, NHD, and others) are being evaluated and revised to fit the needs of a state-wide base map, California Aquatic Resources Inventory or CARI
- Methods will be proposed to the State Water Resources
 Control Board in June 2012
- BAARI, Tahoe Aquatic Resources Inventory (TARI) and the Southern California Wetland Mapping Project will be the first pieces of a statewide map

National Stewardship

- Partnerships with National Hydrography Dataset (NHD) and National Wetlands Inventory (NWI) programs
- Develop a streamlined integration of CARI to the NHD and NWI datasets
- Make CARI and/or regional data accessible through the NHD and NWI on-line mappers
- Integration of CARI into the National Wetland Inventory and the NHD will allow the use of locally developed datasets in a regulatory context

Access to BAARI

The BAARI basemap can be viewed online at: http://www.californiawetlands.net/tracker/ba/map

For more information on WRMP and the Base Map please visit: http://www.sfei.org/baari