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**Ecosystem Quality
Objective Statements**

Improve and increase aquatic and terrestrial habitats and improve ecological functions in the Bay-Delta to support sustainable populations of diverse and valuable plant and animal species.

- A. **Improve and Increase Aquatic Habitats** so that they can support the sustainable production and survival of native and other desirable estuarine and anadromous fish in the estuary.
1. **Increase Amount of High Quality Shallow Riverine Habitat** to allow sustainable fish spawning and early rearing.
 - a) **Increase Amount of Quality Riverine Edge Habitat** to allow spawning and rearing by a sustainable population of native fish species.
 - b) **Increase Amount of Quality Shallow Shoal Habitat** within the main channels of the Delta and upper Bay to allow shallow foraging by a sustainable population of juvenile estuarine fish.
 2. **Increase Amount of High Quality Shaded Riverine Habitat** to allow the growth and survival of sustainable populations of estuarine resident and anadromous fish in the estuary.
 - a) **Increase Amount of Quality Riparian Woodland Habitat** to allow production of terrestrial food sufficient to support sustainable populations of resident and anadromous fish.
 - b) **Increase Amount of Large, Woody Debris** along Delta levees to allow juvenile and adult feeding and refuge for sustainable populations of fish.
 - c) **Increase Amount of Shaded Riverine Habitat** to provide for localized temperature reduction.
 3. **Increase Amount of Quality Tidal Slough Habitat** containing emergent and submerged vegetation to support the fish-production capacity of the Delta.
 - a) **Increase Amount of Dead-End Slough Habitat** to allow spawning and rearing of sustainable populations of some resident species.
 - b) **Reduce Water Hyacinth** populations in tidal slough habitats to improve habitat quality for sustainable populations of Delta fish.
 - c) **Increase Amount of High Quality Tidal Slough Habitat** to allow increased primary biological production.
 4. **Increase Amount of High Quality Estuary Entrapment/Null Zone Habitat** to support sustainable fish populations in the Delta.
 - a) **Reduce Saltwater Intrusion** into Suisun Bay to increase the nursery area for sustainable populations of plants and animals.

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- b) **Expand the geographic extent of Low Salinity Habitat in Suisun Bay.**
 - c) **Increase the occurrence of Brackish Water Habitat in San Pablo Bay during the winter and spring to support sustainable populations of Bay species.**
5. **Provide Sufficient Transport Flows at the proper times to move larval and juvenile fish from spawning habitats to nursery habitats in the Delta and Bay.**
- a) **Increase the Transport of Young Fish from the Delta to Suisun Bay nursery areas to support sustainable populations of important estuarine species.**
 - b) **Increase the Transport of Young Fish Through the Delta to the ocean to support sustainable populations of estuarine and anadromous fish species.**
 - c) **Reduce the Transport of Young Fish from North to South across the Delta and the entrainment of fish in the Delta to increase the survival and abundance of estuarine and anadromous species.**
 - d) **Reduce the Blockage of and Alterations to Transport Flows by local structures.**
6. **Reestablish Appropriate upstream and downstream movement of anadromous and estuarine fish.**
- a) **Enhance Upstream Migration of Adult Salmonids through the Delta.**
 - b) **Increase Successful Outmigration of Juvenile Fish through the Delta.**
 - c) **Enhance Upstream Migration of Adult Estuarine Fish into the Delta and River Spawning Areas.**
7. **Improve the Productivity of the Aquatic Habitat Food Web to support sustainable populations of desirable fish (and other) species.**
- a) **Reduce Entrainment of biological productivity throughout the aquatic food web.**
 - b) **Reduce Concentrations of Toxicants in the water column and in sediments.**
 - c) **Reduce the Effects of Introduced Species on ecosystem productivity and in competing with desirable species for habitat.**
 - d) **Increase the Residence Time of Water in Delta Channels to increase plankton productivity and reduce undesirable algal-mat growth in the Delta.**
 - e) **Increase the Input of Nutrients from wetland and riparian habitats to aquatic habitats.**
 - f) **Reduce Salinity Levels in Delta aquatic habitats.**
 - g) **Increase Flows of Freshwater into the Delta.**

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8. **Reduce Concentrations of Toxic Constituents and Their Bioaccumulation** to eliminate their adverse effects on populations of fish and wildlife species.
 - a) **Reduce the Concentrations of Pesticide Residues** in Delta water and sediments.
 - b) **Reduce the Concentrations of Hydrocarbons, Heavy Metals, and other Pollutants** in Delta water and sediments.

- B. **Improve and Increase Important Wetland Habitats** so that they can support the sustainable production and survival of wildlife species.
 1. **Increase the Amount of High Quality Brackish Tidal Marsh Habitat** to better support sustainable populations of native wildlife species in the Delta.
 - a) **Modify salinity levels in Brackish Tidal Marshes to Improve their Vegetation Composition.**
 - b) **Increase the Areal Extent of Brackish Tidal Marsh Habitats.**
 - c) **Improve the Connectivity Between Brackish Tidal Marsh Habitats and Their Supporting Habitats** such as aquatic habitats and riparian woodlands and adjacent uplands.

 2. **Increase the Amount of High Quality Freshwater Marsh Habitat** to better support sustainable populations of native wildlife species in the Delta.
 - a) **Restore Appropriate Salinity Levels** in freshwater marsh habitat in the Delta to enhance forage productivity and habitat suitability for some native species.
 - b) **Increase the Areal Extent** of freshwater marsh habitats.
 - c) **Improve the Connectivity** of freshwater marsh habitats to provide corridors for population movement and genetic exchange for dependent species.
 - d) **Reduce the Vulnerability** of existing freshwater marshes to levee failure.

 3. **Increase the Amount of High Quality Riparian Woodland Habitat** in the Delta to better support sustainable populations of native wildlife populations.
 - a) **Increase Amounts of Riparian Habitat Structure** for nesting near foraging areas for some native bird species.
 - b) **Reduce the Fragmentation** of riparian woodland habitat patches to provide corridors for population movement and genetic exchange for dependent species.
 - c) **Increase the Areal Extent** of riparian woodland habitats.
 - d) **Improve the Connectivity Between Riparian Woodlands and Their Supporting Habitats** such as aquatic habitats and brackish marsh habitats.

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4. **Increase the Amount of Breeding Waterfowl Habitat** to better support sustainable populations of dabbling ducks.
 - a) **Increase the Amount of High Quality Brood Habitat** near nesting habitat for dabbling ducks.
 - b) **Increase the Amount of High Quality Nesting Habitat** near brood habitat for dabbling ducks.

 5. **Increase the Amount of Wintering Wildlife Habitat** for foraging and resting to better support sustainable populations of wintering waterfowl.
 - a) **Increase** supplies of suitable forage such as **Waste Grain** on agricultural lands.
 - b) **Increase** the amount of **Resting Areas** near foraging areas for wintering wildlife.
 - c) **Increase** the amount of high quality **Foraging Areas** (e.g. freshwater marsh and brackish water marsh) for wintering wildlife.
 - d) **Reduce the Vulnerability** of some existing **Wintering Wildlife Habitats** to levee failures.

 6. **Increase the Amount of Managed Permanent Pasture Habitat** for to better support wintering crane populations.
 - a) **Increase** the amount of **Foraging Habitat** in proximity to roosting habitat.
 - b) **Increase** the amount of **Roosting Habitat** in proximity to foraging habitat.

 7. **Increase Flood Plains and Associated Riparian Habitat** to improve diversity and sizes of fish and wildlife populations.
 - a) **Increase** suitable flood plains to improve the availability of **Temporary Flooded Spawning Habitat** for fish.
 - b) Improve narrow restricted channels to **Reduce the Risk of Catastrophic Losses** of wildlife habitat from levee failure.
- C. **Increase population health and population size** of Delta species to levels that assure sustained survival.
1. **Contribute to the recovery** of threatened, endangered or species of special concern.
 2. **Increase populations** of economically important species.
 3. **Increase populations** of prey or food species.