

BDCP South Delta Habitat Conservation Measure

Opportunities and Considerations

PRELIMINARY DRAFT – FOR DISCUSSION

12-Sep-2011

Opportunities

1. *The project area includes a river system with three distributary channels, providing opportunities to re-distribute flood flows away from, and/or bypass, river reaches that are more constrained in terms of potential human loss of life and property damage.*
2. *Numerous South Delta flood management “actions” are compatible with/can facilitate habitat restoration actions.*
 - *Restore floodplain and tidal marsh habitat.* Levee setbacks and flow bypasses can be used along the Lower San Joaquin River and its distributary channels to reestablish floodplain and tidal marsh habitat.
 - *Improve flood protection in combination with ecosystem restoration actions.* Levee setbacks and flow bypasses can reduce flood levels and associated hazards.
3. *Flood and Restoration actions can decrease difficulties in permitting, maintenance, and operations.*
 - *Restoration actions improve baseline habitat conditions* in the South Delta region, facilitating easier permitting for operations and maintenance.
 - *Increased flood conveyance could decrease flood system maintenance* challenges such as scour at the levee toe.
4. *Areas in the project area:*
 - *not currently receiving adequate flood protection, and/or*
 - *where levees are in degraded/not properly constructed (e.g., under- or through-seepage problems),*
could be/integrated into the conservation measure and may receive the benefit of increased flood protection.
5. *Areas with existing high-value habitat could be integrated and leveraged into a conservation measure.*

Considerations

1. *Topography*
 - *Subsided islands present a challenge in providing expanded floodway conveyance; limit the distance levees can be set back and the places flood bypasses can be created.*

- For restoration, land surfaces must be at the right elevations to tidal marsh habitats and provide floodplain habitat functions.
- Tidal marsh areas must be at or near intertidal elevations to support emergent vegetation. Many areas adjacent to the Lower San Joaquin River and its distributaries are subsided below elevations at which target habitat can establish and sustain. Grading can be used to raise subsided ground elevations, to the extent practical.

2. *River hydrology/hydraulics*

- Historical levee construction and the narrowing, elimination, and/or reconfiguration of channels and floodplain areas may require grading to meet desired performance during flooding conditions.
- The project area is influenced by tidal conditions on its downstream boundary, and thus is subject to varying water surface elevations, storm surge, and the effects of sea level rise.
- Dredging to increase channel conveyance capacity in tidally-influenced river channels is limited in its effectiveness.

3. *Tidal hydrology/hydraulics*

- The existing tide range in the South Delta is approximately 3.5 ft. With restoration, the tide range may decrease, decreasing the area suitable for tidal marsh restoration.
- The extent to which restoration and changes in systems operations (particularly barrier operations) may alter (reduce) the tide range has not been established.

4. Human Infrastructure

- Existing infrastructure (i.e., roads; bridges; levees; agricultural buildings/facilities; pumps and other diversion infrastructure; canals and drains; and gas, electric, and telecom utilities) and residences may limit opportunities in some locations.
- Currently-zoned municipal / industrial areas and urban areas (existing and proposed) may limit opportunities in some locations.

5. Agriculture

- Perennial crops, crops of particularly-high value, and crops that are of varying-degrees of compatibility with flooding all influence corridor options in varying ways.

6. Water Quality

- Existing agricultural, municipal and industrial uses require that certain water quality parameters be maintained at specific levels or treatment costs are increased or usage must be suspended.

7. Mineral/Sub-Surface Property Rights

- The rights to the sub-surface/minerals may be owned separately from the surface land itself. This may complicate conservation and/or flood management.

8. Other Conservation Efforts

- A potential constraint or opportunity, other conservation efforts may have goals and/or objectives that are consistent with (or are different from) BDCP.