Pelagic Organism Decline in the San Francisco Bay/Sacramento-San Joaquin Delta Estuary

The Bay Institute

State Water Resources Control Board
January 22, 2008

- **Overall flow and water quality conditions in the Delta are still deteriorating**
- **Delta smelt and other native species at imminent risk of extinction**
- **Research shows contributing factors are:**
  - **Exports**
  - **San Joaquin River flows**
  - **In-Delta channel hydrodynamics**
  - **Delta outflows**

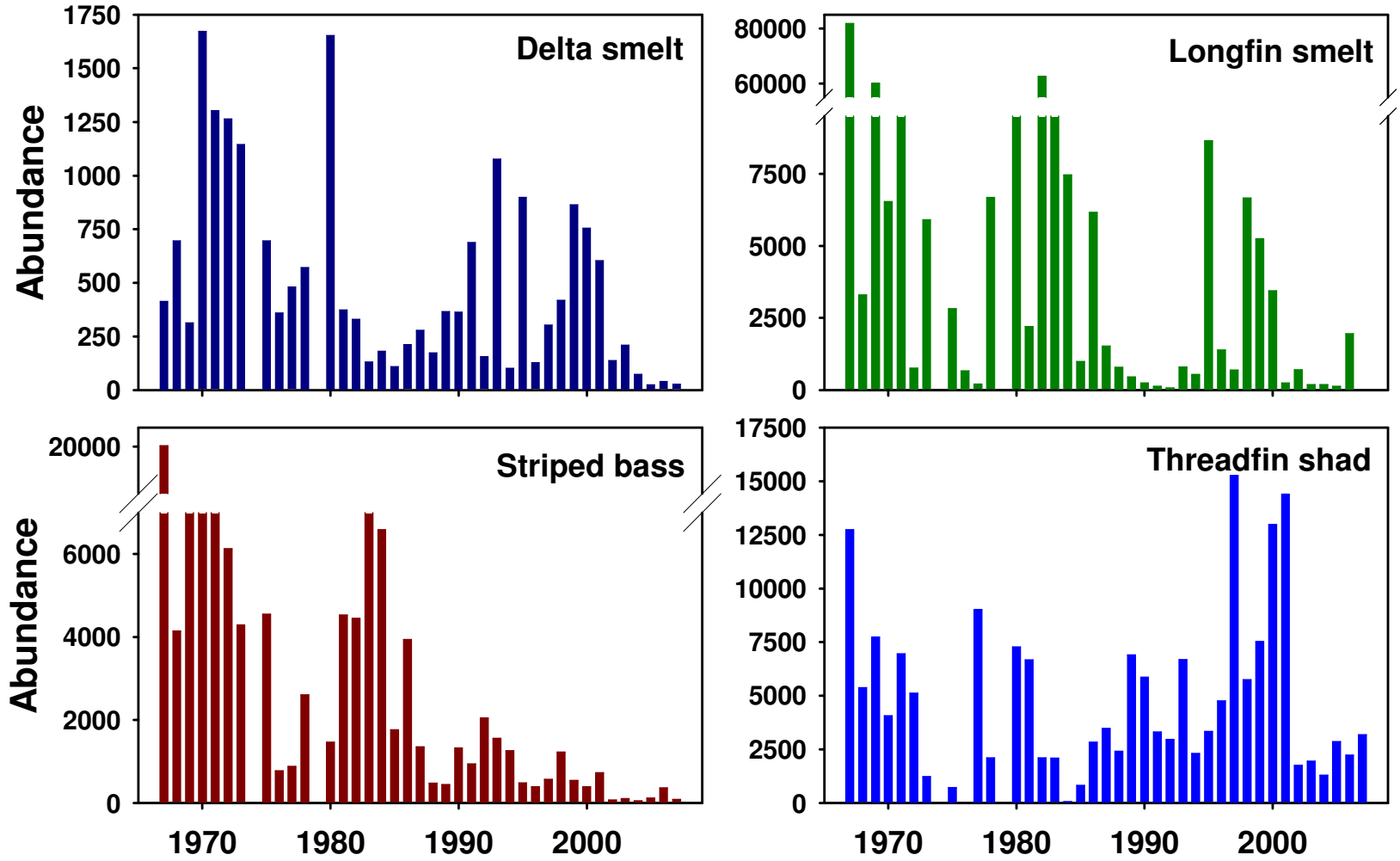
  → **Water management**

  - **Toxic contamination** → **Point/non-point Discharge**

  - **Harmful invasive species** → **Indicator of habitat degradation**

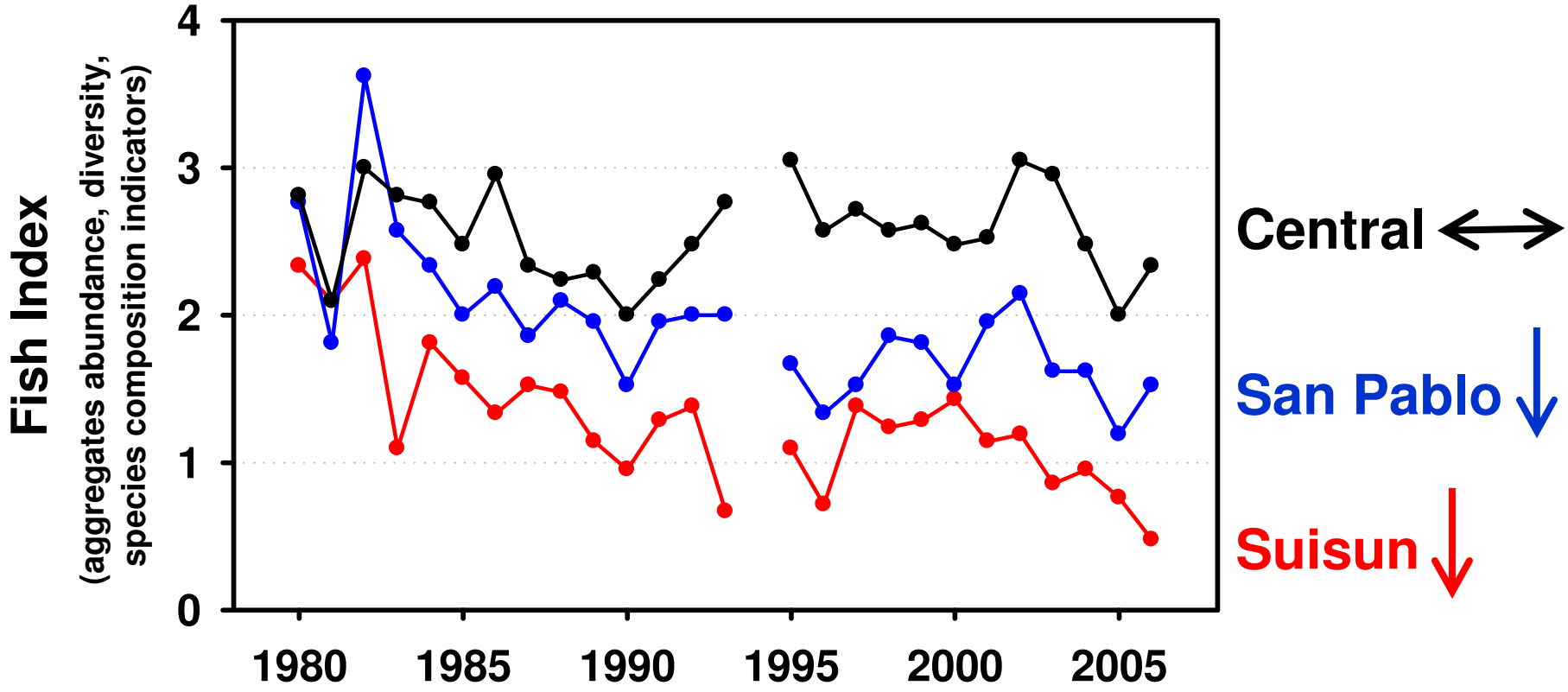
Since March and June 2007, abundance of pelagic fish species continued to decline

Fall 2007: Record or near record low abundance



Comprehensive fishery declines in Suisun and San Pablo Bays

Abundance (pelagic, demersal, sensitive species, northern anchovy)
Diversity (# native species, # estuarine-dependent species)
Species composition (% of species that are native)



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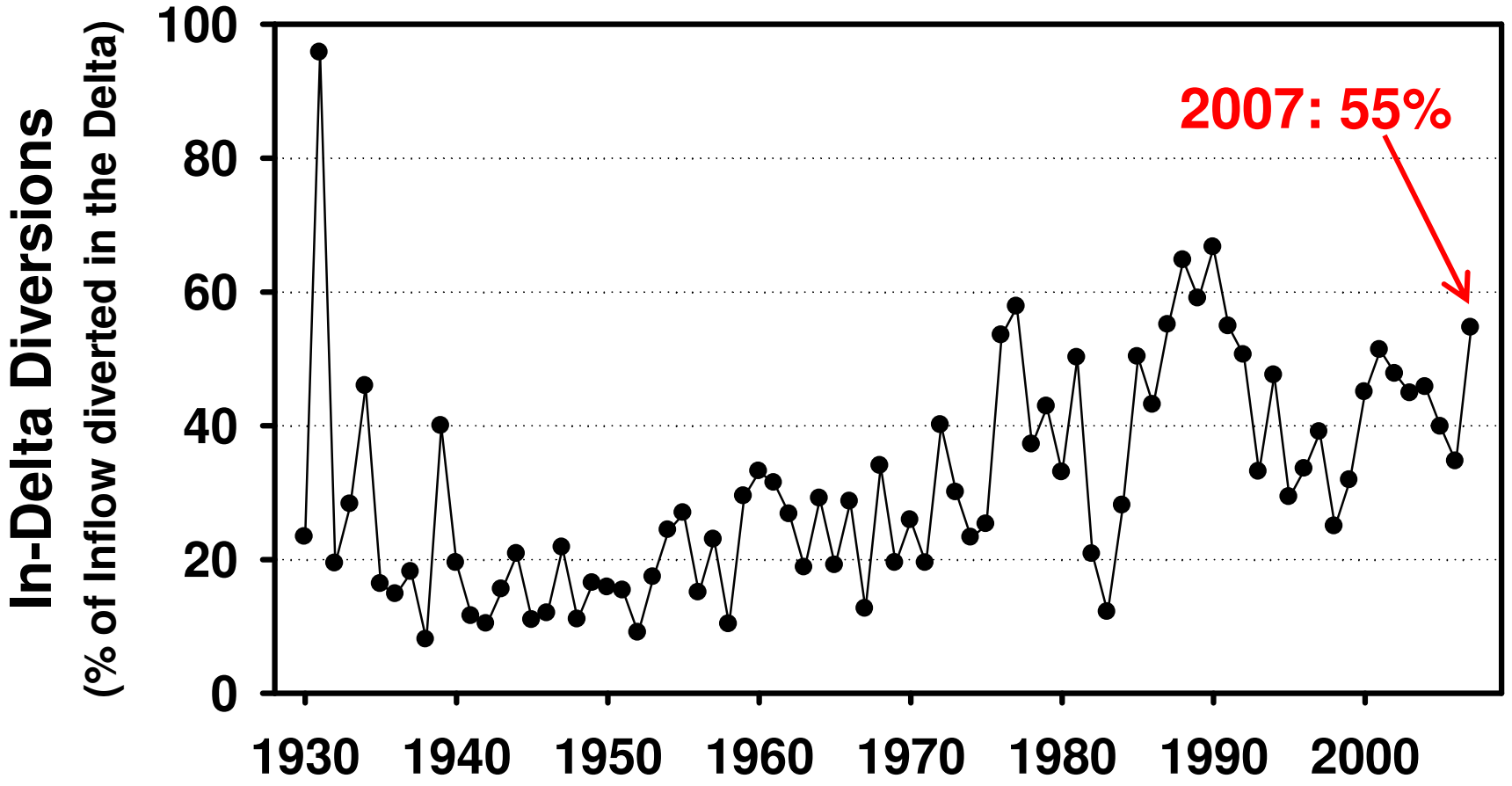
Delta flow and habitat conditions have continued to decline

In-Delta diversions at near record high levels

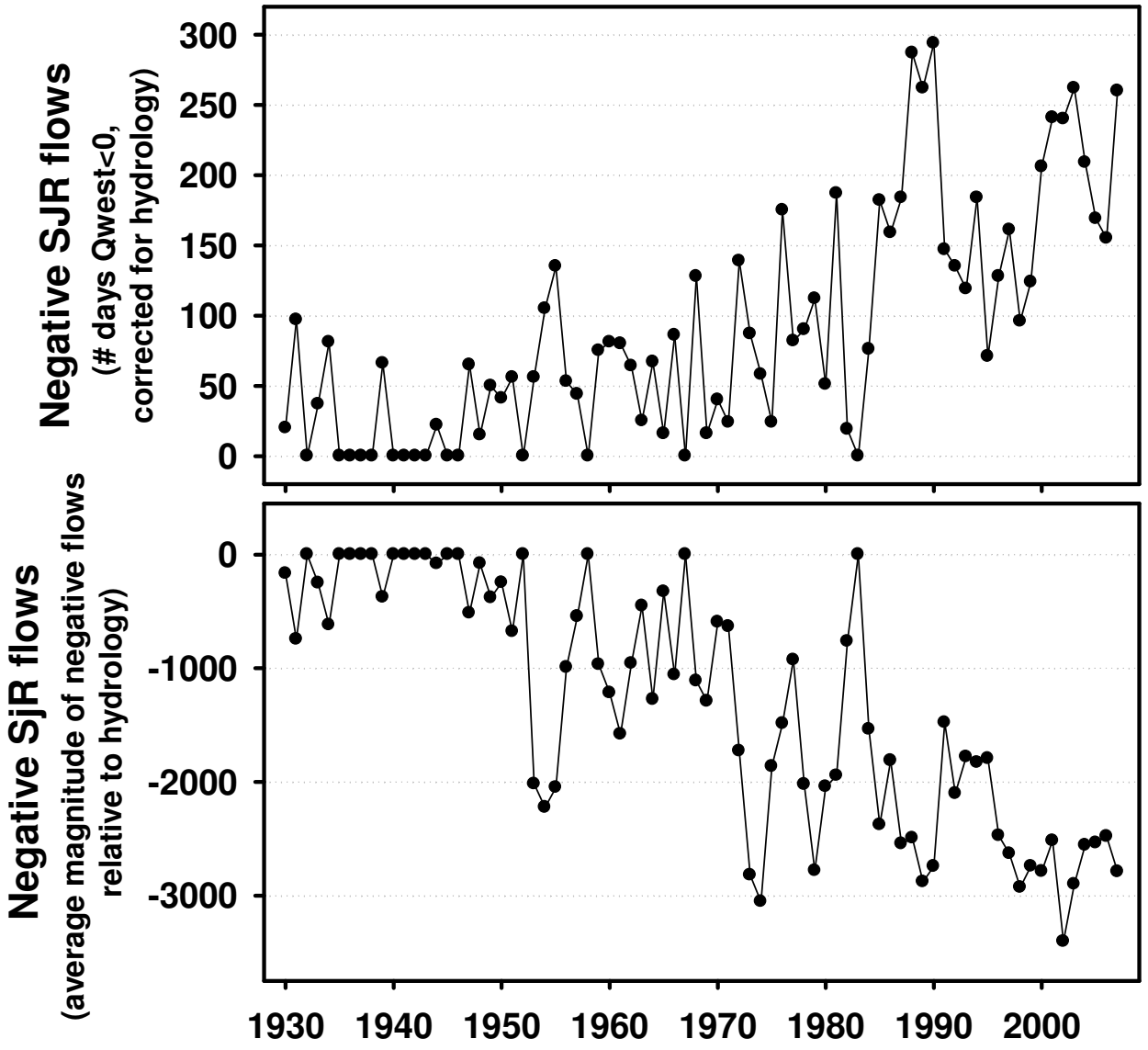


Delta flow and habitat conditions have continued to decline

2007:

San Joaquin River reversed for 260 days

Av. reverse flow was -2789 cfs

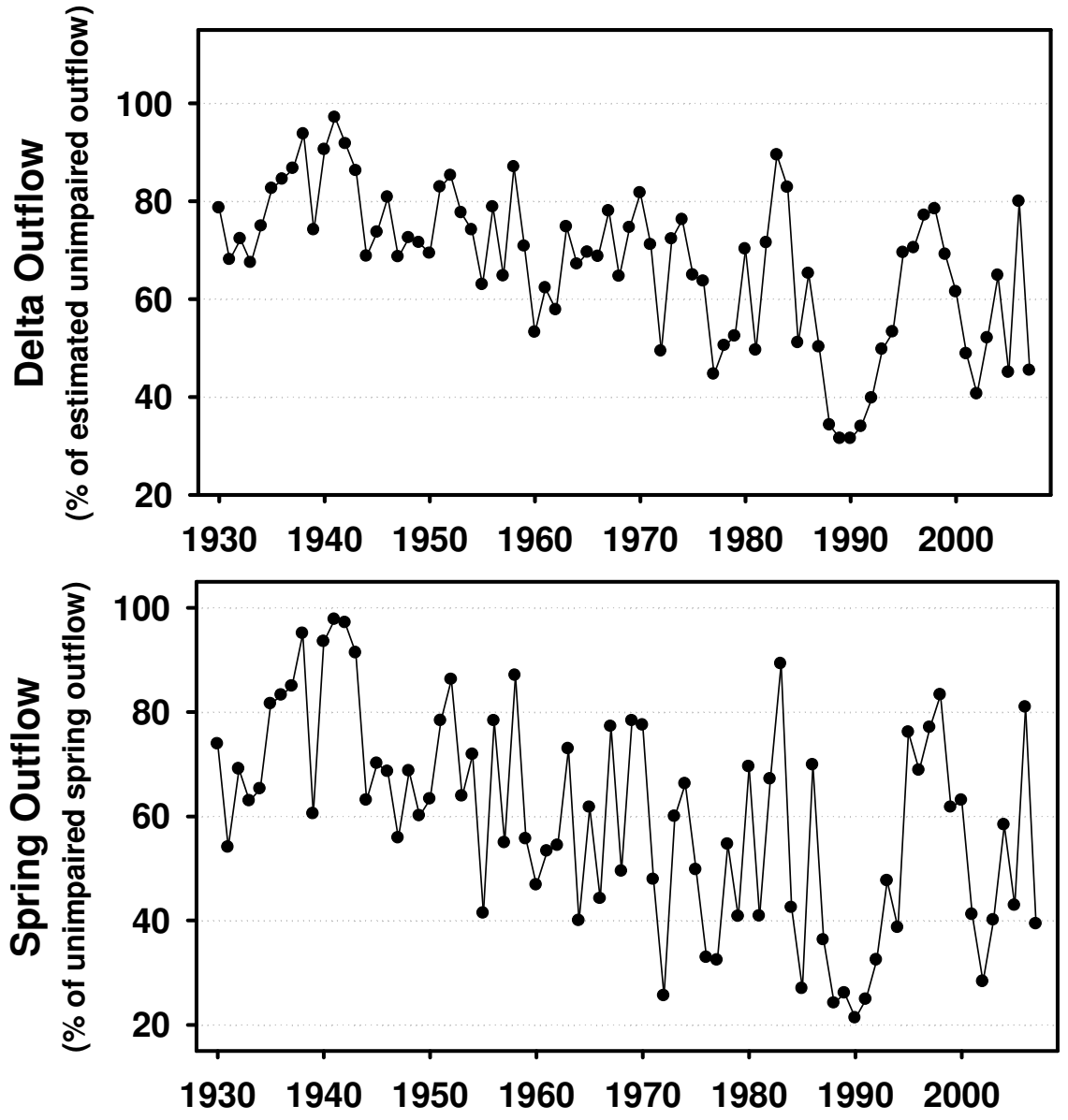


Delta flow and habitat conditions have continued to decline

2007:

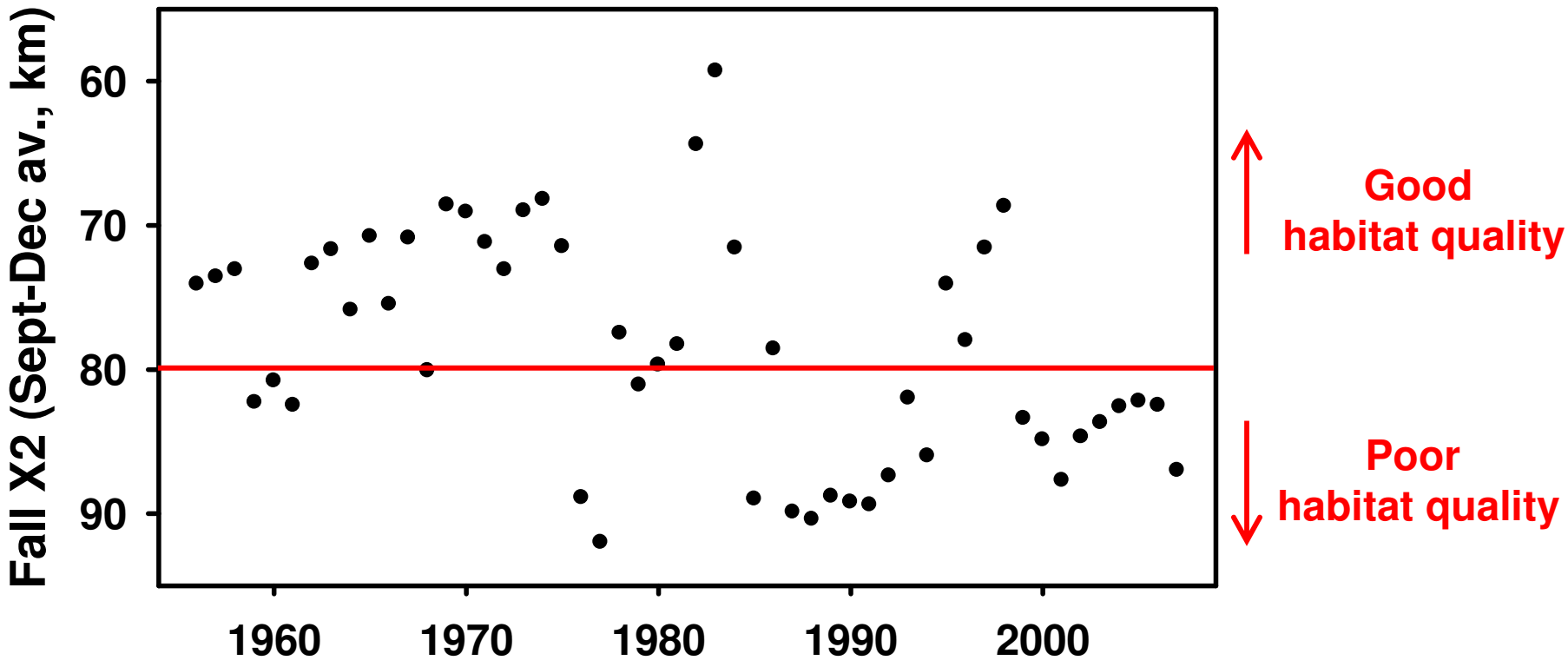
Annual Delta outflow reduced 55%

Spring outflow reduced 61%



Decline in fall outflows and "habitat quality" identified by DWR analyses continues

2007: Fall X2 = 87 km



Other Contributing Factors to Poor and Declining Delta Conditions

Toxic Contamination

- Point and Non-point source pollution
- Agricultural discharges
- Waste-water treatment plant discharges

Harmful Invasive Species

- Adversely affect native species and habitat quality
- Symptom of poor ecological, flow and water quality conditions
- Control of harmful invasives will require addressing flow and water quality stressors

Agency response has been inadequate

- **Reliance on EWA and other limited environmental water assets limits or precludes remedial actions**
- **Recommended protective measures have not been implemented**
- **No valid ESA permits**
- **Court-ordered delta smelt protections narrowly focused**

Long-term planning efforts will not provide near-term protections for species at imminent risk of extinction

Recommendations (1)

1. Require water rights permit holders to:

- improve flow conditions in Old and Middle Rivers
  - improve Feb-June Delta outflows
    - 1956-1969 LOD
    - eliminate Port Chicago EC trigger for Feb-March
    - clarify the "three ways to win" methodology
  - improve fall Delta outflows (X2<80 km)
  - increase San Joaquin (Vernalis) flows
  - contribute to a new Bay-Delta Protection Fund to support near-term habitat restoration projects, experimental measures, and other actions

Recommendations (2)

2. Reduce or eliminate discharges to and in the Delta that are most likely to cause acute or chronic toxic effects to Delta species and food web

3. Require Central Valley and Delta agricultural dischargers to monitor their discharge volume and quality

4. Reduce discharges of ammonia from water-water treatment plants to the Sacramento and San Joaquin Rivers