



CALIFORNIA
WATER FIX
RELIABLE. CLEAN. WATER.

DWR - 1072



WILDLIFE AND PLANTS



SUMMARY OF TESTIMONY

- **ADAPTIVE MANAGEMENT AND MONITORING PROGRAM IS LIKELY TO BENEFIT FISH AND WILDLIFE IN THE DELTA**
- **REASONABLY PROTECT BIRDS FROM COLLISIONS WITH POWER LINES**
- **REASONABLY PROTECT WILDLIFE AT STONE LAKES NATIONAL WILDLIFE REFUGE**
- **REASONABLY PROTECT THE GREATER SANDHILL CRANE**
- **REASONABLY PROTECT BATS IN THE DELTA**
- **REASONABLY PROTECT WILDLIFE FROM SELENIUM EXPOSURE**



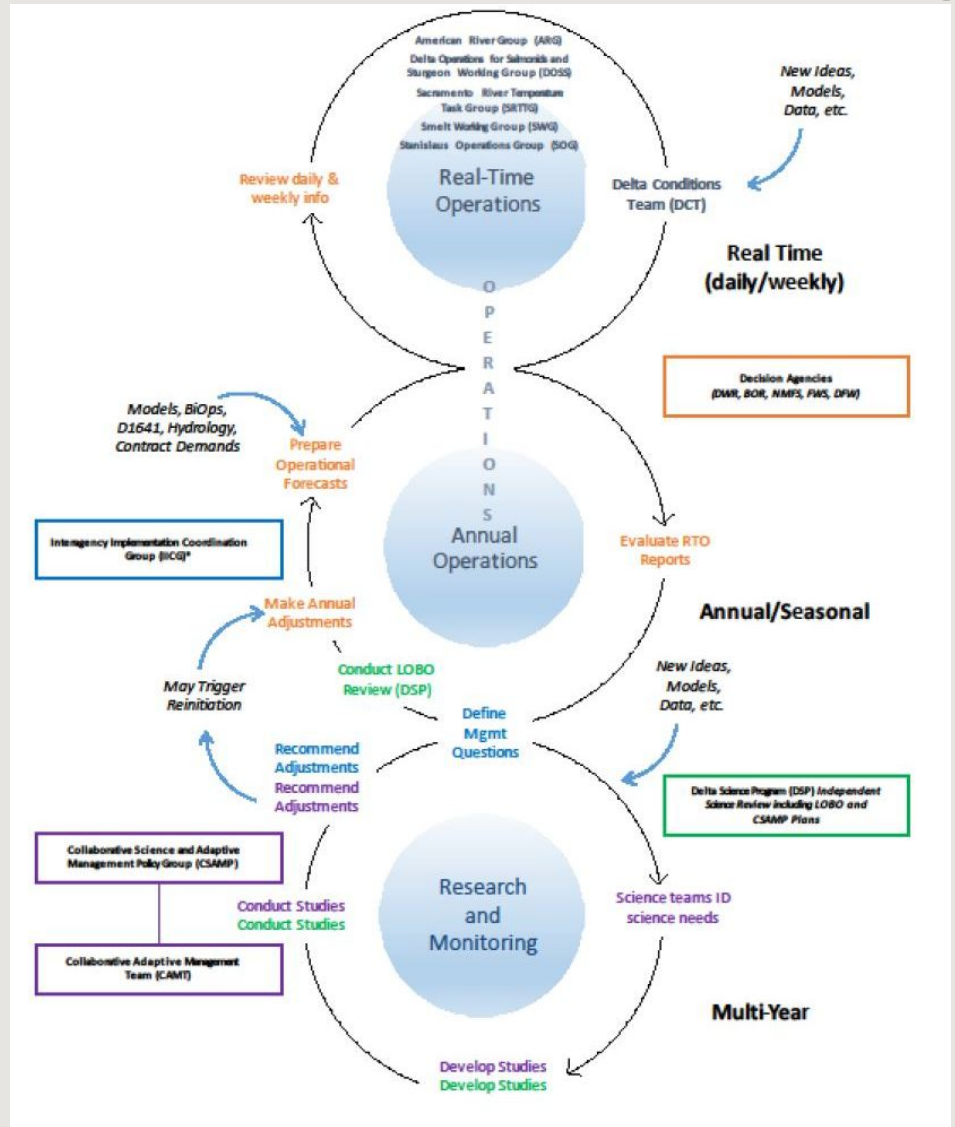
ADAPTIVE MANAGEMENT & MONITORING

- Science-based, flexible approach to decision-making
- Expected to benefit fish and wildlife in the Delta
- Identified in Delta Reform Act to reduce uncertainty in Delta management
- Preferred strategy by NMFS, USFWS, and CDFW



CONCEPTUAL MODEL

- Works at multiple time scales
- Affects design, construction and operations phases
- Works iteratively
- Science-based





4-PHASE PROCESS OF AMP

- **Phase 1: *Plan*** - An Operations Plan and a Science Plan set initial priorities.
- **Phase 2: *Assess*** - Research based on Phase 1 priorities.
- **Phase 3: *Integrate*** - Develop management proposals and/or more questions.
- **Phase 4: *Adapt*** - Agencies adopt or reject proposals. Changes to Plans as needed.



MONITORING PROGRAM SOURCES

- **Existing monitoring for CVP/SWP Biological Opinions**
- **CWF pre-construction studies**
- **CWF construction compliance monitoring**
- **CWF operational studies**
- **Studies from adaptive management process**



CONCLUSION

- **The adaptive management and monitoring program is likely to benefit fish and wildlife in the Delta.**
 - Delta Reform Act of 2009 identified adaptive management as the desired approach to reduce uncertainty
 - Adaptive Management Program adopted as preferred strategy by Agencies



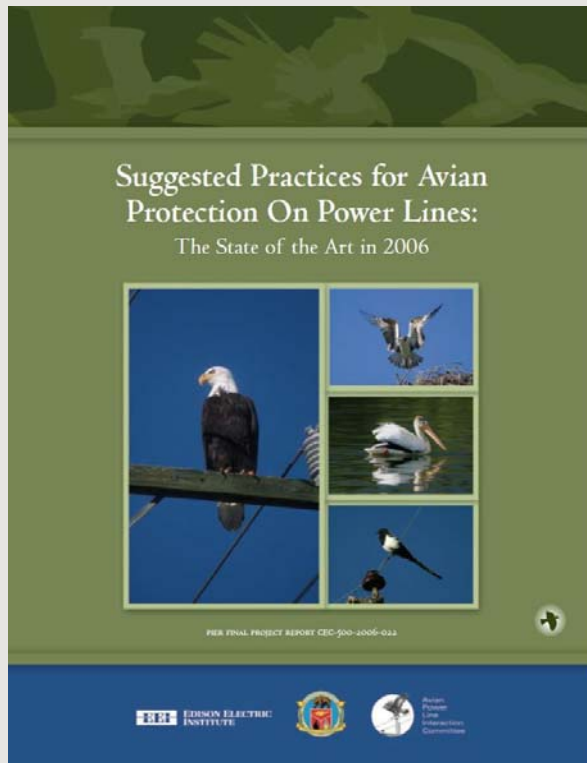
CWF, WILDLIFE, AND POWER LINES

- **Birds and bats may collide with and be electrocuted by power lines**
- **Modern design standards make electrocution risk insignificant**
- **Project minimizes collision risk with design considerations (e.g., diverters, alignments, undergrounding)**

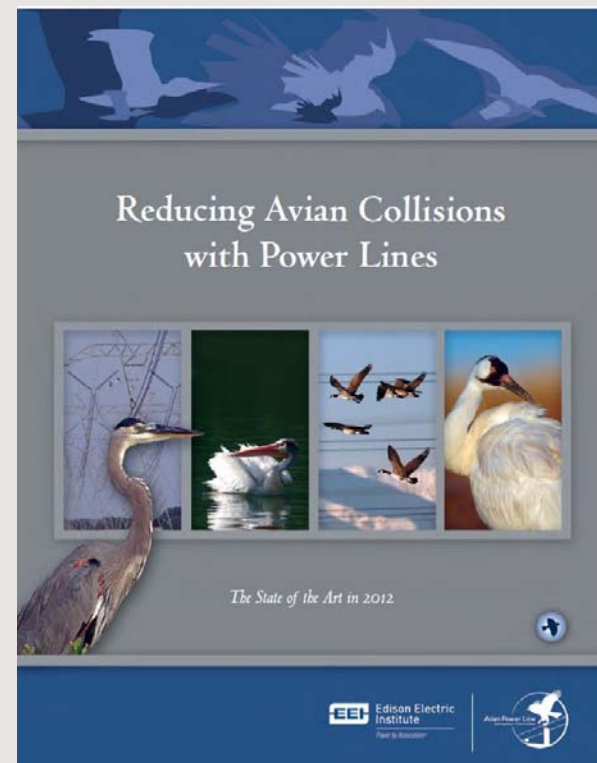


INDUSTRY STANDARDS FROM THE AVIAN POWER LINE INTERACTION COMMITTEE

Standards for Electrocutation Risk



Standards for Collision Risk





RISK ANALYSIS FOR BIRDS IN PROJECT AREA

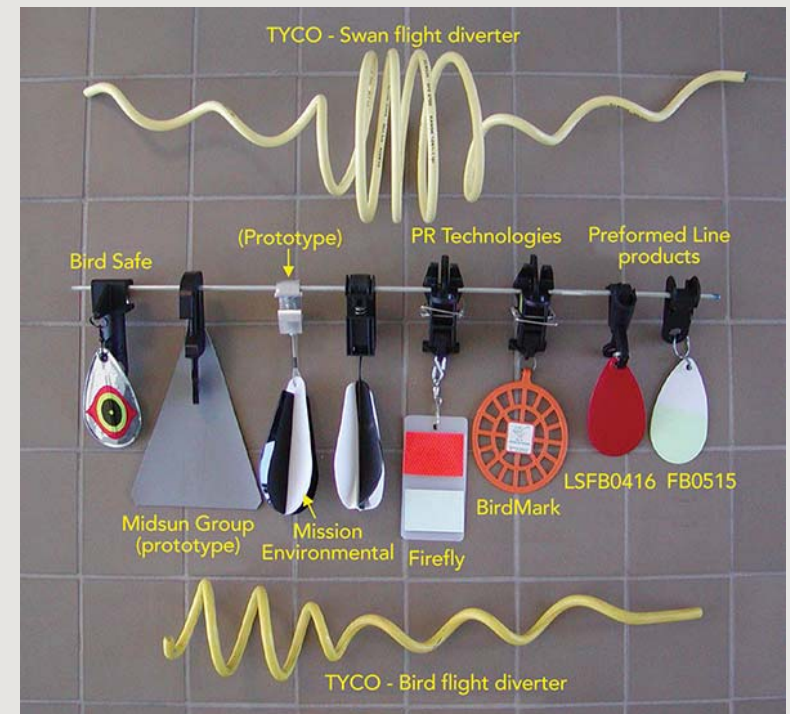
- **Low collision vulnerability for 22 species/species groups**
- **Appreciable collision risk for 9 species/species groups**
 - Sandhill cranes of greatest concern
 - More vulnerable to collision
 - Poor maneuverability during flight



AVOIDANCE, MINIMIZATION, MITIGATION

Performance Standard uses one or more measures:

- Locate power lines in low-risk zones.
- Remove, relocate, or underground existing lines.
- Underground new lines in high-risk zones.
- Use generators in lieu of new lines.
- Install bird strike diverters on new and existing lines.
- Manage habitat to shift roost sites away from transmission line risk zones.





CONCLUSION

- **Avoidance and minimization measures will minimize risk to birds and avoid take of greater sandhill crane.**
- **The California WaterFix will result in no net change in bird mortality risk at power lines.**

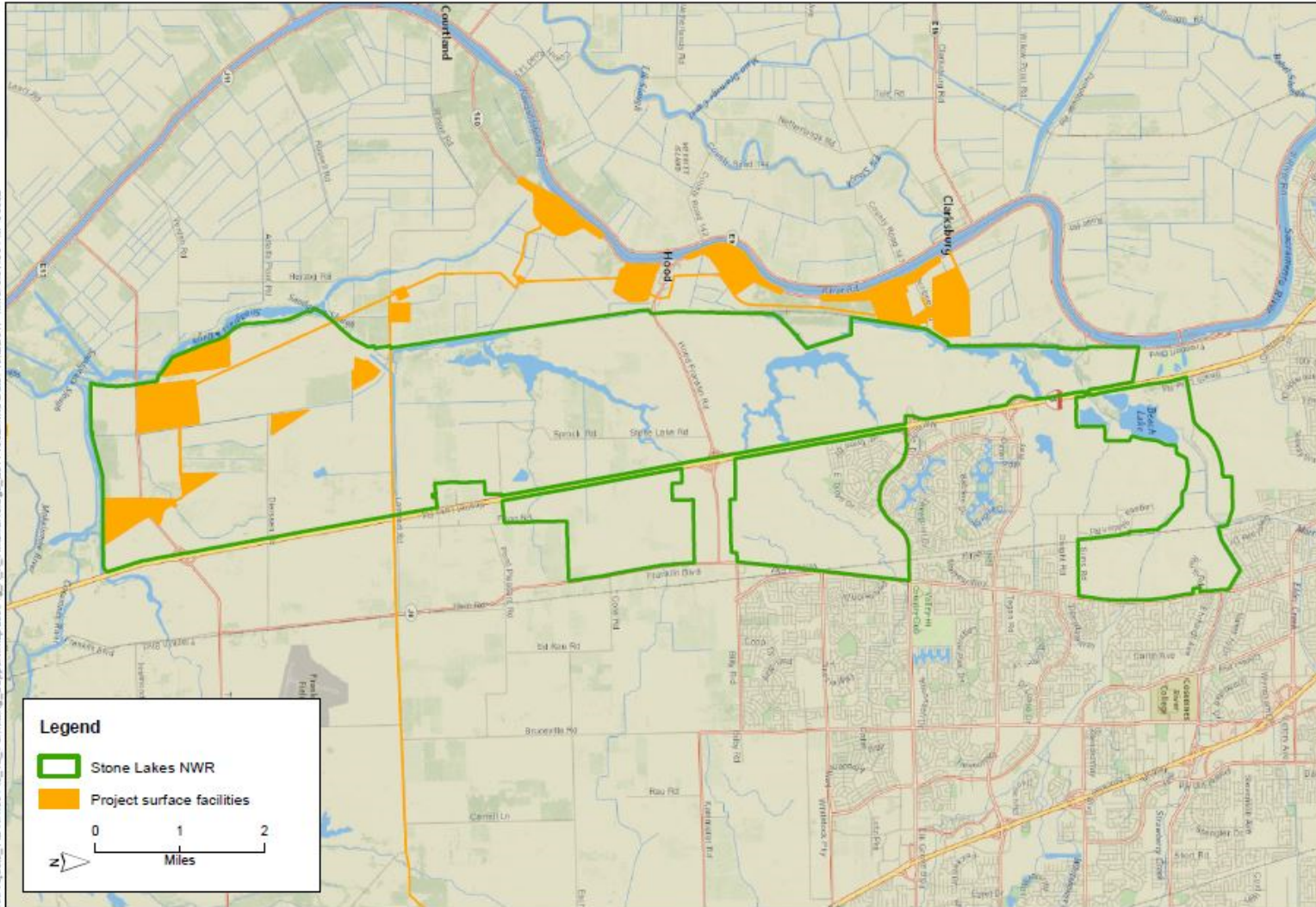


CWF AND STONE LAKES NWR

- Effects on wildlife at and near Stone Lakes NWR
 - Noise, light, road mortality, and loss of habitat
- CWF will avoid, minimize, and mitigate construction impacts on wildlife at and near Stone Lakes NWR
- CWF will improve habitat at and near Stone Lakes NWR



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Project overlaps or adjoins much of Stone Lakes NWR (mapped area includes some lands forecast for future acquisition by Stone Lakes NWR).



AVOIDANCE, MINIMIZATION, MITIGATION

- Conduct pre-construction surveys and avoid occupied habitat for most sensitive wildlife species
- Measures to reduce noise and light effects
- Reduced speed limits and new signage on roads next to Stone Lakes NWR
- Environmental commitments to protect and restore habitat



CONCLUSION

- Net neutral effects on wildlife associated with Stone Lakes NWR
- Habitat protection and restoration will yield a long term improvement in habitat condition for lands on and near Stone Lakes NWR



CWF AND GREATER SANDHILL CRANE

- **CWF construction and operations reasonably protect cranes**
 - Avoid and minimize CWF effects on cranes
 - Protect and restore crane habitat, improving crane habitat in the Delta



GREATER SANDHILL CRANE IN PROJECT AREA

- **Winter in Delta but do not breed there**
- **Roost in shallowly flooded open fields or wetlands**
- **Forage in cultivated lands, mostly harvested corn, winter wheat, alfalfa, pasture, and fallow fields**



EFFECTS ON GREATER SANDHILL CRANE

- **Loss and conversion of habitat**
- **Power lines**
- **Construction related effects**
 - Noise, visual, exposure to selenium



AVOIDANCE, MINIMIZATION, MITIGATION

- **Restore and protect habitat prior to construction**
- **Performance standards on Staten Island to minimize effects**
- **AMM20**
 - Restrictions on construction noise and light
 - Additional mitigation for noise affected habitat
 - Light barriers
 - Powerline requirements (previous slides)



CONCLUSION

- **CWF construction and operations reasonably protect the greater sandhill crane**
 - Habitat quality improved compared to current conditions
 - Effects avoided or minimized



CWF AND BATS

- **CWF will reasonably protect bats**
 - Protective measures avoid and minimize effects on bats
 - Protection and restoration improve bat habitat in the Delta



BATS IN PROJECT AREA

- **At least 13 bat species in project area**
- **Roosting, solitary and colonial**
 - Trees
 - Artificial structures (buildings, bridges)
- **Foraging in natural and agricultural communities**



EFFECTS ON BATS

- **Loss and conversion of habitat**
- **Direct mortality**
- **Indirect effects**
 - Light, vibration, and noise



AVOIDANCE, MINIMIZATION, MITIGATION

- **Conduct pre-construction surveys**
- **Avoid maternal roosts**
- **Restore and protect habitat**



CONCLUSION

- **CWF will reasonably protect bats**
 - Avoid and minimize direct and indirect effects on bats
 - Restore agricultural land into habitat types that provide greater habitat value for bats



CALIFORNIA WATERFIX AND SELENIUM

- **CWF reasonably protects wildlife from increased selenium exposure**
 - Avoid or minimize selenium effects at restoration sites
 - Benefits of improved and increased habitat exceed any harm from increased exposure



SELENIUM IN THE DELTA

- **Natural trace element harmful to birds in high concentrations**
- **Sources include San Joaquin River, Yolo Bypass, oil refinery discharges, and other minor sources**
- **Regulated under a TMDL**



PROJECT EFFECTS FROM SELENIUM

- **Potential increase in selenium from less export of San Joaquin River water and more export of Sacramento River**
 - Allows more San Joaquin River water (which is relatively high in selenium) to flow through the Delta
- **Increase in tidal habitat**
 - Increases bird exposure to selenium through food chain



AVOIDANCE, MINIMIZATION, MITIGATION

- **AMM 27 Selenium Management to minimize selenium exposure**
 - Develop Selenium Monitoring and Management Plan
 - Implement plan in restoration project design and management
- **More and better tidal habitat benefits birds, offsets exposure to selenium**



CONCLUSION

Impacts would be minor in comparison to the benefits for wildlife that would follow from the proposed restoration of tidal wetland habitats. Since the beneficial impacts far outweigh the minor adverse effects, CWF reasonably protects wildlife from increased selenium exposure



OVERALL CONCLUSIONS

- **ADAPTIVE MANAGEMENT AND MONITORING PROGRAM IS LIKELY TO BENEFIT FISH AND WILDLIFE IN THE DELTA**
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