

List of things the Workshop group thought ought to be tested at Tracy.

General

1. Test positive barrier screen option with no fish bypass versus bypass with fish handling.
2. Test each component of fish handling process for mortality - focus on effectiveness of trucking on delta smelt.
3. Test bypass flows.
4. Test effect of tide, mitten crabs,
5. Evaluate striped bass predation
6. Effect of debris.
7. Day vs night entrainment
8. Effects on different species and life stages
9. Effect on Delta water level and scouring from fish facility operation
10. Effects of 0.2 vs 0.33 fps approach velocity of salvage/impingement.
11. Effectiveness of fish guidance devices
12. Juvenile fish screening criteria for pump intakes
13. Test methods for debris handling
14. Gravity vs lift bypass - effectiveness and reliability - need to test more gravity systems and effect of debris - test two types of lift pumps, maybe third.
15. Screen and lift or lift and screen.
16. Secondary screening
17. Exposure time
18. Predator management schemes
19. Sediment handling
20. Test operating - jet velocity float with tide or fix velocity.
21. Test separating and loading facility limitations
22. Focus exp on delta smelt and salmon
23. Guidance systems for crabs
24. Effectiveness of fish sorting
25. Evaluate O&M, constructability
26. Flow dynamics with UVM meters and ultrasonic velocity meters; side beam transducers
27. Understand difference in salvage between CCF and Tracy using flow dynamics data.
28. Flow dynamics should include whether Delta is draining or filling (neap vs spring tidal effects)
29. Tracy influence on flow dynamics near and far field.
30. Role of wind in flow and salvage. Also effect of air pressure.
31. Compare hydrodynamics near two facilities under different operating conditions.
32. Role of San Joaquin flow and HOR barrier on Tracy entrainment and salvage.
33. Effect of SD barrier operation on operations and entrainment/salvage, fish distribution and vulnerability to pumps.
34. Effects of expanded Banks pumping on hydrodynamics, fish distribution, and entrainment/salvage, fish facility operations.
35. Consider variable speed drives to adjust approach velocity with tide change
36. Coordination between modelers and screen designers.
37. Experiment with low head pumps behind screens
38. Operations that optimize power costs given new deregulation of power system.
39. Test screens before or after lift pumps.
40. Optimizing design for sorting, handling, trucking, and fish return effects.
41. Study topography of area around TFF. Water surface elevations, geology, seismic, operational restrictions (tidal, day/night, elevations, flows)

Trash Rack

1. Debris problem

2. Fish delay/stress
3. Predation
4. Test boom, rake raft, sloping raft, conveyor, surge-back flow
5. Test multistage prescreen separator process - predators, juvenile fish cover - conveyor system, slope trash rack, fish association with debris and vulnerability to debris removal screen, leaky louver, log boom, upper level traveling screen, fish separator from debris.
6. Test narrowing trash rack openings to reduce trash, fish, and crabs; guidance systems

Fish Screen

1. Impingement
2. Delay-stress
3. Cleaning effects
4. Predation
5. Test vertical vee, cylinders, modified inclined screen, vertical sloping vee, co-angle screens, vertical brush and high pressure horizontal wash.

Bypass

1. Delay/stress
2. Predation
3. Test open ramp, second screen, orifice, lift pump, open vs ramped, articulated overflow weir, velocity gradient

Separator

1. Leaky louver, mechanical separator, live box
2. Separate predators from other fish, separate fish by size
3. Test prescreening with leaky louver, mechanical wet separator, bypass channel config, traveling screen?, passive or active.

Fish Lift

1. Delay/stress
2. Mechanical damage
3. Test low lift pumps, pump bypass, lock, hopper, truck

Fish Collection and Counting

1. Predation
2. Delay/stress
3. Mechanical damage - need for counting

Holding

1. Predation
2. Delay/stress
3. Mechanical damage

Transport

1. Delta / stress
2. Predation
3. Mechanical damage
4. WQ, temp in truck
5. Test truck, barge, train

Release site

1. Mechanical damage
2. Predation
3. Delay/stress

Total System

1. Total accumulated stress/delay
2. Total predation
3. Total damage