

## Sturgeon PWT Meeting Draft Agenda

February 3, 2010

3500 Industrial Blvd., Room 119

West Sacramento, CA 95691

10:00 a.m. – 3:00 p.m.

### 1. Welcome, Announcements, and Discussion of Meeting Frequency – Jackson

- a. *Meeting frequency* - Sturgeon take prohibitions will come out in May; it would be good to have a meeting right after that (David W.); maybe every 6 months instead of quarterly - July and December would likely be easiest considering sturgeon studies field season (Alicia S. and David W.); also ad hoc as things come up (Bill P.). Also, look into using WebEx (Aric L.).
- b. *Regarding Marty Gingras' email about volunteers for sturgeon rescues*: stranding of sturgeon has not happened yet but is expected at the Fremont Weir. We could look at the issue with tagged fish (Pete K.). Fish get into Sutter Bypass? Downstream of the Feather River. What is the main issue causing stranding - flow-related (Qinqin L.)? Seems like fish go back and forth near Rio Vista Bridge and go up Cache Slough and get into bypass under certain conditions.

### 2. Permitting Updates – Woodbury

NMFS has had some issues with the BOs on research permits.

- a. Email from Jeff Jahn, NMFS 4(d) coordinator to David W.:

*“Currently:*

*Ongoing or proposed projects that have a Federal Nexus will need to make sure that the Federal Agency has consulted with us on the effects related to the research activities. Researchers should confirm with the appropriate NMFS staff that the research activities are consistent with the description and assessment in the BO. If a section 7 has not been conducted, then one will need to be completed before implementing the project. Section 7 for the few projects that have requested take of salmonids and green sturgeon in the 2010 4d research program will be satisfied through the section 7 on approving the program. Green sturgeon only projects cannot yet be included the 4d program until the take prohibitions. Ongoing Green sturgeon projects that do not have a federal nexus would need to obtain an SCP from DFG, and nothing from NMFS since take prohibitions are not yet in place. The proposed spawning project will most likely need an HGMP and section 10 permit, as previously discussed with UC Davis.*

*Once the Take Prohibitions are issued:*

*It would help out a lot if all the researchers could fill out the information in the spreadsheet we provided to Alicia and Qinqin. This will get us a head start on sorting through to determine and confirm the proper ESA coverage once the take prohibitions are issued. In some cases, even though the activities were analyzed or included in a previous section 7, the activities may or may not need additional coverage once the take prohibitions become effective. Ongoing and proposed projects will need to obtain ESA coverage via sect 4, 7 or 10, this will be confirmed on a case by case basis once the take prohibitions are issued. The info requested in the spreadsheet will help NMFS better determine the proper ESA coverage.”*

- b. *Additional items discussed:* the 4(d) program is scheduled to roll out in May. There has been a problem with possible double covering of monitoring take that occurs as part of a project covered under a BO, but the monitoring/research is being covered under a research permit (Doug H.). Also, discretionary actions cannot be covered by a BO. Monitoring will likely be covered by BOs and research with 4(d)s.
- c. It would help a lot if the spreadsheet mentioned in e-mail and to be discussed further by Qinqin later today is filled out by May.

### 3. *New Fishing Regulations and Outreach Efforts – Woodbury*

- a. *Regulation changes:* starting March 1, 2010 - no sturgeon fishing year-round upstream of Hwy 162/Butte City Bridge. Shrimp and lamprey bait specifically is prohibited.
- b. *Outreach:* \$40K is available to NMFS to post signs at boat ramps and print up fliers for bait shops. James Lyons would be contact out of Red Bluff for signage locations. He will also be working with CDFG regulators and enforcement.  
Ideas: Josh G. suggested providing fliers to creel surveyors. Need to identify bait shops. Any **other ideas**? Please **let David know** (e.g., suggestions for websites and fishing magazines).

### 4. *Green Sturgeon Recovery Planning Updates – Woodbury*

The Recovery Plan team had a productive 2-day meeting. Conducted an initial threats and stressors assessment; TNC has a worksheet for conducting threats assessments which may be useful. Josh did threats assessment, but it will be redone by subgroups for each life stage. Josh I. went over his DRERIP model. Josh considered 1) importance, 2) uncertainty, and 3) predictability with rankings 1-4. At

some point stakeholders will need to be involved. David sent out some requests in December for participation and got no responses. Will resend to individuals/entities (e.g. to Westlands) specifically indicating that they might be impacted; David expects that will elicit a response.

ESA Section 6 specifically allows for collaboration with the States. California will not get any section 6 money. Olaf Langness, Washington Department of Fish & Wildlife, did get some section 6 money to create a central database for the Pacific Coast. The data needs a permanent home; long-term maintenance of current database is not certain. Olaf is planning to have a meeting to get everyone together for set-up. Right now sturgeon spawning is limited to Sac River; but historically occurred in the Russian River. We also find them in the Petaluma and Napa Rivers; may find more locations where they will be detected as new receivers are put in.

#### 5. *Green Sturgeon Tagging Data Analysis – Woodbury*

Largest fish found in Sac River was 230 cm. Sac River spawners appear to be at least 155 cm, so several of the tagged fish analyzed were likely too small to spawn. Fish tagged in the Columbia River tend to be larger (at tagging) so there is the potential to observe adult spawning migration patterns more quickly (~25% returned to spawn in the Sac R). Grays Harbor looks like another area for tagging to get spawner data quicker. Part of this data is available to CA Fish Tracking Consortium (CFTC) members but not the public; use is subject to consortium protocols however. Data collected in Monterey Bay and Humboldt Bay or outside California are not entered into the CFTC database at this time.

DFG caught 100+ fish in 2009 sturgeon population survey; UC-Davis caught 54 fish earlier that were primarily summer residents in the Bay, then went out the Golden Gate (except 3 largest fish did spawn); targeted smaller fish because larger ones were breaking the net (PK). Targeted size depends on what question you want to ask; do you want to target fish smaller or larger than 120? Subadult info would help with LTMS monitoring. Need larger fish (greater than 155?) if you want spawning info. By tagging smaller fish you will have to wait a long time for spawning info, e.g. 5 years. Spawning periodicity: look at fish tagged in Sac River post-spawn; 10 fish returned (no gender available), 1 came back in 2 years; 7 in 3, and 2 in 4; longer than on Rogue River (2.3 years average). Some additional data on fish tagged (San Pablo Bay, Grays

Harbor, Willapa Bay, etc.) gives estimate for spawning periodicity typically 2-3 years; 1 at 5; assume they didn't spawn the year they were tagged so data are not quite as valuable.

NMFS OCAP BO – knowing if there is a juvenile sturgeon bottleneck is important; need to try to tag juveniles in San Pablo Bay.

Movie: Movement of 25 tagged adult green sturgeon. Some adult/subadult fish entered the San Francisco Bay/Estuary during the summer to reside for a few days to several months. One went up to Rio Vista then back down. Some spend a lot of time at Decker Island. Spawning fish enter in the late-winter/early spring, migrate quickly through the lower estuary, often staging in the area near Rio Vista, before continuing upstream to spawn in the mainstem Sacramento River. After spawning the fish generally remain in the upper river until strong river flows appear in the late fall/early winter, at which time they migrate quickly downstream. One tagged in the Sacramento River stayed in Clifton Court Forebay. One went up to RBDD, then hung out down at Colusa and left quickly. Fish typically leave in January. Come in during March, a couple in May. Seem to enter fast, hang out in upper river, then exit fast. One went into Petaluma river; one in Sacramento DW Ship Channel, one in Feather River, one came in on 2/20 and left 2/23 a year later. No monitors in Cache Slough or Yolo Bypass. One fish had one ping on several monitors; travel time 30-40 meters/minute. One went south through DCC and Mokelumne River. Many are detected at Point Reyes 18-22 hours after they pass the Golden Gate, so make a right turn to the north.

There is a transbay cable buried at 3-6 feet from Pittsburg all the way to the South Bay; could be issues with EMF although it was not mentioned in BO; Sturgeon have electrical receptors on head; shown to affect swimming speed in eels in Norway.

#### 6. *Research Priorities and Rankings – Seesholtz*

We took a poll of meeting attendees. Studies involving early life stages (embryos through juveniles) predominated.

The results are listed in the following table (not ranked):

General Research Topic	Focus	White Sturgeon	Green Sturgeon
Spawning (within Central Valley Rivers)	Comprehensive Distribution		x
	Habitat Characterization	x	x
Abundance	Total Population Size	x	x
	By Life Stages	x	x
	Recruitment Dynamics	x	
	Population Estimates of Age Cohorts		x
	More Robust Population Monitoring (Use PIT Tags)	x	x
	Riverine Carrying Capacity	x	
	Riverine Spatial and Temporal Abundance		x
Habitat	Mapping (i.e., Pool Depths, Frequency of Use, etc)		x
	Spatial and Temporal Distribution		x
	Restoration Needs	x	x
	Freshwater Habitat Contraction Due to Temperature and Salinity Variation	x	x
	Age-0 and Juvenile Habitat Use	x	x
	Settlement Locations (i.e., What Habitats Increase Age-0 Survival)	x	x
	Usage of Floodplain Habitat (i.e., Diet, Importance to Larvae)	x	
Migration/Movement	Larvae and Juvenile	x	x
	Juvenile Response to Flow and Diversions		x
	Age-0 Drift Characteristics	x	x
	Yolo Bypass Bypass Passage/Stranding/Misdirection	x	x
	Continued Acoustic Tagging Coordination with DFG Sturgeon Population study	x	x
Other Larvae/Juvenile Studies	Production and Survival estimates	x	x
	Distribution	x	x
	Age-0 Food Habits		x
	Juvenile Activities		x
	Predation	x	x
	Fish Screens and Louvers	x	x
Dredging	Work Windows		x
	Impacts of Deposited Materials		x
Other Hot Topics	Mortality Rates by Life Stage	x	x
	Population Dynamics	x	x
	Influence of Non-native Species	x	x

## 7. Website and Library Updates – Seesholtz

- a. Website is under development. Home page will be at DWR site. Web address not sure yet, but will be under ‘S’ for sturgeon at California.gov website.
- b. Links: meetings, member listing, library will be set up under articles, photos, objectives, and contact us.

- c. **Alicia will be collecting photos, bios, and articles/documents.** Members that have submitted biographical info have their names as a link.
- d. Articles will be uploaded by DWR computers; will have both public and private sites; question on document accessibility by public; articles will be restricted from the public due in part to copyright issues. Password will be provided to PWT members;
- e. Photos will be public. Photo providers can right click on the photo and go to properties, summary, and provide pertinent information (e.g., photographer, photo location, content, etc.). Photo must be saved for the right click to work. Objectives are from the first meeting.
- f. Question regarding contact us link – who should the contact be? Team decided it should just go to co-chairs, Zac and Alicia, and they will decide who to direct questions to.
- g. Other potential items:
  - i. Presentations/web links to IEP, LTMS, NMFS sturgeon stuff, white sturgeon recovery web sites outside of California, DFG regulations, permits, CA Fish Tracking Consortium.
  - ii. Would also like to have PWT research priorities listed.
  - iii. Richard C. suggested we could have Google Earth capabilities for habitat to monitor locations, tracks. Poaching is a concern so have it password protected.

#### 8. *Sturgeon Research Projects Update – Liu*

Initially, Qinqin L. sent out information requests and only got 3 responses; coordination is important for permits, recovery plan, efficiency, and funding. Qinqin presented a spreadsheet in the meeting. The spreadsheet really has two purposes: permitting with Jeff Jahn but also coordination of research projects. Jeff Jahn of NMFS will be the permit person we will have to coordinate with (please refer to earlier notes - 2a). He needs the table of research projects filled out for permit purposes. Jeff and NMFS section 7 coordinators will use the spreadsheet in part to parse section 7 from section 10. The spreadsheet is sort of a pre-consultation. David Woodbury said that placing monitors probably won't require a permit, but tagging fish certainly will. Time interval for filling out/re-evaluating the spreadsheet may be every meeting because it will need to

be updated. Josh Israel suggested adding status of SCP and project purpose to spreadsheet. Qinqin will incorporate all suggestions into a revised **spreadsheet** and **send it out by the end of February**. We need to **get spreadsheet info to Qinqin Liu and Jeff Jahn by the end of Mar**. Jeff needs to get this information directly regarding the permit issues on time. Problem with PWTs is that you are supposed to be affiliated with IEP to participate so if PWT **members know sturgeon researchers that are not PWT members**, please **forward the spreadsheet** to them.

## 9. Study Updates

- a. *Mike P. (on phone)*: sent tags to Yurok tribe and section 6 work with WDFW and ODFW. Attended a dredging conference where they suggested green sturgeon work needs to be coastal effort not just regional effort. Also looking at GS use of coastal navigation channels in Columbia River; 20 transmitters this year plus whatever the states have. Will be a mix of N and SDPS fish up there. States will set up data collection for WA and OR and potentially CA. A meeting will be held in the future to discuss the west coast studies.
- b. *Zac J.*: San Joaquin project has 5 receivers out; broke swage, one under about 5 foot of sand already; still waiting on SCP and states waiting on 4d permit. Perhaps will use pump to clear sand.
- c. *Aric L.*: will look abundance/distribution of GS on Sac River. Have 2 DIDSONs. Will work with habitat that Richard Corwin has mapped; also will work on the Feather River.
- d. *Steve V. and Tim W.*: has deployed 4 receivers as of last week at SF9. Issues with deepwater placement, but have been worked out. Some salmonids will be tagged this year out of Napa for this project.
- e. *UC, Davis*:
  - i. *Pete K.*:
    1. ERP money will be unfrozen; will track 3 more adult GS above RBDD; tracking 3 juveniles for 5-7 day periods in summer (Mike T.);
    2. Corps grants: ordered boat and video equipment; needs subcontract, will conduct work in April and May. Yurok tribe and ODFW want pop estimates using DIDSON also. Doing population estimate in Sac River (Ethan M); Juvenile green sturgeon - have 80

tags need source of juvenile greens. Already have 7 juveniles that they will manually track; hoping to get more. Will release them in the Delta. Hope to track them in Delta and Bay.

3. Distribution of green and white sturgeon in estuary and river using isotopes (Melia Nafus); contractor will fish for adult green sturgeon in San Pablo Bay in March and April; permit requests are in. Animal care protocol is done.
4. TCCA-BOR grant is coming through. Will be tagging GS near RBDD and will be putting out VPS system; looking at fish that go above RBDD--6 fish went up last year 2 went under the gates in mid-June, but VPS went in the day after. Have take for 10 fish this year. Gates will be operational at 18 inches. Characterizing habitat (e.g. bathymetry in pools) and tracking fish  $\pm$  1 m accuracy. Then will look at pools that don't have fish.

ii. Josh I.:

1. Will reanalyze the genetic baseline for greens using samples from coastal harvest and non-natal river fish; looking at relationship between eggs, juveniles, and adults to find out how many fish are contributing to breeding.
2. For BOR: Looking at potential factors (particularly flow) that may affect migration/movement patterns - look not just at flow magnitude but rate of hourly change etc. Wants to categorize types of movements and look at exceedance plots; temp seems good but may be too cold upstream. Movement data includes aggregations, ping-ponging movement from following mates around the river or looking for other fish; looking at flow characteristics and directional movement.

iii. In lab, Dennis C.:

1. Will look at screens/louvers/strobe lights/use of lateral line/tagging effects/physiology/salinity and temp preferences and effects. Want to know if they are using lateral line when small; how far how fast they move; screen trials have been conducted with fish 15-25 cm now 32-38 cm. Joe Cech did treadmill work with sturgeon and

other fish that they can use. Strobe lights, vibrations have gotten responses from Chinook, steelhead and splittail; hope to do similar on sturgeon also pulsing magnetic fields.

2. Physiological studies on larval fish: looking at effect of screens/swimming performance of post larvae to 6 months of age on a daily basis; how fast they will be displaced down the river by what kinds of currents. Same as above only on larval fish. Also look at temp/substrate/cover in flumes and effects on displacement. Most fish tend to hold position but sturgeon are variable.
3. Looking at tagging effects on juveniles: suture materials - some sutures are causing reaction of skins so suggests use of absorbable type; tags are moving around inside the fish. Looks like tagging (V9s) is not really affecting swimming performance. Hope to get good retention times with better suture type.
  - iv. Joel Van E. has 2 tanks set up, hope to get a spawn in May; took 2 years the last time. Currently have 19 fish as brood stock; 7 fish are being grown out (Klamath fish) to add to brood stock.
- f. Richard C.: Fish holding at Deer Creek moved down to GCID; Alicia's fish moved down, another fish holding at Antelope Creek moved down and was detected at GCID; assume all fish are downstream of Hamilton City limit of study reach by this time.
- g. Javier M.: need to tag salvaged fish for the South Delta Temporary Barriers BO but have not gotten a green in 2-3 years. Also need to evaluate salvage efficiency--may use white sturgeon as surrogates.
- h. Andrea D-S.: white sturgeon pop structure study--1000 samples from California. Want to look at larval ecology and family structure of white sturgeon.
- i. Bill P.: will do 3<sup>rd</sup> year of habitat/egg and larval studies/screw trapping for; winter-run Chinook salmon screw traps at RBDD also catch juv gs. Will be doing some underwater video as well.
- j. Alicia S.: will try to capture some adults beginning on March 1; will put out spawning mats--have 20 built but need to decide on sites. Will use a DIDSON to look at passage. BO/FERC license may require more studies.

- k. David W.: The Corps probably has over a hundred monitors in bay as part of LTMS. Locations: Carquinez Strait, Benicia, Golden Gate Bridge, Napa River, either side of dredge sites on flats where even juv salmonids have been found. Will be tagging 40 adults (ad) in spring and 40 in fall; good because strategy divides bay into segments. Total take for everybody was tallied by David W.: Parsley (20 ad Columbia R + 10 ad in Rouge R(?)), Corwin (10 ad Sac R), Seesholtz (10 ad Feather R), Chase (10 ad Sac R), Thomas (10 ad Sac R(?)), Thomas (80 juv – delta?), Melia -UC Davis (80 ad San Pablo Bay).

**Attendees:**

Full Name	Affiliation
Ainsley, Shaara	FishBio
Boullion, Tom	DWR
Brown, Josh	DWR
Campbell, Elizabeth	USFWS
Chase, Robert	USBR
Cocherell, Dennis	UCD
Corwin, Richard	USBR
Drauch-Schreier, Andrea	UCD
DuBois, Jason*	DFG
Fangue, Nann	UCD
Gruber, Josh	USFWS
Hampton, Doug	NMFS
Israel, Josh	UCD
Jackson, Zac	USFWS
Klimley, Pete	UCD
Lester, Aric	DWR
Liu, Qinqin	DWR
Miranda, Javier	DWR
Parsley, Mike*	USGS (WA)
Poytress, Bill	USFWS
Schreier, Brian	DWR
Seesholtz, Alicia	DWR
Volk, Stephen	USAR
Warner, Tim	USAR
Woodbury, David	NMFS

*\*Called in*