

California Fish Passage Forum Meeting Minutes

Ventura, California May 2-3, 2017

Attendees: Candice Meneghin (Caltrout), Sarah Rains (California Department of Fish and Wildlife), Mary Larson (California Department of Fish and Wildlife), Sam Jenniches (State Coastal Conservancy), Michael Bowen (State Coastal Conservancy), Sandra Jacobson (Caltrout), Javier Linares (US Fish and Wildlife Service), Damon Goodman (US Fish and Wildlife Service), Stan Allen (Pacific States Marine Fisheries Commission), Bob Hughes (California Department of Fish and Wildlife), Steve Howard (R2 Resource Consultants), Dana Postlewait (RS Resource Consultants), Brett Holycross (Pacific States Marine Fisheries Commission), Frank Meraz (Caltrans), Melinda Molnar (Caltrans), Anne Elston (Pacific States Marine Fisheries Commission), Tom Schroyer (CDFW), Jon Mann (California Department of Fish and Wildlife), Stacie Smith (National Oceanic and Atmospheric Administration-National Marine Fisheries Service), Jonathan Birdsong (National Fish and Wildlife Foundation), Peter Sheydayi (Ventura County Watershed Protection District), Moe Gomez (South Coast Habitat Restoration), and Lisa DeBruyckere (California Fish Passage Forum)

Remote Attendees: Bob Pagliuco (National Oceanic and Atmospheric Administration – National Marine Fisheries Service), Steve Brumbaugh (Department of Water Resources), Holly Eddinger (US Forest Service), Molly Gorman (National Oceanic and Atmospheric Administration – National Marine Fisheries Service)

Action Items:

- Tidegate project - Lisa will distribute the tidegate proposal to Forum members. Forum members asked if this project will incorporate/address sea level rise issues.
- FishPASS – Forum members will talk with their GIS staff re: their support/interest for FishPASS to inform the potential development of the front end.
- Budget:
 - Stan Allen will review funding for the lamprey project to assess PSMFC staff funding relative to the \$10K proposed for the project.
 - Multi-state conservation grant – Steph will send a paragraph for a potential project; Mary and Stacie will send a paragraph for a potential project. Lisa will send Stacie an example of a past MSCG paragraph.
 - Brett will complete his white paper and provide a draft budget that estimates what it would cost to incorporate stream temperature data from NorWeST into FishPASS.
- FishWerks – Lisa will connect with the Great Lakes programmers to inquire who has used the tool, the extent to which the tool has been used, how often the tool has been used, and any relevant documents they can send in advance of the webinar.
- Jump test—Rick Wantuck and Dave White will present the results of their summer jump test results to the Forum at their Fall meeting, and then the Forum will play a role in convening experts for a potential workshop to address outstanding questions.
- Nominations for Chair and Vice Chair – Lisa will ask Forum members if anyone else is interested in tossing their hat into the ring for Chair and Vice Chair, then Forum members will vote via email.
- Statewide anadromous fish passage barrier priorities - Lisa will reach out to entities to provide their priorities, including the US Forest Service, Coastal Conservancy, Trout Unlimited, Caltrout, NOAA,

Trinity River Restoration Program, counties, cities, watershed coalitions, and others. Brett will add the PAD barrier layer to the priorities map.

- Jonathan Birdsong encouraged the Forum to review the RFPs for NFWF funds and assess any data gaps in design development. He sought input on other corporate entities that have an interest in the forest lands mentioned in his presentation.

Decision items:

- Forum members support the ranking of discretionary 2017 projects proposed by the Governance Committee.
- Forum members support keeping the bylaws as is (relative to a Chair and Vice Chair). Bob Pagliuco expressed interest in becoming the next chair, and Candice expressed interest in becoming the Vice Chair.
- Forum members support continued work on the statewide map of anadromous fish passage barrier priorities.

Meeting Minutes

- A. Forum members reviewed action items from the January 2017 Forum meeting. **Action item:** Anne Elston partially completed the task relating to HUCs, and will work with the newly forming FISHPAC to compile watershed priorities.
- B. Governance Committee (GC) – the GC has met four times since the last Forum meeting. Their annual work plan is posted here: <http://www.cafishpassageforum.org/publications>.
- a. Javier joined the GC when Donnie Ratcliff left because of a new job.
 - b. Melinda is in the process of facilitating the development of new FishPACs and providing support to existing FishPACs. FishPAC areas include the North Coast, Klamath-Cascades, Central Valley, Bay Area, Central Coast, and Southern Steelhead.
 - c. Forum members discussed the current bylaws and the 18-month Chair and Vice-Chair positions. Members decided to retain the structure of the bylaws; Bob Pagliuco expressed interest in becoming Chair, and Candice Meneghin expressed interest in becoming Vice-Chair. **Action item:** Lisa will ask Forum members if anyone else is interested in tossing their hat into the ring for Chair and Vice Chair, then Forum members will vote via email.
- o The GC led a discussion of the Forum budget. Bob and Michael discussed the tidegate project and FishWerks in more detail.
- The intent of the tidegate performance project is to investigate fish friendly tidegate structures to better understand velocities to optimize tidegate modification. **Action item:** Lisa will distribute the tidegate proposal. Forum members questioned if the tidegate proposal incorporates sea level rise considerations.
 - Regarding FishWerks, there was discussion about the extent to which the program is compatible and complementary to CDFW analytical efforts. **Action item:** Forum members will discuss with their respective biological and GIS staff their support/interest

for FishPASS. **Action item:** FishWerks – Lisa will connect with the Great Lakes programmers to inquire who has used the tool, the extent to which the tool has been used, how often the tool has been used, and any relevant documents they can send in advance of the webinar.

- **Action item:** Stan Allen will review funding for the lamprey project to assess PSMFC staff funding relative to the \$10K proposed for the project.
- Multi-state conservation grant – **Action items:** Steph will send a paragraph for a potential project; Mary and Stacie will send a paragraph for a potential project. Lisa will send Stacie an example of a past MSCG paragraph.
- NorWeST – **Action item:** Brett will complete his white paper and provide a draft budget that estimates what it would cost to incorporate stream temperature data from NorWeST into FishPASS.

Table 1. Discretionary projects the Forum is considering funding in 2017, listed by priority.

Priority	Committee	Project Name	Cost	Potential funding sources	
1	All	Coordinator - through June of 2018	\$36,000.00	NFHP	Lisa currently has XX hours/months left in current contract
2	Optimization	FISHPass model changes desired	\$10,000.00	MSCG	Jesse has the list of priority needs to complete by the end of the summer of 2017.
3	Science and Data	Lamprey Proposal	\$10,000.00	MSCG/NFHP	Develop Barrier Assessment form for lamprey (may be able to free up funding on this because of PSMFC staff time - Stan will look into)
4	Science and Data	Incorporate Norwest Temperature data into Fishpass	?	MSCG/NFHP	Brett is putting together a white paper for the Science and Data Committee - then estimate costs; this is important to FISHPAC (may be opportunities to costshare)
5	Optimization	Test Fishpass in multiple regions	\$10,000.00	MSCG	Rework existing scope of work by the beginning of April
6	Engineering	Tidegate Study	\$38,000.00	MSCG/NFHP	Budget is for 3 sites, but project could be scaled down.
7	Optimization	Build Map/front end interface for FishPass	\$50,000.00	MSCG	Jesse estimates \$100,000, but we may be able to leverage FishWerks outcomes to significantly reduce cost - \$30-\$50K seems reasonable
8	Education	Support a training/workshop on fish passage in California.	\$15,000.00	MSCG	Wait until the meetings have been figured out to come up with a cost estimate (\$30-40,000)
Total			\$169,000.00		

Table 2. Sources and Amounts of Funding Available to the California Fish Passage Forum from Previous Years.

 obligated funds

<u>USFWS Funding - Old 5-year agreement: Must be spent by September 30, 2017</u>	<u>Budgeted</u>	<u>Spent</u>	<u>Obligated/Encumbe red</u>	<u>Remaining</u>
Personnel and benefits - PSMFC	\$24,142	\$8,816	\$15,326	\$0
Communications	\$0	\$954		(\$954)
Rents	\$300	\$0		\$300
Software	\$1,002	\$0		\$1,002
Supplies	\$13,557	\$2,344	\$972	\$10,241
Professional services	\$0	\$2,919		(\$2,919)
Pass thru contractual admin	\$221,040	\$185,164	\$35,876	\$815
Pass thru salaries, employee benefits, contractual	\$29,765	\$3,815	\$25,950	\$0
Contractual services	\$20,000	\$20,000		\$0
Travel	\$8,866	\$4,140		\$4,725
PSMFC Admin costs, indirect costs, project management	\$14,344	\$8,856	\$5,488	\$0
	\$333,016	\$237,008	\$83,612	\$13,210

<u>USFWS Funding - new 5-year agreement</u>	<u>Budgeted</u>	<u>Spent</u>	<u>Obligated/encumbe red</u>	<u>Remaining</u>
Personnel and benefits - PSMFC	\$16,090	\$0	\$16,090	\$0
Rents	\$700	\$0	\$0	\$0
Supplies/software	\$703	\$0	\$0	\$703
Subcontracts	\$96,093	\$0		\$51,093
Manly Gulch			\$25,000	
Pacific lamprey (requested \$30K; obligated \$20K)			\$20,000	

Travel	2,770	\$0	\$0	\$2,770
Indirect rate - PSMFC	\$9,763	\$0	\$9,763	
	\$126,119	\$0	\$70,853	\$54,566

Multi-state conservation grant (MSCG) program

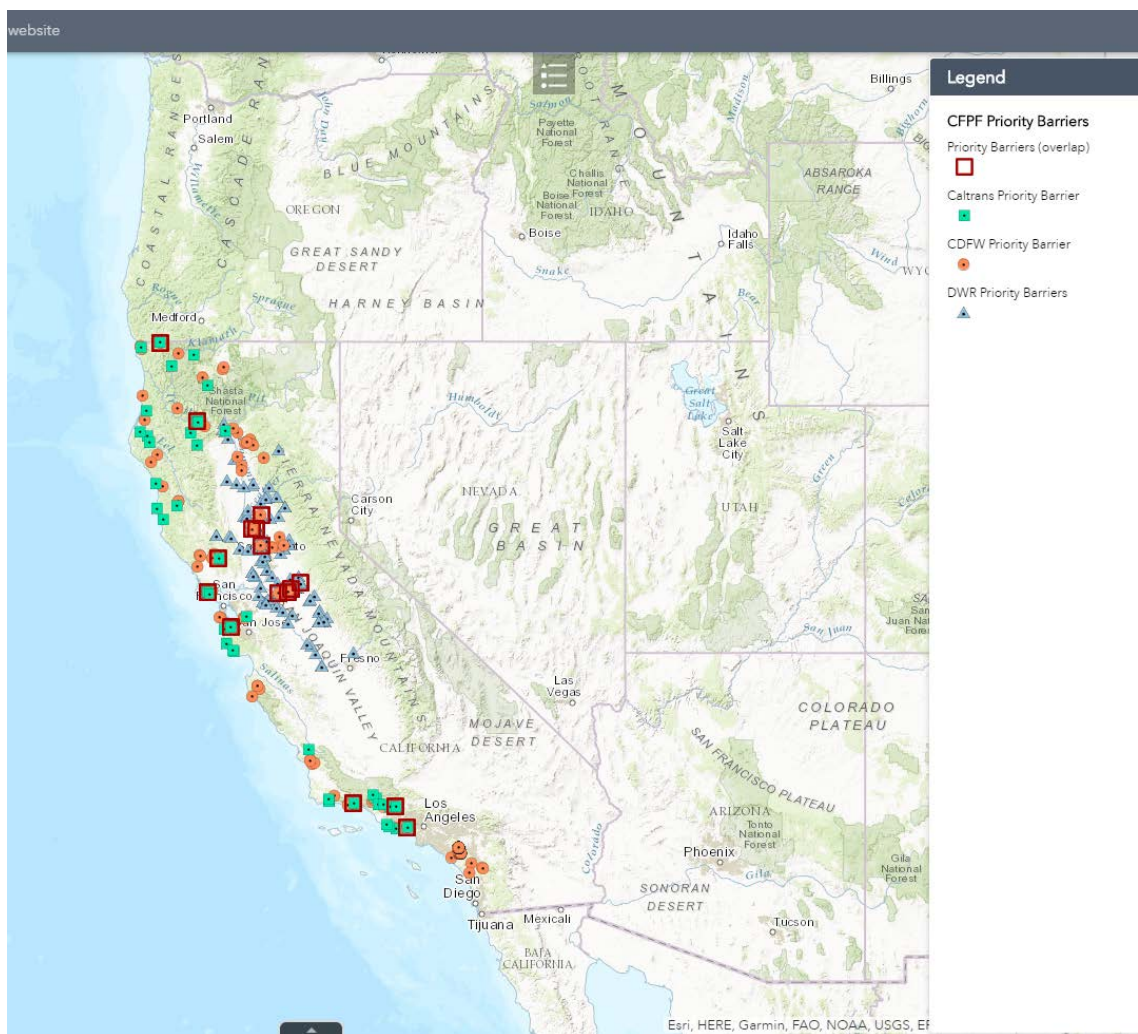
Personnel (Liam)	\$15,793	\$0		\$15,793
Supplies	\$3,000	\$0		\$3,000
Subcontracts (Jesse)	\$17,042	\$0		\$17,042
Travel	\$1,000	\$0		\$1,000
Indirect -PSMFC	\$5,665	\$0	\$5,665	
	\$42,500		\$5,665	\$36,835

In addition to the funds listed in Table 2, the Forum will be receiving new USFWS funds in 2017 for both operational support as well as projects. The USFWS will be notifying the Forum of the level of funding it will receive in 2017. The funding the Forum currently has and will receive will be used to support the discretionary projects listed in table 1 as well as the restoration projects the Forum prioritized in December of 2017. The list of projects includes the following:

Table 3. Prioritized list of projects the Forum would fund in 2017 with NFHP/USFWS funding.

Priority	Project Name	Cost	Potential funding sources
1	Pennington Creek Steelhead Barrier Removal Project	\$40,000.00	NFHP
2	Benbow Dam Removal	\$58,499.00	NFHP
3	Upper Green Valley Creek Fish Passage Project	\$30,089.00	NFHP
4	Fort Goff Creek Fish Passage Improvement	\$9,939.00	NFHP
5	Salt River Fisheries Monitoring – PIT tagging	\$34,750.00	NFHP
6	Lamprey monitoring at low head weirs	\$10,000.00	NFHP
7	Janes Creek at Alliance Fish Passage Improvement	\$15,000.00	NFHP
Total		\$353,277.00	

- C. Science and Data (SD) Committee – the SD Committee met 3 times since the last Forum meeting. Since that meeting, Damon Goodman joined the committee, and Steve Brumbaugh volunteered to be co-chair. The Science and Data Committee work plan can be found here: <http://www.cafishpassageforum.org/publications>. The status of the work plan has been updated, including all of the tasks.
- D. Outreach and Education Committee – The Outreach and Education Committee work plan can be found here: <http://www.cafishpassageforum.org/publications>.
- E. Priority Anadromous Fish Passage Barriers in California – Members reviewed the map, which compiles fish passage barrier priorities for CDFW, DWR, and Caltrans
- <https://psmfc.maps.arcgis.com/apps/webappviewer/index.html?id=3430e20d65c64d82abe4176fe2d8af31>
- Forum members discussed the desire to engage other fish passage remediation groups in California by contributing their priority datasets of fish passage barriers so that the Forum could map and share the data. This information could be used a) to encourage collaboration among entities interested in remediating barriers in specific watersheds/regions, b) to provide support to organizational priorities and c) to potentially inform the Forum’s annual grantmaking process.



- F. R2 Resource Consultants representatives Dana Postlewait and Steve Howard discussed a [federally mandated independent fish passage review panel as part of the Freeman Dam Fish Passage Conceptual Design Study](#). They discussed the history of the diversion, the 2008 Freeman Biological Opinion, the Independent Fish Passage Panel, a study plan, a Fish Passage Alternatives Analysis, and the results.
- a. The four alternatives scored within 6% of each other, and should be considered to have equal scores.
 - b. The Panel recommended that additional work be focused on the development of the Vertical Slot Fishway and the Hardened Ramp alternatives.
 - c. To better differentiate the alternatives would require further study and gathering more field data.

They compared and contrasted the strengths and weaknesses of two recommended alternatives, including attraction flow, passage at low river flow, maintenance access, ease of operation, proven technology, multiple fish passageways, ease of construction, and fish passage monitoring. The noted the process worked, it took time, the study plan was effective, the panel functioned well, and all parties participated at a high level, with both good communication and good exchange of information.

- G. Rick Wantuck and Dave White of NOAA walked through a poster they prepared (<http://www.cafishpassageforum.org/media/meetings/may2017/salmonid-jump-test-poster.pdf>) to describe their juvenile salmonid leaping ability assessment, intended to determine how high juvenile steelhead can leap at different water temperature and flow rates. NMFS has a 6" jump height, and CDFW has a 12" jump height. There is inconsistency because there is no consistent data on high juvenile fish can jump. Their key questions are, "What size do juvenile fish start leaping, and how does temperature affect that?" Dave and Rick will be testing 300 60mm+ fish this summer – their next data set will be more comprehensive and more representative of adequate sample sizes for different size fish. The group discussed whether or not results to date were artifacts of sample size, and whether Southern California steelhead in the size range Dave and Rick are studying are looking for refugia when in streams. Dave pointed out that NOAA has a variance process (a one-page form) that exempts projects from a 6" height. Dave and Rick will attempt to test if colder water coming over the notch motivate fish to move upward – this will require them to figure out how to separate the warmer and cooler water. The group also discussed the growth rate following emergence from the redd relative to how long it takes for them to achieve 100mm in length. Future steps include taking the project from the lab to the field, testing whether fish have the ability and the motivation/will to jump. **Action item:** Dave and Rick will present the results of their summer testing to the Forum at its Fall meeting, and then the Forum will discuss assisting them in convening a workshop to address key scientific questions.



Juvenile Salmonid Leaping Ability Assessment: A Multi-Agency Cooperative Research Effort



What are we doing?

We are finding out how high juvenile steelhead can leap at different water temperatures and flow rates. The round blue tank in the image below is for holding fish, and the long rectangular green tank is where fish jump.



The holding system can be seen in the foreground and the test system can be seen in the background.

Why are we doing this research?

Juvenile salmon and steelhead move around in rivers and creeks quite a bit to find the best food and places to grow. In fact, our understanding of how much they move around is still expanding, as it is very difficult to monitor the movement of such small fish.

In many cases, they face waterfalls of various heights while attempting to go upstream. These waterfalls are often caused by structures such as dams, fish ladders, and road culverts. While the leaping abilities of adult fish are well understood, little information exists on the leaping abilities of small fish. Because of this gap in our knowledge, state and federal guidelines for juvenile salmonids are inconsistent regarding appropriate design jump heights at fish passage facilities (such as fish ladders and boulder weir structures). Fish passage facilities are expensive, so we want to understand the leaping abilities of the fish better so we can build the most efficient fish ladders.



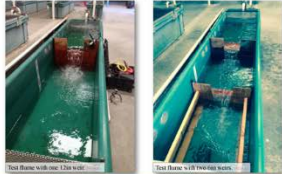
A fish ladder in habitat upstream. A juvenile fish passage project during completion in Sonoma County. A juvenile Coho salmon leaping.

Who is involved?



What have we found out so far?

Because the ability of a fish to jump depends a lot on water temperature and on fish length, we will need to test fish of many different lengths and at many different water temperatures to fully understand leaping behavior and potentially reconcile state and federal guidelines. So far, we have found that fish of a certain length and in 54°F water are able to ascend heights never documented before, and that similar numbers of these fish ascended 6 inch and 12 inch jump heights. We also found that steelhead were generally more successful leapers than coho salmon of a similar size, and that success for both species was related to fish length and weight. We also recorded leaping attempts above water and underwater on video to study leaping behavior. The results of this study have implications regarding the appropriate design of fish passage facilities, especially for juvenile salmonids.



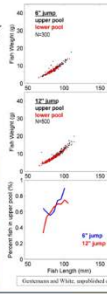
Steelhead Weir with 12in Weir. Coho Weir with 12in Weir.

Detailed Results and Interpretation

Test 1 Results:

Coho Jumping Success Over 6in Weir vs 12in Weir in 24 Hours

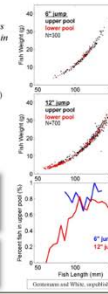
- Jumping success similar over both weirs for 80-90mm (approx. 3 to 3.5in) fish.
- Success about 65%.
- Small fish were more successful over 6in weir.



Test 2 Results:

Steelhead Jumping Success Over 6in Weir vs 12in Weir in 24 Hours

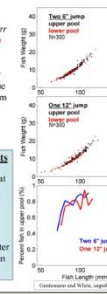
- Jumping success similar over both weirs for 105-125mm (approx. 4 to 5in) fish.
- Success about 75%.
- Small fish were more successful over 6in weir.
- No success at 60mm (approx. 2in).



Test 3 Results:

Coho Jumping Success Over Two 6in Weirs vs one 12in Weir in 24 Hours

- Jumping success similar over two 6in weirs as one 12in weir for 105-125mm (approx. 4 to 5in) coho salmon.
- Success about 80%.



Interpretation of Results

Preliminarily, it appears that 12 inches may be an acceptable jump height for juvenile salmonids. However, more testing is required for different fish lengths and at different water temperatures before this can be determined.

NOAA FISHERIES MORE TESTING BEGINS: PLEASE CONTACT US FOR MORE INFORMATION: David White: (david.k.white@noaa.gov) Ben White: (benjamin.e.white@usace.army.mil) Bryan Pezner: (bryan.w.pezner@noaa.gov)

H. [Central Valley Landscape Conservation Project](#) – Javier Linares provided background information on the Landscape Conservation Cooperative Network as well as the organizational structure of the California LCC (e.g., steering committee, staff, teams, and affiliates). The Central Valley Landscape Conservation Project has 32 partners, three project teams (leadership, project development, and data management), and their approach is to describe a Climate Smart Cycle from October 2014-2018. The cycle is an adaptive management framework that defines goals and identifies priorities, assesses vulnerability to climate change, identifies adaptation strategies and actions, implements adaptation options, and then monitors, reviews, and revises. The kickoff meeting was in October of 2014, a future scenario was described in March of 2015, and priority natural resources (habitats, species groups, and species) were designated in June of 2015. In October 2015, vulnerability assessments were completed. In May 2016, strategies and actions were identified, and in May of 2017, strategies and actions will be prioritized. Products include projected change in California’s Central Valley, Central Valley future scenarios, priority natural resources, vulnerability assessments, and a map gallery. For more information, <http://climate.calcommons.org/cvllcp>.

I. Jonathan Birdsong from the National Fish and Wildlife Foundation gave a presentation on partnerships in California and overlap with fish passage projects (<http://www.cafishpassageforum.org/media/meetings/may2017/presentation-for-fish-passage-in-wro.pdf>). He provided an overview of NFWF, including who they are, what they do, and how they do it, emphasizing leveraging public funding with private money at a 3:1 ratio. Opportunities in California include \$3 million in Bureau of Reclamation funding in the Klamath (with an additional \$939K from the California water bond), \$30.1 million in fire settlements from the Los Padres (\$11.1 million), Angeles (\$19 million), El Dorado (\$3 million), and Lassen (in discussion). In addition, \$3 million was

made available from fuels management in four forests in 2016: Six Rivers, Sequoia, Inyo, and Los Padres national forests.

Primary areas for water and program overlap include the Klamath watershed, the Los Padres National Forest and surrounding areas, and the Northern Sierras – Lassen Foothills.

NFWF ranked forest priority for restoration objectives, which included fish passage and watershed restoration, landscape restoration, heritage resource protection, recreation infrastructure, Sargent Cypress (Zaca Fire only), and California Condor Recovery (Piru Fire only).

Action Item: Jonathan Birdsong encouraged the Forum to review the RFPs for NFWF funds and assess any data gaps in design development. He sought input on other corporate entities that have an interest in the forest lands mentioned in his presentation.

J. Stacie Smith (NOAA) gave a presentation

(<http://www.cafishpassageforum.org/media/meetings/may2017/arroyo-sequit-fish-passage-project.pdf>) on the Arroyo Sequit Fish Passage Projects conducted from 2011-2017. These projects occurred in the Santa Monica Mountains BPG, where there is a significant human population (1 million visitors annually to Leo Carrillo, and 5 million neighbors in Los Angeles and Ventura Counties). The goals of the project were to remove three barriers (1 check dam and 2 Arizona crossings) to open 4.5 miles of habitat to southern steelhead. Project constraints included maintaining pedestrian access to the beach, and avoiding interrupting campsite visits. Construction began in 2014 as a result of the 2011 Obama Executive Order that provided for Fast Track permitting. There were delays caused by the Coastal Zone Development Permit. As a result of the barrier removals (one was completed in 2014, one in 2015, and one in 2016), the estuary was connected to the ocean in 2017 – the first time since 2011. Hyperlinks to three YouTube videos can be found here: <http://www.cafishpassageforum.org/2017-meetings>.