Carmel River Steelhead Association
Advocating for Steelhead Since 1974
Fish Tales
Monthly Newsletter

CRSA Membership

Donate

PRESIDENT'S MESSAGE
By Steve Park

Taking things “for granted” is a form of complacency we are all affected by. It’s an easy normality to slip into. Life is busy and therefore, it should not be burdened with any more complications than necessary. So, we take things for granted every day, until they change.

I suppose the steelhead are no different. After all, what they probably thought was a sure thing, so many years ago, has now turned out to be very different. The steelhead didn’t know, in the case of the Carmel River, that their water and habitat wellness would be alter so much that they now struggle to survive; becoming a threatened species!

I suppose taking for granted that the Carmel River steelhead will thrive on as usual, is just another example of human complacency. The thought is that in the “normal” world, animal species will continue to adapt and to survive, but then what we think is normal, will inevitable change. The steelhead are on the wrong side of this “normal” and are not to be taken for granted.

Right now human kind is wondering, “Will we ever have normal lives again?” “Will we still have the things that we have always taken for granted?” The answer is probably not, but human-kind will adapt and survive.

The steelhead expect that their river will run. They expect their water will be clean and they expect to reach their spawning grounds up river. However, their normal has changed quite some time ago and they too have adapted and they too have survived.

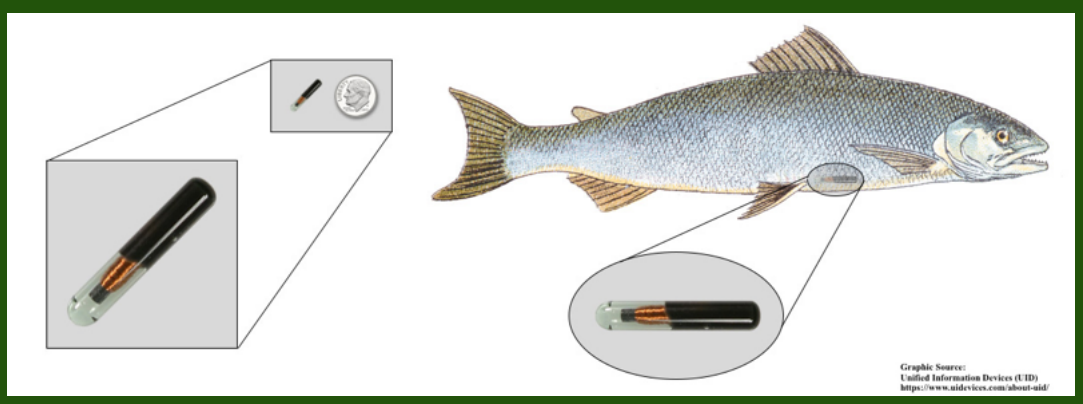
I suppose this new version of “normal” will morph into something we will once again take for granted. I can’t imagine now, how some things are going change.

The steelhead have seen their “normal” metamorphose into **a** supported effort between them and humans. They know that they will not survive without help, and yet they still know how to find their home waters. They still know how to run the river. They still know how to produce incredible offspring. They are surviving, but with a new normal. These days they take for granted that if they go up that ladder they will somehow miraculously make it to their headwaters. These days they take for granted that their babies will be rescued before the summer dry back. These days they hope that *they* will not be taken for granted. This is their new normal.

CONSERVATION REPORT
By Brian LeNeve

PIT Tags

What is a PIT tag? What can it do? Should we embrace it? What do we need now?



What is a PIT tag?

A PIT tag, or Passive Integrated Transponder, is a small radio transponder that contains a specific code which allows an individual animal, in our case a fish, to be assigned a unique 9- to 15-digit alphanumeric identification number. PIT tags are “passive” and do not require a battery. Rather than the tag transmitting a signal, the tag scanner (or reader) sends out a radio frequency and when a tag is within range, it will relay the identification code back to the receiver. The lack of a battery is the greatest advantage of the PIT tag since it allows for the production of much smaller tags to be used on smaller fish. That tag will last the entire life of the fish, although it does require a scanner to be quite close to the fish. Pit tags are as small as 12mm to 13mm, about the size of a grain of rice, and are subcutaneously or intramuscularly injected into fish with a 12-gauge needle.

What can a PIT tag do?

In short, a PIT tag can give us information on where fish go after they are tagged, how our steelhead use the Carmel River and its tributaries, how long our fish stay in the ocean, and if a fish born in Cachagua Creek then returns to Cachagua Creek. In addition, PIT tags can gie us information such as if an adult can spawn several times and what percentage of fish are repeat spawners, how long fish spend in Los Padres Dam (LPD), how long a fish takes to reach San Clemente Dam, and how long it takes a fish to migrate back

to the ocean. In the case of the CRSA fish rescues, we would have a chance to see what happens to our rescued fish once released.

The National Marine Fisheries Service (NMFS) and the Monterey Peninsula Water Management District (MPWMD) have been tagging fish in the main stem of the Carmel River for several years. NMFS has tagged juvenile fish that CRSA rescued in Cachagua Creek and fish CRSA and others seined in the lagoon last year. Although this year has been really challenging because of a landslide into LPD, affecting the ladder and trap, and the Corona Virus shutting down much of the field work, still we are now starting to get results from the years of tagging.

The following information I received from Haley Ohms (a PhD fisheries biologist with NMFS): Last year NMFS tagged 84 adults and seven returned this year (or 8% of the fish tagged). Not all of the returnees made it over LPD, even though they all went back to the below Los Padres plunge pool. Two fish were transferred over the dam, two swam back downstream, and two are unknown (they may have passed, but we are missing some antenna data from during the shelter in place). Notably, one male that did not pass over LPD after spawning last year, did however show up on the above-mentioned Los Padres antenna this winter, indicating he was alive and probably moving out of the reservoir to spawn.

Brian's Note: *I was wondering if some of the fish that were missing or swam back downstream might have migrated up Cachagua Creek, but until there is a reader on Cachagua we will never know.*

This year they tagged seven adults and all were transported over LPD and of those, 5 made their way back out of the dam after spawning.

Last year, NMFS tagged 80 of the fish we rescued in Cachagua and detected four of them on their antennas. One was a large (164 mm) fish that moved up to below LPD in February (maybe hoping to spawn as a rainbow trout). The other three detected fish were smaller (~80 mm) and they were all detected moving downstream, but at various times in the year.

In the lagoon NMFS tagged 134 fish that were seined last July and detected 12 of those fish again. Interestingly, 11 of them were detected within a week of each other and were all moving upstream after the first big rainstorm of December 2019 (detected Dec 6-13 after flows peaked Dec 3). One fish was detected at Rancho San Carlos in July.

Brian's Note: *The fish we seined probably came down the river in February or March, were in the lagoon for a few months and grew to 6" to 8" by July. It is interesting that 12 fish moved back upstream in winter rather than out to sea. Hopefully, the other 122 fish survived and migrated to sea, sure to come back as steelhead*

Why should we embrace it?

The more I learn about PIT tags and what they can do, the more I really want more of them on the Carmel and, in particular, Cachagua Creek. Aside from the items listed above, CRSA would love to know more about Cachagua Creek.

Between rescues over the years and redd surveys this year, CRSA has realized just how important Cachagua Creek is. This year we counted 47 confirmed redds on Cachagua and Finch Creek and another 19 we were pretty sure were redds. If you compare this number to what was transported over LPD, Cachagua becomes even more important.

The following is a quote from the MPWMD fisheries report for June, "The Los Padres Dam fish ladder and trap started operating on December 12, 2019. The ladder was turned on and off intermittently between February and May due to continued movement of the large landslide in the reservoir that is affecting the

outlet pipe. The ladder was turned off for the year on May 22. For the year, 66 adult steelhead, and two resident adults, were trapped and transported above the dam (12 in January, 2 in February, 7 in March, 44 in April, and 1 in May). Seven of those were tagged by National Marine Fisheries Service (NMFS) crews, and two of the captured fish had been tagged last year (recaptures)."

If a redd is considered one female and one male (that would be the best scenario), then over 94 fish and possibly as many as 132 fish migrated up Cachagua Creek compared to 66 fish over LPD.

When CRSA tried to obtain a permit to rescue stranded steelhead (we finally received one this year), we were told we could not prove rescues work. By tagging fish rescued in Cachagua Creek and returning them to the river we can track their movement. If we had a PIT tag array on Cachagua Creek we could detect their movement in and out of Cachagua Creek.

What do we need to do now?

This is all leading up to an appeal, but since I believe an article over two pages loses some people and I have reached the two-page limit I set for myself, you will have to stay tuned for next month's newsletter.

You May Also Enjoy The Following Article:

FISHBIO Fish Report
Fisheries Research, Monitoring, and Conservation

Environmental DNA:
New Technology, New Uncertainties, and Establishing Best Practices

A report from FishBio, June 8, 2020

With any new technology comes a slew of new uncertainties, requiring scientists to wrestle with questions about best practices, possible sources of error, and interpretation of results. This has been the case for environmental DNA (eDNA), a relatively new approach to ecosystem monitoring that relies on detecting DNA molecules that organisms shed into their environment. Although eDNA is being used by an increasing number of research programs, a number of challenges stand in the way of its adoption as a mainstream scientific tool. To highlight these challenges and possible solutions, leading scientists in the field came together at an eDNA symposium held by the UC Davis Coastal and Marine Science Institute in January 2020. This workshop provided insight into the current challenges of eDNA approaches, ongoing projects throughout California, the need for a consensus on using eDNA in monitoring programs, and future uses and benefits of the technology.

The current challenges related to eDNA analysis are mostly due to a lack of understanding about how genetic material

behaves in the environment. Presentations by various researchers explained the large number of factors that influence the persistence, distribution, and detectability of DNA molecules. For example, certain factors may prevent the detection of eDNA from species of interest, such as an extreme abundance of DNA from other organisms in the environment. Other challenges include tidal movements that can make it difficult to interpret detection results. Overall, speakers emphasized that eDNA is not a replacement for traditional sampling methods, but rather may serve as a supplement or a means of guiding more direct approaches to monitoring. It is also critically important to communicate eDNA results to resource managers in an understandable way to prevent misinterpretation.

The discussion of current eDNA research in California focused largely on trying to evaluate and quantify DNA detectability. Experiments investigated how close the target organism needs to be for a positive detection, how long genetic material persists in the environment, and what protocols yield the highest probability of detection. Although multiple studies produced somewhat equivocal results and no clear relationship between sampling methods and detection probability, they did offer some basic insights. For example, it was found that delta smelt (Hypomesus transpacificus) eDNA could be detected for up to three days after the smelt was present, and that detections became unreliable beyond a distance of 33 feet or under turbid conditions. Challenges remain to establishing best practices for eDNA sample collection, but several exciting new approaches are underway, such as developing test strips that indicate the presence of eDNA by changing color when exposed to a water sample.

Presentations on the difficulties of achieving consensus for incorporating eDNA into monitoring programs highlighted the lack of confidence resource managers currently have in eDNA applications. While true that more potential sources of error exist for eDNA than traditional approaches, recent improvements may help bolster trust in the method. What's more, eDNA approaches have proven very effective in certain monitoring efforts, including the detection of DNA from invasive quagga and zebra mussels. Creating a standardized eDNA sampling approach is difficult given the many variables involved, but doing so could improve the validity of results, consistently characterize uncertainties, and make results comparable across time and location. A standard could also make it easier for managers to implement eDNA methods as management tools.

The discussion of future uses for eDNA covered a wide range of exciting possibilities, including the potential addition of eDNA data to the Nonindigenous Aquatic Species (NAS) database to help map the distributions of potentially invasive species. Presentations also focused on the development of faster, cheaper, and more responsive management through the creation of a standardized eDNA protocol, which might be based on existing programs like the European Union's DNAqua-Net. There is no one single correct way to conduct eDNA sampling and analysis, and detecting an organism's eDNA depends on a number of factors related to the species itself, the environment, and the sampling and laboratory protocols. Consequently, it can be difficult to interpret results, and eDNA methods have not yet been broadly accepted or incorporated into the regulatory framework. A general consensus from the workshop on the most important next step was to create a set of applicable "best practices" for eDNA studies that can help researchers quantify potential error while continuing to develop and improve their methods.

Read More at https://fishbio.com

CRSA Membership

CRSA Officers

President: Steve Park
831-601-8649
stevepark@razzolink.com

Vice President: Frank Emerson
O: 831-655-3626
M:831-277-0544
frank.t.emerson@gmail.com

Treasurer: Brian LeNeve
831-624-8497
brian@brianleneve.com

Secretary: James C. Jeffery III
831-659-0804
jim@jamescjeffery.co

Conservation Chair:
Brian LeNeve
831-624-8497
bjleneve@att.net

Newsletter Editor:
Hallie Heath
hcheath487@gmail.com

Web Master:
Julie Dalton
newsletter@carmelsteelhead.org

CRSA Board of Directors

Robert Stoddard
541-954-9477
rhstoddard@gmail.com

Tom Pelikan
831-601-8270
tbpelikan@comcast.net

Hallie Heath
hcheath487@gmail.com

Luke Coletti
ljc@groknet.net

Jaime Eltit
jeltit7@gmail.com

Erik Scarr
erikscarr3@gmail.com

Miranda A. Taylor
209-202-8720
mat755@humboldt.edu