



# Showfish

Published by COAST, the California Organization of Aquatic Show Tropicalists

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FEBRUARY 2014

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***Corydoras panda*, the Panda Cory**

This work has been released into the public domain by its author, Calilasseia at the wikipedia project.

## The Breeding Tank

### Part 2 – Breeding of *Corydoras panda*

By Ron Jackson

*Corydoras panda* may be one of my favorite fish, not just because I don't see many colors, but because they are quite attractive. It is one of the smaller corys with distinctive markings. It can't be misidentified, and most of the fish stores usually have the tanks labelled correctly. Its markings include a black eye mask, black dorsal fin, and a large black spot at the base of the caudal fin. The fish is basically flesh-colored or white. The tail appears somewhat large for such a small fish.

I use the same conditioning procedures as the previous two species, *Cory. aeneus* and *Cory. paleatus*. The pandas also assume the T position, but the female only expels one egg at a time. The egg, about 2.5 mm diameter, is a very large for such a small fish. She will swim around until she finds a place to her liking to deposit the egg. This may be on the aquarium glass, a spawning mop or the lift tube of a box filter. Most of the time it will be on a spawning mop. This is the catfish that deposited her eggs in the mop without touching the mop with her body. I make the box filters with a 3/4 inch lift tube so the female can go into the tube when she wants to.

My *pandas* are very sensitive to weather changes. They go into a frenzy when a storm is coming. Their best egg laying period is between November and April. Each female will lay about 25 to 30 eggs.

I have never seen the adults eat any of their eggs, but I have seen them eat newly hatched fry. For this reason, I remove the eggs after three days.

I pick the eggs from the mop with my fingers and use a baster to remove the eggs from the glass and filter. I place the eggs in a margarine dish until they hatch. I do not add anything to the water, but I do a partial water change every day until they hatch. Hatching time takes as little as 3 days or as long as 8 days. Depending on the temperature, with this method I always get better than a 90% hatch.

Their eggs can stand a very wide range of temperature. Once I left a net outside in one of my daphnia tanks that I had previously used to remove some *pandas*. The next day, I found that three eggs had stuck to the net, so I placed them in a margarine dish, and all three eggs hatched and the fish survived. The temperature had gone down to 45 degrees the night they were left outside.

Water conditions are as follows: I use R/O (reverse osmosis filtered) water, to which I add a little tap water, pH 7.0, hardness 125 ppm.

Sexing *pandas* is somewhat more difficult than the previous two species [in Part 1, Showfish December 2013]. The female, at 1-3/4 inches is larger than the male at 1-1/2 inches. The best time to try to sex them is if the female is heavy with eggs or has just eaten a lot. She will be notably plumper than the male.

As an added thought, even if the *pandas* go into a breeding frenzy, I have never seen more than one pair engaged in the spawning act at the same time.

Look for Part 3 of this article in the months ahead, which will discuss the breeding of *Corydoras trilineatus* and *Corydoras delphax*.



## What do you get when you cross a spiny headed worm and scientists?

Well, in the case of the thorny headed or spiny headed worm *Pomphorhynchus laevis* and Seung Yun Yang, Eoin D. O'Cearbhaill, Geoffroy C. Sisk, Kyeng Min Park, Woo Kyung Cho, Martin Villiger, Brett E. Bouma, Bohdan Pomahac, and Jeffrey M. Karp, you get a major advance in adhesion technology for skin grafts and other wet tissues that must remain flexible, fully attached, and sealed against infection.

Their article, *Bio-Inspired Swellable Microneedle Adhesive for Mechanical Interlocking with Tissue*, describes their goals and accomplishments.

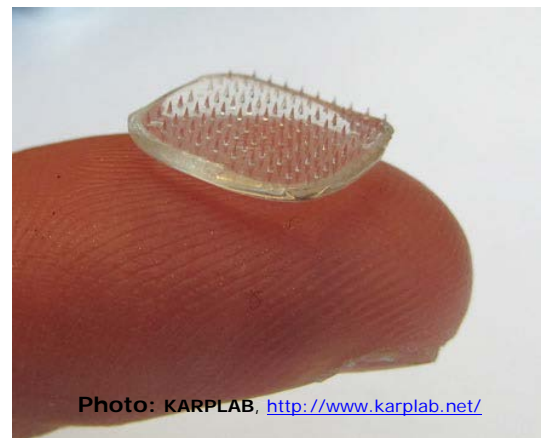


Photo: KARPLAB, <http://www.karplab.net/>

Achieving significant adhesion to soft tissues while minimizing tissue damage poses a considerable clinical challenge. Chemical-based adhesives require tissue-specific reactive chemistry, typically inducing a significant inflammatory response. Staples are fraught with limitations including high-localized tissue stress and increased risk of infection, and nerve and blood vessel damage. Inspired by the endoparasite *Pomphorhynchus laevis*, which swells its proboscis to attach to its host's intestinal wall, we have developed a biphasic microneedle array (MN) that mechanically interlocks with tissue through swellable microneedle tips, achieving ~ 3.5 fold increase in adhesion strength compared to staples in skin graft fixation, and removal force of ~ 4.5 N/cm<sup>2</sup> from intestinal mucosal tissue. Comprising a poly(styrene)-*block*-poly(acrylic acid) swellable tip and non-swellable polystyrene core, conical microneedles penetrate tissue with minimal insertion force and depth, yet high adhesion strength in their swollen state. Uniquely, this design provides universal soft tissue adhesion with minimal damage, less traumatic removal, reduced risk of infection and delivery of bioactive therapeutics.

Their preliminary article goes on to say:

...[MN tissue]adhesives avoid the use of reactive chemistry, provide strong tissue adhesion in both normal and shear directions, [are] amenable to quick application, simple to position over the target site, removable (or degradable) with minimal tissue damage, [and] provide adhesion to dynamic tissue surfaces while withstanding multiple extension/compression cycles, minimize the risk of infection, and ...deliver therapeutics.

...we looked for inspiration from living organisms that have through the course of evolution adapted this function.\* Endoparasitic worms known as spiny-headed worms use a proboscis to penetrate through tissue. Species, such as *Pomphorhynchus laevis*, secure firm anchorage to the fish intestinal wall by expanding a bulb using retractor muscles at the base of the proboscis following penetration. Using the adaptable morphology of the worm proboscis, we looked to create a structured MN with optimal characteristics for needle insertion and retention in tissue.

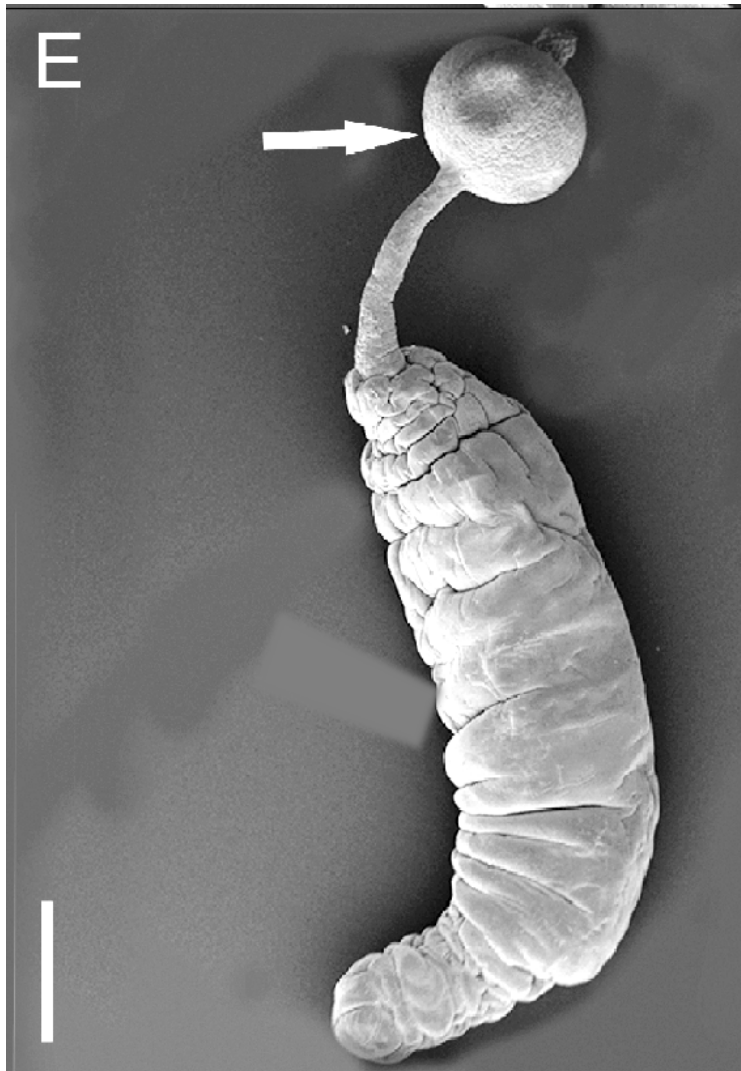
The team of developers worked their way through different polymers, finally developing a base that did not expand when exposed to liquid, which they have overmolded with a polymer that does expand, mushrooming at the end of the tip once in tissue. The result is a self-sealing microneedle patch that adheres to tissue across the entire area of the "bandage" and having the flexibility and adhesion strength to withstand stretching, compression, and torsion. Once the tissue is healed, the MN adhesive can be removed without significantly damaging the new tissue.

The group is also working on making the MN from material that will dissolve when the patch is used internally. Next up is testing the MN on live pigs, after which would come human trials if all goes well. No timeline has been announced.

\*They found the wormy inspiration through an article published in the open-source online journal PLOS One; the picture of the worm in Figure 2 is taken from that article.

Preliminary article on MN adhesive is available here:

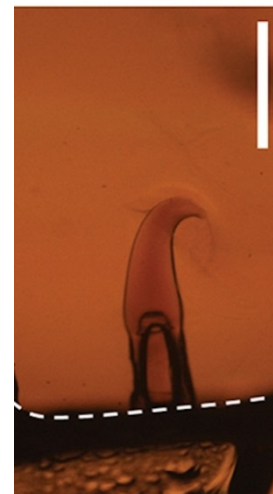
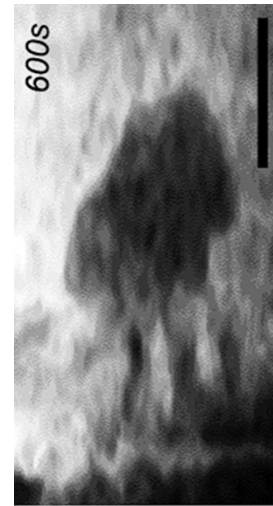
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3660066/#SD1>



**Figure 1. Pomphorhynchus laevis, the inspirational thorny headed worm**

SEM (scanning electron microscope) micrograph shows spiny proboscis and post-insertion swelling that anchors the worm in place. Scale bar: 100  $\mu$ m (0.0039 inch)

Worm photo from: Molecular Phylogeny of the Acanthocephala (Class Palaeacanthocephala) with a Paraphyletic Assemblage of the Orders Polymorphida and Echinorhynchida by Lisa Verweyen, Sven Klimpel Harry W. Palm, Published: December 05, 2011, DOI: 10.1371/journal.pone.0028285 in PLOS One, accessed 1-10-14 <http://www.plosone.org/article/info:doi/10.1371/journal.pone.0028285>



**Figure 2. Needle of the new microneedle tissue adhesive**

Images of the microneedle in a gel medium (brown photo) and in tissue, with the tip swollen in place after 10 minutes. Scale bar: 500  $\mu$ m (0.0196 inch)

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All authors discussed the results and commented on the manuscript.

The authors declare no competing financial interests. Correspondence and requests for materials should be addressed to



## World Fish Migration Day

<http://www.worldfishmigrationday.com/home#.Us40QziA2Jc>



### About WFMD

*World Fish Migration Day 2014 (WFMD) is a one day global initiative, with local events worldwide, to create awareness on the importance of open rivers and migratory fish. WFMD is held to improve the publics’ understanding of the importance of open rivers and migratory fish and their needs.*

#### What is the problem?

Free migration for fish is crucial to achieve healthy fish stocks. While most fish are migratory to some degree, some species like salmon, sturgeon, trout, dourada, shad, lamprey, giant catfish and eel migrate thousands of

Meetings are held on the first Sunday of month at the Costa Mesa Neighborhood Community Center, 1845 Park Avenue, Costa Mesa, CA, from 1:00 to 5:30 p.m., whichever comes first. COAST is an all-volunteer, 501(c)(7) Not-For-Profit Association registered with California.

<http://www.coastfishclub.com> <https://www.facebook.com/COASTFishClub> <http://groups.yahoo.com/neo/groups/coastfishclub/info>

kilometers to complete their life cycles. If they can't migrate, the population will die out. This has happened with many species in different places around the world already.

#### **The WFMD on the 24th of May 2014**

Events will be organised locally, under the umbrella of WFMD, to create awareness about open rivers and free fish migration routes. Our aim is to have more than 250 events around the world on WFMD; starting in New Zealand, following the sun and ending as the sun sets on the west coast of North America. The WFMD will bring global attention for the need for open rivers and free routes for fish migration. It will deliver international press coverage and a global petition will also be developed.

#### **We encourage organisers to be creative with their events, but here are a few examples of what could be done:**

- Field trips, e.g. to rivers, fish passages or sites where dams have been removed
- Citizen science projects
- Celebrating the opening of a new fishway
- River cruises
- Seminar for professionals on fish passage issues
- Workshops/talks for members of the public

#### **What will be done with the results?**

The global event will be summarized in a visual presentation with the key numbers of the event (number of locations, number of participants, photo's, films etc). This will be presented to politicians and high-level officers of the European Parliament and possibly to others. Furthermore we will develop a petition "for open rivers and free fish migration routes" to be signed by people around the world. This will as well be presented to politicians worldwide.

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### **One for the "Will we never learn?" category**

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#### **Himachal Pradesh to introduce genetically improved fish species**

Friday, June 07, 2013 <http://indiaeducationdiary.in/Shownews.asp?newsid=23031>

**Report by India Education bureau, Shimla:** The State Government and Directorate of Coldwater Fisheries Research (DCFR), Bhimtal, Uttarakhand will together work for increasing fish production in the State besides introducing genetically improved new fish species in high altitude lakes, cold waters and general waters of the State. A decision in this regard was taken during a meeting held here today under the Chairmanship of Shri Tarun Shridhar, Principal Secretary, Fisheries and Dr. A. Barat, Director and Dr. N.N. Pandey, Senior Scientist, DCFR.

Shri Tarun Shridhar requested the DCFR authorities to formulate a project proposal for increasing fish production after surveying and studying the existing fisheries resources. He asked the DCFR to give detail of fish species to be introduced in the State waters and their breeding biology particularly for high altitude waters.

Besides training trials for maturation of Arctic char would be undertaken by the Department of Fisheries with technical intervention of DCFR.

He said that DCFR would provide technical know-how for the breeding of Golden Mahseer and Snow Trout. The Fisheries Department would also provide farm infrastructure for raising Brood Bank of Rainbow Trout of DCFR. He said that the seed of Hungarian strain of Common Carp supplied by DCFR to the State would be raised as brooders and growth would be monitored by State officials.

#### **From the Wikipedia entry on the native food/game fish, the mahseer (*Tor genus*):**

##### **Current problems in Himachal Pradesh**

In Himachal Pradesh, golden mahseer is depleting at a fast rate from the state even though it was categorised as an endangered species by the National Bureau of Fish Genetic Resources(NBFGR)as early as in 1992.

The factors leading to this situation are mainly: 1. Distortion of rivers due to the construction of river valley projects, 2. Multipurpose dams, 3. Shrinking habitat, 4. Poaching, and 5. Exploitation.

The mahseers are commercially important game fish, as well as highly esteemed food fish. Mahseer fetch high market price, and are potential candidate species for aquaculture. Several of the larger species\* have suffered severe declines, and are now considered threatened due to pollution, habitat loss and overfish

\*The golden mahseer is the largest member of the group and one of the largest cyprinids; it has been known to reach 9 ft in length and 120 lb in weight, although specimens of this size are rarely seen nowadays.

The Himachal Pradesh area is at the base of Himalayan foothills between Pakistan and Bangladesh.

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### **Ammonia: $\text{NH}_3$ (unionized) and $\text{NH}_4^+$ (ionized)**

Ammonia is a dissolved gas present naturally in surface waters, wastewaters, and some well waters. Ammonia in water is present in two forms— unionized ammonia ( $\text{NH}_3$ ) and ionized ammonia ( $\text{NH}_4^+$ ). The sum of the two forms, expressed in units of nitrogen, is called total ammonia nitrogen, or TAN. The relative proportion of each form depends on pH and temperature. As pH and/or temperature increases, the proportion of unionized ammonia increases. Unionized ammonia is very toxic to fish, while the ionized form is much less toxic. [Table 1](#) shows maximum acceptable TAN concentrations (mg N/L) for a range of pH levels and temperatures. The toxicity of ammonia to fish also varies with the fish species and whether the fish has time to adjust to elevated levels.

**Table I. Maximum total ammonia nitrogen concentrations (mg N/L) for warmwater fish, including early life stages (adapted from U.S. EPA, 1999).**

pH	Exposure time			
	Acute (≤ 1 hr)	Chronic (days)		
		Water temperature (°F)		
		64 °F	75 °F	86 °F
7.0	36.0 mg N/L	5.5 mg N/L	3.2 mg N/L	2.2 mg N/L
7.5	20.0 mg N/L	4.0 mg N/L	2.4 mg N/L	1.6 mg N/L
8.0	8.4 mg N/L	2.2 mg N/L	1.3 mg N/L	0.9 mg N/L
8.5	3.2 mg N/L	1.0 mg N/L	0.6 mg N/L	0.4 mg N/L

(Extracted from Southern Regional Aquaculture Center Publication No. 4606, July 2013: "Interpretation of Water Analysis Reports for Fish Culture" by Nathan Stone, Jay L. Shelton, Brian E. Haggard, and Hugh K. Thomforde)



## Update on Rahul Kumar, former member of COAST

**THE HINDU** REPRINTED FROM "THE HINDU" NEWSPAPER, ONLINE  
<http://www.thehindu.com/features/metroplus/hooked-by-fish/article3480079.ece>

Thiruvananthapuram (capital of Kerala), June 1, 2012, by Saraswathy Nagarajan

# Hooked by fish

Rahul G. Kumar's unassuming house at Maruthankuzhi Junction in the city is home to Peruvians, Colombians, Brazilians, Africans... They reside in 45 aquariums in his home.

In fascinating colours and shapes, the fish lends colour to the space that Rahul has created in a shed in his compound while a room in his house also has aquariums containing fish of myriad kinds. Scientific and common names of species and sub-species roll off his tongue with ease as you scramble to get the spellings correct.

Rahul's fascination for denizens of the deep goes beyond mere hobby and aquariums. A natural scientist with a post-graduate degree in Environmental Science from the University of Mumbai, Rahul smiles when he says that it was a childhood fascination, which began at the age of five when he got his first aquarium. Later, it developed into a passion for the natural world.





Rahul G. Kumar Photo: S. Mahinsha

*Ichthyologist Rahul G. Kumar was part of a team that studied the fresh water fish of the Western Ghats for an exhaustive book on the subject. Rahul talks about the venture and his work as an expert on fish*

Currently pursuing a doctorate in Ichthyology from Madras University, Rahul says he realised that it was fish, and specifically fresh water fish, that fascinated him and so he left his studies in environmental engineering in the United States to return to India. As *MetroPlus* catches up with him, he is in the middle of preparing a presentation for an international delegation that will be in Kerala. He was part of a team that has just wrapped up a book on the freshwater fish in the Western Ghats, which should be out by the end of the year.

“After I returned to India, a lot of well-wishers felt that I should work on such a book as there was nothing exhaustive on the subject in the past 15 years or so. Most of the dependable books were written by British naturalists working in pre-Independent India,” explains Rahul reeling off the names of authors, natural scientists and writers who had written on the subject.

“Francis Day, T.C. Jerdon, and W. H. Sykes were British army naturalists who did fairly extensive documentation of the fish in Malabar, Kochi and so on. But most of it was in the 19th century. Indian authors like J.C. Jayaram and A.G.K. Menon had also published books on the subject.

“The last book, I think was by J.C. Daniel, written about 15 years ago. What we are doing is specifically on the fish in the fresh water bodies. There are 44 rivers just in Kerala and that is without counting the ponds and lakes. So I felt it was an interesting area of work. Although there were books on the birds and the mammals of Kerala, there was nothing much on the fish in the region,” he explains.

Over two years, the study covered the region south of Gujarat and moved all along the coast to Kerala, Karnataka and Tamil Nadu. Two years of hard work and long treks!

Rahul remembers a four-hour trek to a waterfall near Shimoga. By the time the team reached their destination, their feet were covered with leeches. "We pulled them off our feet and at the end of it, it looked like there was a bloody sacrifice or something," he says, showing the scars on his feet.

Another time, they were trekking along the edge of the Mudumalai wildlife sanctuary along with a forest guard who ensured that the trip turned memorable as he kept pointing to certain spots where wild elephants had gored unwary travellers. Rahul remembers how at every turn they were looking over their shoulder, expecting to see a wild bull charging at them any moment.

### **What a catch**

"When we began the study, the assumption was that there were between 270 and 290 species of freshwater fish species in the Western Ghats but our work suggests there are more," he says.

Recently, Rahul was chosen as technical adviser for a BBC team that was filming Karimeen fishing in the Vembanad. Instead of a net, the fishermen drag a long rope along the bottom of the lake. The Karimeen immediately dive into the mud to hide, two fishermen swimming behind the rope catch the fish. Rahul says this ingenious method of catching Karimeen is indigenous to Kerala.

So does the ardent fish lover eat it? "Oh, every day. The ones I eat are different from the ones I rear!" he says.

### **For new fish keepers...**

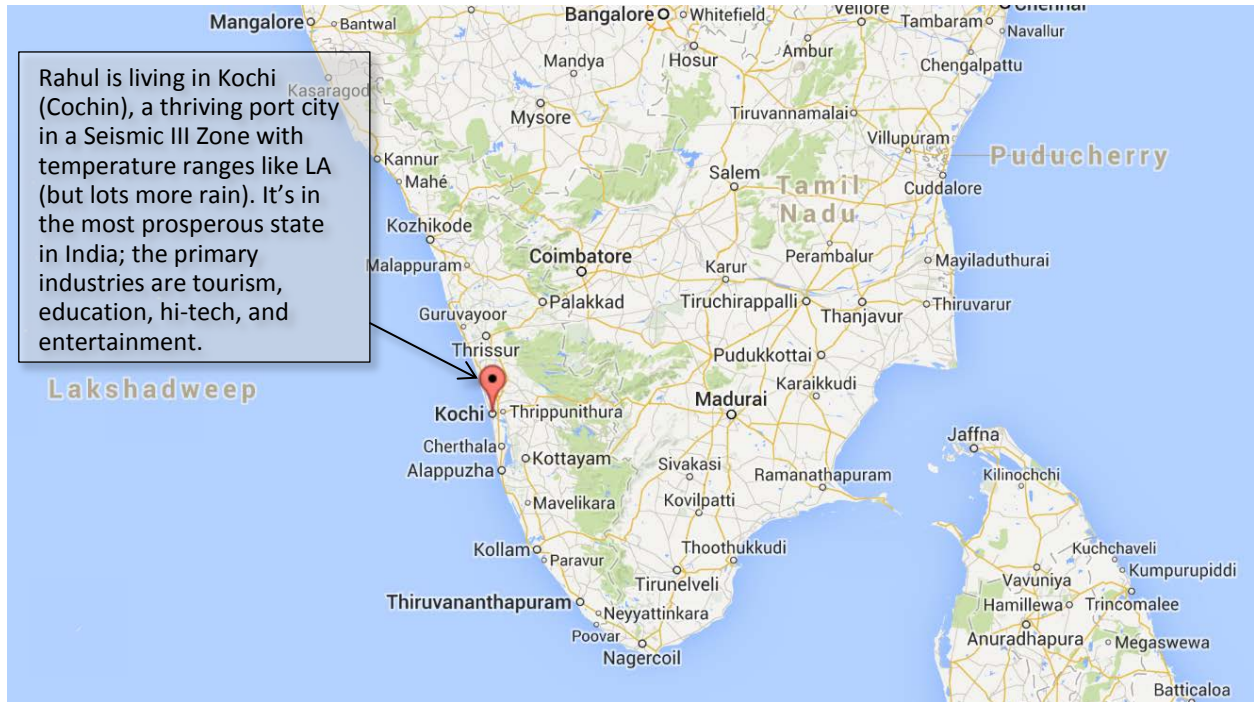
*Invest in good life-support equipment. This includes air pumps and filters. Canister or hang-on-the-back type filters are better than undergravel or power filters. A good rule of thumb is to keep about 70 per cent of your budget for the tank and filter and the rest for fish and decorations. If you have a good filter, just replace about 10-25 per cent of the water in your tank once a week and rinse the filter medium, you don't have to change all the water.*

*Resist the urge to keep adding fish to the tank.*

### **Discovery of a new species**

*The excitement of stumbling on a new species is something indescribable, he says.*

*"It seems to be just another day and suddenly you spot something that is not supposed to be there!" As it happened when they found what looked like a new kind of fish in Wayanad during the end of last year. "We sent a specimen to the Zoological Survey of India. They had also come across the same kind and when the description was published, my photograph of the fish was used. It has been named as *Puntius nigripinnis*."*



More Rahul activity:

### 'Uphold spirit of World Environment Day'

By Express News Service - KOCHI Published: 10th June 2013 12:23 PM

<http://www.newindianexpress.com/cities/kochi/Uphold-spirit-of-World-Environment-Day/2013/06/10/article1628214.ece>

Mangrove Research Centre under Fisheries Station, Puduveypu, Kerala University of Fisheries and Ocean Studies (KUFOS) conducted an awareness programme on mangroves as part of the environment week.

Environmentalist Madhusoodana Kurup inaugurated the programme by planting mangrove saplings on the banks of a fish pond. Kurup exhorted activists to uphold the spirit and slogan of the World Environment Day, 'Think, Eat and Save.'

He emphasised the importance of mangrove ecosystems in the coastal belts and appreciated the research centre for taking such an initiative. If the world develops at this pace without taking into account the environmental concerns, people will have to walk with a water bottle and oxygen cylinder in the near future. The environment is polluted at such a faster pace owing to the anthropogenic interventions and intrusions, he said. He also led a class on the mangroves of Kerala. There are 15 species of mangroves in the state which can be preserved in its absolute purity at the Fisheries Station, Puduveypu, he said.

Rahul G Kumar discussed the fish species of mangrove ecosystems with regard to various fishing areas in the country. There is enormous potential for mangrove research in Kerala for a learner, he added. K Dinesh, Assistant Professor and Head, Fisheries Station, presided over the function. K K Reghuraj, V S Sarath, Ajith

John, Devarajan, Gopinath, Nirmala Lenin and K S Murali spoke. Students and Research Scholars from KUFOS, St Albert's College and VHSS, Kudumbasree workers, SAF workers and locals of Pudukkottai attended the programme.

Hundreds of people visited the stall exhibiting the varieties of mangrove plants, seeds and saplings.

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### Rahul in his scientific mode:

#### **International Zoo Yearbook**

FRESHWATER FISHES AND THEIR CONSERVATION

*Int. Zoo Yb.* (2013) **47**: 71–80

DOI:10.1111/izy.12009

### **Conservation of freshwater habitats and fishes in the Western Ghats of India**

**R. KUMAR**<sup>1</sup> & **K. R. DEVI**<sup>2</sup>

*1 SRMJS 35, SRM Road, Cochin 682016, India, and*

*2 Retired Scientist, Zoological Survey of India, No. 16, First Canal Cross Road, Gandhinagar, Adayar, Chennai, 600028, India*

#### ABSTRACT

The Western Ghats, India, present a series of challenges and opportunities for novel approaches to conservation. Running parallel to the coast of the Indian Peninsula, the Ghats represent the western edge of the Deccan Plateau and traverse 1400 km over six states, giving rise to rivers that drain over a third of the country. A global biodiversity hotspot with varied topography housing diverse ecological niches, the Western Ghats present significant challenges to, and opportunities for, conservation. Dense human habitation near river systems and dependence on freshwater resources for livelihoods make it difficult to establish protected areas. Freshwater fishes in this region account for *c.* 40% of the freshwater fishes in India and around 189 species are endemic to the Western Ghats. All the usual threats to the fishes and their habitats are present, and the freshwater fishes of the Western Ghats are of great social and economic importance to the local community. Zoos, aquariums and the general public can play a role in conservation efforts through education and research. Utilizing traditional customs already in place, such as water bodies in the vicinity of temples where no fishing occurs, in conjunction with ecotourism and more modern technologies, such as live gene banks and cryopreservation, may ease the burden on the freshwater habitats and fishes in the region.

*(COAST members in good standing who wish to read the full article should contact [camarelius@yahoo.com](mailto:camarelius@yahoo.com).)*

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**From Wikipedia:** The Western Ghats or Sahyadri mountains run along the western edge of India's Deccan Plateau and separate it from a narrow coastal plain along the Arabian Sea. The range runs approximately 1,600 km (994 mi) from south of the Tapi River near the Gujarat–Maharashtra border and across Maharashtra, Goa, Karnataka, Kerala and Tamil Nadu to the southern tip of the Deccan peninsula. The average elevation is around 1,000 m (3,281 ft). Anai Mudi in the Anaimalai Hills 2,695 m (8,842 ft) in Kerala is the highest peak in the Western Ghats. The Western Ghats are not true mountains, but are the faulted edge of the Deccan Plateau. Basalt is the predominant rock found in the hills reaching a depth of 3 km (2 mi). Other rock types found are

charnockites, granite gneiss, khondalites, leptynites, metamorphic gneisses with detached occurrences of crystalline limestone, iron ore, dolerites and anorthosites. Residual laterite and bauxite ores are also found in the southern hills.



## *Pelvicachromis* sp. affin. *subocellatus* finally gets a name

From: The Cichlid Room Companion, August 2, 2013 posted by Juan Miguel Artigas Azas

*Pelvicachromis silviae* has been described by Anton Lamboj as the official name for *Pelvicachromis* sp. affin. *subocellatus*. The provisional name has its origin as far back as 1968 by Thys van den Audenaerde. It had to wait a long time to get an official name. The beautiful name *silviae* is given by Anton to honor his wife Silvia, who apparently has been more than patient with him in regards to all of his fish trips and hard working habits. The type locality was stated in the Niger Delta at Ughelli [Nigeria]. It had always been a mystery where exactly this fish came from. An extensive diagnosis against all *Pelvicachromis* species is offered, from which *Pelvicachromis silviae* differs in combinations of traits.

### Excerpt from the formal description in *Cybbium*, published by the Société Française d'Ichthyologie:

**"A new dwarf cichlid (Perciformes) from Nigeria". Lamboj, Anton. 2013. *Cybbium*. v. 37(n. 3), pp. 149-157**

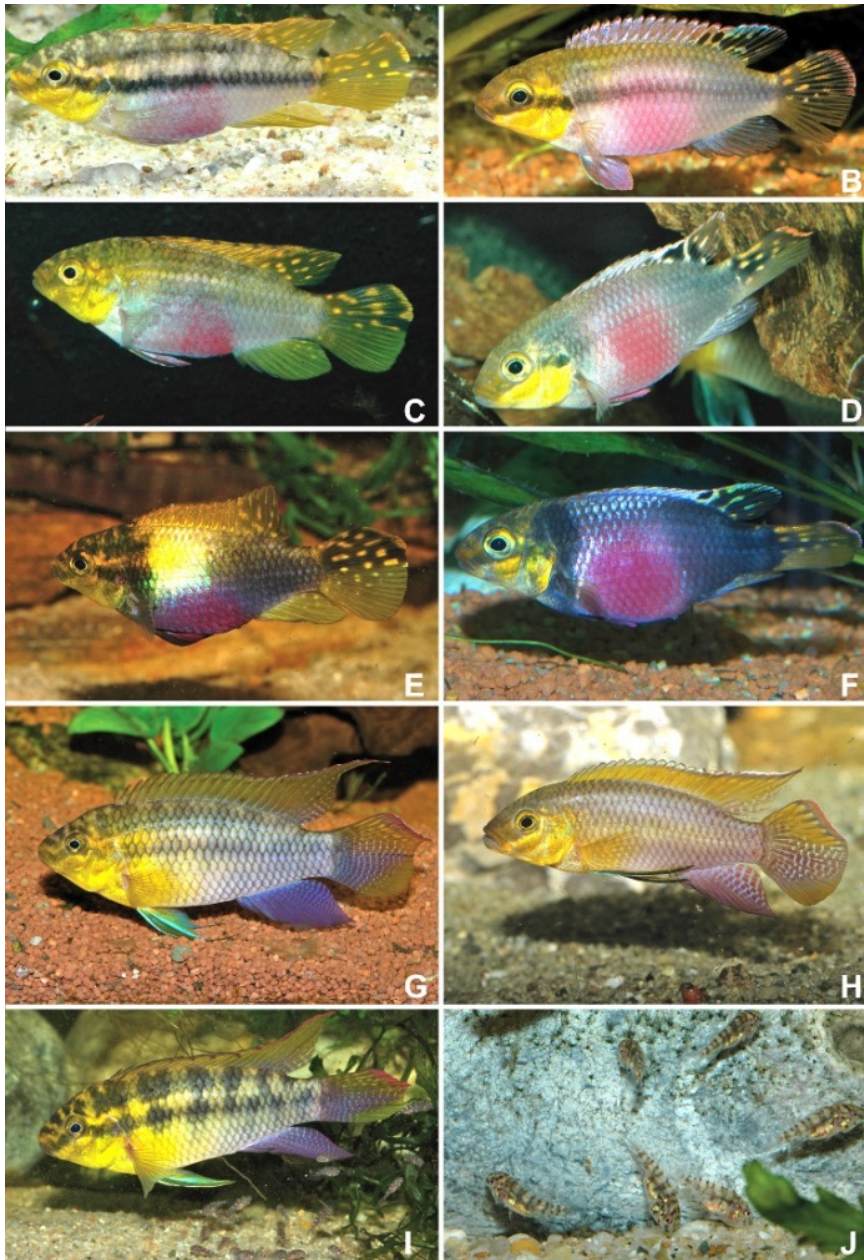
Abstract. – *Pelvicachromis silviae*, a new cichlid species, is described. It differs from congeners by unique coloration of females and a combination of morphological characters, e.g. greater body depth, shorter snout length, greater eye orbit diameter and several other meristic parameters. The species occurs in the lower Niger River system and seems to represent within the genus a closer relative to *P. subocellatus*.

The genus *Pelvicachromis* sensu Thys van den Audenaerde, 1968, contains 10 described species. One additional species is known from a colour slide at least since 1968, as mentioned in Thys van den Audenaerde (1968).

Thys van den Audenaerde received the slide from W. Heiligenberg and transported the species under the name *P. sp. affin. subocellatus*, considering it to be a Nigerian subspecies or vicariant species of *P. subocellatus* (Günther, 1871). Subsequently, this name had been used in the aquarium hobby, where over the decades this species had been imported frequently from Nigeria.

Curiously, this species is nearly not found in museum collection, and the name used by Thys van den Audenaerde did not occur in any scientific literature (e.g. Greenwood, 1987). The only preserved specimen I could find over the years has been a female in the MRAC collection, deposited as *P. pulcher* (Boulenger, 1901) (see material). No other scientific collection nor any well documented sample by trade or private persons had been available, until 2010, when M. Hakansson from Imazoo (Sweden) had been able to get a commercial import with locality data given by the collector and to make specimens available for a description.

All specimens were imported for ornamental fish trade, and were not preserved or measured.



**A: Female of *P. silviae***; B: Female of *P. subocellatus*, both in normal coloration, possessing the two lateral bands  
**C: Female of *P. silviae***; D: Female of *P. subocellatus* in normal coloration without lateral bands  
**E: Female of *P. silviae***; F: Female of *P. subocellatus* in courting display  
**G: Male of *P. silviae***; H: Male of *P. subocellatus*  
**I: Male of *P. silviae*** guarding fry, notice the pattern of diffuse vertical bars from dorsum to midbody  
**J: Juveniles of *P. silviae*** with an age of about 2 weeks, before getting adult coloration.

**Figure 3. Coloration patterns of *Pelvicachromis silviae* for both sexes in different behavioural situations, in comparison with *P. subocellatus* from Lower Congo, Moanda region.**



## *Puntius denisonii* and *Puntius chalakkudiensis* assigned to a genus of their own

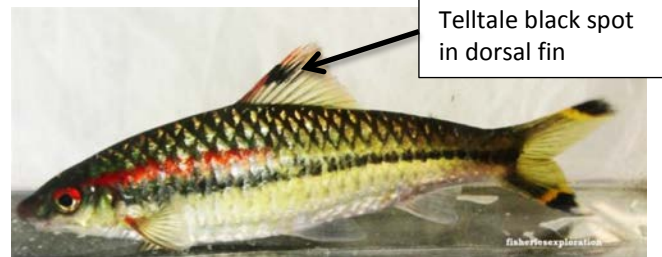
And two *Puntius* species have been reassigned to a new genus of their own, *Sahyadria*, as defined by Rajeev Raghavan, Siby Philip, Anvar Ali, and Neelesh Dahanukar in the November 26, 2013 issue of the Journal of Threatened Taxa. *Sahyadria* is taken from the local name for the Western Ghats mountain chain, Sahyadri.

They are found in four locations Cheenkannipuzha (a major tributary of Velapattanam River), the Achankovil river, the Chaliyar river and near Mundakayam town. A similar fish, *Sahyadria chalakkudiensis* also is enlisted

*Puntius denisonii* and *Puntius chalakkudiensis* will be known henceforth as *Sahyadria denisonii* (F. Day, 1865) and *Sahyadria chalakkudiensis* (Menon, Rema Devi & Thobias, 1999).



*Sahyadria denisonii* from Wikipedia



*Sahyadria chalakkudiensis*, by Sajan S, fisheriesexploration

Now, if we can just figure out how to say *Sahyadria*....

## *Puntius denisonii* captive breeding method standardized

Captive Technology Breeding of *Sahyadria denisonii* has been standardised by Dr. T.V. Anna Mercy. The technology is transferred to the research assistants of State Fisheries Department, Azheekode hatchery, Ernakulam. They are producing this species in large numbers under captive conditions and those who want the fish may contact Mr. Suhair or Mr. Santhosh of the hatchery. It is the only place in India where this fish is successfully produced under hatchery conditions. Anna Mercy, T.V. Professor Faculty of Fisheries Kerala University of Fisheries and Ocean studies Panangad, P.O.



Recipe from National Oceanic and Atmospheric Administration (NOAA) Fisheries at [http://www.fishwatch.gov/eating\\_seafood/recipes/apricot\\_glazed\\_swordfish.htm](http://www.fishwatch.gov/eating_seafood/recipes/apricot_glazed_swordfish.htm)

## Apricot Glazed Swordfish Recipe

### Ingredients:

- 4 5-ounce portions (fillets) of swordfish
- 1 cup apricot preserves
- 4 cups orange juice
- 2 teaspoons fresh ginger, minced
- 1 cinnamon stick

Meetings are held on the first Sunday of month at the Costa Mesa Neighborhood Community Center, 1845 Park Avenue, Costa Mesa, CA, from 1:00 to 5:30 p.m., whichever comes first. COAST is an all-volunteer, 501(c)(7) Not-For-Profit Association registered with California.

<http://www.coastfishclub.com> <https://www.facebook.com/COASTFishClub> <http://groups.yahoo.com/neo/groups/coastfishclub/info>

White pepper, to taste  
Kosher salt, to taste  
Olive oil, as needed

**Directions:**

1. In a small saucepot over medium high heat, add orange juice, ginger, and cinnamon stick. Reduce mixture by 70%. Whisk in apricot preserves making sure to melt out any lumps. Strain through a fine mesh sieve into a bowl and reserve for future use.
2. Preheat oven to 375 degrees.
3. Heat a large skillet over medium high heat. Season swordfish on both sides with salt and white pepper. Add oil to pan.
4. When pan generates a small amount of smoke, place filets face side down into pan. When swordfish has achieved proper browning flip over and continue to cook for 20 seconds.
5. Place swordfish on a greased sheet pan face side up and liberally coat them with the apricot glaze.
6. Place swordfish in the oven to finish cooking. About one minute before the swordfish is finished, apply another coat of the apricot glaze to the swordfish and place back in oven until finished.

## Choosing Quality Fresh Fish for Dinner

It's pretty simple to choose quality, fresh seafood. Just use your senses - smell, sight, touch...and even common sense! First and foremost, buy seafood from knowledgeable, reputable dealers: those you trust with a known record of proper handling practices. Our seafood inspectors often say "the nose knows" - if a seafood counter or freezer case smells fishy, go somewhere else. Fresh, quality seafood should smell like the ocean, not sour or fishy.

Keep an eye out for general cleanliness and proper handling, too. Seafood should be properly iced and refrigerated or frozen.

- When purchasing whole fish or fish fillets, look for firm flesh. If you press the fish with your finger and it leaves an indentation, it's not the highest quality. Also, look for shiny flesh. Dull flesh might mean that the fish is old. Fish fillets that have been previously frozen might not have as shiny flesh due to the freezing process, but are still great to eat.
- Whole fish should have bright, clear, full eyes that are often protruding. As the fish loses freshness, the eyes become cloudy, pink, and sunken. Their gills should be bright red or pink.
- Check to make certain that there is no darkening or brown or yellowish discoloration around the edges of the fish fillets and steaks, especially if the edges appear dry or mushy. If you're still uncertain about how fresh the fish is, ask to have it rinsed under cold water and then smell it. Fresh fish should have no fishy or ammonia smell.



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## Choosing Quality Frozen Fish for Dinner

Most frozen fish today compares in quality to fish directly out of the water. Fresh catches are immediately processed and frozen at very low temperatures, frequently right on board the vessel. When buying frozen fish keep in mind the following guidelines:

- Whole fish should be free of ice crystals, with no discoloration.
- Fillets or steaks should be solidly frozen in the package.
- There should be no evidence of drying out, such as white spots, dark spots, discoloration or fading of red or pink flesh.
- There should be no signs of frost or ice particles inside the package. If ice crystals are present, the fish has either been stored for a long period or thawed and refrozen. There should be no liquid, frozen, or thawed evident in the package.
- Make sure there are no open, torn, or crushed edges on the packages.
- Avoid packages that are above the frost line in a store's display freezer.



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## State and federal agencies—Crooks who got caught being despicable last year

Along with state and federal partners, NOAA Office of Law Enforcement boards fishing vessels at sea; inspects fish processing plants; reviews internet sales of wildlife products; patrols land, air, and sea; and conducts complex criminal and civil investigations—all to combat seafood fraud. Enforcement agents and officers and the U.S. Department of Justice investigate and prosecute allegations of seafood fraud primarily under the Lacey Act, which is triggered when someone illegally harvests, possesses, transports, or sells fish and then proceeds to channel that illegal product into interstate or foreign commerce. The Lacey Act also makes it illegal to falsely label a product destined for commerce. With several convictions under their belt, NOAA Office of Law Enforcement helps ensure that legitimately harvested and marketed seafood is not undercut by mislabeled products, protecting fish, honest businesses, and seafood consumers.

You can help combat seafood fraud, too—report any suspected fraudulent activities on the NOAA Enforcement Hotline at 1.800.853.1964.

### *Inspection finds deception*

Many state and federal agencies including the U.S. Food and Drug Administration (FDA) and the Department of Commerce work together to ensure that the seafood we buy is safe, wholesome, and properly labeled.

With a mission to protect public health, the FDA is concerned about seafood fraud because of the potential health risks associated with mislabeled seafood. The agency maintains The Seafood List, a list of acceptable

market names for seafood sold in the U.S. market, to aid in the proper labeling of seafood and the Regulatory Fish Encyclopedia to help identify seafood species. This online encyclopedia houses high-quality images of whole fish and their product forms (for example, fillets and steaks) as well as taxonomic, geographic, and other relevant tools for species identification. The FDA also runs a mandatory fish inspection program for all seafood processors and retailers, both domestic and international. The program works by preventing food safety problems from developing rather than testing food after production to see if it is safe, with periodic inspections to ensure compliance.

Part of the Department of Commerce, NOAA's Seafood Inspection Program provides a voluntary, fee-based inspection service to fishing boats, processing plants, and retailers to ensure compliance with all seafood regulations from whole fish to processed products. Inspectors verify label accuracy, including country of origin, net weight, and species identification. NOAA's seafood inspectors see about one-fifth of the seafood consumed in the United States every year and find some kind of fraud in at least 40 percent of all products submitted to them voluntarily. If a seafood business passes inspection, it is considered an "Approved Establishment" and may carry a U.S. Grade A or U.S. Department of Commerce-inspected label on its products. If the label doesn't tell you, ask your fishmonger if it's from an Approved Establishment. NOAA's Seafood Inspection Program also supports NOAA Fisheries Office of Law Enforcement, tipping them off to violations to investigate and serving as experts in the prosecution of cases.

### *NOAA, the FDA, and DNA*

Processing seafood removes or damages characteristics crucial for accurately identifying a species, making traditional methods of identification insufficient. During the past several years, the development of technology to identify fish through genetic analysis has given new hope to the fight against seafood fraud. Since an organism's genetic information (DNA) is contained in all of its tissues, scientists can accurately determine the identity of a species from a tiny sample of a fish in a variety of conditions—raw, frozen, or cooked fish fillets, canned fish, dried tissue, and even fish scales. To identify the species, they compare DNA from the unknown sample to DNA from known species using a reference library of DNA sequences.

NOAA scientists have been using advanced molecular genetics tools to analyze samples and accurately identify species for the past two decades. The Northwest Fisheries Science Center's Forensics Unit on the West Coast and the National Centers for Coastal Ocean Science's Marine Forensics lab on the East Coast work together to cover the forensic identification needs of NOAA Office of Law Enforcement's civil and criminal investigations of seafood fraud. Their genetic analysis of evidence requires databases of DNA of known species. Since many public DNA databases lack the verification and critical sample information necessary for forensic casework, these labs have developed their own in-house databases for marine species. In addition, in collaboration with the University of Washington, the Northwest Center's lab has established a forensic voucher collection for marine fish. This collection is linked to the Barcode of Life, an international DNA barcoding effort, and is available to the public.

The FDA shares an interest in seafood fraud cases that involve food safety (as opposed to economic or resource management) concerns. Working with the Smithsonian Institution, the FDA has developed a regulatory database of DNA sequences for hundreds of popular seafood species. This library is also available to the public and outside

laboratories. The FDA also recently announced that it will expand its use of DNA testing in its inspections of seafood suppliers.

(Information from the Swordfish recipe to the FDA’s use of DNA for inspection comes from NOAA websites.)



(Illustration from the Biodiversity Heritage Library)

Department of Justice, Office of Public Affairs  
 FOR IMMEDIATE RELEASE, Tuesday, January 7, 2014

***Tennessee Men Plead Guilty to Illegally Trafficking Narwhal Tusks***

Jay G. Conrad, of Lakeland, Tenn., pleaded guilty today in the District of Maine to conspiring to illegally import and traffic narwhal tusks, conspiring to launder money, and illegally trafficking narwhal tusks, announced Robert G. Dreher, Acting Assistant Attorney General for the Environment and Natural Resources Division . A plea agreement was also unsealed today in which Eddie T. Dunn, of Eads, Tenn., pleaded guilty in the District of Alaska to conspiring to illegally traffic, and trafficking, narwhal tusks.

According to the plea agreements, beginning in approximately 2003, Dunn and Conrad partnered to buy more than 100 narwhal tusks from a Canadian resident who each knew had illegally imported the tusks from Canada into Maine... Dunn sold approximately \$1.1 million worth of narwhal tusks and Conrad sold between \$400,000 and \$1 million worth of narwhal tusks as members of the conspiracy.

Dunn is scheduled to be sentenced by U.S. District Judge Ralph R. Beistline in the District of Alaska on March 20, 2014. The maximum penalty Dunn faces for conspiring to illegally traffic, and trafficking, narwhal tusks is five years of incarceration and a fine of \$250,000. The maximum penalty Conrad faces for conspiring to illegally import and illegally traffic narwhal tusks, conspiring to commit money laundering crimes and illegally trafficking narwhal tusks is twenty years of incarceration and a fine of \$250,000. The trial of Co-defendant Andrew J. Zaruskas is set to begin in Bangor, Maine, on February 4, 2014. Co-defendant Gregory R. Logan is pending extradition from Canada to the District of Maine.

## Canadian Citizen Arrested for Money Laundering in Connection with Illegal Importation and Trafficking of Narwhal Tusks

Department of Justice, Office of Public Affairs FOR IMMEDIATE RELEASE Thursday, December 19, 2013—  
A Canadian man was arrested today in St. John, New Brunswick, Canada, on an extradition warrant requested by the United States for money laundering crimes related to the illegal importation and illegal trafficking of narwhal tusks, announced Robert G. Dreher, Acting Assistant Attorney General for the Environment and Natural Resources Division .

On Nov. 14, 2012, a federal grand jury sitting in Bangor, Maine, returned an indictment that was partially unsealed today upon the arrest of Gregory R. Logan of Grand Prairie, Alberta, Canada. The indictment also names Jay G. Conrad of Lakeland, Tenn., and Andrew L. Zaruskas of Union, N.J.... If convicted of these charges, the defendants each face up to twenty years in prison on each of the most serious charges, as well as fines up to \$250,000.

## *Prison Awaits Florida Marine Life Dealers*

December 3, 2013--Two Florida businessmen will spend 24 months and 12 months respectively in Federal prison for conspiring to sell unlawfully harvested live rock, sea fans, and sharks to wholesalers throughout the United States and overseas. The pair must also pay \$16,000 in fines.

## Two Florida Marine Life Dealers Plead Guilty in Trafficking Conspiracy

September 26, 2013--Two Florida men have admitted in Federal court that they conspired to harvest and transport marine species from the Florida Keys to buyers throughout the United States and overseas. Live rock and attached invertebrates; sea fans; and bonnethead, lemon, and nurse sharks were among the species unlawfully collected from the Florida Keys National Marine Sanctuary, Service national wildlife refuges, and State waters by these marine life dealers.

## Florida Marine Life Company Charged for Wildlife Trafficking Conspiracy

July 02, 2013--Key Marine, Inc., a corporation operating out of Grassy Key, Florida, and two Florida men have been charged with conspiracy (a Federal felony) in connection with the illegal harvest and interstate and international sale of marine wildlife unlawfully taken from the Florida Keys National Marine Sanctuary and State waters. Trafficked species included live rock and attached invertebrates, sea fans, and bonnethead, lemon and nurse sharks.

## *Florida Company Sentenced for Wildlife Trafficking*

June 21, 2013--A company dealing in marine species pleaded to conspiracy to violate the Lacey Act in connection with the illegal harvest, transport, and interstate sale of juvenile nurse sharks and angelfish taken from Florida waters in violation of State law. The company was placed on supervised probation for three years and was ordered to pay a \$3,000 criminal fine and surrender all State and Federal licenses, permits, and endorsements in its possession.

### *Aquarium Operators Sentenced for Marine Life Trafficking*

December 3, 2013--Two officers of the Idaho Aquarium have been sentenced to prison terms for conspiring to harvest, transport and sell spotted eagle rays and lemon sharks in violation of Florida State laws and the Lacey Act. One will serve a one-year prison term while the other, who cooperated with investigators, was sentenced to four months in prison. The pair, Ammon Covino and Christopher Conk, also own the new aquarium that opened in Portland this past December.

### *Michigan Store Owner Pleads Guilty to Conspiracy*

December 3, 2013--The owner of an aquarium store in Romulus, Michigan, pleaded guilty to felony conspiracy in connection with the purchase and sale of illegally acquired marine life, including sea fans, ornamental tropical fish, sharks, and alligators. A co-defendant entered a similar plea in November.

### *Company Caught with Contraband Caviar Cosmetics*

August 26, 2013--A Miami customs broker pleaded guilty to a felony violation of the Lacey Act in connection with the illegal importation of multiple shipments of cosmetics made from Siberian sturgeon caviar. The shipments arrived in the United States without the required Convention on International Trade in Endangered Species (CITES) permit and were not declared as wildlife.

### *Service/State Investigation Exposes Paddlefish "Caviar" Trafficking*

March 18, 2013--Eight men involved in the black market purchase and interstate or international sale of American paddlefish roe were arrested last week in a multi-State "takedown of a joint undercover investigation conducted by the Service and the Missouri Department of Conservation. Officers from these agencies and eight other States also contacted more than 100 suspects to issue State citations and conduct interviews.

### *Former Jewelry Company Executive Sentenced to Pay \$1.1 Million in Fines and Community Service for Illegal Trade of Protected Black Coral*

**Department of Justice** Office of Public Affairs, FOR IMMEDIATE RELEASE Thursday, February 7, 2013--Ashu Bhandari, the former president and CEO of GEM Manufacturing LLC, a U.S. Virgin Islands-based company, was sentenced Thursday in federal court in St. Thomas, U.S.V.I., for felony customs violations for his role in a scheme to illegally import protected black coral into the United States, the Department of Justice announced. Bhandari is the last defendant to be sentenced as the result of a far reaching investigation into the illegal trade in black coral. The scheme cost Bhandari's company, GEM Manufacturing, millions of dollars in financial penalties and sent two of his trading partners to prison.

At today's hearing, the court imposed a criminal fine of \$918,950 and sentenced Bhandari to one month in jail, to be followed by one month of home confinement and one year of supervised release, during which Bhandari would be required to complete 300 hours of community service and be banned from any business venture involving coral or coral products. In addition to the fine, Bhandari will be required to pay \$229,687 to the University of the Virgin Islands to be used for community service projects designed to research and protect black

corals. The court recognized that Bhandari's sentence was based, in part, on his cooperation with federal investigators in related illicit coral trafficking cases.

On Oct. 26, 2011, in the related case of U.S. v. GEM Manufacturing LLC, Case No. 2011-19 (D. Virgin Islands), GEM was sentenced to criminal financial penalties and forfeitures exceeding \$4.47 million and three and a half years of probation that included a 10-point compliance plan that incorporated an auditing, tracking and inventory control program. GEM was also banned from doing business with its former coral supplier, Peng Chia Enterprise Co. Ltd. and its management team of Ivan and Gloria Chu. Ashu Bhandari was the individual known as "Co-conspirator X" in the related case of U.S. v. Gloria and Ivan Chu, Case No. 2010-003 (D. Virgin Islands). In January 2010, federal agents arrested the Chus as part of a sting operation in Las Vegas. The Chus were subsequently indicted in 2010 for illegally providing black coral to GEM.

### *Milpitas Man Pleads Guilty to Illegal SF Bay Shark Sale Scheme*

US Central District Court SAN FRANCISCO - February 1, 2013--Dean Trinh pleaded guilty in federal court in San Francisco today to Conspiracy, Lacey Act violations, and Wire Fraud, for his involvement in the illegal capture and sale of California leopard sharks and nurse sharks, United States Attorney Melinda Haag announced.

In pleading guilty, Mr. Trinh admitted to taking undersized California leopard sharks from the San Francisco Bay and selling them to customers in Canada and Florida, through his business, AquatopUSA LLC, High Tech Auctions and Hightechauction.com. Trinh also admitted that he conspired to transport, sell, receive, acquire, and purchase illegally collected nurse shark pups over the internet, knowing that they were taken, possessed, transported, sold, and intended to be sold in violation of the laws and regulations of the State of Florida.

Trinh, 43, of Milpitas, California, was indicted by a federal Grand Jury on May 23, 2013, in the Northern District of California, with three counts of violating the Lacey Act, in violation of 16 U.S.C. § 3372(a)(2)(A) and § 3372(a)(4), and nine counts of Wire Fraud, in violation of 18 U.S.C. § 1343. On November 1, 2012, in the Southern District of Florida, Trinh was charged with one count of Conspiracy in violation of 18 U.S.C. § 371. Under the plea agreement, Mr. Trinh pled guilty to all counts in both cases.

The sentencing of Mr. Trinh is scheduled for November 12, 2013, before The Honorable Richard Seeborg, United States District Court, Judge in San Francisco. The maximum statutory penalty for each count in violation of the Lacey Act... is 5 years imprisonment, 3 years supervised release, a fine of \$250,000, plus restitution; for each count of Wire Fraud... the maximum penalty is 20 years imprisonment, three years supervised release, a \$250,000 fine, plus restitution. The statutory maximum penalty for Conspiracy... is 5 years imprisonment, 3 years supervised release, a \$250,000 fine, plus restitution.

### **Shark Trafficker Faces Coast-to-Coast Charges**

June 18, 2013--A California marine life dealer involved in the illegal harvest and sale of juvenile nurse sharks in Florida and young leopard sharks from California waters has been charged with Federal wildlife violations in both States. In 2012, a Federal grand jury in Miami charged this marine life/aquarium wholesaler with three counts of Lacey Act violations. In May 2013, the defendant was also charged with six counts of felony wire fraud in the Northern District of California. The Miami indictment, which also named a now-deceased co-conspirator, was unsealed last week.

## *Eight Arrested In Puerto Rico On Charges Of Illegal Trade In Endangered Sea Turtles For Human Consumption*

DEPARTMENT OF JUSTICE, FOR IMMEDIATE RELEASE, JULY 19, 2013--WASHINGTON – Federal authorities arrested eight people in the cities of Arroyo and Patillas, Puerto Rico, yesterday on felony and misdemeanor charges for the illegal take, possession and sale of endangered sea turtles and their parts for human consumption as well as aiding and abetting violations of the Endangered Species and Lacey Act, announced Robert G. Dreher, the Acting Assistant Attorney General for the Justice Department's Environment and Natural Resources Division and Rosa Emilia Rodríguez-Vélez, U.S. Attorney for the District of Puerto Rico. Roberto Guzman Herpin, 34, Madelyne Montes Santiago, 37, Edwin Alamo Silva, 50, Juan Soto Rodriguez, 45, Ricardo Dejesus Alamo, 33, Jose Javier Rodriguez Sanchez, 40, Iris Lebron Montanez, 53, and Miguel Rivera Delgado, 55, all residents of Patillas and Arroyo, were arrested Thursday and made their appearances in federal court. If convicted, the defendants face a maximum sentence of five years in prison and a \$250,000 fine.

In 2011, the FWS initiated an undercover operation to investigate the illegal trade in sea turtles for human consumption. During this investigation, it was determined that these illegal sales of sea turtle meat, confirmed through DNA analysis conducted by the FWS Forensic Lab, have resulted in the illegal take of 15 individual endangered hawksbill sea turtles (*Eretmochelys imbricate*) and 7 endangered green sea turtles (*Chelonia mydas*).

## *New York Coral Smuggler Sentenced*

US FISH AND WILDLIFE, For Immediate Release July 12, 2013--Today Joseph Russo, co-owner of Russo's Reef, a New York wholesale marine supplier, was sentenced in a Manhattan federal court for illegally importing rare live coral. Russo must serve one year and one day in prison, pay a \$6,000 fine, pay \$523,835 restitution to the government for the estimated street value of more than 16,000 pieces of illegally imported coral, and have three years of supervised probation. Russo is also prohibited from possessing internationally protected coral.

Back in March, Russo pleaded guilty to one felony count of smuggling protected coral after an 18-month investigation led by the U.S. Fish and Wildlife Service's Valley Stream, New York Office of Law Enforcement.... The investigation revealed that between 2007 and 2012 Russo routinely illegally imported live stony corals from foreign suppliers.

## *U.S. Attorney Charges 7 with Smuggling Swim Bladders of Endangered Fish Worth Millions on Black Market...*

US Attorney, Southern District, For Immediate Release, April 24, 2013--When Song Shen Zhen came through a border crossing in Calexico recently, an officer noticed something under the floor mats in the back seat. But the plastic grocery bags he found weren't filled with typical border contraband. They contained 27 dried swim bladders taken from the endangered *Totoaba macdonaldi* fish. The *Totoaba*'s large swim bladder – which is an internal gas-filled organ that helps a fish control its buoyancy - is highly prized for use in Chinese soups and is considered a very expensive delicacy. But because the species is federally-protected in both the U.S. and Mexico, it's illegal to take, possess, transport or sell *Totoaba*.

On Friday, Zhen became the seventh person charged by the U.S. Attorney's Office with Totoaba smuggling since February, when border officers first started noticing the rare fish under floor mats and concealed in coolers in the vehicles of border crossers. Agents found an additional 214 swim bladders at [Zhen's house in Calexico], bringing Zhen's total to 241, according to court documents. Agents estimated that if sold into foreign markets, the 241 Totoaba bladders could conservatively be worth more than \$3.6 million. Black market value in the U.S. is about \$5,000 per bladder and \$10,000-plus in certain foreign Asian markets.

### Other Totoaba smuggling cases since February:

-Defendant Oi "Sean" Chung is charged with smuggling 11 swim bladders into the U.S. on February 27th.

-According to a complaint, defendant Anthony Sanchez Bueno drove into the United States from Mexico on March 30 with three coolers which contained a top layer of fish fillets, concealing 170 Totoaba swim bladders (225 lbs)...undercover agents delivered the coolers to defendant Jason Xie, who was waiting in a hotel parking lot in Calexico. Xie stated that he had purchased an earlier load of [100] swim bladders from the same individual in February, and paid \$1,500-\$1,800 per swim bladder.

-On April 1, a defendant in another unrelated case, Raquel Castaneda, attempted to smuggle 28 Totoaba swim bladders into the U.S., but was thwarted by inspectors

During the period from February 16 to April 13, 2013, border inspectors in Calexico have seized approximately 483 pounds of Totoaba, representing the swim bladders of over 500 endangered fish.

### *Grand Jury Indicts Santa Monica Restaurant and Sushi Chefs on Federal Charges Related to Sale of Protected Whale Meat*

LOS ANGELES – A federal grand jury has returned a nine-count indictment that charges a now-shuttered Santa Monica sushi restaurant and two men who worked there as chefs with selling meat from Sei whales, which are protected under the Marine Mammal Protection Act.

The indictment, which was filed yesterday afternoon charges:

- Typhoon Restaurant, Inc., which is the parent company of the now-closed The Hump Restaurant, which was located at the Santa Monica Airport;
- Kiyoshiro Yamamoto, 48, of Culver City; and
- Susumu Ueda, 39, of Lawndale.

The indictment accuses the three defendants of conspiring to import and sell whale meat, specifically meat from Sei whales, which are listed as an endangered species.

Yamamoto and Ueda allegedly ordered the whale meat from Ginichi Ohira, a Japanese national who previously pleaded guilty to a misdemeanor charge of illegally selling a marine mammal product. Once Ohira received the whale meat in the United States, he prepared an invoice that incorrectly described the meat as fatty tuna and delivered the whale meat to The Hump, according to the indictment that describes a conspiracy that last from 2007 into 2010.





## Fish and Wildlife Service Studying the Import and Export of 11 Species of Fish and Crustaceans—Declaration Form 3-177 must now identify those species individually, line by line

<http://www.fws.gov/le/publicbulletin/10-22-2013-Filing-Changes-Affecting-Import-and-Export-of-Fish-and-Crustaceans.pdf>

October 22, 2013

**Background:** The Service's Branch of Aquatic Invasive Species has been studying 10 freshwater fish and 1 crayfish species from other countries because they have a potentially high risk of becoming invasive in the United States. The 11 species are not currently found in the wild in the United States, but may be imported in the live aquarium, fish farm, scientific, food, or other trades. The Service wishes to determine the extent to which these species are imported into the United States and whether these species are exported to other countries.

**Action:** Effective November 12, 2013, all importers and exporters must separate any specimens of the species of concern identified below on different lines of the declaration form (Form 3-177, whether filed electronically or in paper form). Declarations that combine these species as one line item of freshwater fish or crustaceans will be rejected for correction.

The following species must be individually identified on Form 3-177:

Family Cyprinidae:

*Carassius carassius* (Crucian carp)  
*Carassius gibelio* (Prussian carp)  
*Phoxinus phoxinus* (Eurasian minnow)  
*Pseudorasbora parva* (stone moroko)  
*Rutilus rutilus* (roach)

Family Centropomidae:

*Lates niloticus* (Nile perch)

Family Odontobutidae:

*Percottus glenii* (Amur sleeper)

Family Percidae:

*Perca fluviatilis* (European perch)  
*Sander lucioperca* (zander)

Family Siluridae:

*Silurus glanis* (wels catfish)

Family Parastacidae:

*Cherax destructor* (common yabby or crayfish)

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## *Detector Dogs Set to Sniff Out Smuggled Wildlife*

April 4, 2013--The US Fish and Wildlife Service's first professional wildlife detector dog teams just completed training and will soon be on the job at four of the Nation's busiest ports of entry. The dogs and their wildlife inspector handlers will boost the Service's ability to intercept the smuggling of wildlife parts and products, including elephant ivory and rhino horn.



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From the Monterey Bay Aquarium (or the Marine Conservation Society, if you're on their website) comes this mobile phone/tablet access you can use when deciding what seafood to buy for dinner, at the grocery store or a restaurant (and where a restaurant is that offers wisely chosen species):

## **Seafood Watch App for Android & iPhone®**

**[from Monterey Bay Aquarium] Our app brings you up-to-date recommendations for ocean-friendly seafood and sushi.**

And now the newest version, with Project FishMap, lets you share the locations of restaurants and markets where you've found sustainable seafood. As the map grows, you'll also be able to see what others have found near you.

Help us map the businesses and restaurants in your area! Together we'll make it easy to find ocean-friendly seafood wherever you are.



<http://itunes.apple.com/us/app/seafood-watch/id301269738?mt=8>



[https://market.android.com/details?id=org.montereybayaquarium.seafoodwatch&feature=search\\_result](https://market.android.com/details?id=org.montereybayaquarium.seafoodwatch&feature=search_result)

For more information:

[http://www.seafoodwatch.org/cr/seafoodwatch/web/sfw\\_iphone.aspx](http://www.seafoodwatch.org/cr/seafoodwatch/web/sfw_iphone.aspx)

<http://mobile.seafoodwatch.org/>

(Their mapping/restaurant pocket guides come in regional editions as shown at the right of the figure that follows.)

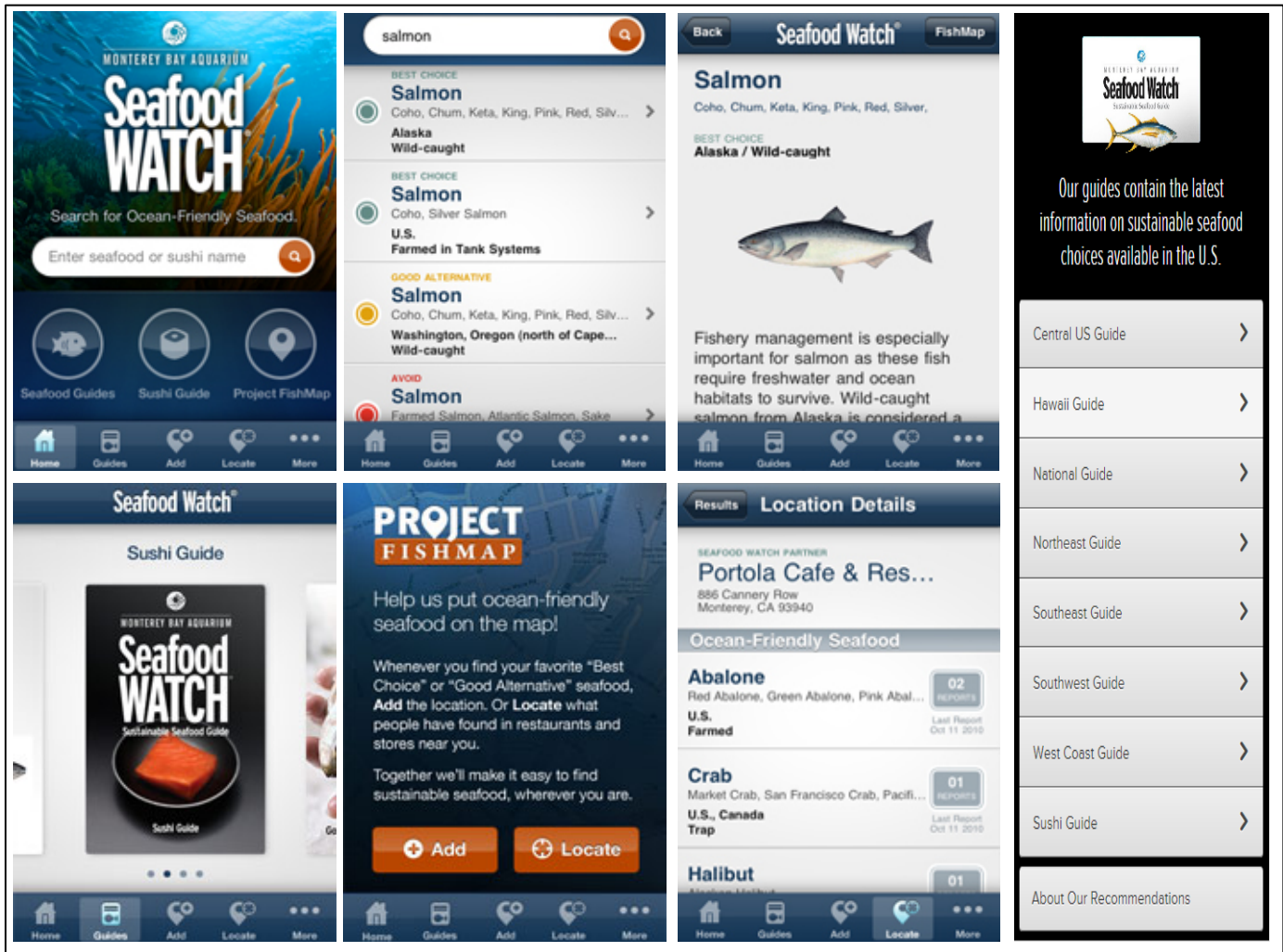


Figure 4. Seafood Watch mobile app screens

*How Does Seafood Watch Develop Recommendations?*

Our scientists research government reports, journal articles and white papers. They also contact fishery and fish farm experts. After a thorough review, we apply our sustainability criteria to develop an in-depth Seafood Watch Report. All of our reports are reviewed by a panel of experts from academia, government and the seafood industry and are available on our website. From our reports, we create our seafood recommendations.

Our website offers a complete list of Seafood Watch recommendations, with background information. We also print handy, condensed pocket guides that consumers can use when shopping or dining out. Pocket guides are available for six regions of the U.S.: West Coast, Southwest, Central U.S., Southeast, Northeast and Hawaii. Each contains a short list of recommendations for the most popular items in that region. We also have national and sushi versions of the pocket guides. All of our guides are updated every six months. We also offer applications for iPhones and other mobile devices.



## Water quality report of 2011 for Bell and Bell Gardens

BELL / BELL GARDENS (Sample date 2010) SOURCE: blend of Central Basin Aquifer, MWDSC	MCL	PHG (MCLG)	Ground- water Average Amount	Other Trtmt Plant Avg Amount	Range of Dete- ctions
<b>CHEMICALS</b>					
<i><b>Radiologicals</b></i>					
Alpha Radiation (pCi/L)					
Gross Alpha Activity (pCi/L)	1	0	3.9		nd-9.3
Gross Beta Activity (pCi/L)	50(a)	0	nd		nd-9.7
Combined Radium (pCi/L)	5(b)	0	nd		nd-1.7
Radon (pCi/L)					
Uranium (pCi/L)	20	0.43	2.3		1.2-3.7
<i><b>Organic Chemicals</b></i>					
1,1-Dichloroethylene (ppb) (µmg/L)	6	10			
Tetrachloroethylene (PCE) (µmg/L)	5	0.06			
Trichloroethylene (ppb) (µmg/L)	5	1.7			
<i><b>Microbiological</b></i>					
Total Coliform Bacteria (a)	>5% of monthly samples are positive	0	Highest percent of monthly samples positive was 6.7%		
Fecal Coliforms/E. coli					
<i><b>Inorganic Chemicals</b></i>					
Aluminum (ppm) (mg/L)	1	0.6	0.11		nd- 0.23
Arsenic (ppb) (µmg/L)	10	0.004	nd		nd-3.2
Barium (ppm)	1	2	nd		nd-.13
Fluoride (ppm)	2	1	0.7		.2-1
Nitrate as NO <sub>3</sub> (ppm)	45	45	3		nd-14
Nitrate +Nrite as N (ppm)					

<b>Secondary Standards</b>					
Aluminum (ppb)	200	na	110		nd-230
Chloride (ppm)	500	na	78		31-94
Color (units)	15	na	1		1.0-2.0
Iron (µg/L)	300	na	470		nd-7800
Manganese (µg/L)	50	na	24		nd-280
Odor (threshold odor number)	3	na	2		2.0-3.0
Specific Conductance (µmho or µSiemens/cm)	1600	na	790		460-1000
Sulfate (ppm) (mg/L)	500	na	150		55-250
Total Dissolved Solids (ppm)	1000	na	474		290-630
Turbidity (NTU)	5	na	0.03		nd-.16
<b>Unregulated Contaminants Requiring Monitoring</b>					
1,4-Dioxane (µg/L)	1	na	nd		nd-1.2
Bicarbonate (as HCO <sub>3</sub> ) (ppm)					
Boron (ppb)					
Chromium -6 (ppb)					
Calcium (ppm)	na	na	56		26-71
Dichlorodifluoromethane (ppb)					
Magnesium (ppm)	na	na	20		11-28
N-nitrosodimethylamine (NDMA) (ng/L)	10		1		nd-5.0
pH (pH units)	na	na	8		7.5-8.6
Potassium (ppm)	na	na	3.7		2.1-5.0
Sodium (ppm)	na	na	76		40-98
Total Alkalinity (ppm as CaCO <sub>3</sub> )	na	na	122		63-210
Total Hardness (grains/gal)	na	na	13		5-18
Total Hardness (ppm as CaCO <sub>3</sub> )	na	na	214		84-300
Total Organic Carbon (ppm)					
Vanadium (ppb)					
<b>TURBIDITY</b>					
1) Highest single turbidity measurement	TT=1.0	na	0.08		na
2) Percentage of samples less than 0.3 NTU	TT=95%	na	100%		na
					Range of
<b>DISINFECTION BYPRODUCTS</b>					<b>Detections</b>
Total Trihalomethanes TTHMs (ppb)	MCL (MRDL/MRDLG)	Average Amount			
	80	na	4.2		1.1-5.5
Haloacetic Acids HAA5 (ppb)	60	na	nd		nd-4.0
Chlorine Residual as Cl <sub>2</sub> (ppm)	4	4	1.3		nd-2.2

<i>Aesthetic Quality</i>						
Color (color units)	15	na	1		1.0-2.0	
Odor (threshold odor number)	3	na	2		2.0-3.0	
Turbidity (ntu)	5	na	0.03		nd-.16	
LEAD AND COPPER ACTION LEVELS AT RESIDENTIAL TAPS			Action Level (AL)	Health Goal	90th Percentile Value	Sites Exceeding AL/ No. of Sites
Lead (ppb)						
Copper (ppm)			1.3	0.3	0.39	none

Note: MWD So Cal adds chloramine to all their water



Photo from <http://www.aqua-spider.de/zierfische/salmler/kirschflecksalmler.htm>

*Hyphessobrycon erythrostigma*, the Bleeding Heart Tetra

*Remember St. Valentine's Day—Friday, February 14*

*Lest you, too, end up with a bleeding heart.*

*(Flowers, gold, zebra plecos, chocolates, power tools, LED light hood—any would be a fine, valid Valentine's Day gift likely to keep you in good standing!)*