
A History of People, Slugs and Type Localities at Bahía de los Ángeles, Gulf of California: Some Recollections

Hans Bertsch

Research Associate in Malacology, Los Angeles County Natural History Museum

Miembro Honorífico, Asociación de Investigadores del Mar de Cortés

Honorary Lifetime Member, San Diego Shell Club

192 Imperial Beach Blvd., Unit A, Imperial Beach, CA 91932

hansmarvida@sbcglobal.net

Since the visit of John Steinbeck and Ed Ricketts in March 1940, the islands and region of Bahía de los Ángeles (BLA) have been known as an intriguing area of marine biodiversity. During an afternoon and a night of collecting at Puerto Refugio, on the northern point of Isla Ángel de la Guarda, Steinbeck and Ricketts, in fact, found four interesting species of heterobranchs: *Aplysia californica* Cooper, 1863, *Melibe leonina* (Gould, 1852), *Aegires albopunctatus* MacFarland, 1905, and *Berthellina ilisima* (Marcus & Marcus, 1967). Although the future winner of the Nobel Prize for literature and the now-legendary Monterey Bay marine biologist misidentified this last species as the European *Berthella plumula* (Montagu, 1803), it has long since been known to be a distinct eastern Pacific species which occurs throughout the Gulf of California to Ecuador, with El Niño-associated reports from southern California. All four of these species have varying affinities to the Oregonian, Californian, Cortezian, and Panamic Provinces. In their later-published classic *The Sea of Cortez* (1941), the two authors described their collecting at Puerto Refugio as follows: “This was a strange collecting place. The water was quite cold, and many of members of both the northern and the southern fauna occurred here” (Steinbeck & Ricketts, 1941: 227). Their remarks actually hold true for the entire Gulf of California region. Of the 165 species of Heterobranchia (including “Lower” Heterobranchia) reported by Bertsch (2010: 228), 91 species (55.2%) occur northward along the Pacific coast of California, 131 species (79.4%) occur southward in the Mexican and/or Panamic regions, and 65 species (39.4%) occur both to the north and south of the Gulf. Counting just the Nudipleura, the percentages are similar. Of the 122 species, 68 (55.7%) occur northward, 97 (79.5%) occur southward, and 48 (39.3%) occur both northward and southward.

It is little wonder that so many shell aficionados and underwater photographers, members of the San Diego Shell Club, and professional malacologists have visited or published on this area, including, James H. McLean, Eugene V. Coan, Dave and Margaret Mulliner (Mulliner, 1972), Carol and Paul Skoglund (Skoglund, 1988), Roy and Forrest Poorman (Poorman & Poorman, 1978), Larry Buck (Buck, 1992), Michael D. Miller (Bertsch, Miller & Grant, 1998), Kevin Lee, Antonio J. Ferreira (Ferreira, 1983), Doug Eernisse—the list goes on! James McLean published the first checklist of molluscs from BLA (McLean, 1961). He reported 405 species, primarily based on collecting records by Faye B. Howard and himself. Although there were no nudibranchs in the list, he did include a number of shelled “Lower Heterobranchia” and Cephalaspidea.

Gosliner, 1986). Five of the species he named from the Monterey Peninsula have been reported from BLA: *Aegires albopunctatus* (first reported by Steinbeck & Ricketts, 1941), *Rostanga pulchra*, *Dendronotus* cf. *venustus*, *Hancockia californica*, and *Dirona picta* (see Bertsch, 2014).



Figure 3. Vista of northern part of bay, showing Punta la Gringa (center, small hill), Isla Coronado, and Isla Ángel de la Guarda (far background), November 2015. (Photo by Hans Bertsch, hereafter cited as HB)



Figure 4. Punta la Gringa, dive entry site, view to northeast, March 2017. (Photo by HB)

In contrast to the Monterey Peninsula, Puerto Peñasco, Sonora (at the extreme northern end of the Gulf of California) is the type locality for 12 species of Nudipleura, all described in one publication by Eveline and Ernst Marcus (Marcus & Marcus, 1967). Notable are three of these Gulf of California and Panamic species which have not yet been recorded from BLA. The rare *Cadlina luarna* has been reported from La Paz, Costa Rica, and Panamá. *Doriopsilla rowena* has been reported from further south to Panamá and the Galápagos, and in the Californian Province from La Jolla, California, to El Campo, near Punta Eugenia, Baja California Sur. In the past its identification has been confused with *Dendrodoris nigromaculata* (Cockerell in Cockerell & Eliot, 1905) (see Goddard & Valdés, 2015). *Chromolaichma sedna* (originally named as *Casella sedna*) “is the most common nudibranch at Puerto Peñasco. It is present throughout the year, but may be locally abundant during August” (from field notes by University of Arizona professor, Dr. Peter E. Pickens, who collected all the specimens described by the Marcuses, in Marcus & Marcus, 1967: 178). I have found this species at Las Arenas, Baja California Sur (common in June 1985), and Hermosillo (2006) reported it as the fifth most abundant species at Bahía de Banderas, Jalisco/Nayarit. But in more than 30 years of research, I have never seen this common far northern and southern Gulf species at BLA.



Figure 5. Punta la Gringa, dive entry site, view to southeast, May 2013. (Photo by HB)



Figure 6. Cuevitas, dive entry site, looking across the channel of Isla Coronado, February 2014. (Photo by HB)

What follows below is a list of the nudibranch species of BLA that have been named from 1964 to 2017. The list is in chronological order and includes brief histories about each of the species.

The Bahía de los Ángeles Nudibranchs

***Cerberilla pungoarena* Collier & Farmer, 1964**

Originally named from only one specimen collected at Puerto Refugio, Isla Ángel de la Guarda (29° 32' 50" N; 113° 55' 55" W) by John Sloan in March 1963. This sand-dwelling species is also known from various localities in southern California, including the Channel Islands. The name means “sand burrower,” from the Latin *pungere*, “to prick, puncture, penetrate,” in reference to its behavior described by Collier and Farmer: “This animal was collected crawling on top of sandy mud, and was later observed to have definite burrowing abilities. It completely submerged into the sand in an aquarium, the sand collapsing behind the animal as it passed through. As far as we can determine, this is the first recorded observance of an aeolid burrowing in sand. We did not determine what the animal eats in this peculiar habitat. The broad foot is particularly adapted for this kind of existence and the cerata are aligned for easy passage through the sand” (Collier & Farmer, 1964: 393).

***Okenia angelensis* Lance, 1966**

Jim Lance designated the type locality of this species as simply “Bahía de los Ángeles (lowest intertidal zone).” Its distribution overlaps temperate and tropical faunal provinces. It has been reported on the Pacific coast from San Francisco to Mission Bay, California, and in the Gulf; there is a possible record from Bahía de Coliumo, Chile (Schrödl, 1996). The specific epithet was chosen to honor BLA, “the geographic region where the species was first observed” (Lance, 1966: 76).

***Cuthona longi* Behrens, 1985a**

Named to honor Steven J. Long, this species’ type locality is Isla Rasa (28° 48' N; 113° 0' W), which lies about 8 km east of the boundary of La Reserva “BLA y Canales.” The original specimens were collected by Jeff Hamann in July 1982. No additional records of this colorful, 30 mm long aeolid exist. In the days before internet and Facebook connectivity, Steve published (1969-2009) the monthly *Opisthobranch Newsletter*, mailing it to colleagues worldwide. It included news and notes of what everyone was investigating, what they were doing and where they were visiting, along with short articles and lengthy bibliographic citations.

***Eubranchius cucullus* Behrens, 1985b**

Type locality, Puerto Refugio, based on specimens collected at 10 m depth by Jeff Hamann in August 1982. It has a wide distribution, from the BLA region south along the Mexican Pacific coast to Panamá. The Latin word *cucullus* means “hood” or “cowl,” in reference to the brown head coloration.

***Bajaeolis bertschi* Gosliner & Behrens, 1986**

Named for this author, *B. bertschi* is the first of nine species that have been named from the type locality of Punta la Gringa (29° 02' 34" N; 113° 32' 15" W). I remember the exact rock from which I collected the holotype, diving with Terry Gosliner. It is a wave-eroded pinnacle, sort of hourglass-shaped, with its upper surface exposed at low tide. The new monotypic genus *Bajaeolis* was named to honor the Baja California Peninsula.

***Polycerella glandulosa* Behrens & Gosliner, 1988**

This cryptic polycerid is named from the type locality of Punta la Gringa. It is known from Morro Bay to San Diego, California, and from BLA south along the Mexican Pacific coast and to Panamá. The name refers to the glandular swellings on its extra-branchial appendages.

***Trapania goslineri* Millen & Bertsch, 2000**

The type locality is Punta la Gringa, where honoree Terry Gosliner collected the holotype specimen on 29 June 1987. This species is known from Isla de Cedros, off the Pacific Coast of Baja California, and from BLA south to Bahía de Banderas, Jalisco/Nayarit.

***Peltdoris lancei* Millen in Millen & Bertsch, 2000**

The holotype specimen was collected and photographed by Michael D. Miller, 28 June 1996, at Punta la Gringa. The only other record of this species is from Isla Malpelo, Colombia (Kaiser & Bryce, 2001), more than 3000 km to the south, near the limit of the Panamic province. It is named for Jim Lance, “one of the first to know and love the opisthobranchs of the Gulf of California.” This species’ description was published in the Dr. Rudolf Stohler Memorial Issue of *The Veliger* (vol. 43, no. 4).

***Okenia angelica* Gosliner & Bertsch, 2004**

The type locality is Punta la Gringa. Also reported from Isla de Cedros, Baja California, Bahía San Carlos, Sonora, Bahía de Banderas, Jalisco, and Ixtapa, Guerrero (Hermosillo & Behrens, 2005). Although *O. angelica* is named for its “angelic appearance,” the species’ epithet also references the region and Jim Lance’s earlier *Okenia angelensis*.

***Dendrodoris stohleri* Millen & Bertsch, 2005**

The type locality is Punta Herradura (28° 56.51' N; 113° 28.89' W), on the eastern peninsula closing BLA. So far it is only known from BLA; note that it occurs far more commonly at the offshore “Islas” sites (pers. obser.) than at Cuevitas or Punta la Gringa. Named for Dr. Rudolf Stohler (1901-2000), founding editor of *The Veliger*. Although he never visited BLA, he was a mentor, colleague and friend to many of us who have (Bertsch, 2000).

***Diaulula nivosae* Valdés & Bertsch, 2010**

Known only from the holotype specimen collected at Punta la Gringa. “*Nivosae*” means “snowy,” appropriate because of the white frosting on the species’ dorsum, and my remembering a time snow was visible on the mountaintop east of town.

***Peltdoris rosae* Valdés & Bertsch, 2010**

Also only known from the holotype specimen collected at Punta la Gringa. Named in honor of Rosa del Carmen Campay Villalobos.

***Doriopsilla davebehrensi* Hoover, Lindsay, Goddard & Valdés, 2015**

Named for Dave Behrens, as a “replacement species” for the synonymized *Dendrodoris behrensi* Millen & Bertsch, 2005. Although the type locality was given only as “Bahía de los Ángeles, Baja California, Mexico, 12 June 2014” my collecting records indicate the specimen was actually collected at Cuevitas (29° 03' 45" N; 113° 32' 34" W), where Craig Hoover, Afelandra Cibrián, and I were scuba diving together. The morphology and coloration of this species have contributed to its misidentification at BLA and other sites in the Gulf of California as *Doriopsilla albopunctata* (Cooper, 1863). The paper by Hoover *et al.* (2015) differentiated this species from among a complex of pseudocryptic species. *Doriopsilla albopunctata* is known to range from Mendocino, California to Faro Viejo, Laguna Guerrero Negro, Baja California and *D. davebehrensi* is reported on the Pacific Coast from Newport Beach, California, and Punta Rosarito, Baja California and in the Gulf from BLA and Bahía de La Paz, Baja California Sur. The distribution of these two species in California is uncertain because of confusion arising from their similar appearances. During my 30-year study at BLA (1984-2014), it was the third most commonly found Nudipleura, after *D. bertschi* and *Berthellina ilisima*.

***Doriopsilla bertschi* Hoover, Lindsay, Goddard & Valdés, 2015**

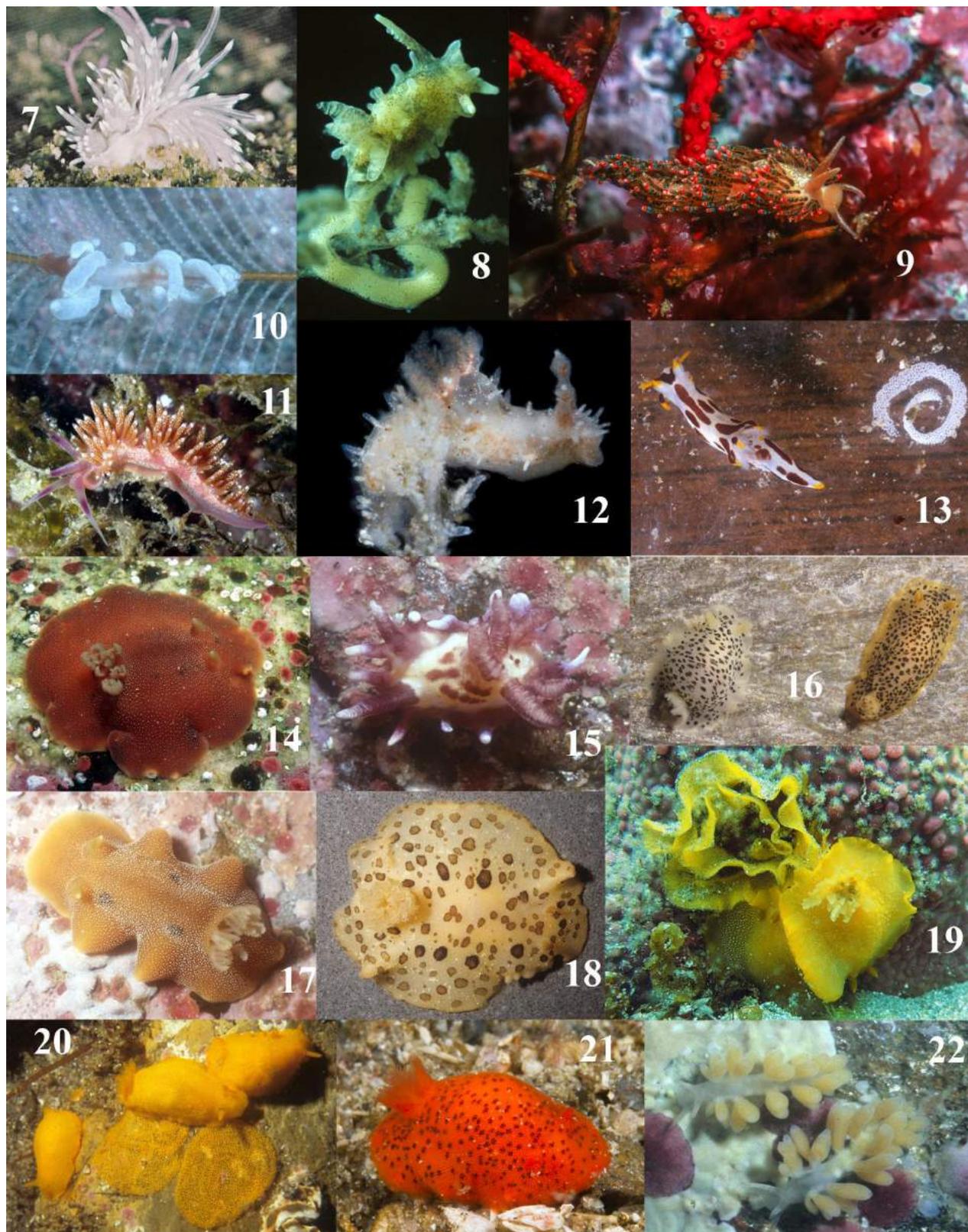
Type locality, “Bahía de los Ángeles, BC, Mexico, May 1960 (LACM 3421).” The original label specifies Isla Coronado, about 2 km east of Cuevitas and Punta la Gringa, as the collecting site, and hence type locality (pers. comm., Lindsey Groves). This Gulf endemic, currently known only from BLA, is distinguished from its Pacific coast congener *Doriopsilla gemela* Gosliner, Schafer & Millen, 1999, which has planktotrophic larval development (*D. bertschi* has direct development), as well as by its geographic occurrence and morphology. I greatly appreciated the species being named in my honor. It is the most common nudibranch I’ve observed during my decades of research at BLA. Sometimes a dozen or more animals can be found on massive yellow *Cliona californiana* at Cuevitas.

***Rostanga ghiselini* Gosliner & Bertsch, 2017**

The type locality is Punta la Gringa. It is currently known from three sites within the Gulf of California (Bahía San Luis Gonzaga, BLA and Guaymas) and from the intertidal area of Bahía Tortugas, Pacific coast, Baja California Sur (Angulo Campillo, 2000). Named for Michael T. Ghiselin.

***Tenellia ivetteae* Gosliner & Bertsch, 2017**

Type locality, Punta la Gringa. This little yellow-white aeolid is also known from Bahía de Banderas. Named in honor of Adriana Ivette Cadena.



- Figure 7.** *Cerberilla pungoarena*, holotype, Puerto Refugio, March, 1963. (From Collier & Farmer, 1964).
- Figure 8.** *Okenia angelensis*. (Photo by Jeff Hamann)
- Figure 9.** *Cuthona longi*, holotype, Isla Rasa, July 1982. (Photo by Jeff Hamann)
- Figure 10.** *Eubranchus cucullus*, Cuevitas, 20 December 1994. (Photo by HB)
- Figure 11.** *Bajaeolis bertschi*, Punta la Gringa, 24 September 1997. (Photo by HB)
- Figure 12.** *Polycerella glandulosa*, Cuevitas, 4 September 2015. (Photo by Craig Hoover)
- Figure 13.** *Trapania goslineri* and egg mass, in aquarium, Bahía Tortugas, Baja California Sur, 6 October 1998. (Photo by HB)
- Figure 14.** *Peltodoris lancei*, holotype, Punta la Gringa, 28 June 1996. (Photo by Michael D. Miller)
- Figure 15.** *Okenia angelica*, Punta la Gringa, 26 September 1997. (Photo by HB)
- Figure 16.** *Dendrodoris stohleri*, Punta la Gringa, 27 April 1986. (Photo by HB)
- Figure 17.** *Diaulula nivosa*, holotype, Punta la Gringa, 23 July 1995. (Photo by HB)
- Figure 18.** *Peltodoris rosae*, holotype, Punta la Gringa, 14 June 1996. (Photo by HB)
- Figure 19.** *Doriopsilla davebehrensi*, holotype, and egg mass on pink *Cliona californiana* prey sponge, Cuevitas, 12 June 2014. (Photo by HB)
- Figure 20.** *Doriopsilla bertschi* and egg masses on rock, Cuevitas, 4 May 2010. (Photo by HB)
- Figure 21.** *Rostanga ghiselini*, holotype, Punta la Gringa, 25 March 2017. (Photo by Craig Hoover)
- Figure 22.** *Tenellia ivetteae*, holotype, Punta la Gringa, 20 June 1992. (Photo by HB)

Namers, Namees and Other Folks: A Few Vignettes

The Festivus has, over the years, published many personal accounts of field trips to exotic locales. It therefore seems only fitting to publish herein not only a discussion of nudibranchs named from BLA, but also to include some personal vignettes about collecting trips to that area, and telling tales about both namers and namees. What follows are some reminiscences of some of the people with whom I have collected at BLA over the course of my almost 50 years of visiting there. Among the namees and namers, only three have never been to BLA: Dr. Rudolf Stohler, Steven J. Long, and Tabitha Lindsay (student of Ángel Valdés).

It Began with Clams

My first trip to BLA was in August 1971, accompanied by the bivalve expert Gene Coan. The pilot of our single-propeller craft was my friend Ray Holiday, who was a professional pilot for the now-defunct PSA (Pacific Southwest Airlines). We landed on the dirt airstrip and taxied over to Papa Diaz's (almost the only place in "town"), where we tied down to the tires buried in the hard-packed dirt for that purpose. Gene had recently published (Coan, 1968) a checklist for benthic molluscs dredged from BLA based on several expeditions sponsored by the Beaudette Foundation (Barnard & Grady, 1968). His report added 110 deep-water species (to 49 m depth) to James H. McLean's list. With Gene's passion for bivalves, we spent an hour or so exploring the shed where live-collected scallops were being processed for shipment to the United States. We watched the local workers quickly shuck the adductor muscle from each scallop and examined the piles of empty shells for other molluscs and epibionts (photos, Bertsch & Aguilar Rosas, 2016: 160). The divers were working beds of *Euvola vogdesi* (Arnold, 1906) at the southern end of Isla Ángel de la Guarda. It was a full-on over-harvesting, and it only took about two years (1971-1973) for the divers to wipe out the resource (Bowen, Danemann & Espinoza, 2014).

James R. Lance

Some 10 years later I again flew into BLA, this time with the nudibrancher Jim Lance. Jim worked for years as a laboratory technician at Scripps Institution of Oceanography, under the direction of Dr. William Fenical, studying marine natural products chemistry and marine pharmacology. He spent numerous vacations looking for nudibranchs in Puerto Vallarta, Nayarit (Miller, 2006), and regularly sampling (from 1953-2001) the intertidal pools along the rocky shores of La Jolla (Goddard *et al.*, 2013). In early May 1981, we joined Jeff Hamann and his father (our pilot) for an expedition to BLA. What I most remember about this trip wasn't the collecting, but our landing! As we bounced onto the dirt runway at BLA, the hydraulics on the front wheel broke and the left tire blew out. Our propeller (no longer elevated) was slightly chewed up by whirling into the dirt. We used rounded boulders to try to beat out the dings on the propeller, improvised a jack to repair the tire, and then wrapped fire hose with baling wire around the front wheel support shaft to keep its proper length, and hence the plane's nose up. The return flight involved two take-offs and three landings, each of which could diminish the distance between the propeller and the ground, which would not have been good (Bertsch, 2006). It is no secret that we did actually make it back to Gillespie Field in El Cajon, but our fight gave new meaning to the phrase, "on a wing and a prayer." Besides plane repairs, we did science while at BLA, collecting one morning on the low spring tides at Islas Gemelos. My field notes record over a dozen species, including *Aegires albopunctatus*, *Berthellina ilisima*, a "dark brown porostome" (*Doriopsilla davebehrensi*, unnamed at the time), and "yellow black porostomes" (*Dendrodoris stohleri*, also unnamed then).

Wesley M. Farmer and Clinton L. Collier

Wes Farmer, (U. S. Army veteran, having served as a medical technician at Fort Ord, CA, Ft. Chaffee, AK, and Ft. Bliss, TX) and I visited BLA in July 2008. I was selling my Chevy pick-up to Ricardo Arce, who owns the dive shop there, and I needed an extra driver for the drop off. Things had certainly changed since he and Clinton L. Collier had made their trips along the coasts of Baja California to observe and collect the opisthobranch fauna of the region in the early 1960s! While I scuba dove at Punta la Gringa and Cuevitas, Wes set up his easel, and whiled away the time painting the vistas. Like Wes, Clint is a veteran, serving six years in the U.S. Air Force as a missile launch operator, and later moving on to computer information systems and consulting for the rest of his career.

David W. Behrens

Dave Behrens visited BLA back in the early 1970s. The transpeninsular highway had just been completed in 1973, so he and a group of Pacific Gas & Electric biologists caravanned south from the Morro Bay, California area, camping out on the spit at La Gringa and even diving at Isla Coronado. He recently wrote me, "I'll bet I saw *D. davebehrensi*, and didn't realize what I was seeing." Of course at that time, *Doriopsilla davebehrensi* hadn't been reported in the Gulf, not even as "*D. albopunctata*" (see Behrens, 1980).

Michael T. Ghiselin

Michael Ghiselin, Darwin scholar and evolutionary biologist (Ghiselin, 1969, Cimino & Ghiselin, 2009, *etc.*), and recipient of the MacArthur Prize Fellow “genius award,” is currently Senior Research Fellow at California Academy of Sciences (CAS). Although he nicknamed himself “Captain Armchair” when I was his Ph.D. student at the University of California, Berkeley, we have shared many expeditions along the shores of the Baja California peninsula. In September 1982, he completed his open water scuba training dives at BLA; as a PADI instructor, I certified him as a scuba diver. On that trip (you can’t train a marine biologist underwater to not look for organisms!) we even found the then-unnamed *Trivettea papalotla* (Bertsch, Valdés & Gosliner, 2009), with egg masses, on its epizoanthid prey. In 1984, with funding from the George Lindsay Field Research Fund, we participated in two international reconnaissance expeditions (Bertsch, 1985) with staff, faculty, and students from CAS, Ciencias Marinas (Universidad Autónoma de Baja California), and CICESE (Centro de Investigación Científica y de Educación Superior de Ensenada). We drove over paved and dirt roads, and across mirage-filled sand flats, stopping to dive at sites in Baja California Sur, from Bahía Tortugas, Loreto, Isla Magdalena, and Las Cruces to the sand falls in the canyon at Cabo San Lucas. We found over 30 species of slugs, including the expected tropical or temperate species such as *Felimida norrisi* (Farmer, 1963), *Flabellina iodinea* (Cooper, 1863), and *Conualevia alba* Collier & Farmer, 1964. There were also the unexpected new species or range extensions (*e.g.*, Gosliner & Bertsch, 1985). All this, despite over five flat tires, a busted body frame on one vehicle (requiring welding), and a blown radiator. But every morning’s campsite was awakened by Mike handing each of us a hot cup of coffee, while we were still in our sleeping bags.

Terrence M. Gosliner

Terry Gosliner and I have meandered together for decades, since the early days in the 70s. Our first expeditions, with Gary Williams and their brothers Michael and Scott, were a bit primitive, camping, snorkeling and working the intertidal in Puerto San Carlos, Sonora, and Puertecitos, Baja California (Williams & Gosliner, 1973). We’ve collaborated on species descriptions from Hawaii and Baja California, his dissecting and analytical skills being paramount. Terry has crisscrossed the Pacific from Hawaii (studying with E. Alison Kay) to South Africa (Gosliner, 1987). Since moving to the California Academy of Sciences, he has been exploring the incredibly rich diversity of slugs in the Coral Triangle (Gosliner, Valdés & Behrens, 2015), and helped pioneer DNA studies in elucidating their evolutionary history and relationships. We have been to BLA various times, with various colleagues. Most memorable was our trip in October 1984 with Antonio Ferreira and members of the CAS staff (including Bob Van Syoc). We dove at Punta la Gringa, Puerto Don Juan, and on the sunken boat wreck between Islas Ventana and Cabeza de Caballo. Collecting was great, as we found specimens of six species that would only be named in the coming decades, including *Bajaeolis bertschi*, *Trapania goslineri*, and *Doriopsilla davebehrensi*. Our shadeless campsite at La Gringa was raw, and it was hot. In addition to drinking water and food, we had a bucket of fresh water for washing—but only for regulators and camera. It was a salty-faced week.

Sandra V. Millen

Sandra Millen and her husband Sven Donaldson joined us on other expeditions. One morning we were eating breakfast on our hotel patio, and a fellow walked up to us saying his van was stuck in the sand north of town. “Oh, ok, after breakfast.” But when he said his wife and children had been left out there, we quickly rolled into action with my Jeep and a tow rope for the rescue. Sandra found that the waters of BLA were much warmer than at her local Canadian dive sites.

Ángel Valdés

Ángel Valdés is the other professor whom I certified as a scuba diver. In March 2000, we did his certification dives in the La Paz area and then drove back up to BLA, where we were joined by Mike Miller and Alan Grant. Ángel told me he wanted to take some live specimens of the Gulf “*Doriopsilla gemela*” back to California Academy of Sciences, so I took him out to Cuevitas where I knew they were abundant and which for years I had called “the yellow-gilled porostome.” Sure enough, we found over 30 individuals. It would be another 15 years before DNA technology determined it was the pseudo-cryptic species, *D. bertschi*. After a few days, Alan and Mike left several hours ahead of us, to return to points north of the border. When Ángel and I departed, we found them stopped alongside the road, some 20 miles west of town, with a flat tire. While two Ph.D.s and a Doctor of Dentistry looked on, Mike replaced the tire!

Craig Hoover

Craig Hoover (another of Ángel’s Master’s degree students at California State Polytechnic University, Pomona) and I have made a half-dozen trips along both coasts of the BC peninsula. We have taken boats out to Isla Magdalena under high seas and huge swells, only to encounter totally flat seas a day later at BLA. We have endured over 100° F desert temperatures in La Paz, rock slides covering the Transpeninsular Highway south of Loreto, pummeling and flooding from the winds and rains of Hurricane Marie, and days without lunch that ended with feasts of carne asada. Our coldest water temperature was 56° F at BLA in March 2017. On our dives at La Paz, Bahía Magdalena, Faro Viejo (Laguna Guerrero Negro) and BLA, Craig and I have recorded range extensions and found known and previously unknown, undescribed species. One evening in our hotel room at BLA, we were examining the external morphology and coloration of a 6 mm unique specimen of a new *Tritonia*, which he had found that afternoon at La Gringa hidden cryptically on its prey *Leptogorgia alba*. While we were transferring this small white animal from the petri dish of the compound microscope to a large dish for portrait photography, it fell on the floor. WHOOPS! Frantically, Craig and I got on our hands and knees, searching for our possible holotype on the white tile floor of our hotel room. We found it. It is now undergoing DNA analysis and dissection. The type locality will not be Room 5 at Hotel Costa del Sol.

Jeffrey H. R. Goddard and Rosa del Carmen Campay Villalobos

Namer and field biologist Jeff Goddard has rolled rocks in intertidal zones at BLA and on the Pacific coast of the peninsula with his wife Lise and sons Ziggy and Will. Eight years ago, along with Rosa del Carmen Campay (grandmother of Ivette Cadena) and Brenna and Brian Green, we worked the intertidal rocks in front of the BLA beachfront home of Antonio and Bety Reséndiz. We found *Felimida norrisi* and the “yellow-gilled porostome,” among other slugs. Then we

crossed the peninsula for the next day's low tide at El Tomatal. While Jeff and his family camped on the beach, Rosa, Brian, Brenna, and I celebrated New Year's at the Hotel Pinta in Guerrero Negro with genuine Mexican-brewed toasts.

Adriana Ivette Cadena

The last namee to mention: my granddaughter Ivette. Her first visit to BLA was in August 2005, actually a month before she was born! Her mom spent hours floating on the warm waters of the bay, relieving the gravity stress of her pregnancy. Ivette's first word was not *nudibranquio*, but it was close. We have seen the whale sharks together, and she has given me great assistance on the beach as the "safety officer" while I was diving solo at Punta la Gringa. She currently lives in Chiapas with her family and is the only person in all of México who has both a genus (*Trivettea* Bertsch, 2014) and a species (*Tenellia ivetteae*) of nudibranch named in her honor.

Why We Do Science

Science is really for the children. Naming *Tenellia ivetteae*, Terry and I wrote, "This species is named in honor of Señorita Adriana Ivette Cadena, granddaughter of Hans, who has helped with his research at Bahía de los Ángeles. She and her brothers and sisters--the children all around the world--remind us why we must do science and do it well: to present informed knowledge for informed decisions affecting their future and the life of our planet" (Gosliner & Bertsch, 2017: 126).

During their expedition throughout the Gulf, Steinbeck and Ricketts were asked by children watching them in the intertidal zone, "Why do you do this thing, this picking up and pickling of little animals?" The two men pondered the usual responses: we do science to discover, to advance knowledge, or to help mankind. But they eventually came to an insightful realization: "Finally, we learned to know why we did these things. The animals were very beautiful. Here was life from which we borrowed life and excitement. In other words, we did these things because it was pleasant to do them....Here was no service to science, no naming of unknown animals, but rather--we simply liked it." (Steinbeck & Ricketts, 1941: 209, 270)

It seems that is just what a child would say.

Bahía de los Ángeles is a special place for nudibranchs and a place for special people. Look carefully, protect life, and enjoy.

ACKNOWLEDGMENTS

I am deeply grateful for all the people mentioned in this article; without their friendship, collegial searches, patience and knowledge, this manuscript never could have been written. Over the years many other divers have accompanied me to BLA, especially Tom Smith, Brian Coleman, and Luis Aguilar. Robert Dees has earned a special thank you for his insightful and invaluable comments on the preliminary draft of these recollections.



- Figure 23.** Steve Long, Eveline Marcus, Hans Bertsch, and Jim Lance; La Jolla, California, 7 July 1984. (Photo from HB)
- Figure 24.** Dr. Rudolf Stohler; Pacific Grove, California, meeting of the Western Society of Malacologists, June 1969. (Photo by James H. McLean)
- Figure 25.** Tabitha Lindsay; intertidal zone, central California, March 2014. (Photo by Craig Hoover)
- Figure 26.** Gene Coan; scallop processing plant, BLA, 25 August 1971. (Photo by HB)
- Figure 27.** Jim Lance; wing-man helping repair flat tire, BLA, May 1981. (Photo by HB)
- Figure 28.** Clinton Collier, intertidal zone at Bahia San Luis Gonzaga, 29 November 1963. (Photo by Wes Farmer)
- Figure 29.** Wes Farmer; painting scenery at Cuevitas, 10 July 2008. (Photo by HB)
- Figure 30.** Dave Behrens; Morro Bay, California, 1974. (Photo courtesy Dave Behrens)
- Figure 31.** Mike Ghiselin and Hans Bertsch; writing field notes, BLA, 28 February 1989. (Photo by Tom Smith)
- Figure 32.** Hans Bertsch, Terry Gosliner, Robert van Syoc, and Antonio Ferreira; after-dive celebration, BLA, October 1984. (Photo from HB)
- Figure 33.** Mike Miller and Sandra Millen; BLA, February 1999. (Photo by HB)
- Figure 34.** Alan Grant, Mike Miller, and Ángel Valdés; repairing flat tire, on the road west of BLA, 17 March 2000. (Photo by HB)

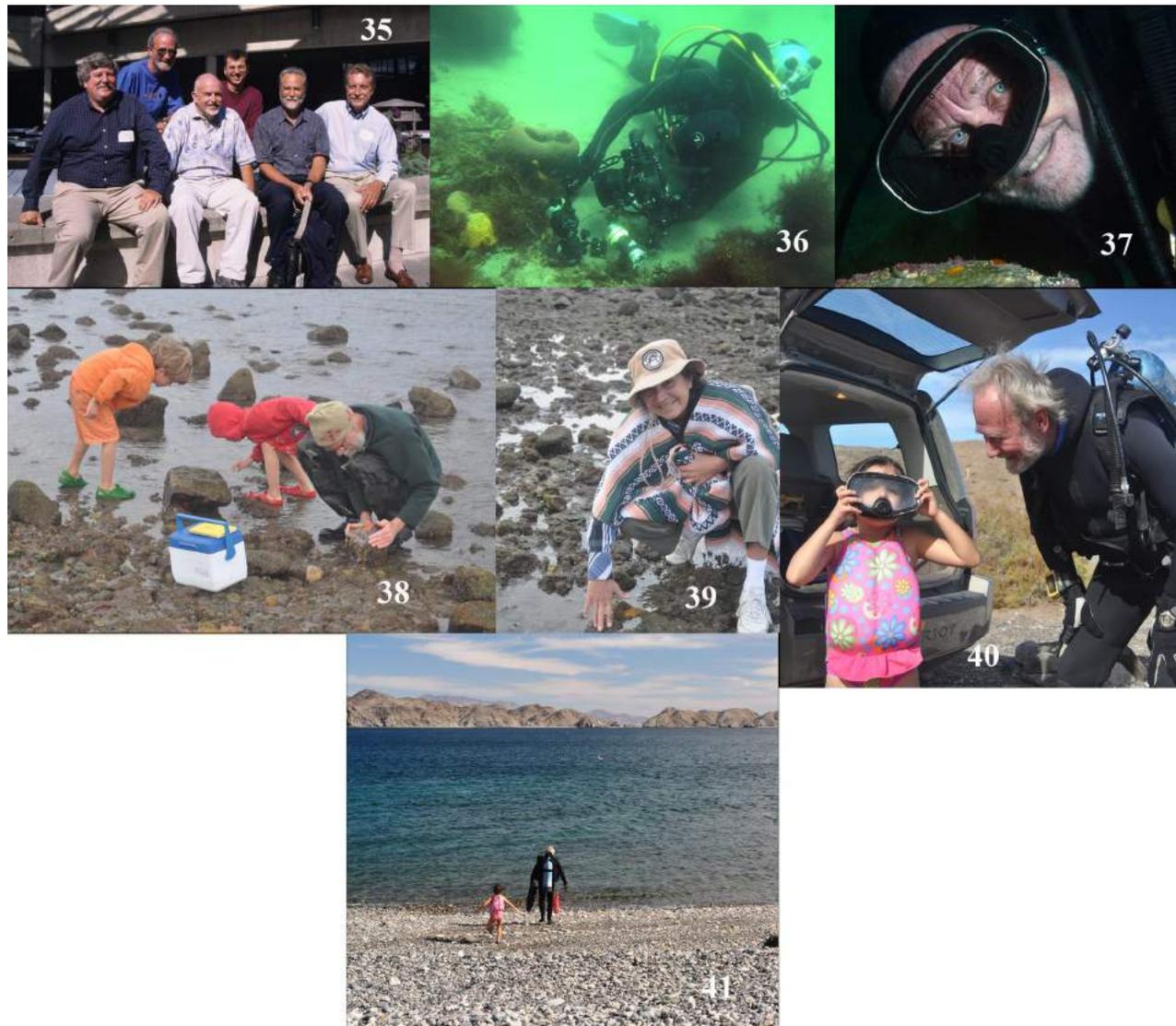


Figure 35. Six BLA nudibranch workers: Terry Gosliner, Hans Bertsch, Mike Miller, Ángel Valdés, Jeff Hamann, and Dave Behrens; Seattle, Washington, meeting of the Western Society of Malacologists, 1 August 2006. (Photo from HB)

Figure 36. Craig Hoover underwater; photographing the holotype of *Doriopsilla davebehrensi*, *in situ*, on the pink prey sponge, with its egg mass, 12 June 2014. (Photo by HB)

Figure 37. Hans Bertsch underwater; photographed *in situ*, with *Doriopsilla bertschi* (on rock, at left, yellow) and *Doriopsilla davebehrensi* (on rock, at right, orange), Punta la Gringa, 25 November 2015. (Photo by Kevin Lee)

Figure 38. Jeff Goddard and sons Will and Ziggy; intertidal at BLA, 28 December 2009. (Photo by HB)

Figure 39. Rosa del Carmen Campay; with *Doriopsilla bertschi* on yellow sponge *Cliona*, 28 December 2009. (Photo by HB)

Figure 40. Ivette Cadena; testing dive equipment at Punta la Gringa, 28 December 2011. (Photo from HB)

Figure 41. Ivette Cadena; protecting diver, Punta la Gringa, 28 December 2011. (Photo from HB)

REFERENCES

- Barnard, J. Laurens & John R. Grady. 1968.** A biological survey of Bahía de los Ángeles, Gulf of California, Mexico. I. General account. Transactions of the San Diego Society of Natural History 15(6):51-66.
- Behrens, David W. 1980.** Pacific Coast Nudibranchs: A Guide to the Opisthobranchs of the Northeastern Pacific. Sea Challengers, Los Osos, California. 112 pp.
- Behrens, David W. 1985a.** A new species of *Cuthona* from the Gulf of California. The Veliger 27(4):418-422.
- Behrens, David W. 1985b.** A new species of *Eubbranchus* Forbes, 1838, from the Sea of Cortez, Mexico. The Veliger 28(2):175-178.
- Behrens, David W. & Terrence M. Gosliner. 1988.** The first record of *Polycerella* Verrill, 1881, from the Pacific, with the description of a new species. The Veliger 30(3):319-324.
- Bertsch, Hans. 1985.** An international reconnaissance expedition: Marine zoogeography of Baja California Sur. Environment Southwest 508:18-23.
- Bertsch, Hans. 2000.** Dr. Rudolf Stohler: Some Personal Reminiscences. The Veliger 43(4):ii.
- Bertsch, Hans. 2006.** *Peltodoris lancei*: Species description and memorial to Jim Lance. www.slugsite.us/bow/nudwk504.htm
- Bertsch, Hans. 2010.** Biogeography of northeast Pacific opisthobranchs: comparative faunal province studies between Point Conception, California, USA, and Punta Aguja, Piura, Perú. In: Luis José Rangel Ruiz, Stefar L. Arriaga Weiss & Wilfrido M. Contreras Sánchez (eds.), Perspectivas en Malacología Mexicana. Universidad Juárez Autónoma de Tabasco, Villahermosa, Tabasco. Pp. 219-259.
- Bertsch, Hans. 2014.** Biodiversity in La Reserva de la Biósfera Bahía de los Ángeles y Canales de Ballenas y Salsipuedes: Naming of a new genus, range extensions and new records, and species list of Heterobranchia (Mollusca: Gastropoda), with comments on biodiversity conservation within marine reserves. The Festivus 46(5):158-177.
- Bertsch, Hans & Luis E. Aguilar Rosas. 2016.** Invertebrados Marinos del Noroeste de México / Marine Invertebrates of Northwest Mexico. Instituto de Investigaciones Oceanológicas, UABC, Ensenada. xxxii + 432 pp.
- Bertsch, Hans & Terrence M. Gosliner. 1986.** Anatomy, distribution, synonymy, and systematic relationships of *Atagema alba* (O'Donoghue, 1927) (Nudibranchia: Doridacea). The Veliger 29(1):123-128.
- Bertsch, Hans, Michael D. Miller & Alan Grant. 1998.** Notes on opisthobranch community structures at Bahía de los Ángeles, Baja California, Mexico (June 1998). Opisthobranch Newsletter 24(8):35-36.
- Bertsch, Hans, Ángel Valdés & Terrence M. Gosliner. 2009.** A new species of tritoniid nudibranch, the first found feeding on a zoanthid anthozoan, with a preliminary phylogeny of the Tritoniidae. Proceedings of the California Academy of Sciences, Series 4, 60(11):423-446.
- Bowen, Thomas, Gustavo D. Danemann & Carolina Shepard Espinoza. 2014.** Managing the not-quite-historical resources of Isla Angel de la Guarda in the Gulf of California, Mexico. New Mexico Historical Review 89(2):209-237.
- Buck, Larry. 1992.** *Pterynotus pinniger* (Broderip, 1833) at Bahía de los Ángeles, Baja California, Mexico. The Festivus 24(4):42.
- Cimino, Guido & Michael T. Ghiselin. 2009.** Chemical defense and the evolution of opisthobranch gastropods. Proceedings of the California Academy of Sciences, Series 4, 60(10):175-422.
- Coan, Eugene V. 1968.** A biological survey of Bahía de los Ángeles, Gulf of California, Mexico. III. Benthic Mollusca. Transactions of the San Diego Society of Natural History 15(8):107-132.
- Cockerell, Theodore Dru Allison & Charles N. Eliot. 1905.** Notes on a collection of Californian nudibranchs. Journal of Malacology 12(3):31-53.
- Collier, Clinton L. & Wesley M. Farmer. 1964.** Additions to the nudibranch fauna of the East Pacific and the Gulf of California. Transactions of the San Diego Society of Natural History 13(19):377-396.

- Ferreira, Antonio J. 1983.** The genus *Chaetopleura* Shuttleworth, 1853 (Mollusca: Polyplacophora) in the warm-temperate and tropical eastern Pacific, southern California to Peru, with the description of two new species. *The Veliger* 25(3):203-224.
- Ghiselin, Michael T. 1969.** *The Triumph of the Darwinian Method*. University of California Press, Berkeley. 287 pp.
- Goddard, Jeffrey H. R., Maria C. Schaefer, Craig Hoover & Ángel Valdés. 2013.** Regional extinction of a conspicuous dorid nudibranch (Mollusca: Gastropoda). *Marine Biology* 160(6):1497-1510.
- Goddard, Jeffrey H. R. & Ángel Valdés. 2015.** Reviving a cold case: Two northeastern Pacific dendrodorid nudibranchs reassessed (Gastropoda: Opisthobranchia). *The Nautilus* 129(1):31-42.
- Gosliner, Terrence M. 1987.** *Nudibranchs of Southern Africa: A Guide to Opisthobranch Molluscs of Southern Africa*. Sea Challengers, Monterey. 136 pp.
- Gosliner, Terrence M. & David W. Behrens. 1986.** Two new species and genera of aeolid nudibranchs from the tropical eastern Pacific. *The Veliger* 29(1):101-113.
- Gosliner, Terrence M. & Hans Bertsch. 2004.** Systematics of *Okenia* from the Pacific Coast of North America (Nudibranchia: Goniodorididae) with descriptions of three new species. *Proceedings of the California Academy of Sciences, Series 4*, 55(22):414-430.
- Gosliner, Terrence M. & Hans Bertsch. 2017.** Two new species of nudibranch mollusks from the tropical eastern Pacific of Mexico. *Proceedings of the California Academy of Sciences, Series 4*, 64(6):117-130.
- Gosliner, Terrence M., Ángel Valdés & David W. Behrens. 2015.** *Nudibranch and Sea Slug Identification Indo-Pacific*. New World Publications, Inc., Jacksonville, Florida. 408 pp.
- Hermosillo González, Alicia. 2006.** *Ecología de los opisthobranquios (Mollusca) de Bahía de Banderas, Jalisco-Nayarit, México*. Tesis de Doctorada, Universidad de Guadalajara, Centro Universitario de Ciencias Biológicas y Agropecuarias. viii + 151 pp.
- Hoover, Craig, Tabitha Lindsay, Jeffrey H. R. Goddard & Ángel Valdés. 2015.** Seeing double: Pseudocryptic diversity in the *Doriopsilla albopunctata-Doriopsilla gemela* species complex of the north-eastern Pacific. *Zoologica Scripta* doi: 10.1111/zsc.12123. 20 pp.
- Lance, James R. 1966.** New distributional records of some northeastern Pacific Opisthobranchiata (Mollusca: Gastropoda) with descriptions of two new species. *The Veliger* 9(1):69-81.
- MacFarland, Frank Mace. 1905.** A preliminary account of the Dorididae of Monterey Bay, California. *Proceedings of the Biological Society of Washington* 18:35-54.
- MacFarland, Frank Mace. 1912.** The nudibranch family Dironidae. *Zoologische Jahrbucher Supplement* 15(1):515-536.
- MacFarland, Frank Mace. 1923.** The morphology of the genus *Hancockia*. *Journal of Morphology* 38(1):65-104.
- MacFarland, Frank Mace. 1966.** Opisthobranchiate Mollusks of the Pacific Coast of North America. *Memoirs of the California Academy of Sciences* 6: 546 pp.
- MacFarland, Frank Mace & Charles H. O'Donoghue. 1929.** A new species of *Corambe* from the Pacific Coast of North America. *Proceedings of the California Academy of Sciences, Series 4*, 18(1):1-27.
- Marcus, Eveline & Ernst Marcus. 1967.** *American Opisthobranch Mollusks*. Studies in Tropical Oceanography, Miami. viii + 256 pp.
- McLean, James H. 1961.** Marine mollusks from Los Angeles Bay, Gulf of California. *Transactions of the San Diego Society of Natural History* 12(28):449-476.
- Millen, Sandra V. & Hans Bertsch. 2000.** Three new species of dorid nudibranchs from southern California, USA, and the Baja California Peninsula, Mexico. *The Veliger* 43(4):354-366.
- Millen, Sandra V. & Hans Bertsch. 2005.** Two new species of porostome nudibranchs (Family Dendrodorididae) from the coasts of California (USA) and Baja California (Mexico). *Proceedings of the California Academy of Sciences, Series 4*, 56(18):189-199.

- Miller, Michael D. 2006.** *Peltdoris lancei*: Webmaster's Notes. www.slugsite.us/bow/nudwk504.htm
- Mulliner, David K. 1972.** Breeding habits and life cycles of three species of nudibranchs from the eastern Pacific. *The Festivus* 3(9):1-5.
- Poorman, Forrest L. & Leroy H. Poorman. 1978.** Additional molluscan records from Bahía de los Ángeles, Baja California Norte [sic]. *The Veliger* 20(4):369-374.
- Roller, Richard A. 1970.** A list of recommended nomenclatural changes for MacFarland's "Studies of Opisthobranchiate Mollusks of the Pacific Coast of North America." *The Veliger* 12(3):371-374.
- Skoglund, Carol. 1988.** Deep water shells from off Isla Smith, Bahía de los Ángeles, Baja California, Mexico. *The Festivus* 20(11):110-116.
- Steinbeck, John & E. F. Ricketts. 1941.** *Sea of Cortez: A Leisurely Journey of Travel and Research.* Viking Press, New York. 598 pp.
- Valdés, Ángel & Hans Bertsch. 2010.** Two new species of dorid nudibranchs from the Gulf of California (Mar de Cortés), Baja California, Mexico (Mollusca: Opisthobranchia). *Spixiana (Zeitschrift für Zoologie)* 33(1):1-11.
- Williams, Gary C. & Terrence M. Gosliner. 1973.** A new species of Anaspidean opisthobranch from the Gulf of California. *The Veliger* 16(2):216-232.



Figure 42. Rainbow over the bay; BLA, 25 November 2015. (Photo by HB)