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Phyllodoce medipapillata
 Photo by L. Harris

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The SCAMIT newsletter is not deemed to be a valid publication for formal taxonomic purposes.

Publication Date: June 2017

9 JANUARY 2017, SABELLIDAE, CSD; RICARDO MARTINEZ LARA, LEAD

Attendance: Erin Oderlin, Greg Lyon (CLA-EMD); Kathy Langan, Allison Brownlee, Ricardo Martinez Lara, Ron Velarde, Veronica Rodriguez, Gabe Rodriguez, Matt Nelson, Maiko Kasuya (CSD); Dean Pasko (DCE); Arturo Alvarez (UABC); Angelica Zavala (MTS); Bill Furlong, Brent Haggin (LACSD); Leslie Harris (NHMLAC); Ernest Ruckman, Kelvin Barwick, Mike McCarthy (OCSD).

Remote Attendees: Erica Keppel (MIRL); Doug Foster (TheLab); Angela Eagleston, Dany Burgess (WADOE); Chip Barret (EcoAnalysts); Dot Norris (Consultant).

UPCOMING MEETINGS

Visit the SCAMIT website at: www.scamit.org for the latest upcoming meetings announcements.

The business portion of the minutes were lost due to the Secretary experiencing computer issues. Following are the minutes covering the taxonomic portion of the meeting.

Ricardo started by reviewing the general characteristics and taxonomic character states used by CSD staff to identify members of the Sabellidae. The introductory Sabellid PowerPoint was developed primarily by Kelvin Barwick, and adapted and edited by Ricardo for this meeting.

He then showed a compilation of Fitzhugh (1989) figures showing the anterior morphology of Sabellids to aid with family terminology.

At the conclusion of his introduction Ricardo went over the reasoning for the meeting. At the September 2016 meeting, Sabellids were mentioned as a polychaete family that was problematic, and Ricardo volunteered to conduct an introductory workshop-type meeting, and provide a general review of the sabellid identification materials that haven't been reviewed in a broader meeting since Dot Norris created a key.

At City of San Diego Lab, Dot's picture key to the Sabellids is still used as the primary source for identification of the common species. Ricardo spoke about San Diego trying to revise the key on four or five separate occasions. The late Rick Rowe also made an attempt, but no rendition has been found to do a better job than Dot's picture key. The limitation of the key is that it's somewhat dependent on methyl green staining, with less attention to morphology. The original key has been since modified several times, and populated with photographs in addition to drawings.

He also reviewed the history of methyl green staining pattern in the identification of Sabellidae.

Ricardo then jumped into the use of Dot's key, beginning with Page 1 which distinguishes the subfamily Fabricicinae, 3 abdominal setigers and without a branchial skeleton, from the other taxa. The absence of a branchial skeleton is recognized by the absence of multiple cells in the radioles in X-section. This subfamily is now considered outside the Sabellidae sensu, Capa et al (2014).

Pseudofabriciicola californica is the one common Fabriciiniid in the City of San Diego sampling programs.

The key continues on page 1 with abdominal uncini forming nearly complete cinctures with *Myxicola* which is easily recognized by a reduced collar and pointed prostomium.



SCAMIT recognizes only *Myxicola* sp because of the synonymy of some local species; *M. infundibulum* and *M. aethetica*. Leslie explained what happened with this taxon, and reminded everyone of her *Myxicola* sp A.

Finally, page 1 of the key leads in two directions: Sabellids without companion setae (page 2 and 3), or Sabellids with companion setae present, page 4.

Ricardo moved to Pg 2 of the key and noted that there were few specimens of *Fabrisabella* sp A. In contrast, *Jasmineria* sp B is fairly common, and the only local species with a caudal cirrus, combined with a high collar extending above the base of the branchiae.

Euchone are distinguished by the number of depression setigers in the the abdomen. Ricardo suggested that *Euchone* should be primarily identified by counting abdominal depression setigers combined with the total abdominal setiger count. Methyl green staining in the *Euchone* is not as reliable as in other Sabellids.

He then went through the various pictures of specimens from Page 2. When we got to *Euchone incolor*, Leslie pointed out that what we call *E. incolor* is actually not correctly named. Our local species should become *Euchone* sp B. Next, a discussion of a potentially new species of *Euchone* that matched *E. incolor* on abdominal depression setiger count, but the staining was different. The specimen was small and had a “half-moon” slit of non-staining area on the collar as opposed to the 2 lateral non-staining areas of the “true” *E. incolor*. The variance in staining pattern for this *E. incolor* specimen highlights why San Diego relies on abdominal depression setiger counts rather than staining patterns.

Page 3 deals with the species that had been placed in the genus *Chone* in the past. With the publication of Tovar-Hernández (2008) local species have been placed in either *Dialychnone* or *Paradialychnone* which necessitated some modifications of the key. Methyl green staining patterns are relied on heavily and given the key’s artificial construction, little change was required to Pg 3.

Three species to be wary of include *Dialychnone albocincta*, *Paradialychnone paramollis*, and *P. eiffelturris*. The staining patterns of these three species are conservative and reliable, in Ricardo’s opinion, but they are similar and distinctions are subtle. He contrasted that with a slightly variable staining of *D. ecaudata*. Ricardo talked about the concept of staining patterns that are similar between species vs. variability within species.

Next in the discussion he pointed out an error in the written portion of the key - “collar raised ventrally; with dark staining band; thoracic uncini spatulate with or without mucron” is misleading. *Dialychnone albocincta* **do** have mucrons on the spatulate setae.

Paradialychnone ecaudata has two different staining patterns, one with a batman-like staining pattern on the collar. The second variant is a pattern with a more rounded stain similar to Tovar-Hernández’s (2008) illustration (Fig E), as well as the old *C. minuta* voucher sheet. Leslie later showed pictures of live specimens with the rounded glandular areas on the collar.

Ricardo discussed the idea that *Paradialychnone eiffelturris* is recognizable by the presence of the “tuning-fork” ridge ventrally on the collar. However, Leslie Harris reports that the ridge is sometimes flattened and not always present.

He noted that *Paradialychnone paramollis* and *Dialychnone albocincta* can also be distinguished (beside their staining pattern) by the 2nd setiger glandular ring structure, where *P. paramollis* has



a glandular ring that remains the same width and position (mid-setiger) around the circumference (ventral and dorsal), while *D. albocincta* has a glandular ring that is wider ventrally, positioned mid-setiger, but thinner dorsally with the ring positioned on the anterior margin of setiger 2.

Page 4 of the key deals with a few disparate species that have companion setae. The key is very regional in this case, i.e., reliable for the SCB species only, and may not be inclusive of all the species possible. There was a brief discussion concerning the “W” stain of *Bispira* that according to Leslie is true of the genus. Ricardo also illustrated the difference in eyes on the radioles of *Megalomma pigmentum* vs. the spiral eyes of *M. splendidum*.

Parasabella fullo was collected and photographed by Kelvin from Bight’13. The photos show the arista and companion setae detail, as well as the pigmented branchial radioles. The specimen was collected from 16m. Leslie mentioned that there is some question about the identity. Is it really *P. fullo*? Leslie has seen something that looks just like this specimen in the Sea of Japan, and therefore designated her specimens as “*P. ?fullo*”. *P. pallidus* has very enlarged setae.

Ricardo finished with a slide showing a table with Current Identifications of Sabellids vs. Previous Identifications.

He also had a final version of the revised key with minor edits and pictures that was distributed electronically via pdf.

After lunch, we rallied to review Leslie’s Sabellid photos. During Ricardo’s presentation Leslie recognized that she had several photos that were worth sharing.

Starting alphabetically with *Bispira*, we looked at *Bispira* sp LH04-3 with the split collar. *Bispira* has a recognizable “W” on the collar, and paired eyespots.

Branchiomma sp LH1, from Redondo Beach Harbor, a dock fouling species. It has a spotted body, with the spots generally remaining even after preservation. Other specimens were collected from Los Angeles Harbor off a Reish settling plate in 2014. Leslie pointed out the stylodes that come off the back of the radioles. There apparently is debate about the utility of the stylode characteristics for distinguishing taxa. This harbor species may be a European species or *B. veridi*. Although the specimens have some differences, Leslie is keeping them at *Branchiomma* sp LH1 because of the controversy about the taxonomic value of stylodes, and differences in size of animals sampled to date.

A species of *Laonome* sp SF1 that occurs in predominantly brackish water from San Francisco is probably *L. cappa*.

Megalomma coloratum from Malibu Pier shows a clear staining band below the 3rd setiger vs. below the second setiger in *Dialychone albocincta* (see above).

Leslie had a wonderful set of pictures of *Myxicola* sp A Harris that lives on hard substrates in masses of slime. This is as opposed to *M. infundibulum* found in soft bottoms.

After viewing Leslie’s photos a very productive meeting was concluded.



21 FEBRUARY 2017, SCAMIT SPECIES LIST REVIEW COMMITTEE, SCCWRP

Attendees: Kelvin Barwick, meeting lead (OCSD); Greg Lyon, Erin Oderlin (CLA-EMD); Don Cadien (LACSD); Ron Velarde, Megan Lilly, Wendy Enright (CSD); Tony Phillips (private consultant)

We started with a review of the minutes from October. The minutes were approved and everyone accepted their fate with regards to their task assignments.

Kelvin started with an overview of the purpose of the committee and the dispersion of responsibilities. He then reviewed the “mock-up” provided by Don. Of special note were the items in the “on hold” tab where many provisional species have sat for years. Since so many of these items are old, they are marked for insertion into the list using Ed 6 numbers instead of the most recent list. Also, we were reminded to list all papers on the proposal tab, even if we reject them. It’s part of our paper trail and documentation for why the list was changed or **not** changed. We were reminded by Don to use the line number such that your insertion goes **above** that number.

Next was a review and discussion of the massive tree of life organization paper by Ruggiero et al (2015). Do we want to adopt their conclusions for the upper hierarchy of our taxa? Don gave a concise summary of the paper and then presented a basic argument to reject the paper for the purposes of our list and to continue with our current practices. A concern with a “consensus” paper such as this is the consideration of the compromises that are involved in reaching these agreements. It was decided after brief discussion that there was not sufficiently compelling evidence that this paper was superior to our current classification. In many ways this is similar to the rationale to follow/not follow the WoRMS classification.

Kelvin used his proposed emendation list and a paper regarding a subfamily change in the Mollusca, as an illustration of how the phyla subcommittees might work going forward.

We then set about reviewing the hold list; how to deal with those old entries? Ideally, each agency should take ownership of their items and either put them in a “graveyard” with an associated higher taxon, determine whether they have been synonymized, or otherwise move forward on providing sufficient documentation. This would require another column in the table but that is generally doable. We all need to work together to get the list under control. Greg suggested that each phylum lead take responsibility for following up with their groups in order to start addressing this issue. Keep in mind, there’s no expectation that all will be resolved prior to July 1 but if we can keep the list from growing, we will count that as a victory.

The deadline for emendation inclusion is no later than June 15th. The process is as follows: submission of emendations within a phylum are distributed amongst the phyla subcommittee (at a minimum) or to the entire Species List Review group. We decided on a minimum of two weeks prior to the publication date, but better to allow more time if possible. If these deadlines are missed then the emendations will roll over into the next edition or be placed on the hold list (potentially).

Sharing documents between committee members has become a bit of a difficult issue as various agencies have differing rules about what software can and can’t be used. Kelvin has been experimenting with Zotera and has found it useful for organizing literature but not as useful for sharing documents online (which is kind of the point of using the software). So more work on



how best to share literature still remains. Phyla leads will follow up on the literature listed in the front matter and make sure that the listing is sufficient for their respective groups. For now, if you want to acquire specific literature, ask Don.

Kelvin then called for phylum group updates, followed by resounding silence with a few exceptions. Arthropods were discussed by Don: there are a few isopod changes, a touch of copepod “stuff”, and some tidbits on amphipods, tanaids, etc. Assuredly, Don’s group will make enlightened and informed decisions about whether or not to accept these various suggested modifications. Potential changes to the mollusca and kinorhyncha have already been sent by Kelvin via email. And lastly, Tony briefly touched on cnidaria and platyhelminthes; in the cnidarian there is a possible change with the zooanthid subfamily, and Tony will seek clarification from Don regarding some flatworm literature.

After lunch, we tackled the continuing thorny issue of the database and bringing the process online. Kelvin had created an initial draft of an RFP (see attachment at the end of the newsletter). His outline is a first attempt to organize our needs so we can add detail and generate as much information as possible in order to minimize the change orders that might be required once we have established a contract for the work. Don suggested a slight elaboration of the mapping tool to include moderate statistical tools such as max/min depth.

Integration of the BRI tool with the database tool would be a powerful selling point to acquire funding from the POTW agencies and other stakeholders. Securing funding from the POTWs will be quite a challenge but could help make this project a reality sooner. Contacting the State for funds was also suggested and discussed but we agreed that would require expanding the List to include all of CA.

Action Items:

- Phylum leads will continue to share possible emendations with their groups/the whole committee as well as follow up with the hold list in their assigned specialties in preparation for Ed 12. Additionally review the front matter
- Kelvin will continue to work on the RFP outline along with Greg and Wendy (should this be a request for bids or a request for proposals?)
- Milestones for emendation submissions sent out by KB
- Contact Don if there are literature needs
- Next meeting will be April; Kelvin will send out a Doodle Poll



27 FEBRUARY 2017, *PHYLLODOCE & EULALIA*, NHMLAC; LESLIE HARRIS, LEAD

Attendance: No attendance list was submitted to the Secretary.

The meeting was called to order and welcoming statements and upcoming meeting announcements were made by Larry Lovell. He also discussed officer elections and announced current nominations. Members were reminded and encouraged to sign up for the SCAMIT email list, if they had not already done so.

Leslie Harris mentioned her recent trip to the Multi-Agency Rocky Intertidal Network (MARINE) annual meeting in Trinidad, CA, along with the rest of the museum's MBC-DISCO team. At the meeting she discussed the importance of SCAMIT and what we can do for the MARINE program. There were many excellent short presentations, including one on the various ways to use iNaturalist (iNaturalist.org), which could be utilized by SCAMIT.

With the business meeting over Leslie moved on to her presentation – “A review of *Phyllodoce* and *Eulalia* of the North East Pacific begins”. The presentation was primarily based on the information, voucher sheets, and images shared by SCAMIT members, plus Leslie's observations made over many years spent examining types, topo-types, and hundreds of non-type specimens.

Species pigment patterns were emphasized as were proportional length of the antennae, tentacular cirri, dorsal cirri and ventral cirri. Specimens were not examined prior to the workshop so everything was based on images and literature.

Many problems were found in comparative identification of NEP *Phyllodoce* and *Eulalia* species between labs, and between northern and southern members.

The initial list of NEP species was made from a literature review of primary sources for the NEP; Hartman (1936), Blake's MMS Atlas chapter (1994), and original descriptions.

Next was a general review of *Eulalia* and *Phyllodoce* characters and differences. Pigment patterns tend to be well conserved after preservation in these groups and are extremely useful for species identification. Changes from preservation and ontological changes may affect identification. There is some variation in soft characters like cephalic structures (antennae length, position, etc) and cirri shape, due to degree of contraction or relaxation prior to preservation.

Eulalia bilineata

In a review of several hundred specimens from British Columbia to northern Mexico and toptype specimens from the English Channel, Leslie found 8 species misidentified as *E. bilineata*. Most were undescribed; the three described species were *E. californiensis*, *E. gracilior*, and *Eumida longicornuta*. She has not found any true *E. bilineata* in the NEP.

Eulalia californiensis

This is the species most likely to have been identified as *E. bilineata* in eastern Pacific samples. Side note – there was a group discussion at this point on how preservation can affect ID, based on photographs of live and preserved specimens.

Eulalia gracilior

Re-described in 2012 by Pleijel, Aguado, & Rouse. The tentacular cirri are easily 2x longer than those of *E. californiensis*. A photo of *E. gracilior* is in the May/June 2006 SCAMIT newsletter Vol 25(1,) misidentified as *E. californiensis*.



Eulalia quadrioculata* and *E. aviculiseta

The two species were synonymized by Banse (1972), but there is some disagreement as to whether this is valid. Differences in coloration and eyespot patterns were noted by Hartman (1936); four color morphs found in specimens with lanceolate dorsal cirri are attributed to these two species.

Pleijel et al (2012) re-described *E. aviculiseta*, and state that more study needs to be conducted regarding synonymization. Color pattern in Pleijel (2012) does not match that of Hartman (1936) and in Leslie's opinion is likely to be an undescribed species. The type and co-type of *E. quadrioculata* are different species.

A discussion then ensued about what to do, given the documented differences. The options include:

- Lump everything together into *E. quadrioculata* complex
- Split into 1 described and 3 provisional species:
 - ❖ *E. quadrioculata* (maybe = *E. aviculiseta*, pointed ventral cirri), *E. sp* RR1 (rounded ventral cirri), *E. sp* 17, *E. sp* 18 (= *E. aviculiseta* of Pleijel et al)

It was decided to use the latter approach. Leslie will create SCAMIT voucher sheets for the provisionals.

***Eulalia levicornuta* complex (or big headache?)**

The type and co-type specimens are different species. Observed differences in tentacular cirri, ventral parapodial cirri, pygidial cirri, and pigment patterns. Many specimens fit into *E. levicornuta* as described but vary in details of the above mentioned characters and additionally, in the dorsal cirri. Other characters may be useful in separating these as valid species and merits further study. Fresh material in 95% ethanol that can be used for DNA analysis would be extremely useful in confirming if these differences are intraspecific or interspecific.

***Eulalia sp* 11 Harris**

Unique pigment pattern; found in shallow subtidal.

***Eulalia sp* 12 Harris**

Unique spotted pigment pattern, almost certainly not *E. levicornuta*.

***Eulalia sp* 4 RML**

Three rows of large round spots down the dorsum; short antennae and tentacular cirri.

***Eulalia sp* 16 Harris**

Two longitudinal rows of outward-facing “Cs” and a median longitudinal row of rounded spots. Mistaken for *E. californiensis* which has 2 longitudinal rows of inward-facing square brackets and occasionally median longitudinal lines which coalesce to form a third row. Median spots of *E. sp* 16 never coalesce.

***Eulalia sp* NAMIT1 Harris**

Distinct pigment pattern (“striking looking”), anterior dorsum mostly dark except for unpigmented mid-dorsal longitudinal stripe.

***Eulalia sp* NAMIT2 Harris**

Mid-segmental transverse pigment lines (frequently mis-ID'd?).



***Eulalia* sp N1 Ruff 1989**

May be same species as *E. sp* NAMIT4 Harris?

***Eulalia* sp NAMIT4 Harris**

Cirri shape; chaetal structures.

***Eulalia strigata* Ehlers 1900**

Mentioned just once by Hartman (1936), never observed again and Hartman's specimen was either lost or re-identified but not recorded.

***Eulalia viridis* (Linnaeus)**

Has lanceolate dorsal cirri. NEP specimens examined by Leslie were actually *E. quadrioculata* or one of the related provisional species with faded or no pigment patterns.

After lunch we started on the *Phyllodoce*. We covered general characteristics and reviewed an abbreviated key to CSD common species.

Phyllodoce cuspidata

Cuspidate ventral cirrus, 2x ventral spots per segment (usually conserved in preservation). A discussion took place regarding pigment patterns, variations, and a mystery voucher sheet. Possibly 2 species?

Phyllodoce groelandica

Probably found mostly in Europe. Distinct color patterns found in voucher specimens. May be up to 5 different species. *P. groelandica* is not likely to be found in CA, and may have been historically misidentified.

Phyllodoce hartmanae

Distinct pigment pattern, papillae, and ventral pigment spots make *P. hartmanae* fairly easy to ID. There was some brief comments regarding WA and SF vouchers.

Anatides heterocirrus

No type specimen located, only the written description remains, and only one specimen has been found.

***Phyllodoce longipes* NEP**

Digitate superior parapodial lobe unique on this coast; has distinct pigment pattern; could be 3 different species, all have the “pointy” ventral lobe; may be identified using the dorsal cirrus. Original description is inadequate for identification. Redescribed by Pleijel (1988) after examination of holotype and specimens primarily from northern Europe. Pigment pattern of European specimens differs from that of NEP specimens, suggesting that our local worms are not the same species. Confirming if NEP specimens are the same as *P. longipes* from Chile requires getting Chilean specimens for comparison.

Phyllodoce papillosa

Pigment pattern in McCammon & Montagne (1979) and Uschakov & Wu (1959) are different enough to belong to different species. McCammon & Montagne did not mention or illustrate an elongated superior parapodial lobe so the later synonymy of their NEP records with *P. longipes* may be questionable.



Phyllodoce medipapillata

Possibly often misidentified as *P. groelandica*. Identify using mid-dorsal papillae and striking pigment pattern in larger specimens. Small worms are light yellow or brownish-yellow and dorsal cirri are often pink. Largest specimens have brilliant iridescent blue-green color and yellow or olive dorsal cirri. Eggs are bright turquoise and sperm is white.

Phyllodoce multipapillata

Northern NEP species; off San Francisco is the southern-most record to date.

Phyllodoce multiseriata

Described from Acapulco; found in sabellid colonies. Reported in Hartman (1968). May be misidentified in NEP.

Phyllodoce pettiboneae

Long narrow digitate ventral cirri; rows of lateral chitinous cusps (K. Barwick photo).

Phyllodoce williamsi

Three lines of spots dorsally; ventral pigment squares.

***Phyllodoce* sp SD2**

Thick, distinct mid-dorsal longitudinal pigment line; big ventral cirrus on 2nd tentacular segment; nuchal papillae. Unsure of generic assignment, need to re-examine specimens.

***Phyllodoce* sp Phillips B10 SMB2004**

Provisional from LA (Santa Monica Bay).

Phyllodoce mucosa

P. hartmanae, *P. longipes*, (others) may have been misidentified as *P. mucosa*; does not occur in NEP.

Phyllodoce madeirensis

May be mis-identified as *P. medipapillata*; does not occur in NEP.

Phyllodoce maculata

P. hartmanae, *P. longipes*, and *P. williamsi* have been misidentified as this European species; does not occur in NEP.

Phyllodoce citrina

European species, reported from the Washington-British Columbia area, not likely to occur in the SCB. Leslie wants to see any specimens identified as this.

With that the presentation was complete and we moved on to concluding thoughts and an open discussion regarding presented material.

Tony Phillips asked what segments should parapodia be taken from for comparison of these species? Leslie answered that taxonomists should photograph/describe the parapods from the following segments - 10th, middle, and 20th from the end. If the specimen is a fragment, estimate the middle, and take the last parapod of the fragment.

Next was a conversation regarding the possibility of organizing “round robin exchanges” of specimens which was a feature of early SCAMIT meetings. Specimens provided by the different agencies have coded labels and are exchanged among the participating labs one month prior to the meeting discussing the phyla in question. This enables taxonomists to gauge the level of



consistency and proficiency of identifications. Several members expressed enthusiastic support of this activity, especially in light of the upcoming Bight'18 survey.

As for future meetings: Leslie requested that Terebellidae vouchers sheets and pictures be sent to her in preparation for the September meeting.

K. Barwick and R. Velarde expressed concerns that *Phyllodoce* vouchers may be mis-labeled, and a discussion followed about how to resolve these misidentifications. Leslie recommended that the 1st step is to create new voucher sheets synthesizing the information presented at the meeting, with specimen observation.

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Please visit the SCAMIT Website at: www.scamit.org

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The SCAMIT newsletter is published every two months and is distributed freely to members in good standing. Membership is \$15 for an electronic copy of the newsletter, available via the web site at www.scamit.org, and \$30 to receive a printed copy via USPS. Institutional membership, which includes a mailed printed copy, is \$60. All correspondences can be sent to the Secretary at the email address above or to:

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Detailed outline of database tool proposal (DRAFT presented to the Species List Review Committee on February 21, 2017)

- I. Brief history of SCAMIT and purpose
 - A. Established 1982
 - B. Standardize marine invertebrate taxonomy in the SCB
 - C. Monthly meetings and newsletter
 - D. Publish and maintain list of invertebrates "A TAXONOMIC LISTING OF BENTHIC MACRO- and MEGAINVERTEBRATES from Infaunal & Epifaunal Monitoring and Research Programs in the Southern California Bight"
 - a. Annual publication (July 1)
 - b. Standardize name usage including common synonyms
 - c. Includes current phylogenetic hierarchy (to Phylum level)
 - d. Reference list used in construction of list
 - e. Built and maintained as Excel file
 - E. Stake holders
 1. Committee
 2. General membership
 3. Regional POTWs
 4. SCCWRP
 5. Larger scientific community
- II. Database tool specification
 - A. General requirements
 1. List construction built on currently accepted species; listing should include each nominal taxa:
 - a. Binomial consisting of Genus and species
 - b. Authority and year
 - c. Synonyms (binomial and authority)
 - Objective
 - Chresonym (of usage)
 - d. Citation for inclusion (not authority)
 - e. Complete most current accepted phylogenetic hierarchy
 2. Metadata for nominal taxa:
 - a. Change history of binomial in context of the list
 - Add (New taxa record)
 - Delete (Record included in error)
 - Changes in orthography
 - Changes in authority- Replace
 - Reorder (change in phylogeny)
 - Merge (combine with senior synonym)
 - Split (remove from synonymy)
 - When (version)
 - Who
 - ◇ Proposed
 - ◇ Approved
 - b. Past phylogenetic hierarchies
 - c. Additional information (future goal)

- Pollution index codes (BRI, ITI, etc.)
 - Morphology
 - Occurrences (mapping)
 - References
3. List emendations process
 - a. All members can propose changes
 - b. Committee can propose and approve changes
 - c. Two main change categories
 - Non-controversial
 - ◇ Changes in orthography (binomial and or authority)
 - Controversial
 - ◇ Add (New taxa record)
 - ◇ Delete (Record included in error)
 - ◇ Replace
 - ◇ Reorder (change in phylogeny)
 - ◇ Merge (combine with senior synonym)
 - ◇ Changes in authority
 - ◇ Split (remove from synonymy)
 - d. Resolution (accept or reject proposals)
 - Non-controversial (accepted without comment)
 - Controversial (require approval by committee and/or subcommittee(s))
 - ◇ Accepted
 - * Citation for inclusion
 - * Individual making proposal
 - * Committee comments
 - ◇ Hold (not accepted)
 - * Temporary (awaiting additional action)
 - * Permanent
 - ◆ No indication of a resolution possible
- B. Users reporting requirements
1. Committee
 - a. Publish updated annual list (July 1)
 - b. PDF
 - c. Front Matter
 - Managing editors
 - Editors of Phyla
 - Citation for accepted phylogeny
 - Explanation of how list was compiled
 - Orthographic requirements
 - d. Phylogenetic list
 - Electronic file format
 - Orthographic requirements
 - Hierarchy
 2. General members
 - a. View and download formatted copy of current or former lists including:
 - publication date (version)

- publication authors
 - front matter
 - complete phylogeny
 - synonymies
- b. Eventual linkage to additional information (future goal)
- Pollution index codes (BRI, ITI, etc.)
 - Morphology
 - Occurrences
 - ◇ Mapping
 - * Ranges
 - * abundances
 - ◇ Statistical calculations
 - References
3. Regional stake holders
- a. CSV (or other format) flat files of List (excludes Front Matter)
 - b. p-code updates feeding into BRI, ITI, and other indices
 - c. Rules for assignment of codes
 - d. Web app for BRI calculation
 - e. Ability to revert to previous versions for species list comparisons or to “lock” a given version for a multi-year project such as Bight
4. Scientific Community?

POTWs (Regional)

1. CSV (or other format) flat files of SLRC item I. (above) excludes Front Matter
2. p-code updates feeding into BRI, ITI, and other indices
3. Web app for BRI calculation
4. Ability to revert to previous versions for species list comparisons or to “lock” a given version for a multi-year project such as Bight

For SCAMIT and its members:

- I. PDF of SLRC item I. (above)
- II. Updated Toolbox names and hierarchy
- III. Species page update
 - A. Linkage to Toolbox
 - B. Distribution/occurrence data (map)
 - C. Photos
- IV. Literature linkage
 - A. Part of the toolbox/species list
 - B. Questions regarding copyright, etc to be addressed at December 2016 meeting with Dean Pentcheff

For Agencies: (In progress)