Building an information-rich marine imagery database

Linda Kuhnz
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1988
First ROV dive; rudimentary annotation

1996
Early VIMS and VICKI

2005
Video Annotation and Reference System (VARS)

2015
Deep-Sea Guide (web-based)

Today
5.3 million observations in VARS database
What to keep track of?

- Taxonomic name changes
- Data quality
- Quantitative data
- Field of view
- Embargoed data
- References

Ability to document information at the appropriate level
Hierarchical Structure
Taxonomic tree, name changes, common names, retain synonyms

Descriptions
Shape, color, behavior, habitat, geographic and depth range, compare and contrast with other taxa

Images
Typical, close-up, male, female, juvenile, specific features, measurement directions

Placeholder names
Known new species = sp. A
currently unidentified morphotype = sp. 1

Species complexes
Organisms that cannot be distinguished in imagery

Level of confidence
Publications, taxonomic consultants, molecular work; modifiers (certain, provisional, unconfirmed)
**Individual annotation level**

- **Level of confidence**
  Maybe, likely, distant; track observer

- **Sample collection**
  Sample number, collection method, good in situ image

- **Behavior**
  Eating, burrowing, inking, etc.

- **Habitat**
  Consistently document throughout dive, individual-specific

- **Quantitative**
  Transect designations, use of identify reference #’s, population quantity

- **Size or area**
  Linear measurements, polygons
**Bathyraja spinosissima**

Alternate names: Pacific white skate, white skate

Author: (Beebe and Teevan, 1941)

**Taxonomy:**

- **Eukarya** (superkingdom)
- **Animalia** (kingdom)
- **Chordata** (phylum)
- **Vertebrata** (subphylum)
- **Gnathostomata** (superclass)
- **Elasmobranchii** (class)
- **Rajiformes** (order)
- **Arynchobatidae** (family)
- **Bathyraja** (genus)
- **Bathyraja spinosissima** (species)

**Description:**

General: Larger; uniform white to light-medium gray. Snout extends beyond indented pectoral fins. May have slightly darker margined, andalar thorns are evident in some darker-colored males. Note the thick base of the tail (compare to B. abyssicola). Claspers may appear white-tipped in darker males.

Size: to 150 cm TL.

Reproduction: Ovoviviparous; young born from within a leathery eggcase.

**Geographic Information:**

Published depth range: 800 - 2938 m

Ocean range (global): Waldport, Oregon to Isla Cocos, Costa Rica and the Galapagos islands.

Habitat description: Benthic. Demersal over hard substrate (lava, seamounts).

**Media:**

- Phylogenetic Image Gallery
- Data Products
- Annotated Images

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**Image for the group geological feature**

**geological feature**

**geological morphology**

- hydrothermal vent

- black smoker

- clear shimmering vent

- white smoker
Scotoplanes sp. A

Originator: linda
Author: 
Rank: species
Reference: 

Descriptions

dsg-depth-distribution | self | Generally less than 1600 m.
dsg-description | self | Compare with Scotoplanes globosa. This species is ultra-white with body wall annulations often clearly visible, Ann internal-video-lab-only-comment | self | This is a new species (confirmed through molecular comparisons) that will be described in the future.
dsg-habitat | self | Benthic.
dsg-bioluminescent | self | Benthic.

Link: 

To Concept: self

Value: 
Compare with Scotoplanes globosa. This species is ultra-white with body wall annulations often clearly visible; annulations are less pronounced at deeper depths. Lateral papillae relatively short.
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**Scaphopodes sp. A**
- Identity-reference | self: 2
- life-stage | self: reproductive
- sample-reference | self: DE640-A2 in canister 3
- sampled-by | Suction Sampler | nil

**Actinostolidae**
- Acanthogorgia
- Actiniae sp. 1
- Antimenes rixerri
- Antimorea microplaxis
- Apritius kampea
- Asbestoplana
- Ateronix loveni
- Bathypathes
- Bathyrhiza alyssicola
- Bathyrhiza trachura

**Bothrocara brunteanum**
- Benthoplectron claviger
- Calliostoma planxterum
- Carapax canaliculatus
- Chionoecetes tanneri
- Choristoma
- Crepidocarpus
- Chorilla longipes
- Corallium
- Coryphoscolex acroplepis
- Coryphoscolex acroplepis-filler
- Diplosaccaster
- Embambcdothythys bathybius
- Evolactis
- Fistulopus
- Gonophyton
- Gorgonecephalus
- Heterocorne
- Histiasterina
- Histiasterina californica
- Histiasterina lepidoptron
- Harmoniniidae
- Hiodonella
- Hiodonella tentacularis
- Kerasteropsis
- Lepidoptron
- Lepidoptron brevicorne
- Lycodapus
- Macrouridae
- Neolithodes
- Mammopsis
- Octocorallia
- Ophryoscolex
- Pandalops ampla
- Paracypophyton
- Paragorgia
daubena
- Paralems
- Parastenella
- Phascolodes planipes
- Pseudarchaster
- dissimotus
- Psathyropoma fragilis
- Scleramothenopsis
- Scaphopodes sp. A
- Sebastolobus
- Solasteridae
- Sibogorgia caudiflora
- Staurocytopus
- Stethocorys
- Tracocephalus
- Veligerella
- Xestospongia

**MARS**
- Deep
- Midwater
- Slow transect
- 200 m
- 300 m
- 400 m
- 600 m
- 800 m
- 1000 m
- 1200 m
- Station M
- GCDC