

Databasing workflows for 3D objects in  
trays and drawers, fluid-preserved  
invertebrates, and microscopic slides

or

When streamlined data entry slows to a  
crawl



Paul Valentich-Scott

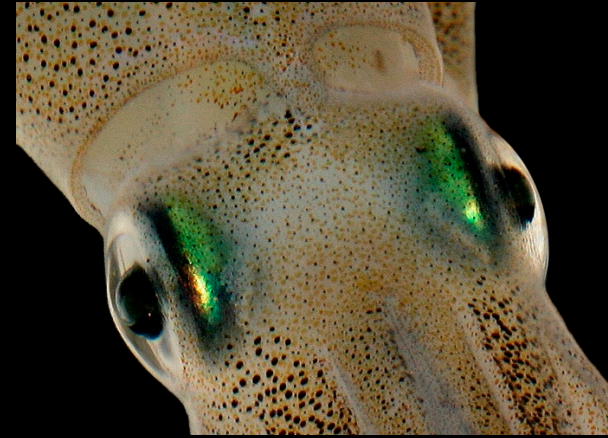
Santa Barbara Museum of Natural History

# What do we have??



- Historic “odd-lot” collections of invertebrates
  - Little expeditionary material
- Specimens in vials, boxes and jars
- Few field catalogues or notes
- Approximately 10% of the collection currently digitized in Specify

# What do we have??



- Over 3,400 invertebrate type lots
- Over 500,000 mollusk lots (wet and dry)
  - Global repository for bivalves, cephalopods, chitons and gastropods
- Over 150,000 wet lots in jars
- Internationally significant collections
  - Cnidaria, Bryozoa, Brachiopoda, Foraminifera



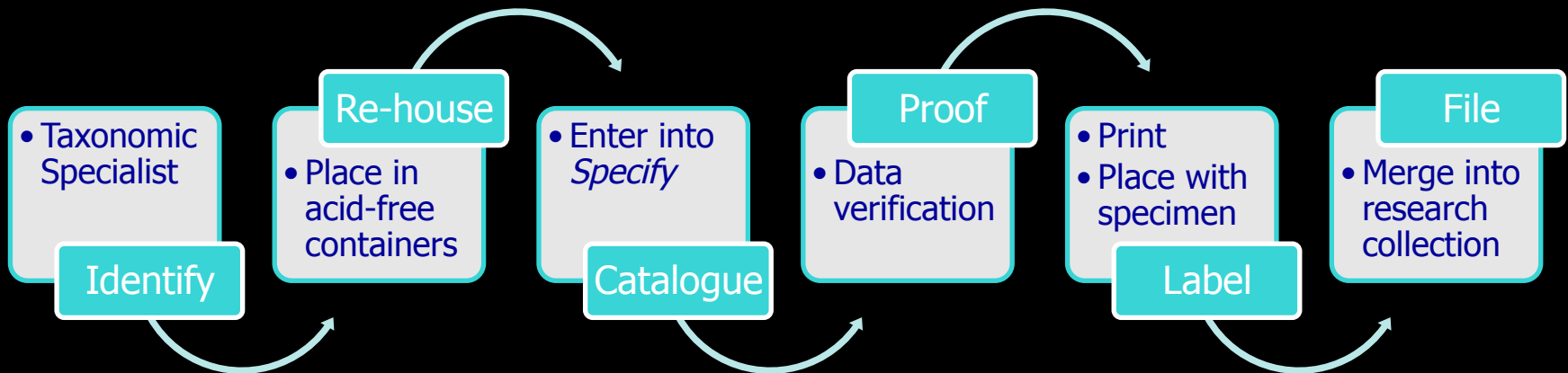
# How does it arrive?





# Our current curation workflow

- Start with uncurated incoming specimens



- About 5 minutes per lot to process

# What does the collection look like?



# What does the collection look like?



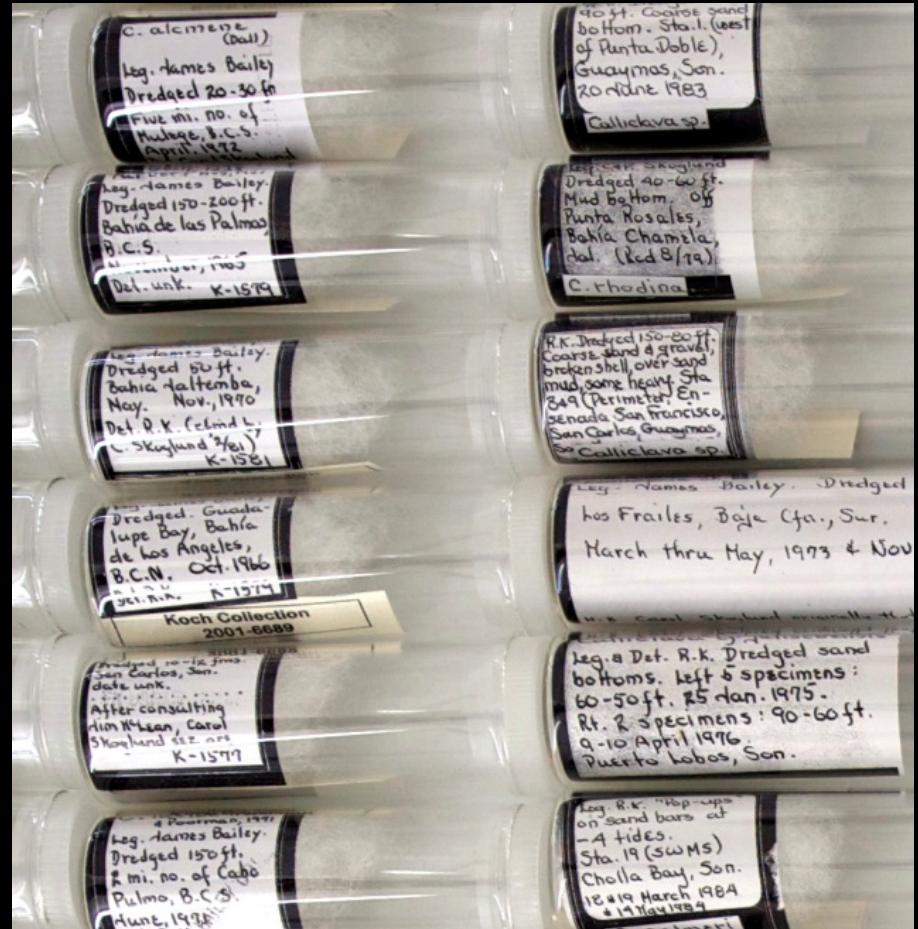


# What does the collection look like?





# What does the collection look like?



C. alcinosa  
(Dall)  
Leg. James Bailey  
Dredged 20-30 ft  
Five mi. no. of  
Mudge, B.C.S.  
April, 1972

40 ft. coarse sand  
bottom. Sta. 1. (west  
of Punta Doble),  
Guaymas, Son.  
20 June 1983  
Calliactva sp.

Leg. James Bailey  
Dredged 150-200 ft.  
Bahia de las Palmas  
B.C.S.  
November, 1965  
Det. unk. K-1579

Leg. R.K. Skoglund  
Dredged 40-60 ft.  
Mud bottom off  
Punta Nosales,  
Bahia Chamela,  
Dall. (Red 8/79)  
C. rhodina

Leg. James Bailey  
Dredged 50 ft.  
Bahia Taltemba,  
May, Nov, 1990  
Det. R.K. Felder &  
C. Skoglund (2/81)  
K-1581

R.K. Dredged 150-80 ft.  
Coarse sand & gravel,  
broken shell over sand  
mud, some heavy Sta  
849 (Perimeter En-  
senada San Carlos,  
San Carlos, Guaymas,  
Calliactva sp.

Dredged. Guada-  
lupe Bay, Bahia  
de los Angeles,  
B.C.N. Oct. 1966  
Det. n.k. K-1577  
Koch Collection  
2001-6889

Leg. James Bailey. Dredged  
Los Frailes, Baja Ca., Sur.  
March thru May, 1973 & Nov

Dredged 20-12 fms.  
San Carlos, Son.  
date unk.  
After consulting  
Jim McLean, Carol  
Skoglund & Z. ans  
K-1577

Leg. a Det. R.K. Dredged sand  
bottoms. left 6 specimens:  
60-50 ft. 25 Jan. 1975.  
Rt. 2 specimens: 90-60 ft.  
9-10 April 1976  
Puerto Lobos, Son.

Leg. James Bailey  
Dredged 150 ft.  
2 mi. no. of Cabo  
Palmo, B.C.S.  
June, 1976

Leg. R.K. "Pop-ups"  
on sand bars at  
-4 tides.  
Sta. 19 (swms)  
Cholla Bay, Son.  
18 & 19 March 1984  
K-1584

# What does the collection look like?

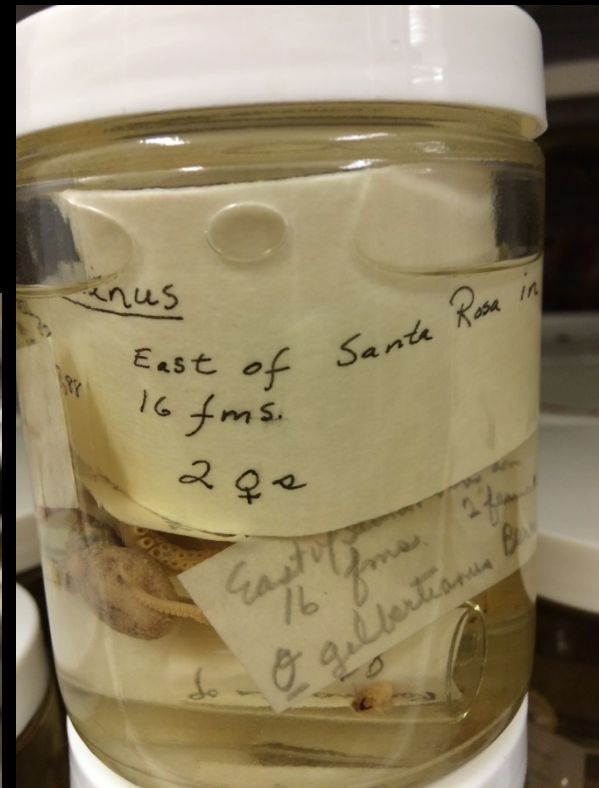
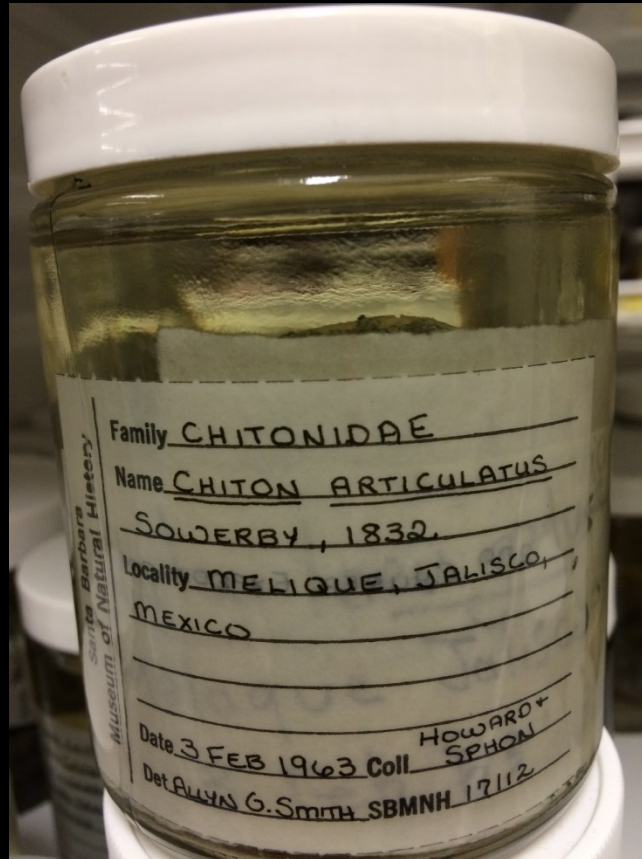




# What does the collection look like?

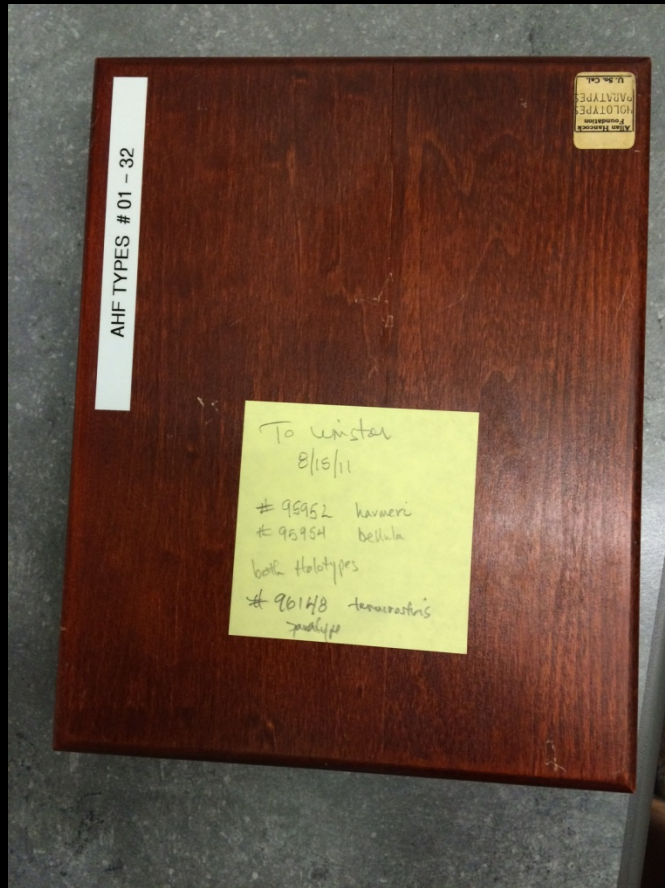


# What does the collection look like?





# What does the collection look like?





# What does the collection look like?



0	<p>SA 18</p> <p>Date of No. Calif. BIOLOGY</p> <p><i>Aleyonidium</i> <i>Polycum</i> (Hass)</p>	<p>Date of No. Calif. BIOLOGY</p> <p>check for Anomura form Dillon Beach Menzies 2-21-14</p>	<p>SA 25</p> <p>Date of No. Calif. BIOLOGY</p> <p><i>Aleyonidium</i> <i>mammillatum</i> Alder 1871</p>	<p>Date of No. Calif. BIOLOGY</p> <p>Tomas Bay Calif Oct 16, 1937 J. Simon 1937 coll</p>	5
1	<p>SA 20</p> <p>Date of No. Calif. BIOLOGY</p> <p><i>Aleyonidium</i> <i>Polycum</i> (Hass);</p>	<p>Date of No. Calif. BIOLOGY</p> <p>dry mount of zoarium M-1-V8 2-4</p>	<p>SA 26</p> <p>Date of No. Calif. BIOLOGY</p> <p><i>Aleyonidium</i> <i>mammillatum</i> Alder 1857</p>	<p>Date of No. Calif. BIOLOGY</p> <p>15-30 fms Alaska Cook Inlet Cold Bay Alaska 60-40</p>	6
2	<p>SA 22</p> <p>Date of No. Calif. BIOLOGY</p> <p><i>Aleyonidium</i> <i>mammillatum</i> (Alders)</p>	<p>Date of No. Calif. BIOLOGY</p> <p>Alaska Cook Inlet Cold Bay Alaska 6-40 15-30 fms</p>	<p>SA 27</p> <p>Date of No. Calif. BIOLOGY</p> <p><i>Aleyonidium</i> <i>mammillatum</i></p>	<p>Date of No. Calif. BIOLOGY</p> <p>Sevent. Newport Calif. 17 fms 16 June 1916 McC 403 T112</p>	7
3	<p>SA 23</p> <p>Date of No. Calif. BIOLOGY</p> <p><i>Aleyonidium</i> <i>mammillatum</i></p>	<p>Date of No. Calif. BIOLOGY</p> <p>Sevent. Newport Calif. 17 fms 16 June 1916 McC 403 T112</p>	<p>SA 28</p> <p>Date of No. Calif. BIOLOGY</p> <p><i>Aleyonidium</i> <i>mammillatum</i> Alder</p>	<p>Date of No. Calif. BIOLOGY</p> <p>400-403 T112 16 fms 18 fms</p>	8
4	<p>SA 24</p> <p>Date of No. Calif. BIOLOGY</p> <p><i>Aleyonidium</i> <i>mammillatum</i> Alder</p>	<p>Date of No. Calif. BIOLOGY</p> <p>Cold Bay Alaska Sta 60-40-42</p>	<p>SA 29</p> <p>Date of No. Calif. BIOLOGY</p> <p><i>Aleyonidium</i> <i>mammillatum</i></p>	<p>Date of No. Calif. BIOLOGY</p> <p>Friday Harbor Aug 1917 31</p>	9

# Numeric catalogues

30000	<i>Genus nux</i> Broderip, 1833 Playa Caracol, Near Bahia San Carlos, Sonora, Mexico. Leg. & Det. Faye B. Howard. March 1966	K-921 Tesora Exped.
30001	<i>Conus princeps</i> Linnaeus, 1758 Playa Caracol, near Bahia San Carlos, Sonora, Mexico. Leg. & Det. Faye B. Howard. March 1966	K-922 Tesora Expedition.
30002	<i>Conus brunneus</i> Wood, 1828 Playa Caracol, near Bahia San Carlos, Sonora, Mexico. Leg. & Det. Faye B. Howard. March 1966	K-917 Tesora Expedition
30003	<i>Mitra tristis</i> Broderip, 1836 Playa Caracol, near Bahia San Carlos, Sonora, Mexico. Leg. & Det. Faye B. Howard. March 1966	K-656 Tesora Expedition.
30004	<i>Mitra solitaria</i> C. B. Adams, 1858 Playa Caracol, near Bahia San Carlos, Sonora, Mexico. Leg. & Det. Faye B. Howard	K-646 Tesora Expedition
30005	<i>Turbo fluctuosus</i> Wood, 1828 Playa Caracol, near Bahia San Carlos, Sonora, Mexico. Leg. & Det. Faye B. Howard. March 1966	K-64 Tesora Expedition.
30006	<i>Modulus cerodes</i> (C. B. Adams, 1851) Playa Caracol, near Bahia San Carlos, Sonora, Mexico. Leg. & Det. Faye B. Howard. March 1966	K-196 Tesora Expedition.
30007	<i>Vermicularia pellucida eburnea</i> (Reeve, 1842) Playa Caracol, near Bahia San Carlos, Sonora, Mexico. Leg. & Det. Faye B. Howard. March 1966	K-189a Tesora Expedition.
30008	<i>Trivia solandri</i> (Sowerby, 1832) Playa Caracol, near Bahia San Carlos, Sonora, Mexico. Leg. & Det. Faye B. Howard. March 1966	K-299 Tesora Expedition
30009	<i>Crasispira nymphia</i> Pilsbry & Lowe, 1932 Playa Caracol, near Bahia San Carlos, Sonora, Mexico. Leg. & Det. Faye B. Howard. March 1966	K-822 Tesora Expedition.
30010	<i>Hamnoea strongi</i> Baker & Hanna, 1927 Playa Caracol, near Bahia San Carlos, Sonora, Mexico. Leg. & Det. Faye B. Howard. March 1966	K-986 Tesora Expedition
30011	<i>Thais biserialis</i> (Blainville, 1832) Playa Caracol, near Bahia San Carlos, Sonora, Mexico. Leg. & Det. Faye B. Howard. March 1966	K-398 Tesora Expedition.

Wednesday, January 13, 1909

By gift ~~W.F. Clapp~~ Mus. Comp. Zool. 5-8: VI: 1922.

5251.	<i>Brachypodella inaequalis</i> W.F. Clapp Paratypes Swan Id., Caribbean (Water)
5252.	<i>Anchus laminiferus</i> (Anax) Latr. Jacobina + Chigra Chigra, Para. Bahia, Brazil
5253.	<i>Amphidromus maculiferus strigatus</i> (Midd.) Malagos, Davao, Mindanao, P.I. (Gen. L. Wood)
5254.	<i>Camaena traillii</i> (Pfeiffer) Palawan, P.I. (Water)
5255.	" <i>forbesi</i> W.F. Clapp Paratypes Bacit, " " ( " )
5256.	" <i>monochroa</i> (Sby.) " " ( " )
5257.	" " " " " " ( " )
5258.	" <i>monochroa palawanensis</i> Bartsch " " ( " )
5259.	" " " " " " ( " )
5260.	" " " " " " ( " )
5261.	" <i>campanula</i> (Pfr.) Bintuan, Davao, P.I. (Water)
5262.	" <i>bintuanensis</i> Midd. " " ( " )
5263.	<i>Cochlostyla (Helicostyla) palawanensis</i> Bartsch Palawan, P.I. ( " )
5264.	" " " " " var. " " ( " )
5265.	" " " " " var. " " ( " )
5266.	<i>Oxytyle floridensis</i> Pils. Chokoloskee Key, Fla. (Brooks)
5267.	" " " " " " " " ( " )
5268.	<i>Liguus crenatus septentrionalis</i> Pils. E. of Ft. Lauderdale, " (Brooks & Day)
5269.	" <i>fasciatus</i> (Miller) near S. Francisco de Paula + Obispo, Cuba (Bartsch)
5270.	" " " " " " " " ( " )
5271.	" " " " " " " " ( " )
5272.	" <i>crenatus</i> Swain. Sumidoro de Valle de Luis Pinar del Rio, " ( " )
5273.	" <i>fasciatus rosatus</i> Pils. Bricchell's Hammock, Miami, Fla. ( " )
5274.	" " <i>testudinum</i> Pils. " " " " ( " )
5275.	" <i>crenatus</i> Sw. Matteson " Dade Co., " (Brooks & Day)
5276.	" " " " " " " " ( " )
5277.	" " " " " " " " ( " )
5278.	" " " " " " " " ( " )
5279.	" " " " " " " " ( " )
5280.	" <i>fasciatus castaneozonatus</i> Pils. " " " " ( " )

# Locality data

QUALITATIVE OBSERVATIONS RECENT FORAMINIFERAL TESTS, WITH EMPHASIS, EASTERN PACIFIC

651

## STATION TABLES OF RECORDS

To save time, Station records have been grouped into Tables using both index letters and numbers to indicate the areas of Eastern Pacific where collections were made. Beginning with letter "A", off Alaska; "V" off Vancouver, Canada; "W" off Washington; "C" off northern California; nos. 1-199 irregular before system adopted; with "1000" *Velero* III stations off California; "2" off Mexico; "3" off Central America; "4" off Galapagos Islands; "5" off South America; "6" Miscellaneous including western, south, north Pacific. Initially there were no collections off Oregon - when made later they are "Or" in last Table. An Asterisk marks the stations out of place.

TABLE 1 — OFF COAST OF ALASKA

Station	Locality	Bearings		Fathoms	Date
		Latitude	Longitude		
A-1	Ketchikan, Alaska, off wharf of Alaska Steamship Co.			8	Aug. 1, 1933
A-2	Wrengeff, off wharf, Alaska Steamship Co.			2	1, 1933
A-3	Juneau, off boat			10	2, 1933
A-4	Cordova, off wharf			2	4, 1933
A-5	Cordova, Observation Island			low tide	6, 1933
A-6	Knott Point, Hawkins Island			low tide	6, 1933
A-7	Dype Bay, Hawkins Island			low tide	6, 1933
A-8	Excursion Bay near Astoria Puget Sound Cannery			low tide	2, 1933
A-9	Valdez, off the Aleutian, near dock			5	4, 1933
A-10	Seward			low tide	5, 1933
A-11	Seward, near cannery			low tide	5, 1933
A-12	Seward, near wharf			low tide	5, 1933
A-13	Skagway, near wharf			6	7, 1933
A-14	Skagway, near wharf			6	7, 1933
A-15	Ketchikan, near wharf			7	9, 1933
A-16	Simpson's Bay, north arm			35 surface	Aug. to Dec., 1933
A-17	Mile Thirteen, Copper River and Northwestern R R			surface	
A-18	Hartley Bay			med. low tide surf.	
A-19	Greens Bay			90	Aug. to Dec., 1933
A-20	Anderson Bay			med. low tide	
A-21	Cross Wilson Slough, Copper R floats			surface	
A-22	Orca Bay			28	
A-23	Nurmay Island			med. low tide	
A-24	Cordova, local clam beds			med. low tide	
A-25	Bearin River, Katilla			med. low tide	
A-26	Edwards River, Controller Bay			med. low tide	
A-27	Sheep Bay, near Cordova			med. low tide	
A-28	off Pt. Barrow, Alaska			217	Sept. 6, 1949
A-29	off Arctic Research Laboratory, Pt. Barrow, Alaska			216	Oct. 6, 1949
A-30	off Arctic Research Laboratory, Pt. Barrow, Alaska			175	Oct. 10, 1949
A-31	off Arctic Research Laboratory, Pt. Barrow, Alaska			184	Aug. 30, 1949
A-32	off Arctic Research Laboratory, Pt. Barrow, Alaska			149	Jan. 2, 1950
A-33	off Arctic Research Laboratory, Pt. Barrow, Alaska			477	Sept. 6, 1949
A-34	off Arctic Research Laboratory, Pt. Barrow, Alaska			175	Oct. 14, 1949
A-35	off Arctic Research Laboratory, Pt. Barrow, Alaska			453	Oct. 10, 1949
A-36	off Arctic Research Laboratory, Pt. Barrow, Alaska			162	Feb. 18, 1950
A-37	off Arctic Research Laboratory, Pt. Barrow, Alaska			216	Oct. 6, 1949
A-38	off Arctic Research Laboratory, Pt. Barrow, Alaska			328	Sept. 1, 1949
A-39	off Arctic Research Laboratory, Pt. Barrow, Alaska			217	Sept. 6, 1949
A-40	off Arctic Research Laboratory, Pt. Barrow, Alaska			522	Aug. 17, 1949
A-41	off Arctic Research Laboratory, Pt. Barrow, Alaska			328	Sept. 1, 1949
A-42	off Arctic Research Laboratory, Pt. Barrow, Alaska			295	Oct. 6, 1949
A-43	off Arctic Research Laboratory, Pt. Barrow, Alaska			216	Oct. 6, 1949
A-44	off Arctic Research Laboratory, Pt. Barrow, Alaska			216	Oct. 6, 1949
A-45	off Arctic Research Laboratory, Pt. Barrow, Alaska			453	Oct. 11, 1949
A-46	off Arctic Research Laboratory, Pt. Barrow, Alaska			341	Oct. 11, 1949

Species name *Adeona tubulifera*

Canu and Bassler

original reference

type locality

identified by R. C. Osburn

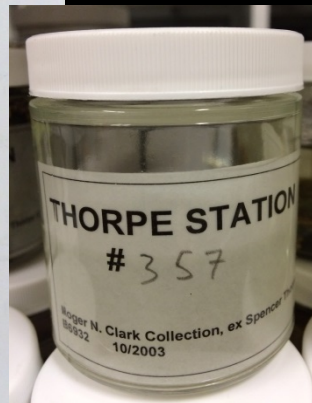
revised by

position	specimen number	size	type	slide	date	locality	collector
V 810-38	425		vial			Off Barrington Island, Galapagos Islands	
V 143-34	1313		vial			Off Wenman Island, Galapagos Islands	
V 155-34	584		vial			Off Tagus Cove, Albemarle Is., Galapagos Is.	
V 127-34	2078		vial			Sulphur Bay, Clarion I., Mexico	
V.B.S. 450	1553		vial			Galapagos Islands	
V 190-34	1554		vial			E. of S. End of Albemarle I., Galapagos Islands	
V 147-34	2080		vial			Tagus Cove, Albemarle I., Galapagos Islands	
V 143-34	2079		vial			Off Wenman Island, Galapagos Islands	
V 210-35	3040		vial			Off Santa Fe Island, Galapagos Islands	
Hancock 155-34	35C-10						
Hancock 155-34	35C-11						
	155-34						

## CALIFORNIA

Page 21.

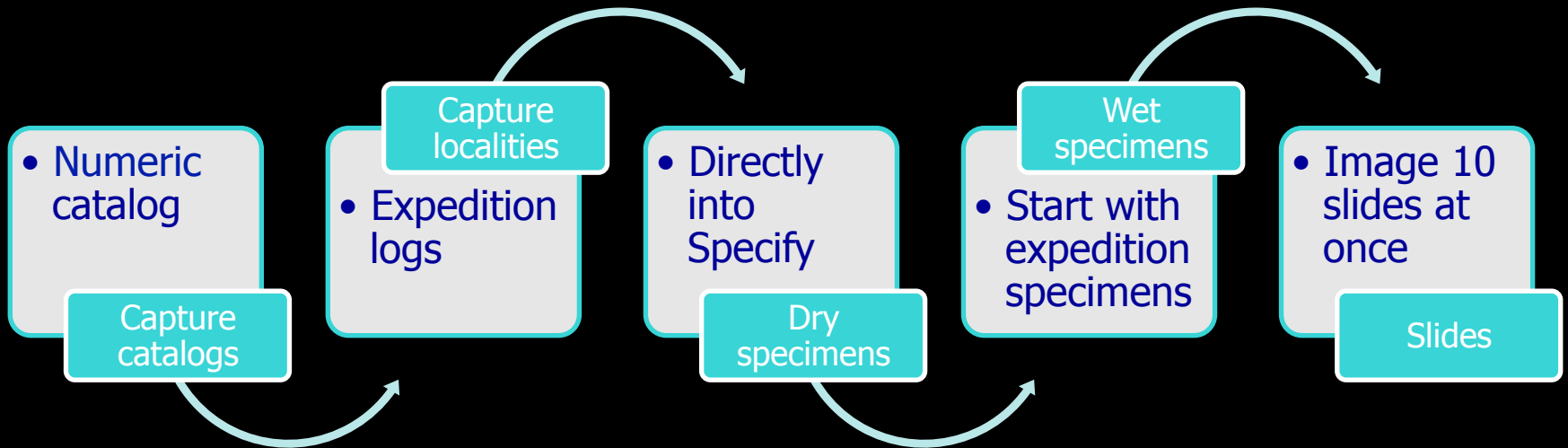
281. \_\_\_\_\_
282. Rockaway Beach, San Mateo County (52)  
37° 36.5' N.; 122° 30.0' W.
283. <sup>Point San Pedro</sup> San Pedro Point, San Mateo County (incl. old north and south, 53, 54)  
37° 35.4' N.; 122° 30.4' W. 1956-1963
284. <sup>Point Mendocino</sup> Montara Point, San Mateo County (55) 1967-1968  
37° 32' N. 122° 21' W.
285. North Moss Beach, San Mateo County (56) 1956-64  
39° 31' 17.2' 30W
286. Moss Beach, San Mateo County (57) 1956-1969
287. Frenchman's Reef Area, San Mateo County (58) 1956
288. Pilar Point, San Mateo County (59)  
37° 29.4' N.; 122° 25.4' W.
289. ~~Pilar Point Breakwater, San Mateo County~~
290. \_\_\_\_\_
291. <sup>Beach</sup> Pescadero Point, San Mateo County (60) 9 Feb 1967  
37° 15.3' N.; 122° 24.75' W.
292. \_\_\_\_\_
293. Pebble Beach Area, San Mateo County (60a) '60-64  
37° 14.0' N.; 122° 24.6' W.
294. <sup>Beach</sup> Mouth of Bean Hollow, San Mateo County (61) (from Howell) 1959  
37° 12.7' N.; 122° 24.6' W.
295. <sup>Beach</sup> Bean Hollow Beach, San Mateo County (62)  
37° 12.4' N.; 122° 24.4' W.





# Our proposed digitizing workflow

- Start with curated and identified specimens



- About 1-2 minutes per lot to digitize

# Previously georeferenced localities

Species 6.5.05

File Edit Data System Tabs Help

Welcome Data Trees Reports Interactions Statistics Query Workbench SGR Plugins Lifemapper Attachments

Search: "235600"

**Collection Object**

Accession: 2014-021 Cat No: 235624 PrevNo:

Inventory: Found  Fossil?

**Determinations**

Taxon: *Lasaea adansoni*, (Gmelin, 1791), No  Current

Preferred Ta...: *Lasaea adansoni*  Questionable?

Det by: Paul Valentich-Scott Type:

Det Remarks:

**Preparations**

Prep Ty...	Descripti...	Co...	Is On Lo...	Preparation Attachme...	Specimen Remar...
Fluid	95% ETOH	100	No		originally preserved in 95% ETK

**Collecting Information**

Geog.SiteNa...: Los Angeles County, California, USA, Alamos Bay, entrance, 33.7475070000, -118.1153790000, inte

Verbatim Loc...: Alamos Bay, near entrance; on pier piling among barnacles; dock adjacent to Khoury's Restaurant

Start Date: 09/23/2014

End Date: 09/23/2014

Gear:  CeA

**Collectors**

Last Name	First Name	Remarks
Pernet	Bruno	

Remarks:

**Attachments**

42 of 42

Invertebrate Zoology | Main | Paul

## Locality/Geography

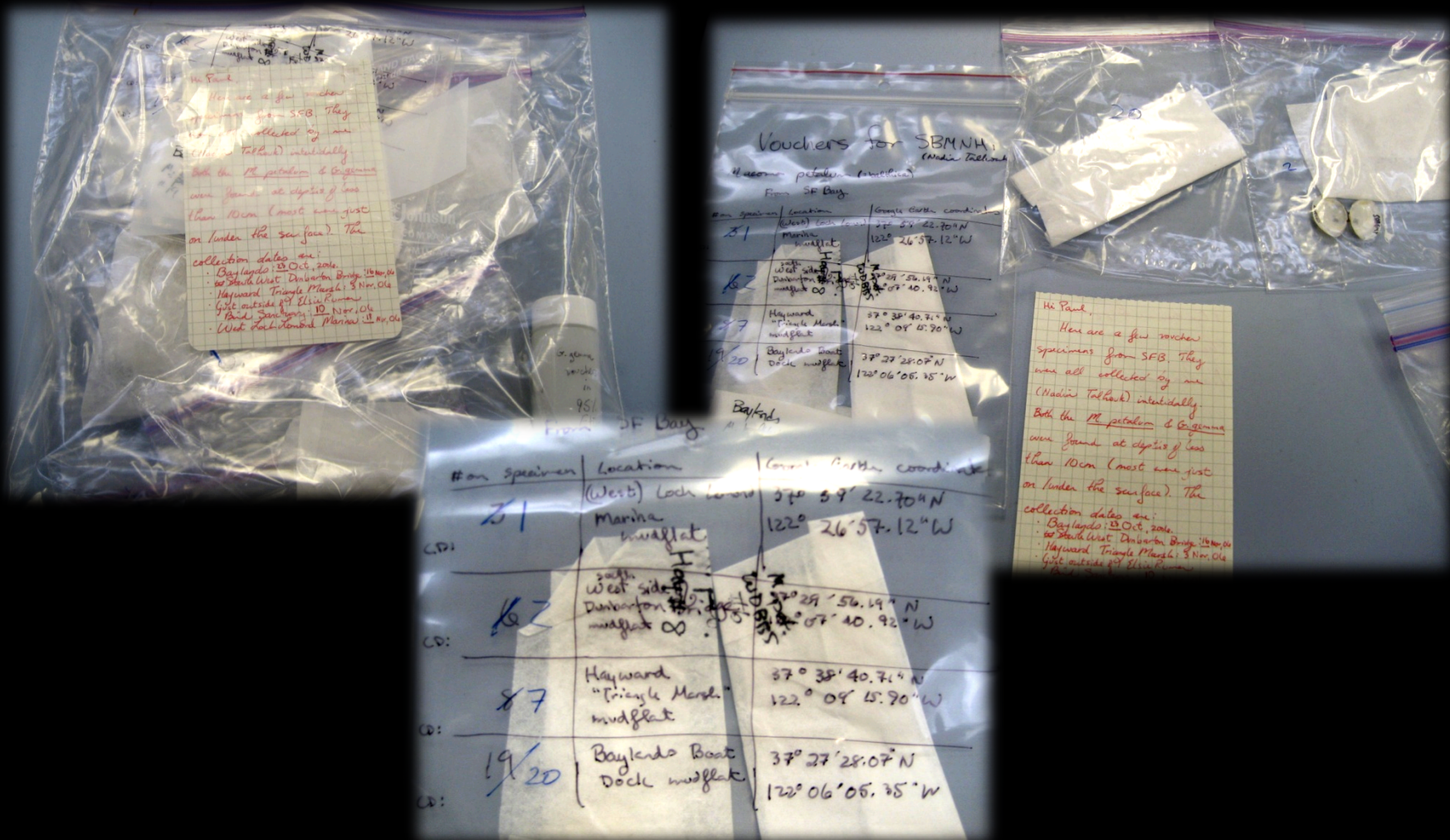
Localities	22038
Geography Entries	2734
Countries	154
Georeferenced Localities	21086
Percentage Georeferenced	96





Still looking for funding...

# How does it arrive?



How does it arrive?  
 Here are a few vouchers  
 specimens from SFB. They  
 were all collected by me  
 (Madin Tabak) incidentally.  
 Both the *M. putidum* & *C. gemma*  
 were found at depths of less  
 than 10cm (most were just  
 on/under the surface). The  
 collection dates are:  
 • Baylands: 13 Oct, 2016  
 • south West Dunbarton Bridge: 10 Nov 16  
 • Hayward Triangle Marsh: 3 Nov 16  
 • site outside of Ellis Pinnac:  
 • Baylands Boat Dock: 10 Nov 16  
 • West Loch Lomond Marina: 11 Nov 16

Vouchers for SBMNH  
 Madrin Tabak  
 From SFB Bay

# on specimen	Location	Coordinate
21	(West) Loch Lomond Marina mudflat	57° 59' 22.70" N 122° 26' 57.12" W
62	south West side Dunbarton mudflat	57° 29' 56.19" N 122° 07' 40.92" W
87	Hayward Triangle Marsh mudflat	37° 35' 40.71" N 122° 09' 45.90" W
19/20	Baylands Boat Dock mudflat	37° 27' 28.07" N 122° 06' 05.35" W

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