

Avoiding Digitization

Field data entry of evidence, directly
into the system of record

Robert K. Whitton
Bishop Museum

Explorer's Log

- Evidence recording system
- Stores Darwin Core data elements PLUS
 - Individual
 - Evidence
- Originally media management for marine video
- Expanded to incorporate all evidence types
 - Specimens
 - Observations
 - Evidence from literature
 - Telemetry

Things we are avoiding (mostly)

- Long! delay in incorporating expedition data in overall collection
- Entering bad data by pen/pencil on clipboards in poorly lit field labs
- Unlinked media files
- Transcription errors when returning home
- Multiple data identifiers based on multiple domains
 - Expedition number, collector's number, row number in spreadsheet, catalog number, accession number, etc.

Data Collected

- Event

- Occurrence

- Evidence of Occurrence

- Specimen

- Media



- Individual Organism

- Determination

Expedition Data Entry

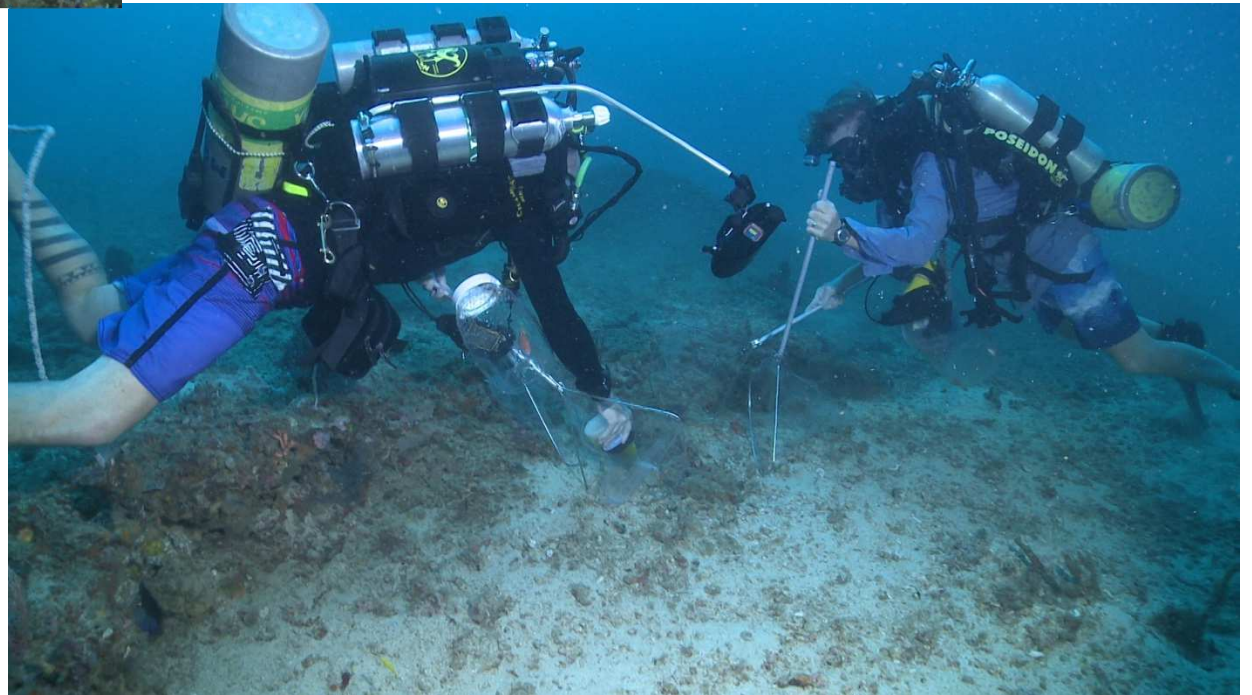
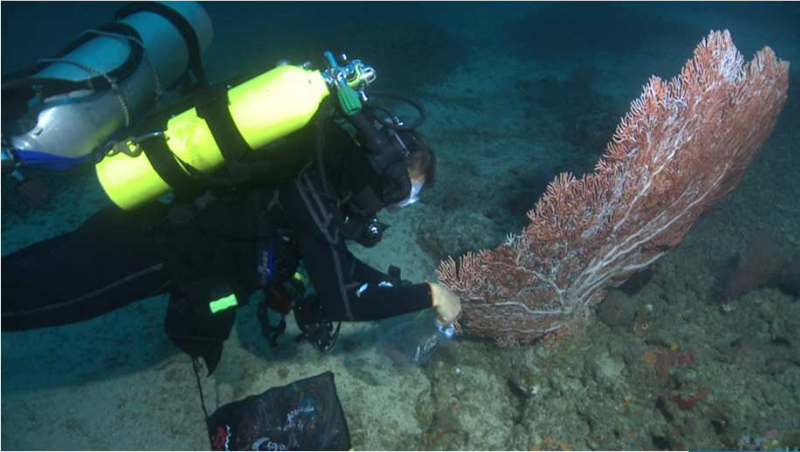


Event

- Participants
 - Look up to agents
- Location
 - Nearest named place and optional Lat/Long
- Date
 - Start and Stop – date and optional time
- Hierarchical (optional)



Collect Data...Fun!





Ingest Media

- Linked to the days' Event
 - Video Clips
 - Still images
 - Audio files
- Imager is recorded
- Metadata automatically extracted from raw files
 - Key frame / Thumbnail
 - Time Stamp
 - File Size
 - File Name
 - Other



Occurrence Records

- Link to media items (already linked to Event and imager)
- Or observation linked to Event
- Depth / Habitat / Behavior / Abundance
- Observer / Determiner
- Etc., etc. – all optional



Specimen Records

- Linked to Occurrence in nature
 - Collection Method
 - Preservation Method
 - Identifiers – collector's item number
 - Etc., etc., all optional



- Link to “child” evidence
 - Tissue sample
 - Part (teeth, scale, pelt)



- Import Media
- Events
- Checklists
- Content Search
- Forms
- References
- Species Lookup
- Manage Locations
- Admin
- Help
- Log Out





Event dates/times: Se7en Rebreather Kahe dive 29 Jan 2014 00:00 AM to 29 Jan 2014 00:00 AM
Event Location: All Oceans of the World,Pacific Ocean,Central Pacific Ocean,North America,Hawaiian Archipelago,Main Hawaiian Islands,Island of Oahu,Waianae Coast,Kahe Point (Electric Beach)
Participants: John L. Earle, Robert K. Whitton **Remarks:** Eagle ray, Decapterus macarellus, turtles, half beak school. Clear water
Scan Object Label

Collectors <input type="checkbox"/> John L. Earle <input type="checkbox"/> Robert K. Whitton <input type="checkbox"/> Clear	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Min Depth (m)</th> <th>Max Depth (m)</th> </tr> </thead> <tbody> <tr><td><input type="checkbox"/> 0</td><td><input type="checkbox"/> 0</td></tr> <tr><td><input type="checkbox"/> 1</td><td><input type="checkbox"/> 1</td></tr> <tr><td><input type="checkbox"/> 2</td><td><input type="checkbox"/> 2</td></tr> <tr><td><input type="checkbox"/> 3</td><td><input type="checkbox"/> 3</td></tr> <tr><td><input type="checkbox"/> 4</td><td><input type="checkbox"/> 4</td></tr> <tr><td><input type="checkbox"/> 5</td><td><input type="checkbox"/> 5</td></tr> <tr><td><input type="checkbox"/> 6</td><td><input type="checkbox"/> 6</td></tr> <tr><td><input type="checkbox"/> 7</td><td><input type="checkbox"/> 7</td></tr> <tr><td><input type="checkbox"/> 8</td><td><input type="checkbox"/> 8</td></tr> <tr><td><input type="checkbox"/> 9</td><td><input type="checkbox"/> 9</td></tr> <tr><td><input type="checkbox"/> Clear</td><td><input type="checkbox"/> Clear</td></tr> </tbody> </table>	Min Depth (m)	Max Depth (m)	<input type="checkbox"/> 0	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 6	<input type="checkbox"/> 7	<input type="checkbox"/> 7	<input type="checkbox"/> 8	<input type="checkbox"/> 8	<input type="checkbox"/> 9	<input type="checkbox"/> 9	<input type="checkbox"/> Clear	<input type="checkbox"/> Clear	Collection Method <input type="checkbox"/> Not Collected <input type="checkbox"/> Explosives <input type="checkbox"/> Hand Net <input type="checkbox"/> Rotenone <input type="checkbox"/> Spear/Gun <input type="checkbox"/> Fence Net <input type="checkbox"/> By Hand <input type="checkbox"/> Quinaldine <input type="checkbox"/> Tissue Extraction	Habitat <input type="checkbox"/> Sand <input type="checkbox"/> In coral heads <input type="checkbox"/> River <input type="checkbox"/> Reef Flats <input type="checkbox"/> Fringing Reef <input type="checkbox"/> Caves <input type="checkbox"/> Hard substrate <input type="checkbox"/> Wreck <input type="checkbox"/> Rocks/Boulders <input type="checkbox"/> Tide Pool <input type="checkbox"/> Lagoon <input type="checkbox"/> Estuary/Bay <input type="checkbox"/> Lake <input type="checkbox"/> Pelagic <input type="checkbox"/> Wall <input type="checkbox"/> Rubble <input type="checkbox"/> Under Ledge <input type="checkbox"/> Sea Grass <input type="checkbox"/> Mud/Silt
Min Depth (m)	Max Depth (m)																										
<input type="checkbox"/> 0	<input type="checkbox"/> 0																										
<input type="checkbox"/> 1	<input type="checkbox"/> 1																										
<input type="checkbox"/> 2	<input type="checkbox"/> 2																										
<input type="checkbox"/> 3	<input type="checkbox"/> 3																										
<input type="checkbox"/> 4	<input type="checkbox"/> 4																										
<input type="checkbox"/> 5	<input type="checkbox"/> 5																										
<input type="checkbox"/> 6	<input type="checkbox"/> 6																										
<input type="checkbox"/> 7	<input type="checkbox"/> 7																										
<input type="checkbox"/> 8	<input type="checkbox"/> 8																										
<input type="checkbox"/> 9	<input type="checkbox"/> 9																										
<input type="checkbox"/> Clear	<input type="checkbox"/> Clear																										
Size (mm) <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2	LifeStage <input type="checkbox"/> Juvenile	Sex <input type="checkbox"/> Male																									

Explorer's Log

[Import Media](#)
[Events](#)
[Checklists](#)
[Content Search](#)
[Forms](#)
[References](#)
[Species Lookup](#)
[Manage Locations](#)
[Admin](#)
[Help](#)
[Log Out](#)

Select Existing Imaging Session Event

Image	Magnify	FileName	File Size	Action
		C.alpha_specimen.jpg January, 5 2014 14:40:29	0,27 MB	<input type="button" value="Delete Image"/> <input type="checkbox"/> Include <input type="button" value="Rotate 90"/> <input type="button" value="Rotate -90"/> <input type="button" value="Crop Image"/> Resize <input type="text" value="In px wide..."/> <input type="button" value="Resize"/>
		DSC_3787.JPG December, 5 2013 00:07:48	8,19 MB	<input type="button" value="Delete Image"/> <input type="checkbox"/> Include <input type="button" value="Rotate 90"/> <input type="button" value="Rotate -90"/> <input type="button" value="Crop Image"/> Resize <input type="text" value="In px wide..."/> <input type="button" value="Resize"/>
		halgerda_sp_specimen_image.jpg January, 5 2014 13:52:25	0,99 MB	<input type="button" value="Delete Image"/> <input type="checkbox"/> Include <input type="button" value="Rotate 90"/> <input type="button" value="Rotate -90"/> <input type="button" value="Crop Image"/> Resize <input type="text" value="In px wide..."/> <input type="button" value="Resize"/>
		O.borbonius_specimen.jpg January, 5 2014 14:37:34	0,85 MB	<input type="button" value="Delete Image"/> <input type="checkbox"/> Include <input type="button" value="Rotate 90"/> <input type="button" value="Rotate -90"/> <input type="button" value="Crop Image"/>

Field Entry **IS** Permanent Entry

- No Excel Spreadsheet
- Every component of the record has a globally unique, persistent and resolvable identifier
- No transcription needed
- Data are part of the entire collection immediately
 - Yes, we can embargo if needed, but come on...Open Access!!

27,000 occurrences and counting

Many users want proof

- What evidence do you have when you assert that an organism that someone called *Aus bus*, occurred at location X at time Y?
- Provide the evidence, and let the users decide whether to accept or reject

Key Features

- Taxonomy is outsourced to Global Names Architecture (GNUB)
- Literature / References are outsourced to GNA
 - We mine occurrence data from the literature into the same data model
- Google handles maps
- We focus on occurrence data
- Not just Natural Sciences...
 - Ethnology
 - Archeology
 - Library and Archives

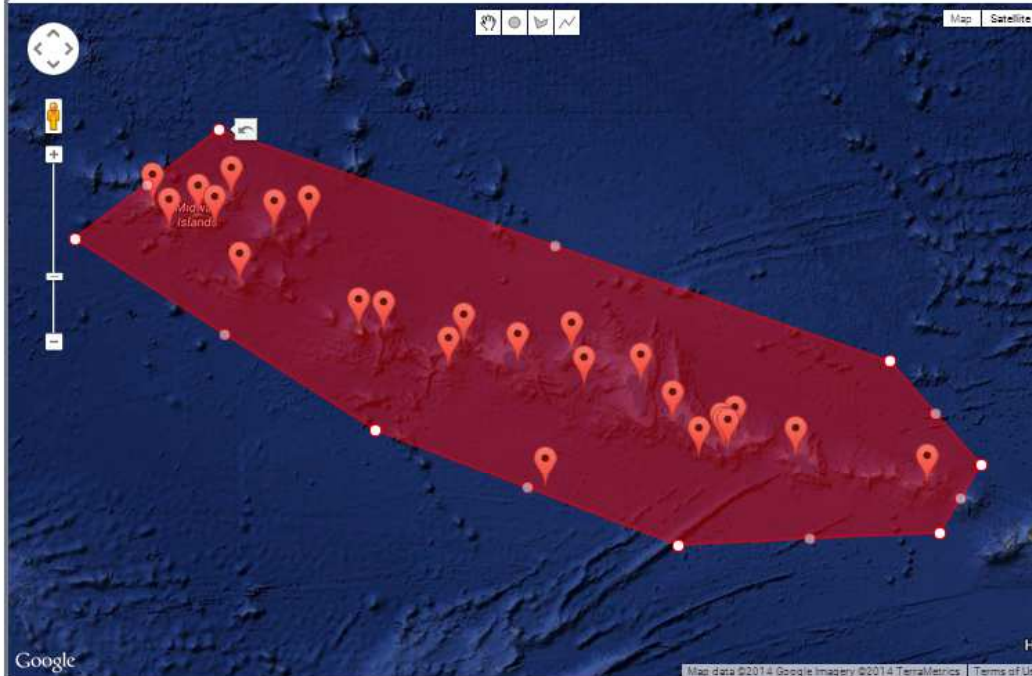

[Import Media](#)
[Events](#)
[Checklists](#)
[Content Search](#)
[Forms](#)
[References](#)
[Species Lookup](#)
[Manage Locations](#)
[Admin](#)
[Help](#)
[Log Out](#)

Results for Actinopterygii,Chondrichthiomorphi

228 Taxa	Kahe Point (Electric Beach)	Lanai Lookout
Class: Actinopterygii		
Order: Albuliformes		
Sub-Order: Albuloidi		
Family: Albulidae		
<i>Albula glossodonta</i> (Forsskål, 1775) sec. Randall 2007	6- 12m [4 occ.]	
Order: Anguilliformes		
Sub-Order: Congroidei		
Family: Congridae		
<i>Conger cinereus</i> Rüppell in Rüppell, 1830 sec. Mundy 2005	0- 9m [9 occ.]	
<i>Conger marginatus</i> Valenciennes in Eydoux & Souleyet, 1850 sec. Randall 2007		6- 8m [13 occ.]
<i>Gorgasia hawaiiensis</i> Randall & Chess, 1979 sec. Randall 2007	0- 18m [4 occ.]	
Order: Aulopiformes		
Sub-Order: Alepisauroidi		
Family: Synodontidae		
<i>Saurida flamma</i> Waples, 1981 sec. Randall 2007	8- 11m [6 occ.]	11m [9 occ.]
<i>Saurida gracilis</i> Quoy & Gaimard in Quoy & Gaimard, 1824 sec. Randall 2007	8- 9m [3 occ.]	8- 11m [14 occ.]
<i>Synodus binotatus</i> Schultz in Schultz, Herald, Lachner, Welander & Woods, 1953 sec. Randall 2007	5- 11m [12 occ.]	8- 12m [18 occ.]
<i>Synodus dermatogenys</i> Fowler, 1912 sec. Randall 2007	6- 11m [21 occ.]	
<i>Synodus lobeli</i> Waples & Randall, 1989 sec. Randall 2007	11m [1 occ.]	
<i>Synodus rubromarmoratus</i> Russell & Cressey, 1979 sec. Randall 2007	0- 11m [4 occ.]	
<i>Synodus ulae</i> Schultz in Schultz, Herald, Lachner, Welander & Woods, 1953 sec. Randall 2007	8- 12m [23 occ.]	0- 13m [13 occ.]
<i>Synodus variegatus</i> (Lacépède in Lacépède, 1803) sec. Randall 2007	0- 8m [7	8- 11m [7

Explorer's Log

[Import Media](#)
[Events](#)
[Checklists](#)
[Content Search](#)
[Forms](#)
[References](#)
[Species Lookup](#)
[Manage Locations](#)
[Admin](#)
[Help](#)
[Log Out](#)



Chaetodon

#	Name	Evidence	Locations	Depth
1	<i>Chaetodon</i> Linnaeus, 1758 <small>sec. Randall taxa</small>	1 Observation 1 Specimen	Lisianski	0m
2	<i>Chaetodon auriga</i> Forsskål, 1775 [Threadfin Butterflyfish kikakapu] <small>sec. Randall taxa</small>	5 VideoRecordings 20 Observations 1 Reference 2 Specimens 1 MaterialSample	Midway Atoll French Frigate Shoals Mano Reef Rash and Hermes Reef Tern Islet La Perouse Pinnacle Lisianski Kure Atoll	2-15m
3	<i>Chaetodon citrinellus</i> Cuvier in Cuvier & Valenciennes, 1831 [Speckled Butterfly Fish] <small>sec. Randall taxa</small>	5 VideoRecordings 2 Observations 1 Reference	French Frigate Shoals La Perouse Pinnacle Mano Reef	8m
4	<i>Chaetodon ephippium</i> Cuvier in Cuvier & Valenciennes, 1831 [Saddleback Butterfly Fish kikakapu] <small>sec. Randall taxa</small>	1 Observation 2 References 1 Specimen	Midway Atoll Hawaiian Archipelago French Frigate Shoals	0m
5	<i>Chaetodon fremblii</i> Bennett, 1828 [Bluestripe Butterflyfish kikakapu]	11 VideoRecordings 36 Observations 1 Reference	Midway Atoll Gardner Pinnacles Nihoa Laysan	11-195m



Explorer's Log

Thank You!



whittonr@gmail.com