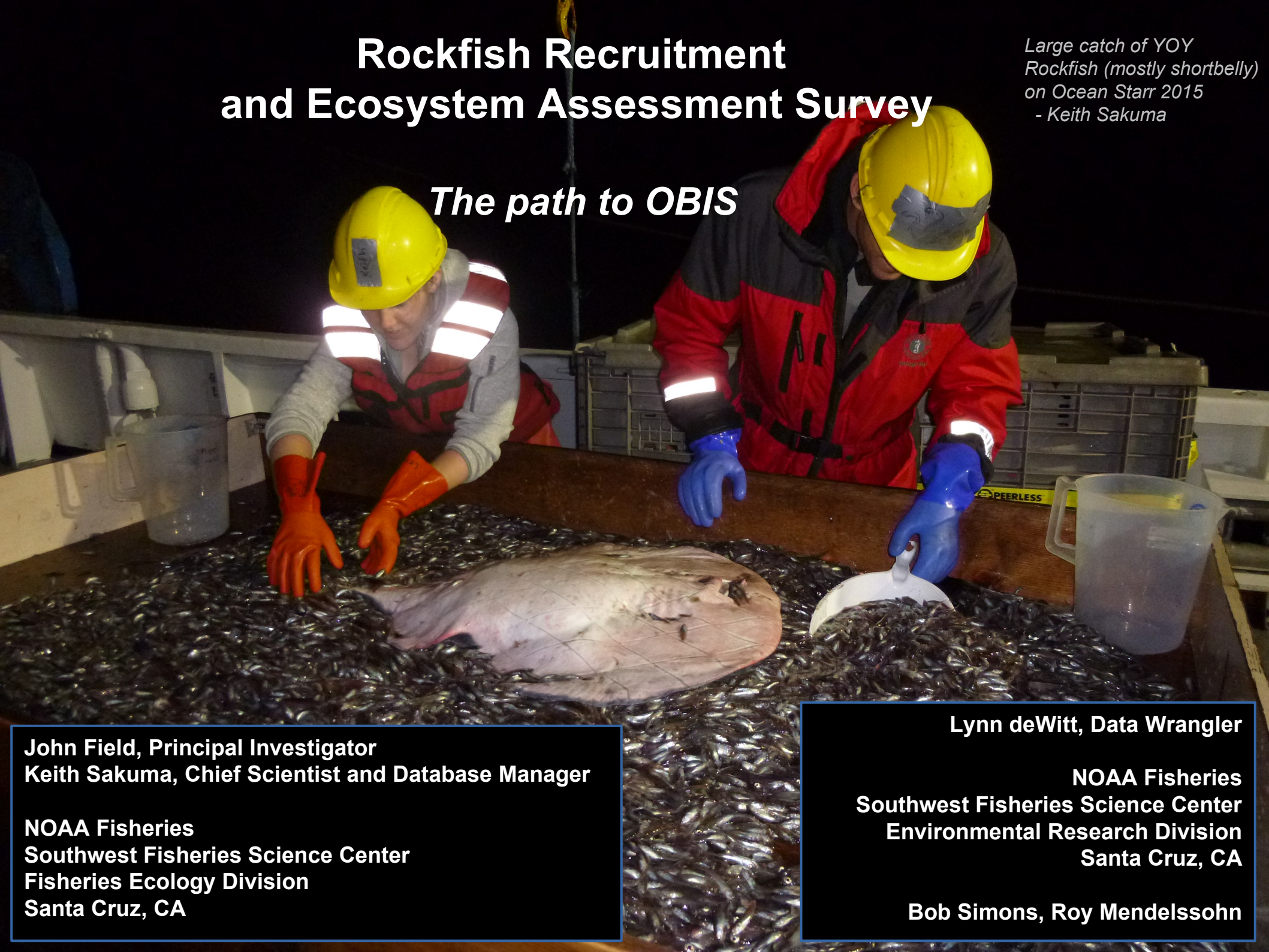
Rockfish Recruitment and Ecosystem Assessment Survey

The path to OBIS



Large catch of YOY Rockfish (mostly shortbelly) on Ocean Starr 2015 - Keith Sakuma

John Field, Principal Investigator
Keith Sakuma, Chief Scientist and Database Manager

NOAA Fisheries
Southwest Fisheries Science Center
Fisheries Ecology Division
Santa Cruz, CA

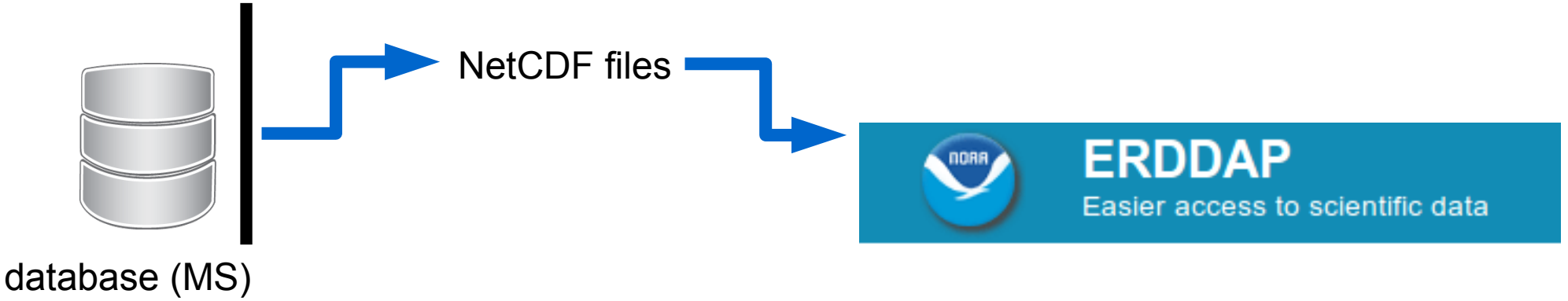
Lynn deWitt, Data Wrangler

NOAA Fisheries
Southwest Fisheries Science Center
Environmental Research Division
Santa Cruz, CA

Bob Simons, Roy Mendelssohn

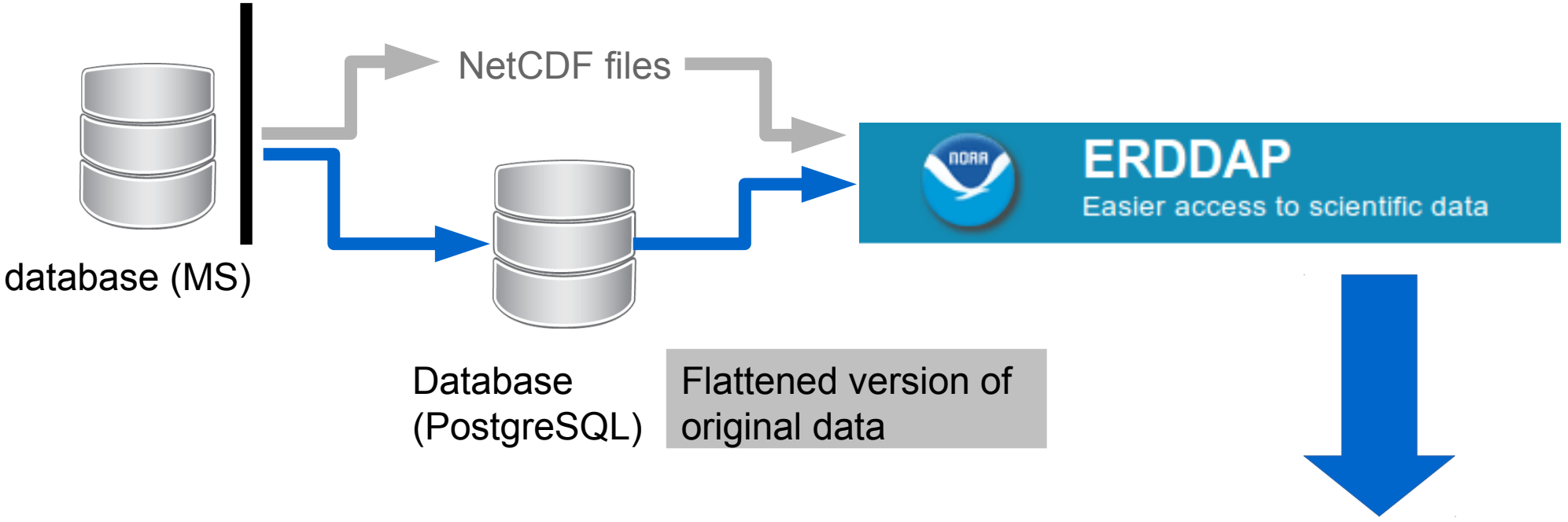
Rockfish Recruitment and Ecosystem Assessment Survey (Catch Data)

path to OBIS



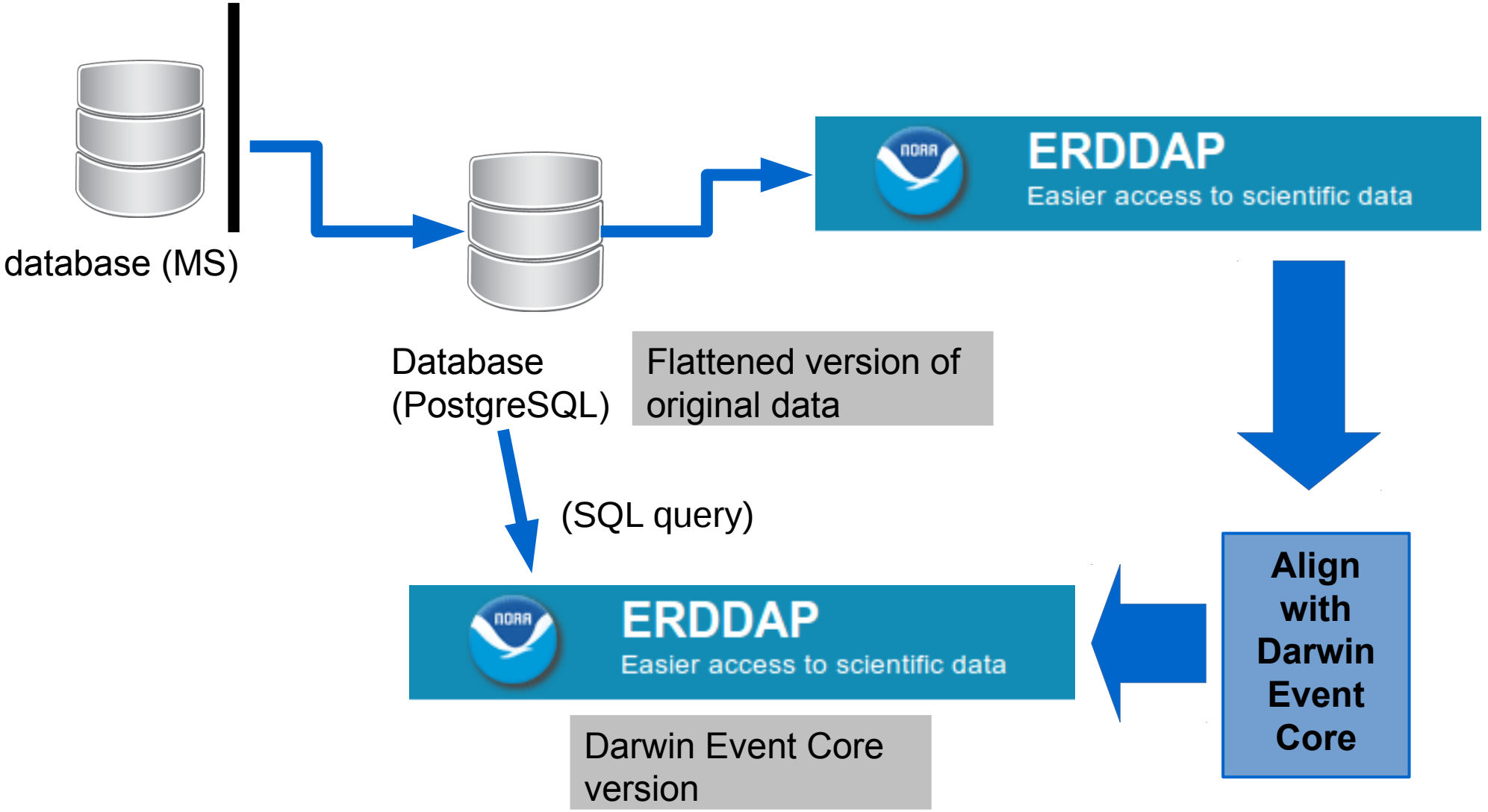
Rockfish Recruitment and Ecosystem Assessment Survey (Catch Data)

path to OBIS



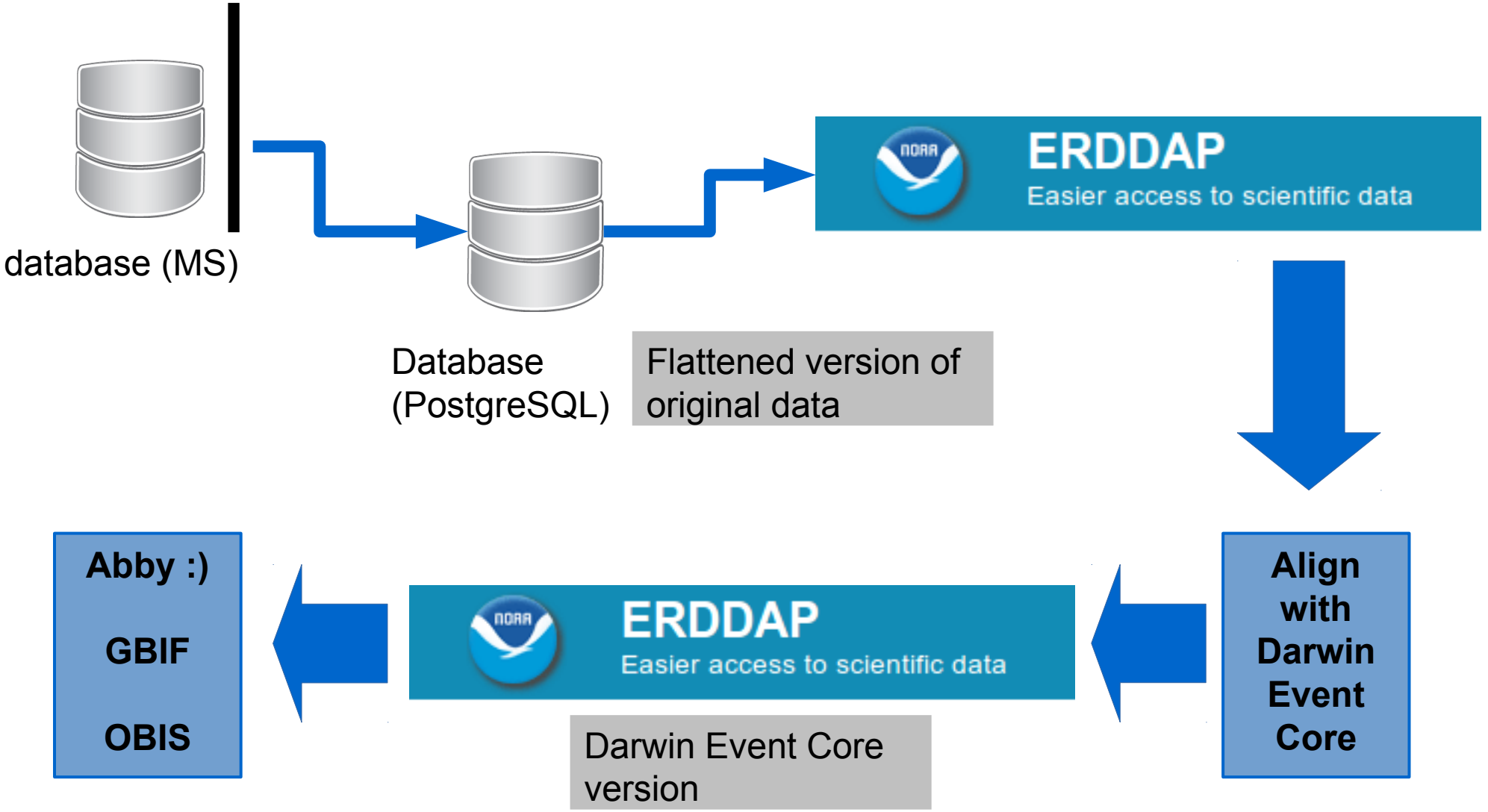
Rockfish Recruitment and Ecosystem Assessment Survey (Catch Data)

path to OBIS



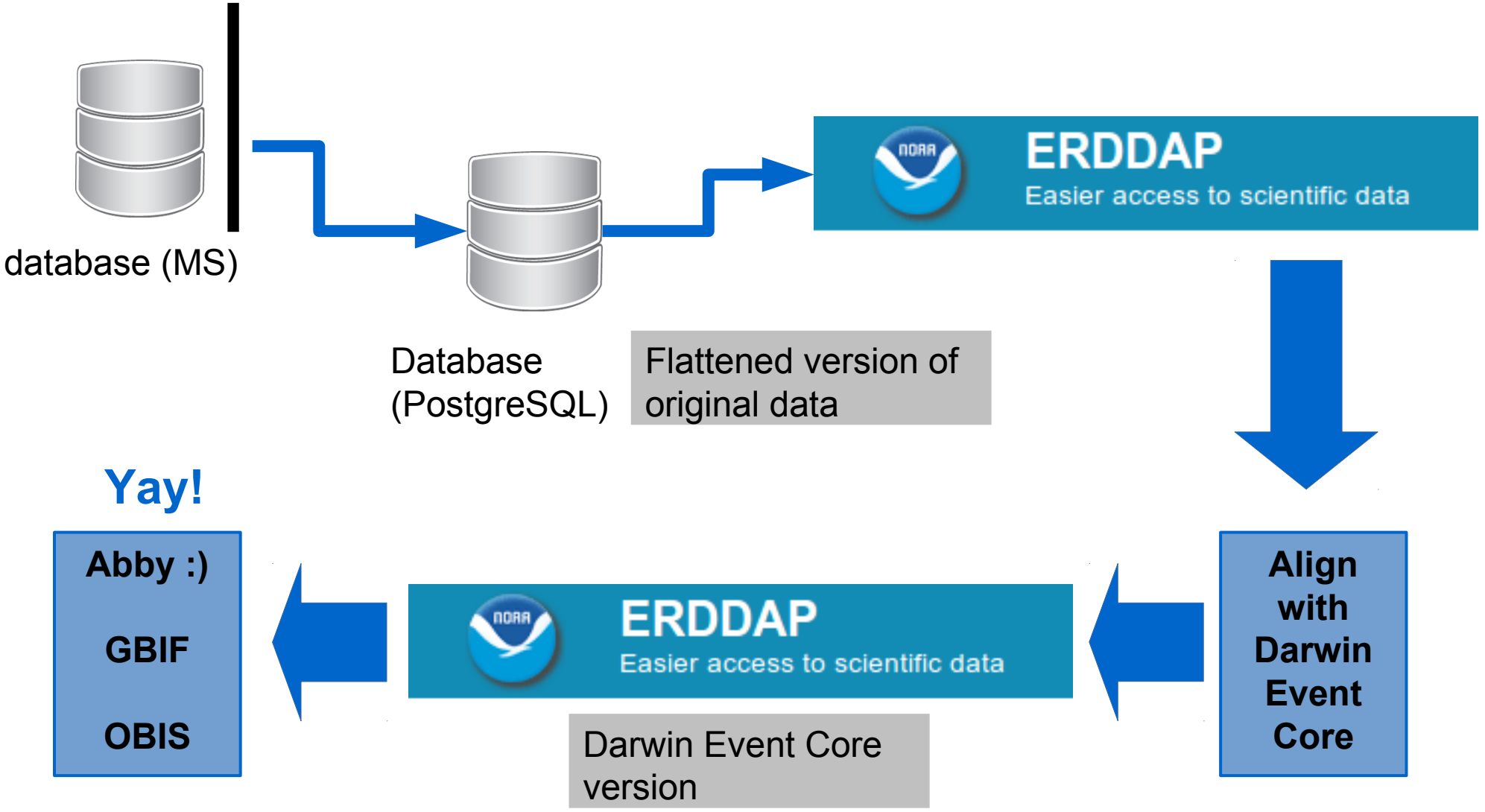
Rockfish Recruitment and Ecosystem Assessment Survey (Catch Data)

path to OBIS



Rockfish Recruitment and Ecosystem Assessment Survey (Catch Data)

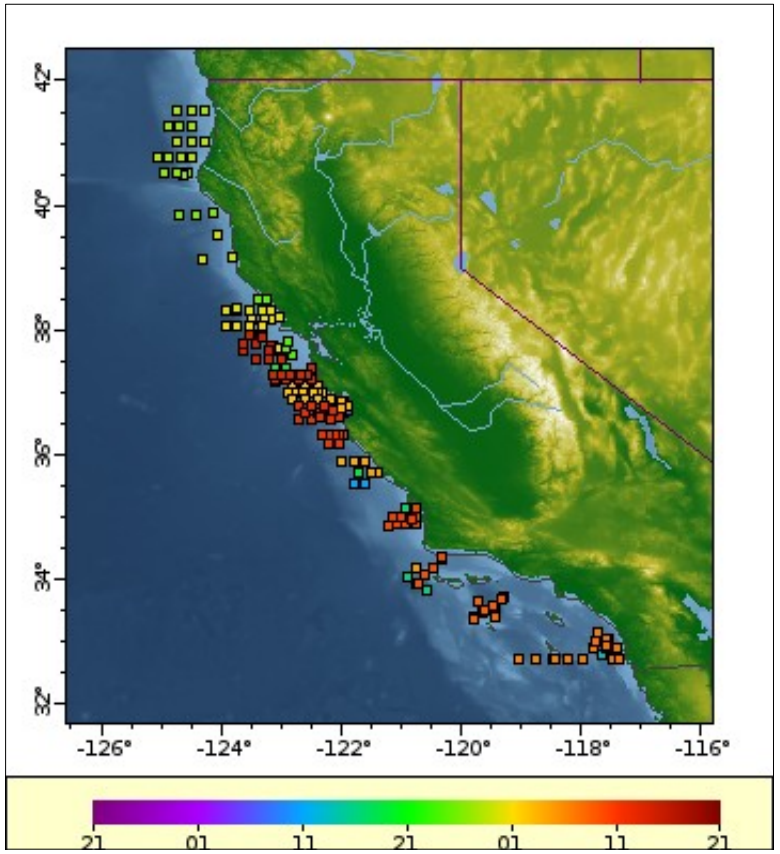
path to OBIS



Rockfish Recruitment and Ecosystem Assessment Survey

- Catch data
- Length data
- Acoustic data
- Hydrographic data
- Marine Mammal

Cruise "1505"
Apr – Jun 2015



Fisheries Management Research

Examine recruitment strength of various economically and ecologically important species

Study the general state of the ecosystem and its variability from year to year.

~ 28 years
~168 species

Including:
pelagic juvenile rockfish (*Sebastes spp.*)

Pacific whiting (*Merluccius productus*),
juvenile lingcod (*Ophiodon elongatus*)
northern anchovy (*Engraulis mordax*),
Pacific sardine (*Sardinops sagax*)
market squid (*Loligo opalescens*),
krill (*Euphausiacea*)
mesopelagic species such as **myctophids** (*Myctophidae*)

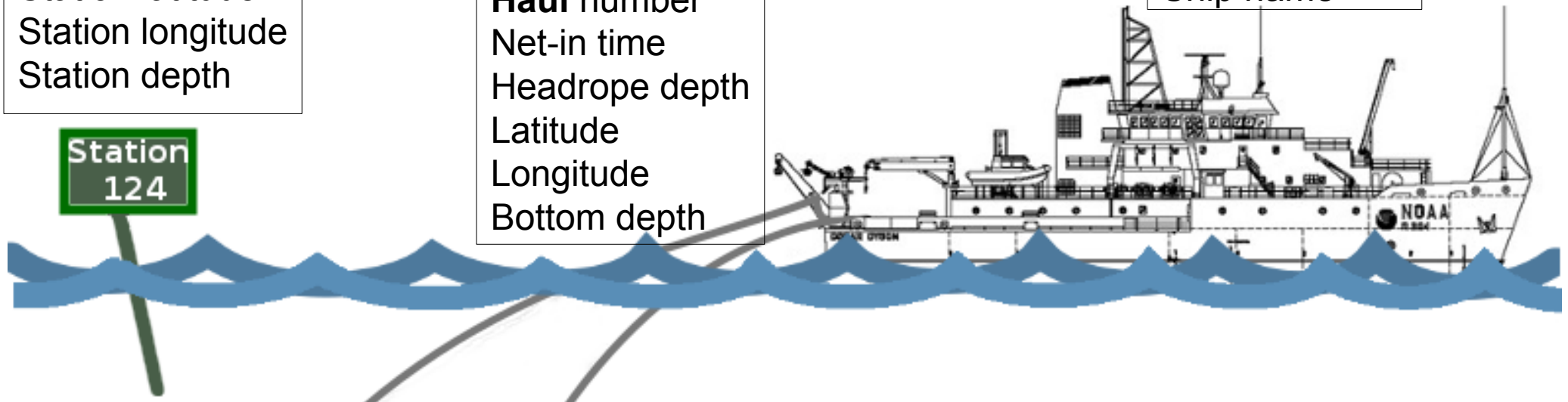
https://swfsc.noaa.gov → Fisheries Ecology Division → Groundfish Analysis Team

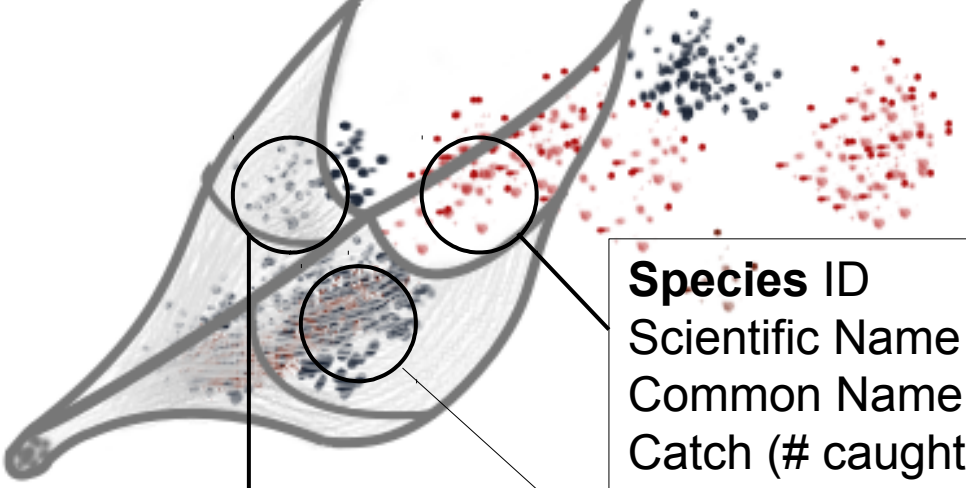
Haul, sort, identify, count, measure

Station number
Station latitude
Station longitude
Station depth

Haul number
Net-in time
Headrope depth
Latitude
Longitude
Bottom depth

Cruise number
Ship name





Species ID
Scientific Name
Common Name
Catch (# caught)

Species ID
Scientific Name
Common Name
Catch (# caught)

Species ID
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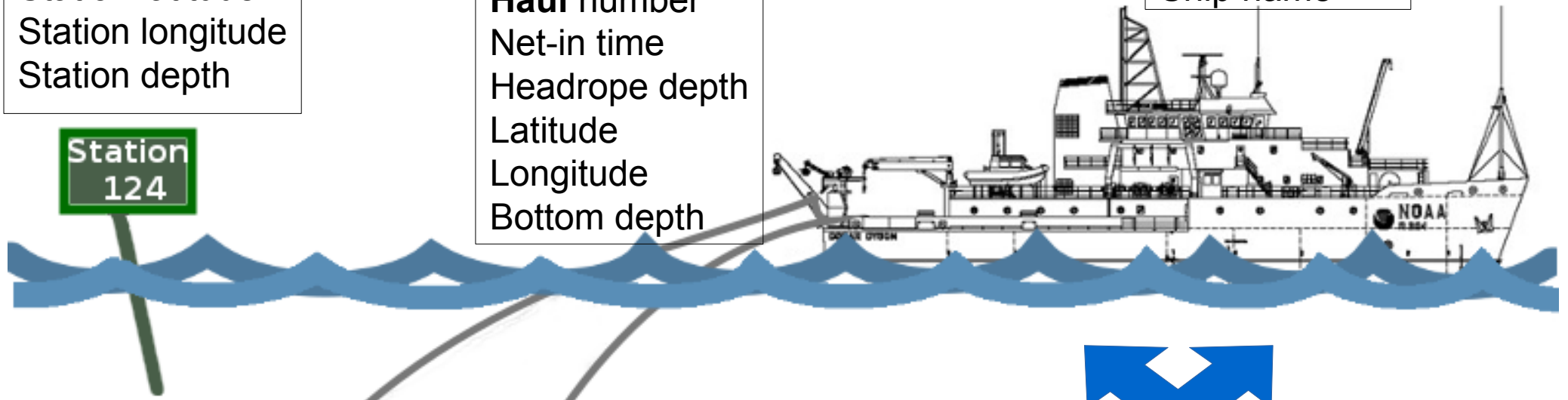

these
describe the
EVENTS

DARWIN CORE

these
describe the
OCCURRENCES

Species ID
Scientific Name
Common Name
Catch (# caught)

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Common Name
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Scientific Name
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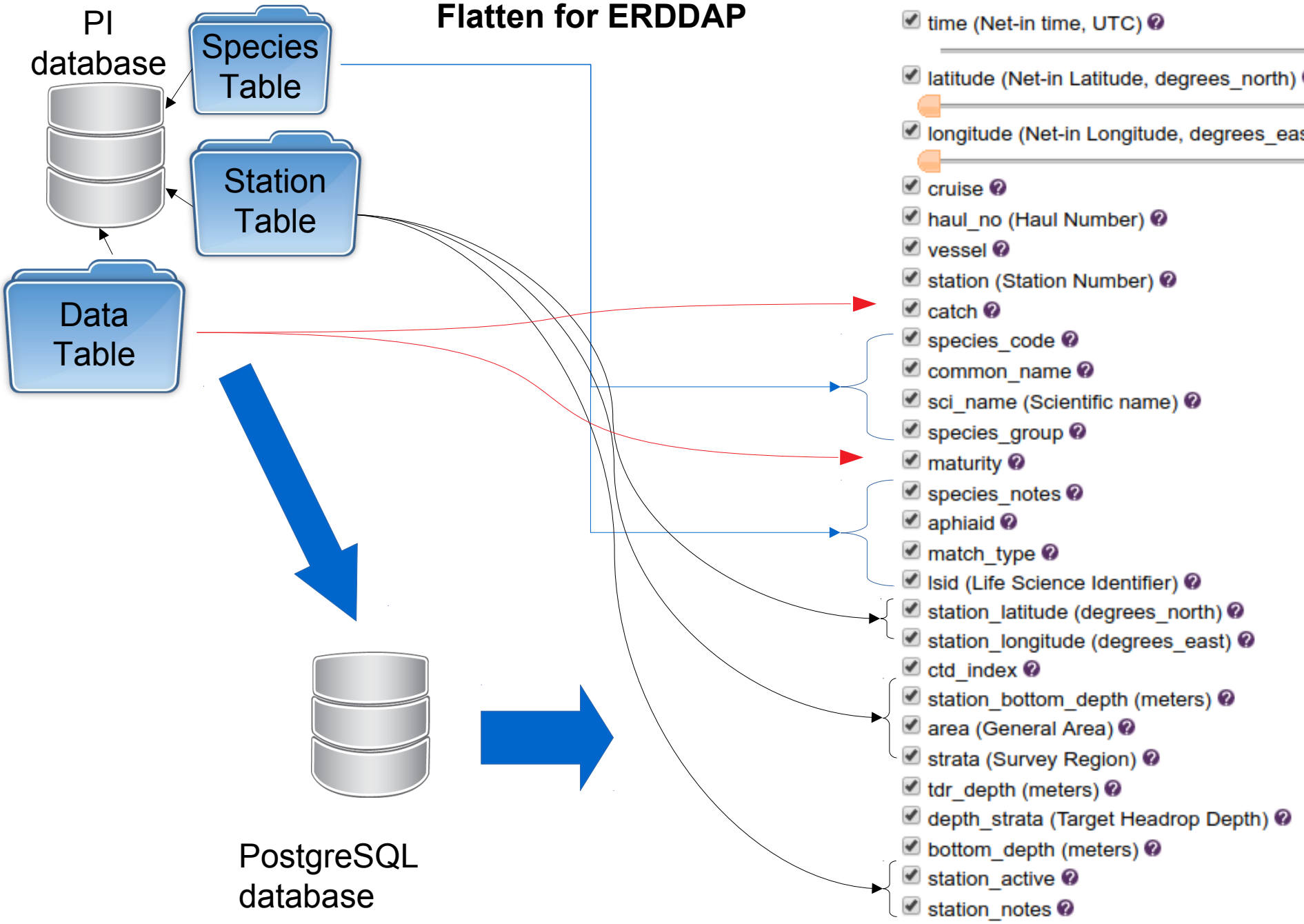
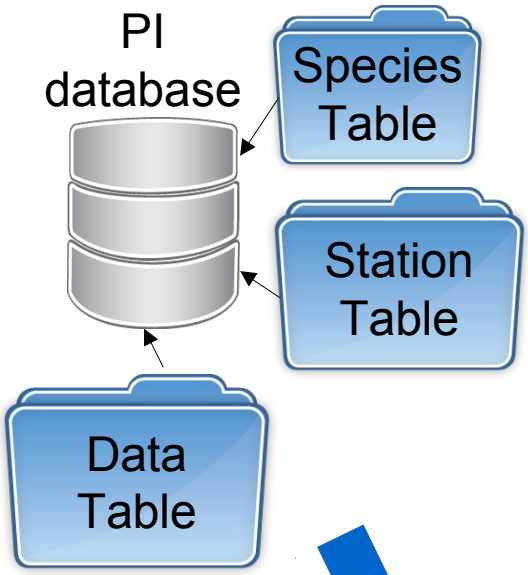
Original Data



Original Data

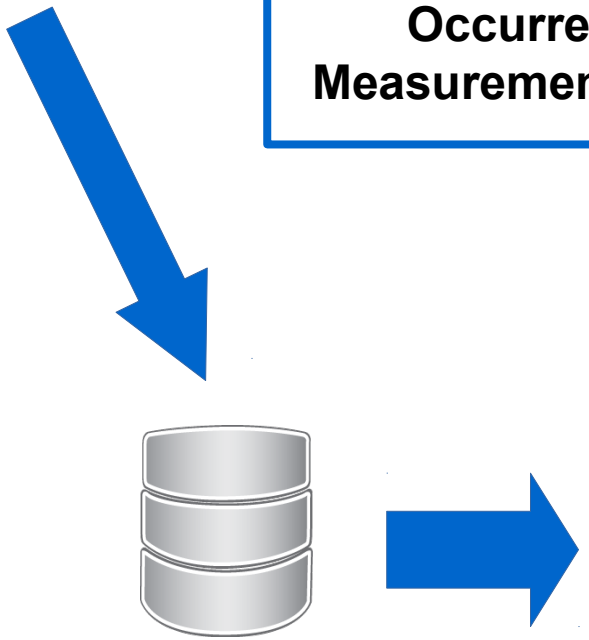


Flatten for ERDDAP

What to use for ID's in Darwin Event Core?

ID's are link between

Events
Occurrences
Measurement or Fact

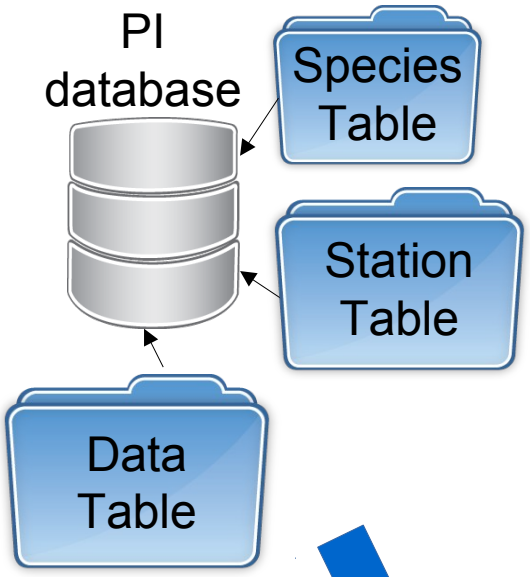


PostgreSQL database

ERDDAP data page

- time (Net-in time, UTC)
- latitude (Net-in Latitude, degrees_north)
- longitude (Net-in Longitude, degrees_east)
- cruise
- haul_no (Haul Number)
- vessel
- station (Station Number)
- catch
- species_code
- common_name
- sci_name (Scientific name)
- species_group
- maturity
- species_notes
- aphiaid
- match_type
- lsid (Life Science Identifier)
- station_latitude (degrees_north)
- station_longitude (degrees_east)
- ctd_index
- station_bottom_depth (meters)
- area (General Area)
- strata (Survey Region)
- tdr_depth (meters)
- depth_strata (Target Headrop Depth)
- bottom_depth (meters)
- station_active
- station_notes

Original Data



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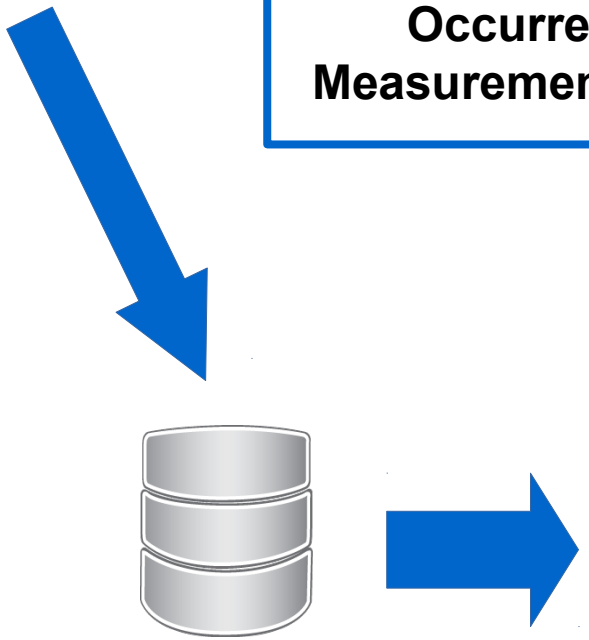

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- tdr_depth (meters)
- depth_strata (Target Headrop Depth)
- bottom_depth (meters)
- station_active
- station_notes

Unique Identifiers

Event Table

EventID: “cruise=1505;station=134;haul_no=163”

text fields!!

parentEventID	eventID
cruise=1505; station=[illegible]	cruise=1505; station=101; haul_no=151
cruise=1505; station=103	cruise=1505; station=103; haul_no=152
cruise=1505; station=104	cruise=1505; station=104; haul_no=153
cruise=1505; station=105	cruise=1505; station=105; haul_no=154
cruise=1505; station=106	cruise=1505; station=106; haul_no=155
cruise=1505; station=109	cruise=1505; station=109; haul_no=158
cruise=1505; station=110	cruise=1505; station=110; haul_no=157
cruise=1505; station=117	cruise=1505; station=117; haul_no=159
cruise=1505; station=131	cruise=1505; station=131; haul_no=160
cruise=1505; station=132	cruise=1505; station=132; haul_no=161
cruise=1505; station=133	cruise=1505; station=133; haul_no=162
cruise=1505; station=134	cruise=1505; station=134; haul_no=163
cruise=1505; station=135	cruise=1505; station=135; haul_no=164
cruise=1505; station=211	cruise=1505; station=211; haul_no=156
cruise=1505; station=411	cruise=1505; station=411; haul_no=142
cruise=1505; station=412	cruise=1505; station=412; haul_no=141
cruise=1505; station=413	cruise=1505; station=413; haul_no=140
cruise=1505; station=414	cruise=1505; station=414; haul_no=139
cruise=1505; station=423	cruise=1505; station=423; haul_no=145
cruise=1505; station=424	cruise=1505; station=424; haul_no=144
cruise=1505; station=425	cruise=1505; station=425; haul_no=143
cruise=1505; station=481	cruise=1505; station=481; haul_no=138
cruise=1505; station=484	cruise=1505; station=484; haul_no=136
cruise=1505; station=491	cruise=1505; station=484; haul_no=137
cruise=1505; station=492	cruise=1505; station=491; haul_no=146
cruise=1505; station=494	cruise=1505; station=492; haul_no=147
cruise=1505; station=495	cruise=1505; station=492; haul_no=148

Midwater trawl operations
Reuben Lasker 2016
- Keith Sakuma

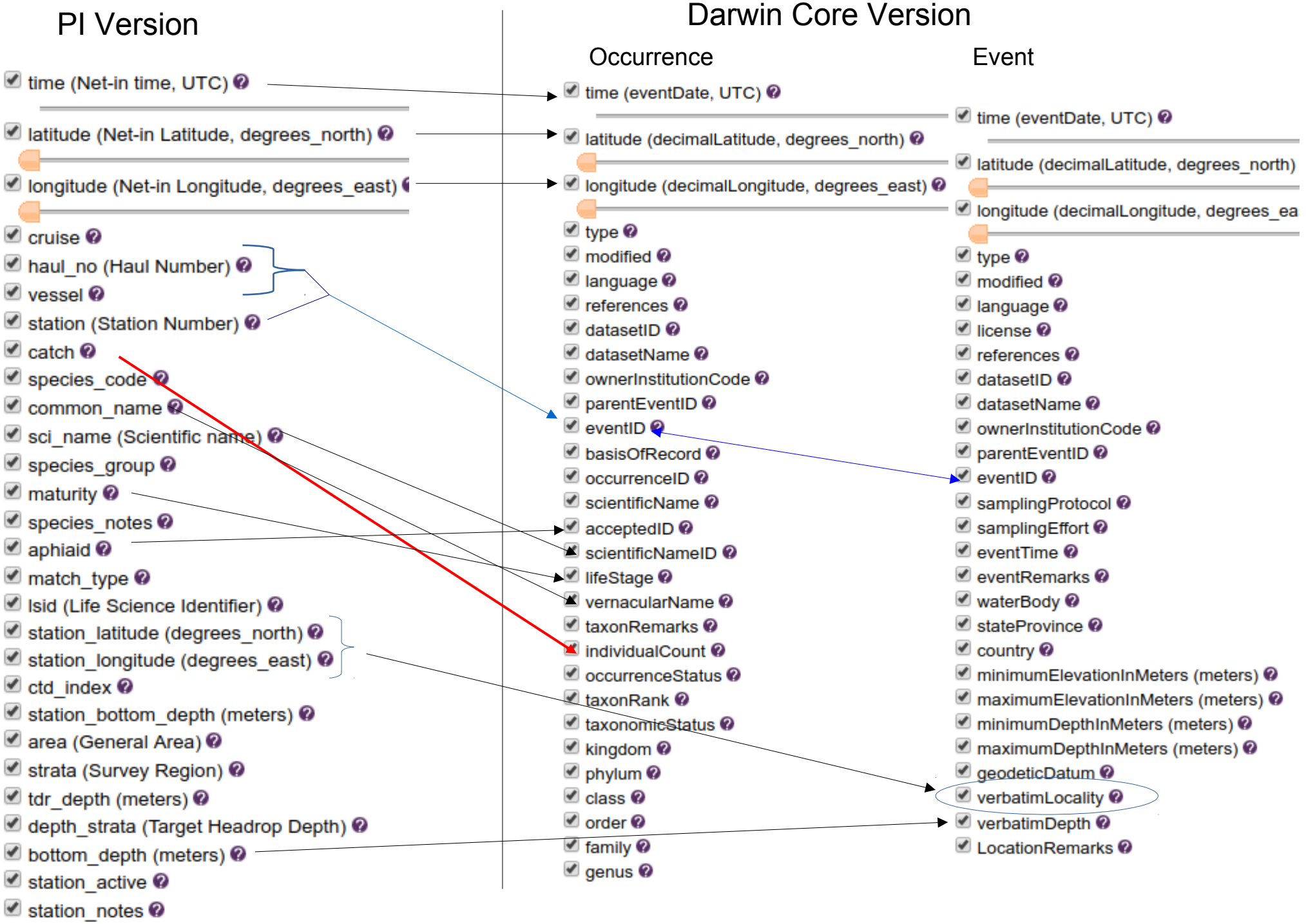
Note: “Station” is useful but not needed in the ID's

parentEventID	eventID	occurrenceID	scientificName	individualCount
cruise=1505; station=101	cruise=1505; station=101; haul_no=151	06447c8a-dfa1-4ace-975c-599d462bb600	Citharichthys sordidus	8
cruise=1505; station=101	cruise=1505; station=101; haul_no=151	3813eeaf-607c-461a-9d5c-d26e4d2820fd	Argentina sialis	2
cruise=1505; station=101	cruise=1505; station=101; haul_no=151	4a9d0930-f478-4b92-94c1-f76a249c6184	Doryteuthis opalescens	1404
cruise=1505; station=101	cruise=1505; station=101; haul_no=151	560b10a9-60bd-447d-bc31-23945feb0b96	Pleuronichthys spp.	2
cruise=1505; station=101	cruise=1505; station=101; haul_no=151	5c1373a4-f468-46be-b349-c298689b589f	Sebastes flavidus	2
cruise=1505; station=101	cruise=1505; station=101; haul_no=151	6856dd66-3759-4fa0-9a3c-9f9fab247bc1	Sebastes goodei	8
cruise=1505; station=101	cruise=1505; station=101; haul_no=151	6e544a6f-5186-42dd-82c4-816aaf7401d0	Citharichthys sordidus	38
cruise=1505; station=101	cruise=1505; station=101; haul_no=151	709684f6-cd7f-45f7-8283-79b24985ab7c	Sebastes spp.	83
cruise=1505; station=101	cruise=1505; station=101; haul_no=151	75d18f19-0753-4b2d-b728-6d9529d370c3	Gobiidae	15
cruise=1505; station=101	cruise=1505; station=101; haul_no=151	79911f8e-3428-4d68-abef-ec71bbfd0b0e	Sebastes jordani	44
cruise=1505; station=101	cruise=1505; station=101; haul_no=151	83ef730e-acfe-4b0b-8a30-a4b098998796	Sebastes semicinctus	5
cruise=1505; station=101	cruise=1505; station=101; haul_no=151	88b069b2-ff30-4353-89b5-b74beb378403	Syngnathidae	5
cruise=1505; station=101	cruise=1505; station=101; haul_no=151	8c0feda1-261d-420a-80bf-2a2ac9283217	Pyrosoma atlanticum	26
cruise=1505; station=101	cruise=1505; station=101; haul_no=151	a071b524-41c8-4ae1-ab64-3e1953f2432c	Citharichthys stigmaeus	15
cruise=1505; station=101	cruise=1505; station=101; haul_no=151	a750db68-87d5-46ef-850b-1728bbbbce02	Phronima spp.	11
cruise=1505; station=101	cruise=1505; station=101; haul_no=151	b6496abd-e3e1-4248-b4fb-c09aa36d2616	Sebastes saxicola	2
cruise=1505; station=101	cruise=1505; station=101; haul_no=151	b9dc0ed3-c977-4846-8e24-44826e5f7321	Sebastes spp. caurinus complex	14
cruise=1505; station=101	cruise=1505; station=101; haul_no=151	e3f2b45d-63f3-408a-b233-af05c018d706	Trachipterus altivelis	3
cruise=1505; station=101	cruise=1505; station=101; haul_no=151	e744c8c3-142d-42b2-b8de-628d185cd55e	Ophiodon elongatus	3
cruise=1505; station=101	cruise=1505; station=101; haul_no=151	ea9350f2-1884-4d6c-a12e-7031e14c00d3	Peprilus simillimus	12
cruise=1505; station=101	cruise=1505; station=101; haul_no=151	efb2b392-71c3-46c9-9156-0529b35743de	Sebastes levis	8
cruise=1505; station=101	cruise=1505; station=101; haul_no=151	efd946eb-3398-4980-81ed-d8e1a9b4f72a	Salpidae	292
cruise=1505; station=101	cruise=1505; station=101; haul_no=151	facb9cfe-efeb-4beb-bb0d-1370d24efecb	Natantia	5
cruise=1505; station=103	cruise=1505; station=103; haul_no=152	049a952e-dd59-4b72-9298-0f14884a7f13	Peprilus simillimus	12
cruise=1505; station=103	cruise=1505; station=103; haul_no=152	1079bec4-30ac-4028-9594-0cfee8f6a84e	Sebastes serranoides	3
cruise=1505; station=103	cruise=1505; station=103; haul_no=152	117c27df-1603-4ad1-bfd7-49236e306e5a	Euphausiacea	111384
cruise=1505; station=103	cruise=1505; station=103; haul_no=152	23980079-1e29-4131-beb3-4bfd65ea805a	Doryteuthis opalescens	775

Occurrence ID
PostgreSQL uuid-ossp module:
uuid_generate_v4()

Occurrence Table!

Rockfish Recruitment and Ecosystem Assessment Survey



Next Steps:

Measurement or Fact

- CTD data
- Fish Length data

Already in ERDDAP, just need alignment to Darwin Core

Where to find the data?

ERDDAP:

http://oceanview.pfeg.noaa.gov/erddap/search/index.html?searchFor=FED_Rockfish

Grid DAP Data	Sub-set	Table DAP Data	Make A Graph	WMS	Source Data Files	Acces-sible	Title	Sum-mary	FGDC, ISO, Metadata	Back-ground Info	RSS	E mail	Institution	Dataset ID
	set	data	graph			public	Rockfish Recruitment and Ecosystem Assessment Survey, CTD Data		F I M	background	RSS		NOAA NMFS SWFSC FED	FED_Rockfish_CTD
	set	data	graph			public	Rockfish Recruitment and Ecosystem Assessment Survey, Catch Data		F I M	background	RSS		NOAA NMFS SWFSC FED	FED_Rockfish_Catch
	set	data	graph			public	Rockfish Recruitment and Ecosystem Assessment Survey, Length Data		F I M	background	RSS		NOAA NMFS SWFSC FED	FED_Rockfish_Length
	set	data	graph			public	Rockfish Recruitment and Ecosystem Assessment Survey, OBIS Event		F I M	background	RSS		NOAA NMFS SWFSC FED	FED_Rockfish_Event
	set	data	graph			public	Rockfish Recruitment and Ecosystem Assessment Survey, Surface Data		F I M	background	RSS		NOAA NMFS SWFSC FED	FED_Rockfish_Surface
	set	data	graph			public	Rockfish Recruitment and Ecosystem Assessment Survey, OBIS Occurrence		F I M	background	RSS		NOAA NMFS SWFSC FED	FED_Rockfish_Occurrence

https://www.gbif.org/dataset/350f00a7-db1f-4133-bc07-71de716339da

GBIF

Global Biodiversity Information Facility

...coming soon to OBIS