SERVING STANDARDS-BASED BIOLOGICAL DATA

MBON FKNMS DMAC Progress

- 2006-2016 S. Florida Prgm: 31 R/V Walton Smith cruises CTD & Underway Data Processed
- 1994-2014 Florida Keys Reef Visual Census Data – Transformed, augmented -> ERDDAP
- 1999-2014 Dry Tortugas Reef Visual Census Data – Transformed, augmented -> ERDDAP
- Daily River Discharge for US GOM Rivers – first record to current day in NetCDF*.
- Water Quality Parameters for 5 Gulf States – all known records to 2014 in NetCDF*.
- FWRI/FWC Provided 32 Data Layers and 7 table relevant to FKNMS MBON
- 2005-2008 Monthly SeaScapes produced by Maria Kavanaugh (WHOI) on hand in NetCDF
- Satellite Data Archives Identified (USF - IMaRS)
- Data Management Plan in Development
- Model Data Viewer in Development*
- New HPC ERDDAP/TDS Server on 10GB line being deployed*

Institute for Marine Remote Sensing

* - In kind contributions by GCOOS-RA

GCOOS Gulf of Mexico Coastal Ocean Observing System

FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION

WOODS HOLE OCEANOGRAPHIC INSTITUTION 1930

```
YEAR,MONTH,DAY,PRIMARY_SAMPLE_UNIT,STATION_NR,LAT_DEGREES,LON_DEGREES,depth,UNDERWATER_VISIBILITY
MAPGRID_NR,HABITAT_CD,ZONE_NR,SUBREGION_NR,MPA_NR,SPECIES_NR,SPECIES_CD,len,num,TIME_SEEN

2009,6,18,001U,1,24.5129333,-81.9532500,4.3,7.6,4752307,ISOL_MR,1,8,0,1,ANT OCEL,0.000,0.000,1
2009,6,18,001U,2,24.5129500,-81.9527333,3.7,9.9,4752307,ISOL_MR,1,8,0,1,ANT OCEL,0.000,0.000,1
2009,7,10,002U,1,24.5592833,-81.6726000,3.4,5.3,5284832,UCHB_LR,1,8,0,1,ANT OCEL,0.000,0.000,1
2009,7,10,002U,2,24.5592667,-81.6727667,2.7,5.8,5284832,UCHB_LR,1,8,0,1,ANT OCEL,0.000,0.000,1
2009,7,10,003U,1,24.5664167,-81.6587500,2.9,5.3,5311086,UCHB_LR,1,8,0,1,ANT OCEL,0.000,0.000,1
2009,7,10,003U,2,24.5663500,-81.6594000,2.9,5.3,5311086,UCHB_LR,1,8,0,1,ANT OCEL,0.000,0.000,1
2009,8,27,004U,1,24.5904000,-81.5799833,2.3,6.1,5461099,UCHB_LR,1,8,0,1,ANT OCEL,0.000,0.000,1
2009,8,27,004U,2,24.5904000,-81.5799833,3.1,6.1,5461099,UCHB_LR,1,8,0,1,ANT OCEL,0.000,0.000,1
2009,8,27,005U,1,24.5863000,-81.5778667,5.2,6.1,5464847,ISOL_MR,1,8,0,1,ANT OCEL,0.000,0.000,1
2009,8,27,005U,2,24.5863500,-81.5779667,6.3,6.1,5464847,ISOL_MR,1,8,0,1,ANT OCEL,0.000,0.000,1
```

ERDDAP > List of All Datasets

Pick a Dataset

73 matching datasets, listed in alphabetical order.

Grid DAP Data	Sub-set	Table DAP Data	Make A Graph	WMS	Source Data Files	Title
	set	data	graph			* The List of All Active Datasets in this ERDDAP *
	set	data	graph			1994 Florida Keys Reef Visual Census Data, v3.1
	set	data	graph			1995 Florida Keys Reef Visual Census Data, v3.1
	set	data	graph			1996 Florida Keys Reef Visual Census Data, v3.1
	set	data	graph			1997 Florida Keys Reef Visual Census Data, v3.1
	set	data	graph			1998 Florida Keys Reef Visual Census Data, v3.1
	set	data	graph			1999 Dry Tortugas Reef Visual Census Data, v3.1
	set	data	graph			1999 Florida Keys Reef Visual Census Data, v3.1
	set	data	graph			2000 Dry Tortugas Reef Visual Census Data, v3.1
	set	data	graph			2000 Florida Keys Reef Visual Census Data, v3.1
	set	data	graph			2001 Florida Keys Reef Visual Census Data, v3.1
	set	data	graph			2002 Florida Keys Reef Visual Census Data, v3.1
	set	data	graph			2003 Florida Keys Reef Visual Census Data, v3.1
	set	data	graph			2004 Dry Tortugas Reef Visual Census Data, v3.1
	set	data	graph			2004 Florida Keys Reef Visual Census Data, v3.1
	set	data	graph			2005 Florida Keys Reef Visual Census Data, v3.1
	set	data	graph			2006 Dry Tortugas Reef Visual Census Data, v3.1
	set	data	graph			2006 Florida Keys Reef Visual Census Data, v3.1
	set	data	graph			2007 Florida Keys Reef Visual Census Data, v3.1
	set	data	graph			2008 Dry Tortugas Reef Visual Census Data, v3.1
	set	data	graph			2008 Florida Keys Reef Visual Census Data, v3.1
	set	data	graph			2009 Florida Keys Reef Visual Census Data, v3.1
	set	data	graph			2010 Dry Tortugas Reef Visual Census Data, v3.1
	set	data	graph			2010 Florida Keys Reef Visual Census Data, v3.1
	set	data	graph			2011 Florida Keys Reef Visual Census Data, v3.1
	set	data	graph			2012 Florida Keys Reef Visual Census Data, v3.1
	set	data	graph			2014 Florida Keys Reef Visual Census Data, v3.1

U.S. Integrated Ocean Observing System (IOOS®)

U.S. IOOS Data Management Services to address biological and ecosystem data integration to support Ecosystem Sciences in the Gulf of Mexico

---

A Multi-Agency& Multi-partner Effort to Enable Access to Biological Observations data

Hassan Moustahfid (corresponding author), Matt Howard (Presenter), Vembu Subramanian, Philip Goldstein, Harmon Brown, Tracy Smart, Tim MacDonald

INTEGRATED OCEAN OBSERVING SYSTEM

IOOS Biological Data Services

Three Steps to Enrollment

Tune in Turn On ~~Drop Out~~

May 28, 2014

Philip Goldstein (University of Colorado, OBIS-USA)
Hassan Moustahfid (NOAA US IOOS)

USGS science for a changing world

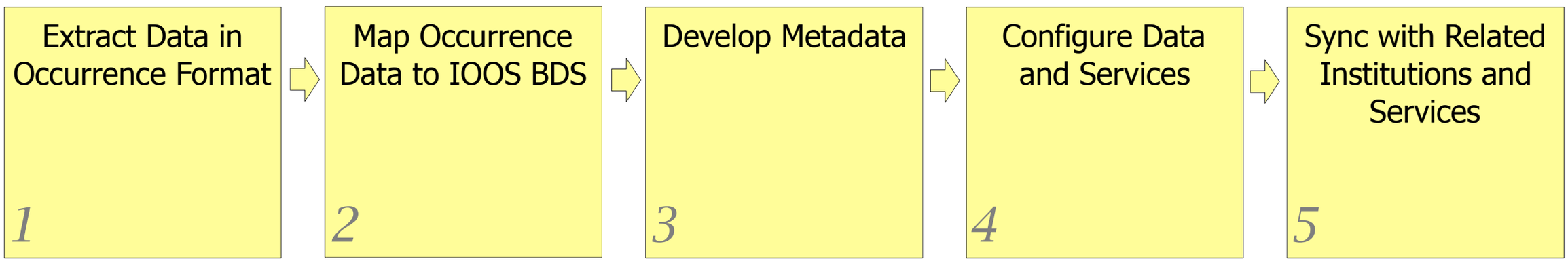
NOAA National Oceanic and Atmospheric Administration U.S. Department of Commerce

IOOS Integrated Ocean Observing System

OBIS Ocean Biogeographic Information System

OBIS Ocean Biogeographic Information System USA

IOOS Biological Data Services Enrollment Process Steps

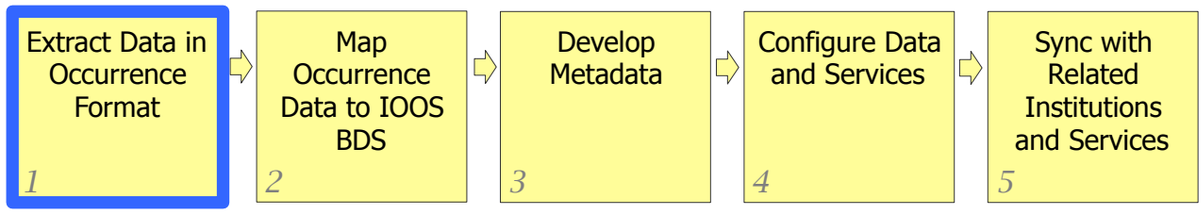


Enrollment is the process of developing data from an original source to the point where it is available on a web service in IOOS standard form.

Included in this presentation:

- Introduction to the IOOS BDS content standard
- A technical guide to preparing data for IOOS BDS
- Focus on handling source data from relational databases (a frequent technology encountered)
- Exampes from PacIOOS, GCOOS, SECOORA
- Helpful URLs for instructions, examples, and reference

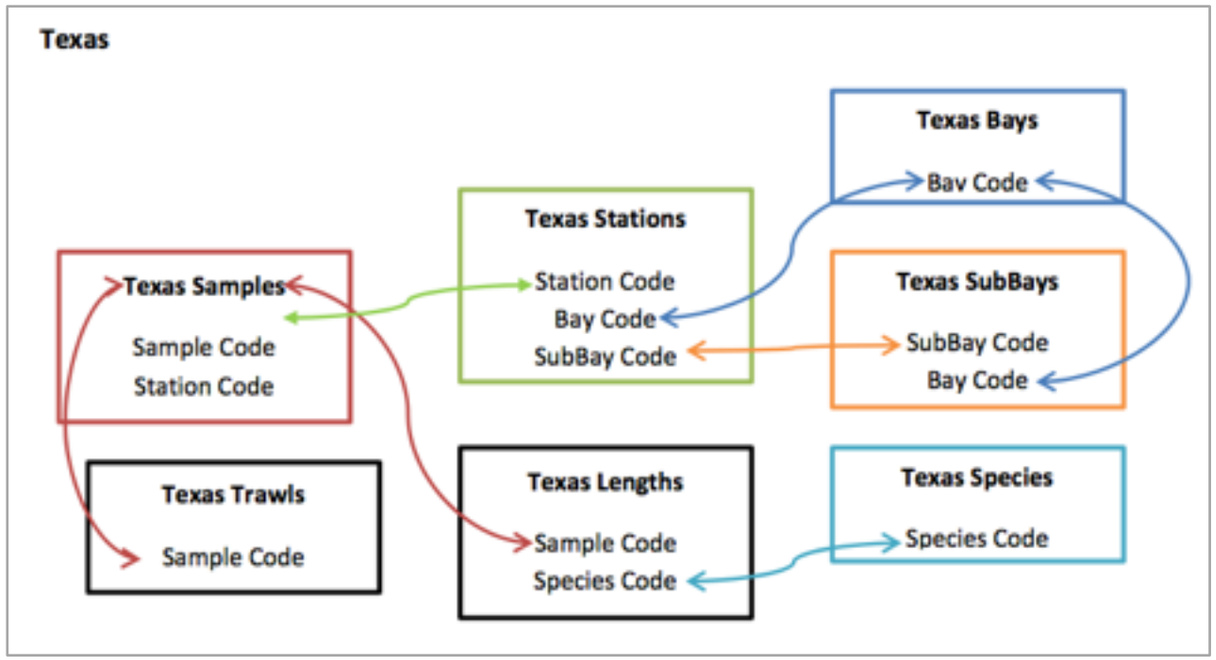
Enrollment Step #1 – Relational Source Data



- Taxon
- Location
- Date and Time
- Adminitrative information
- Further details about the observation

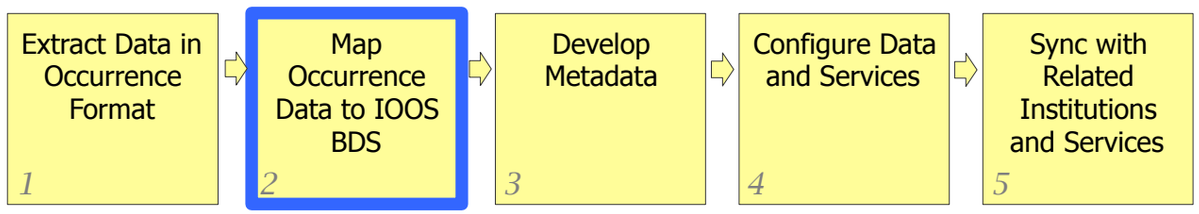
Often these types of information for the Occurrence format are found in separate relational database tables

•For example, in the SEFSC / CAGES Texas database:



- These tables may or may not have similar names as the details we seek
- Structure and contents of databases may vary for important local reasons
- However the contents are often organized in compatible ways
- Relational query is a routine way to extract information, that is very suitable for IOOS BDS

Enrollment Step #2 – Map to IOOS BDS



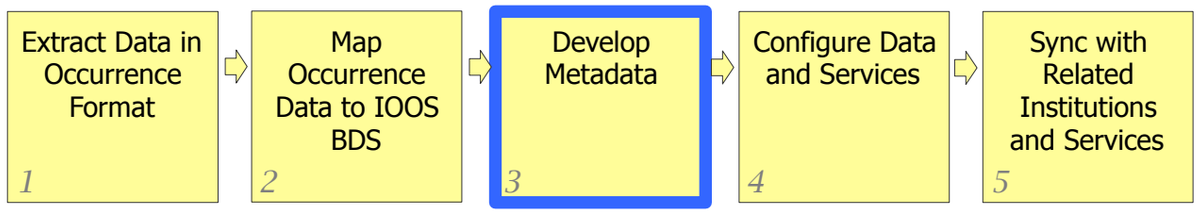
Map Occurrence Data to IOOS BDS

2

What is required when mapping to IOOS BDS?

- Columns from source data must match IOOS BDS definitions exactly.
- Differences from source data to IOOS BDS often involve formatting (e.g., formatting dates to ISO 8601).
- Sometimes conversion may be necessary (e.g., degrees-minutes-seconds to decimal degrees).
- Sometimes additional cross references need to be joined (e.g., obtaining higher taxonomy - kingdom-phylum-class, etc - based upon genus and species).
- Record steps taken during mapping in the enrollment journal.
- Record steps taken during mapping in metadata.

Enrollment Step #3 –Metadata Contents

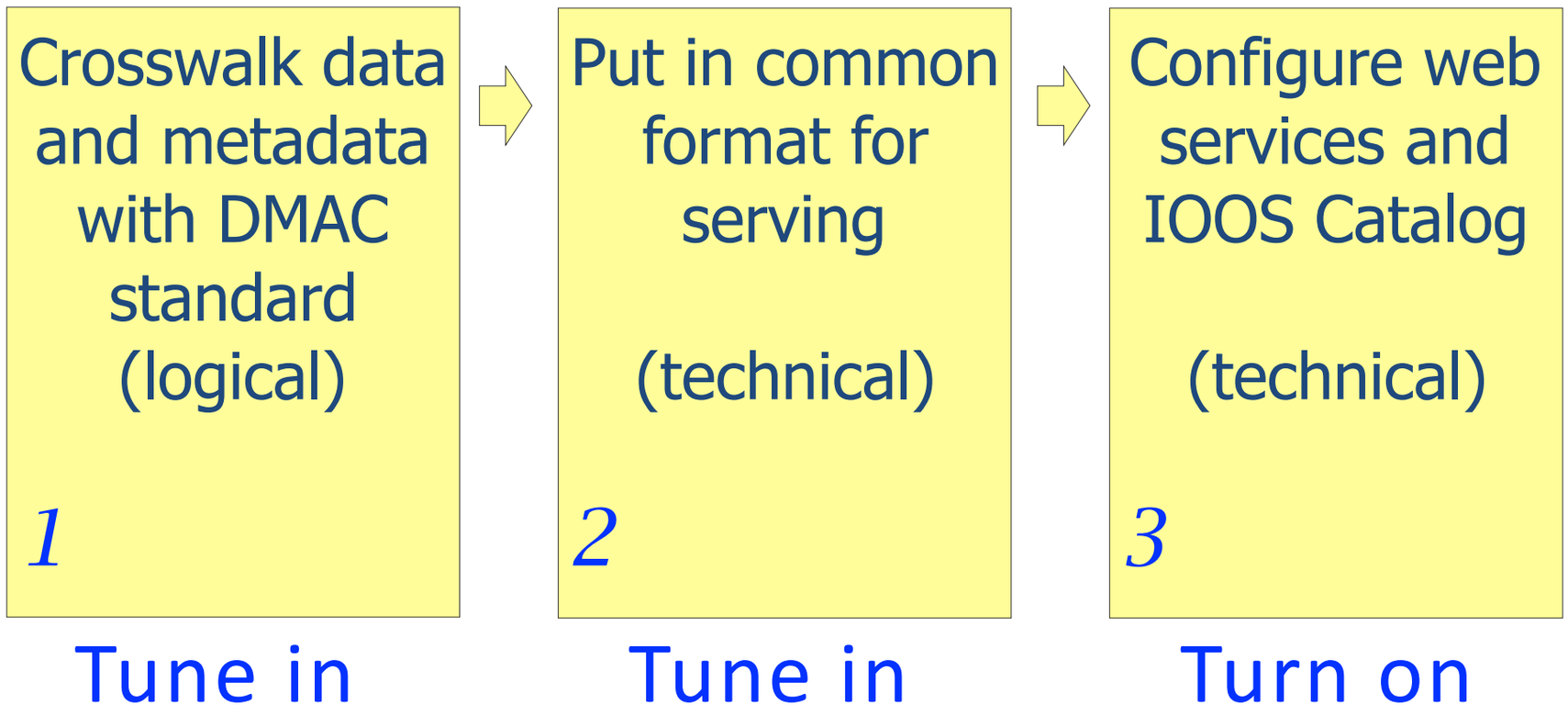


Develop Metadata

3

- Citation and attribution
- Contacts, including individuals and institutions
- Reference to related material such as publications and other web resources
- Abstract, summary, purpose
- Keywords for search engines – e.g., taxonomic keywords, thematic (science) keywords (can be vocabulary-based)
- Description and references about the preparation, access, and use of the IOOS BDS data content
- Description of research methods: observation, survey, sampling methods; derived data methods
- Description of georeferencing methods including estimated uncertainty
- Description of taxonomic identification methods

Enrollment in Three Steps



Enrollment is the process of developing data

- From original source …
- … to IOOS web service
- (and on to downstream services: OBIS, NCEI)

Enrollment Skills in Three Steps

Crosswalk data and metadata with DMAC standard	Put in common format for serving	Configure web services and IOOS Catalog
1	*2*	*3*

Skills:

- Love data
- Attention to detail
- Know the science agenda
- Communication
- Balance and adapt enrollment for local requirements

Skills:

- Data structures (table, RDBMS)
- Scripting, programming, for example, SQL, R, others)

Skills:

- System admin and configuration (e.g., datasets.xml config file)
- Operations and testing

MBG 2.1 Enrollment Journal Florida Marine Sanctuaries Fish 2004 DRAFT 20150521
Philip Goldstein
Original Draft: May 21, 2015
Last Updated: May 27, 2015

MBG 2.1 Terminology

This enrollment journal includes MBG terminology definitions for:

1) Combined Darwin Core and MBG (Marine BioGeography) Common Terms

Analysis of source data: file 'fk2004_dat1.csv'

The file 'fk2004_dat1.csv' was downloaded from the AOOS workspace on May 21, 2015.

- The source on AOOS workspace is in the project: "Florida Marine Sanctuaries Fish Sampling Timeseries".
- Folder location: Annual Fish Sampling Timeseries > Florida Keys track > 1995 - 2012
- 'fk2004_dat1.csv' size is 18.2 MB when unzipped.
- No problems encountered opening 'ft2004_dat1.csv' in Excel for analysis.
- 'fk2004_dat1.csv' contains 182,519 data rows + 1 column header row = 182,520 rows.

The folder that contains 'fk2004_dat1.csv' has a total of 18 files to be enrolled.
'fk2004_dat1.csv' is the first example

Goals for this enrollment journal:

Start with 'fk2004_dat1.csv'.

For 'fk2004_dat1.csv' enrollment:

- Align content in 'fk2004_dat1.csv' with MBG terms.
- Identify and resolve data and science questions.
- Prepare for technical transformation from 'fk2004_dat1.csv' to MBG format.
- Technologist should be able to code any required script or other technical transformation method based on instructions in the 'Alignment with Terms in Source Data" column.
- The enrollment journal may be useful to verify successful transformation of 'fk2004_dat1.csv' to MBG format.
- Enter any final comments after successful transformation of 'fk2004_dat1.csv', into the enrollment journal, if they may be useful to enroll the remainder of the 18 datasets, or useful in any other way for future enrollers or users of the data.

Continue through the remainder of the 18 datasets found in the same in the same folder in the "Florida Marine Sanctuaries Fish Sampling Timeseries" project.

To enroll these additional datasets:

- Use the 'fk2004_dat1.csv; information in the enrollment journal as a guide and template to evaluate the other datasets.
- Identify and evaluate differences in format or content among the 18 datasets.
- If there are variations among the datasets, determine if they can be addressed in aggregate or if they require resolution one-by-one.

Ratified Darwin Core and MBG Common Terms			
Marine BioGeographic Data Term	**Term Definition**	**Alignment with Terms in Source Data**	**Comments**
depth	The depth below the surface of the water, in meters, at which the observation was made. "depth" is expressed as a single value rather than the min and max as in DwC. Work with a representative of the original data to determine what is the preferred way to represent single value and min/max, as necessary. This single value named "depth" is required for ERDDAP and Climate and Forecast compatibility.		Appears to be the same as "depth" in 'fk2004_dat1.csv'. Verify: is the unit of measure meters?
minimumDepthInMeters	minimumDepthInMeters and maximumDepthInMeters express the depth range below the surface of the water at which the observation was made. If the data originator provides a single depth measurement, the minimumDepthInMeters and maximumDepthInMeters show that measurement and will be equal. If no depth information is provided, both the min and max terms will be NULL.		Set min and max to "depth". See comment for depth above.
maximumDepthInMeters	minimumDepthInMeters and		Set min and max

Philip Goldstein
Original Draft: May 21, 2015
Last Updated: May 27, 2015

Ratified Darwin Core and MBG Common Terms			
Marine BioGeographic Data Term	**Term Definition**	**Alignment with Terms in Source Data**	**Comments**
individualCount	The number of individuals represented in the observation record. Valid values include positive integers, zero, and null. Positive integers represent presence. If the observation record and metadata also contain other required information such as details about the sampling activity, individualCount can contribute to the abundance calculations. Null value for individualCount represents a record of presence, with quantity unspecified, and null values do not support abundance calculations. Zero value represents absence. Zero values for absence are only valid if methodology for establishing absence is recorded in metadata.		The number of individuals observed - should be an integer. Column "num" in fk2004 is not restricted to integers. Determine what is in "num", and if it is a derived quantitative value (such as abundance), populate MBG quantification section accordingly. Do zeroes indicate true absence data? Is there a methodology for listing expectable taxa and then determining that they are not present in a sample? If so, further reason to address "num" using the MBG quantification terms. Also, determine the meaning of column

Marine BioGeographic Data Term	Term Definition	Alignment with Terms in Source Data	Comments
institutionCode	An abbreviation for the institution that is the originator of this data resource; the institution involved in research, data collection and/or data management that most directly produced this dataset. This institution also appears as the lowest level (rightmost) code in the higherInstitutionCode term.	'FKNMS'	The abbreviation for the institution most directly associated with the origin of the data. Is FKNMS correct in this case?
ownerInstitutionCode	An abbreviation that identifies the institution, within the higherInstitutionCode hierarchy, that is considered the owner or controller of the data.	'NOAA'	Is NOAA the ultimate owner of the data? or NOS? or FKNMS?
collectionCode	An identifier for a subset(s) of data within the dataset, partitioned by methods or parameters meaningful to the data originators. The system and purpose for defining and partitioning by collectionCode within a dataset will be explained in metadata.	'FloridaKeysNMSFishTimeSeries2004'	If there are subsets of the data that MBON/FKNMS would like to label as distinct collections, use "collectionCode"; otherwise just repeat the "datasetID" here (as shown at left)

RVC_Codes_Header

YEAR	year		
MONTH	month		
DAY	day		
PRIMARY_SAMPLE_UNIT	primary sample unit number		
STATION_NR	station number within PSU number		
LAT_DEGREES	latitude		
LON_DEGREES	longitude		
depth	depth m		
UNDERWATER_VISIBILIT	vidibilty in feet		
MAPGRID_NR	cooresponding GIS shapefile grid number		
HABITAT_CD	see AR metadata tab		
ZONE_NR	see AR metadata tab		
SUBREGION_NR	see AR metadata tab		
MPA_NR	see AR metadata tab		
SPECIES_NR	see species tab		
SPECIES_CD	see species tab		
len	length cm		
num	numbers seen at given length		
TIME_SEEN	1-first 5 minutes, 2=5-10 miutes, 3=after 10 minutes		

Header variables of the data

RVC_Codes_AR_Metadata

spcode	Species name	strat	Strata name	HabClass		ZoneNbr	Zone Name	MpaNbr	MPA Name	SUBREGION_NR	SUBREGION_NAME
ABU SAXA	On next Sheet	FDLR	Forereef Deep Linear reef	ARTF_NA	Artificial Reef	0	Undetermined	0	Unprotected	2	Tortugas-Rileys Hump
ACA ASPE		FMLR	Forereef Midchannel Linear ree	CONT_HR	Continuous High Relief	1	Inshore	1	Carysfort	3	Tortugas-Tortugas Bank
ACA BAHI		FSLR	Forereef Shallow Linear reef	CONT_MR	Continuous Medium Relief	2	Mid Channel	2	Elbow	4	Tortugas-Dry Tortugas NP
ACA CHAP		HRRF	High Relief Reef (Spur & Groove	CONT_LR	Continuous Low Relief	3	Offshore Patch Reef	3	Key_Largo_Dry_Rocks	5	Tortugas-Unmapped
ACA CHIR		INPR	Inshore Patchreef	ISOL_HR	Isolated HR Relief (Patch)	4	Forereef	4	Grecian_Rocks	6	Marquesas-Tortugas Trans
ACA COER		MCPR	MidChannel Patch Reef	ISOL_MR	Isolated Medium Relief (Patch	5	Deepwater	5	French	7	Marquesas
ACA MARI		OFPR	Offshore Patch Reef	ISOL_LR	Isolated Low Relief (Patch)	6	Lagoon	6	Molasses	8	Lower Keys
ACA POLY				RUBB_LR	Rubble Low Relief	7	Bank	7	Conch_Reef	9	Middle Keys
ACA QUAD				SAND_NA	Sand	9	Intra Island	8	Conch_RO	10	Mid-Upper Keys Transition
ACA SOLA				SGRS_NA	Seagrass	10	Back Country Reef	9	Davis	11	Upper Keys
ACA SPE.				SPGR_HR	Spur and Groove High Relief	17	Inner Reef	10	Hen_Chickens	12	Biscayne
ACA SPIN				SPGR_LR	Spur and Groove low Relief	18	Outer Reef	11	Cheeca_Rocks		
AET NARI				UCHB_LR	Unconsolidated Hardbottom	19	Reef Ridge Complex	12	Alligator		
AHL EGMO				UNCR_UN	Unknown	20	New Grounds	13	Tennessee		
ALB VULP				UNDF_UN	Unknown			14	Coffins_Patch		
ALE CILI								15	Sombrero		
ALP AFER								16	Looe_Key		
ALU MONO								17	Looe_RO		
ALU SCHO								18	Newfound_Harbor		
ALU SCRI								19	East_Sambo		
ALU SPE.								20	West_Sambo		
AMB PINO								21	East_Dry_Rocks		
ANC LYOL								22	Rock_Key		
ANI SURI								23	Sand_Key		
ANI VIRG								24	North Ecological Reserve		
ANT OCEL								25	South Ecological Reserve		
APO AURO								26	Research Natural Area		
APO BINO								27	Not Protected		
APO MACU								28	Not Protected		
APO PHEN											
APO PSEU											
APO QUAD											
APO TOWN											
ARC PROB											
ARC RHOM											

spcode = species code;
strat = strata code;
In the enrollment data has both start and strata_name.

RVC_Codes_fish_species

species	latin	common	family	com_fam
ABU SAXA	Abudefduf saxatilis	sergeant major	Pomacentridae	damselfishes
ACA ASPE	Acanthemblemaria aspera	roughhead blenny	Chaenopsidae	tube blennies
ACA BAHI	Acanthurus bahianus	ocean surgeon	Acanthuridae	surgeonfishes
ACA CHAP	Acanthemblemaria chaplini	papillose blenny	Chaenopsidae	tube blennies
ACA CHIR	Acanthurus chirurgus	doctorfish	Acanthuridae	surgeonfishes
ACA COER	Acanthurus coeruleus	blue tang	Acanthuridae	surgeonfishes
ACA MARI	Acanthemblemaria maria	secretary blenny	Chaenopsidae	tube blennies
ACA POLY	Acanthostracion polygonia	honeycomb cowfish	Ostraciidae	boxfishes
ACA QUAD	Acanthostracion quadricornis	scrawled cowfish	Ostraciidae	boxfishes
ACA SOLA	Acanthocybium solandri	wahoo	Scombridae	mackerels
ACA SPE.	Acanthurus sp.	surgeonfish species	Acanthuridae	surgeonfishes
ACA SPIN	Acanthemblemaria spinosa	spinyhead blenny	Chaenopsidae	tube blennies
ACH LINE	Achirus lineatus	lined sole	Soleidae	soles
ACR CERV	Acropora cervicornis	staghorn coral	Acroporidae	acroporid corals
ACR PALM	Acropora palmata	elkhorn coral	Acroporidae	acroporid corals
AET NARI	Aetobatus narinari	spotted eagle ray	Myliobatidae	eagle rays
AHL EGMO	Ahlia egmontis	key worm eel	Ophichthidae	snake eels
ALB VULP	Albula vulpes	bonefish	Albulidae	bonefishes
ALE CILI	Alectis ciliaris	African pompano	Carangidae	jacks
ALP AFER	Alphestes afer	mutton hamlet	Serranidae	sea basses and groupers
ALU MONO	Aluterus monoceros	unicorn filefish	Monacanthidae	filefishes
ALU SCHO	Aluterus schoepfii	orange filefish	Monacanthidae	filefishes
ALU SCRI	Aluterus scriptus	scrawled filefish	Monacanthidae	filefishes
ALU SPE.	Aluterus sp.	filefish species	Monacanthidae	filefishes
AMB PINO	Amblycirrhitus pinos	redspotted hawkfish	Cirrhitidae	hawkfishes
ANC LYOL	Anchoa lyolepis	dusky anchovy	Engraulidae	anchovies
ANI SURI	Anisotremus surinamensis	black margate	Haemulidae	grunts
ANI VIRG	Anisotremus virginicus	porkfish	Haemulidae	grunts
ANT OCEL	Antennarius ocellatus	ocellated frogfish	Antennariidae	frogfishes
ANT SPE.	Antipatharia sp.	black coral species	Antipatharia	black corals
APO AURO	Apogon aurolineatus	bridle cardinalfish	Apogonidae	cardinalfishes
APO BINO	Apogon binotatus	barred cardinalfish	Apogonidae	cardinalfishes
APO MACU	Apogon maculatus	flamefish	Apogonidae	cardinalfishes
APO PHEN	Apogon phenax	mimic cardinalfish	Apogonidae	cardinalfishes
APO PLAN	Apogon planifrons	pale cardinalfish	Apogonidae	cardinalfishes
APO PSEU	Apogon pseudomaculatus	twospot cardinalfish	Apogonidae	cardinalfishes
APO QUAD	Apogon quadrisquamatus	sawcheek cardinalfish	Apogonidae	cardinalfishes
APO TOWN	Apogon townsendi	belted cardinalfish	Apogonidae	cardinalfishes
ARC PROB	Archosargus probatocephalus	sheepshead	Sparidae	porgies
ARC RHOM	Archosargus rhomboidalis	sea bream	Sparidae	porgies
AST ALUT	Astrapogon alutus	bronze cardinalfish	Apogonidae	cardinalfishes
AST GUTT	Astroscopus guttatus	northern stargazer	Uranoscopidae	stargazers
AST PUNC	Astrapogon puncticulatus	blackfin cardinalfish	Apogonidae	cardinalfishes
AST SPE.	Astrapogon sp.	cardinalfish species	Apogonidae	cardinalfishes
AST STEL	Astrapogon stellatus	conchfish	Apogonidae	cardinalfishes
ATH STIP	Atherinomorus stipes	hardhead silverside	Atherinidae	Old World silversides
AUL MACU	Aulostomus maculatus	Atlantic trumpetfish	Aulostomidae	trumpetfishes
AUX ROCH	Auxis rochei	bullet mackerel	Scombridae	mackerels
BAI CHRY	Bairdiella chrysoura	silver perch	Sciaenidae	drums and croakers
BAL CAPR	Balistes capriscus	gray triggerfish	Balistidae	triggerfishes
BAL SPE.	Balistes sp.	triggerfish species	Balistidae	triggerfishes
BAL VETU	Balistes vetula	queen triggerfish	Balistidae	triggerfishes
BAT CURA	Bathygobius curacao	notchtongue goby	Gobiidae	gobies
BEL SPE.	needlefish species	needlefish species	Belonidae	needlefishes
BLE SPE.	blenny species	blenny species	Blenniidae	combtooth blennies
BOD PULC	Bodianus pulchellus	spotfin hogfish	Labridae	wrasses
BOD RUFU	Bodianus rufus	Spanish hogfish	Labridae	wrasses
BOL BOQU	Bollmannia boqueronensis	white-eye goby	Gobiidae	gobies

For species code:

spcode = ABU SAXA

scientificName = Abudefduf saxatilis

venacularName = sergeant major

genus = Abudefduf

family = Pomacentridae

family common name = damselfishes

order = Perciformes

(the order,class, phylum and kingdom in the data are from ITIS (Integrated Taxonomic Information System) or if not in ITIS from WoRMS (World Register of Marine Species)

The processed data:

GRIIDC **ERDDAP**
Investigating the effect of oil spills on the environment and public health.

ERDDAP > tabledap > Subset

Dataset Title: **1994 Florida Keys Reef Visual Census, v3.1** RSS
Institution: ??? (Dataset ID: fk1994)
Information: Summary | License | FGDC | ISO 19115 | Metadata | Background | Data Access Form | Make a graph

Select a subset: (Current number of distinct combinations of matching data: 127)
Make as many selections as you want, in any order. Each selection changes the other options (and the map and data below) accordingly.

time	=	(ANY)		14 options
longitude	=	(ANY)	degrees_east	18 options
latitude	=	(ANY)	degrees_north	18 options
depth	=	(ANY)	m	52 options
minimumDepthInMeters	=	(ANY)	m	20 options
maximumDepthInMeters	=	(ANY)	m	21 options
observedMeanLengthInCm	=	(ANY)	cm	2 options
waterTemperatureInCelsius	=	(ANY)	C	1 option:
dynamicProperties	=	(ANY)		1 option:
meanFishNumber	=	(ANY)		1 option: 0.0
scientificName	=	Acanthocyblium solandri		365 options
taxonRank	=	(ANY)		1 option:
vernacularName	=	(ANY)		1 option: wahoo
habitat	=	(ANY)		3 options
habitat_cd	=	(ANY)		3 options
primarySamplingUnit	=	(ANY)		25 options
mapGridNumber	=	(ANY)		18 options
mapNumber	=	(ANY)		11 options
zone_nr	=	(ANY)		3 options
subregion_nr	=	(ANY)		4 options
station_nr	=	(ANY)		8 options
materialSampleID	=	(ANY)		126 options
locality	=	(ANY)		13 options
stateProvince	=	(ANY)		1 option: Florida
kingdom	=	(ANY)		1 option: Animalia
phylum	=	(ANY)		1 option: Chordata
class	=	(ANY)		1 option: Actinopterygii
order	=	(ANY)		1 option: Perciformes
family	=	(ANY)		1 option: Scombridae
genus	=	(ANY)		1 option: Acanthocybium
species_cd	=	(ANY)		1 option: ACA SOLA
species_nr	=	(ANY)		1 option: 303.0
eventDate	=	(ANY)		14 options

View: Map of Distinct Data | Distinct Data Counts | Distinct Data 1000 | Related Data Counts | Related Data 0