2023 SOUTHERN CALIFORNIA BIGHT REGIONAL MONITORING SURVEY (BIGHT '23)

INFORMATION MANAGEMENT PLAN

Prepared by:
Bight '23 Sediment Quality Planning Committee

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BACKGROUND

The Southern California Bight 2023 Regional Monitoring Program (Bight '23) is a continuation of the successful cooperative regional-scale monitoring in southern California conducted since 1994. Bight '23 is a cooperative, integrated regional monitoring program with dozens of participating agencies including over 12 different field teams, 8 chemistry laboratories, and 6 toxicity testing laboratories. Because of the diversity in agencies generating data, information management (IM) plays a vital and fundamental role. These data generators will need to collate their data in a common data set that is robust and flexible enough to include all data types, but rigorous enough to ensure data quality and integrity. To accomplish this, Bight '23 utilizes standardized data transfer formats (SDTF) to upload data to a common database using the Bight data portal (http.//bight18.sccwrp.org).

This IM Plan focuses on the Sediment Quality element of Bight '23. This IM Plan is supported by several other Bight '23 planning documents including a Workplan, Field Methods and Logistics Manual, Benthic Laboratory Manual, Toxicology Laboratory Manual, and Quality Assurance Plan (QAP). There are other Bight '23 elements (e.g., Microbiology, Water Quality, Harmful Algal Blooms, Trash and Microplastics, Submerged Aquatic Vegetation, and Estuaries) who will have their own independent Planning Documents. These documents can all be found at http://sccwrp.org/Documents/BightDocuments.aspx

BIGHT '23 INFORMATION MANAGEMENT STRATEGY

The Bight '23 IM strategy is to maintain a high level of data quality assurance and quality control from field collection through laboratory analysis to data submission and subsequent data analysis.

To this end, SCCWRP has worked to improve IM by providing updated MS Excel templates for all tables described in this IM Plan, as well as including over 500 data checks to the data portal to ensure the final dataset is complete and of the highest quality. Data checkers include: logic checks, completeness checks, range checks, syntax checks, duplicate checks, qualifier checks, checks for calculated parameters, and QA/QC checks. Bight participants will input their data into the Excel templates and submit them through the Bight data portal. All files will be run through the appropriate data checkers. If a file fails one of the data checks, the error will be highlighted on the Excel form with a note on how to correct the error, and it will be recorded on the webpage. Once all errors, have been corrected, the file can be re-uploaded through the checkers (which should now be satisfied) and into the database. This process should expedite the data submittal process, allowing for more rapid access to the final dataset.

SCCWRP will provide a training session on how to use the Excel templates and the data portal. This session will demonstrate the data submission process and allow users hands-on experience in using the data portal before submitting their data. This manual was designed as a reference

document for the training session and is not meant as a substitute. If additional help is required, a Help Desk will be provided to assist with the data submission process (see contact below).

Due to the unpredictable nature of any field program and the subsequent need to adapt the IM strategy to accommodate changes, the IM plan is expected to be a "living" document. This is particularly true for the look-up lists in the appendix. Bight participants are encouraged to review the most recent version of the IM plan prior to data submission. The latest version will be posted on the Bight Documents website http://sccwrp.org/Documents/BightDocuments.aspx and the latest version of lookup lists will be linked at the data portal.

INFORMATION MANAGEMENT CONTACTS

Table 1. Information Management Contacts

NAME	ROLE	EMAIL
Karen McLaughlin	Regional Monitoring Coordination	karenm@sccwrp.org
Dario Diehl	Field Committee Chair	dariod@sccwrp.org
Charles Wong	Chemistry Committee Chair	charlesw@sccwrp.org
Alvina Mehinto	Toxicity Committee Chair	alvinam@sccwrp.org
David Gillett	Infauna Committee Chair	davidg@sccwrp.org
Paul Smith	Data Submittal Support	pauls@sccwrp.org

HELP DESK

SCCWRP is providing a Help Desk to answer any question regarding data submission and assist with trouble shooting throughout the process. The Help Desk will be available Monday through Friday from 9:00 am to 4:00 pm. Please send an email with your question to the address below. Please provide a contact phone number in the email.

Email: b23-im@sccwrp.org

DATABASE STRUCTURE

Figure 1 illustrates the overall relationship of tables required for data submission in Bight '23. Since Bight '23 at its core is a spatially designed survey, all results are ultimately tied to station occupation information with separate tables for the major Bight '23 environmental indicators such as chemistry, toxicity, infauna, fish and invertebrates. These indicators are connected to the station occupation data via their field collection method including grabs or trawls.

Built into the database are Field and Laboratory Assignment tables, which include lists of all the Bight '23 station and overdraw site IDs, their targeted latitudes and longitudes, area weights, organization responsible for sample collection and analysis. These tables replace the Station Table from previous Bight surveys.

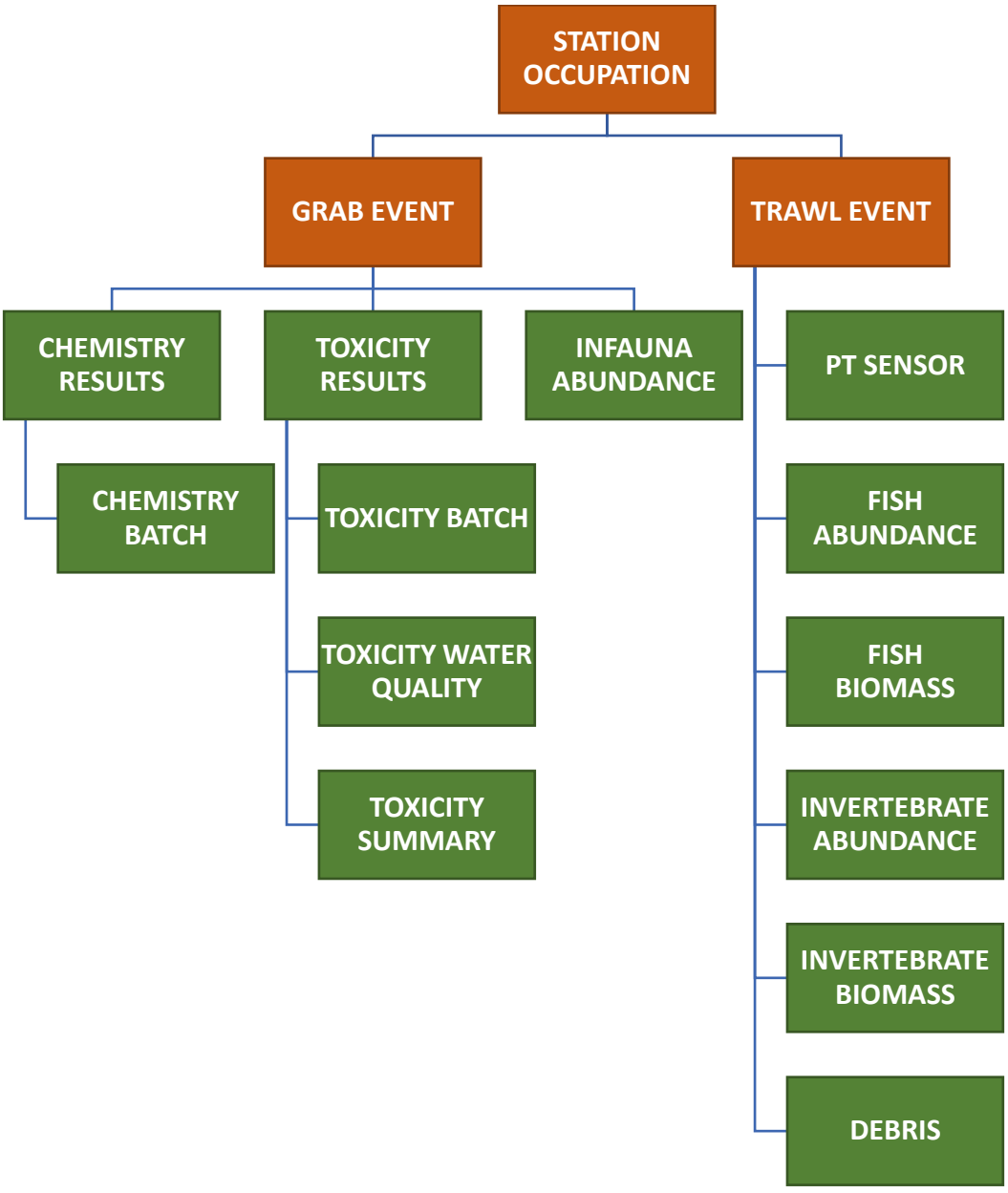


Figure 1. Flow chart of tables reported by field crews (orange) and laboratories (green).

DATA SUBMISSION DEADLINES

Table 2. Due dates for Bight 23 data tables relative to the number of months after sampling has finished.

TABLE TYPE	DUE DATE	MAXIMUM DUE DATE
GrabEvent	2 Months	01-Dec-2023
StationOccupation	2 Months	01-Dec-2023
TrawlDebris	2 Months	01-Dec-2023
TrawlEvent	2 Months	01-Dec-2023
PTSensorResults	2 Months	01-Dec-2023
FishBiomass	3 Months	01-Jan-2024
FishAbundance	3 Months	01-Jan-2024
InvertBiomass	3 Months	01-Jan-2024
InvertAbundance	3 Months	01-Jan-2024
PressureTemperature	3 Months	01-Jan-2024
SedimentToxBatch	3 Months	01-Jan-2024
SedimentToxResults	3 Months	01-Jan-2024
SedimentToxWQ	3 Months	01-Jan-2024
Chem Metals	6 Months	01-Mar-2024
Chem Organics	6 Months	01-Mar-2024
Chem Tissue	6 Months	01-Mar-2024
Benthic Infauna	16 Months	02-Feb-2025

DATA RELEASE POLICY

In large, multi-agency projects such as the Bight Program, a data policy is necessary for how and when data becomes accessible. This data release policy has a four-step process:

1) Data will be accessible to the technical committee chair (or their designee) throughout the submission process for preliminary data viewing and high-level analyses.

2) Once data for a specific indicator is complete, it will be made available to the technical committee responsible for quality assurance review and analysis.

3) Once the technical committee has reviewed and approved the complete data set for an indicator, that data can be made available to any other technical committee for inclusion in their data analysis.

4) Once the technical committee report has been approved by the Planning Committee, the data will be made available to the public. The appropriate metadata will be provided with the data.

Data can be released prior to this policy, but with the majority approval of the Sediment Quality Planning Committee.

FIELD DATA SUBMISSION

FIELD SURVEY DATA

The field survey component includes two common table types, station occupation and event sampling. The Station Occupation table requires a record for every sampling site visit, regardless of success. The event table contains a record for each sampling activity conducted during an occupation of a site. There are two types of sampling events: grab and trawl.

DATA SUBMISSION

The Field Committee has requested that a computer program or field computer system be used whenever possible to collect station occupation and event data during the Bight'23 survey to minimize transcription errors. An application has been developed by SCCWRP for multiple operating systems (e.g., Android, iOS, Windows). The application facilitates the collection of all the required station occupation and field sampling event information (e.g., grabs and trawls). The application has special built-in features that accommodate the upload of data through SCCWRP's web-based data submission page. Sampling organizations have the discretion to use

their own field computer systems. When field teams are unable to use a computer system, they shall use paper datasheets, manual data entry, and web submissions of Excel files using the SDTP format.

SDTP Table Format

The tabular description of each data type provides useful information to the person(s) responsible for submitting tables in the appropriate format.

The first column contains the exact name for the field or the column name, as it should be used for data submissions. Do not add spaces or other characters to the field names.

The second column describes the type of variables used for the associated field name.

- Text — Any alphanumeric character
- Number — Numbers are divided into two numeric types
  - Integer — Whole numbers (no decimal places)
  - Decimal — Decimal numbers (Floating Point in SQL Server)
- Date/Time — Allows for formatted date or time data
- Yes/No — Boolean indicating Yes or No

The third column indicates whether the field is mandatory or not.

- Y — Indicates that the field is mandatory,
- N — Indicates the field is not mandatory,
- * — Indicates that the field is conditionally mandatory

The fourth column indicates the size of the text fields. Only text fields have sizes. Comment fields are typically limited to 255 characters.

The fifth column gives a short description of the field and may contain a reference to a relevant look-up list containing a constrained list of values that are allowable. In addition, any default values may be listed here.

STATION OCCUPATION TABLE

PURPOSE: The purpose of the Station Occupation table is to document the conditions under which each sample was collected. This table is used for sediment grab and trawl assemblage events. Each record contains a characterization of the station at the time of sampling in terms of the weather, sea state, sample type, depth, vessel name, agency, and quality of the GPS signal at the time of sampling. Depth is an important QA measure toward the design of the survey and acceptability during sampling event activities. The survey design expects the boat captain to stop at the assigned coordinates. The field manual has an acceptability criterion for the sample based on radius and depth limits.

SUBMISSION GUIDELINES:

FILE SPECIFICATIONS: It is recommended that the Station Occupation template file be downloaded from the Bight 23 Data Submission Website (https://bight.sccwrp.org/pages/bight-2023-field). The file must be a Microsoft Excel file and can be named at the discretion of the user. In addition, the tab name can also be named at the discretion of the user; however, the field names must match the order and names listed below for the checker to recognize the type of data being submitted and to provide the necessary checks.

These guidelines ensure that all subsequent data tables match corresponding Station Occupation data.

- Each record will be unique based on a combination of StationID, OccupationDate, OccupationTime, SamplingOrganization, and CollectionType.
- **Station Occupation** must be the first table submitted because of the requirement that each record in the event tables have a corresponding record in the Station Occupation table.
- Records are matched on StationID to the Field Assignment table created by the Sediment Quality Planning Committee.

EXAMPLE DATA:

StationID	**OccupationDate**	**OccupationTime**	OccupationTimeZone	**SamplingOrganization**	**CollectionType**	Vessel	NavType	Salinity	SalinityUnits	Weather	WindSpeed	WindSpeedUnits
B23-9228	2023-07-20	12:46:32	PST	Los Angeles County Sanitation Districts	Grab	Ocean Sentinel	AGPS	0	psu	Clear	14	KTS/h
B23-9229	2023-07-20	08:06:22	PST	Los Angeles County Sanitation Districts	Grab	Ocean Sentinel	AGPS	0	psu	Hazey	7	KTS/h
B23-9251	2023-07-20	09:38:46	PST	Los Angeles County Sanitation Districts	Grab	Ocean Sentinel	AGPS	0	psu	Partly Cloudy	2	KTS/h
B23-9354	2023-07-29	08:31:12	PST	Los Angeles County Sanitation Districts	Trawl 10 Minutes	Ocean Sentinel	AGPS	0	psu	Overcast	0	KTS/h
B23-9348	2023-07-29	10:19:19	PST	Los Angeles County Sanitation Districts	Trawl 10 Minutes	Ocean Sentinel	AGPS	0	psu	Overcast	4	KTS/h
B23-8315	2023-08-04	10:28:07	PST	Los Angeles County Sanitation Districts	Trawl 10 Minutes	Ocean Sentinel	AGPS	0	psu	Overcast	0	KTS/h

WindDirection	SwellHeight	SwellHeightUnits	SwellPeriod	SwellDirection	SeaState	StationFail	Abandoned	OccupationDepth	OccupationDepthUnits	OccupationLatitude	OccupationLongitude	OccupationDatum	Comments
W	2	ft	5	W	Choppy	None or No Failure	No	257	m	33.6941	-118.346	NAD83	
W	2	ft	6	SW	Calm	None or No Failure	No	27	m	33.6954	-118.296	NAD83	
SW	2	ft	6	W	Calm	None or No Failure	No	133	m	33.7668	-118.46	NAD83	
C	1	ft	8	W	Calm	None or No Failure	No	238	m	34.05097	-119.21574	NAD83	
S	1	ft	8	W	Calm	None or No Failure	No	236	m	34.04111	-119.19718	NAD83	
C	0	ft	0	C	Calm	None or No Failure	No	16	m	33.72472	-118.15277	NAD83	Station moved away from breakwall

DATA STRUCTURE:

Table 3. Station Occupation table structure (primary key fields are indicated with bold text).

Field Name	*Type*	*Required*	*Size*	*Description*
StationID	Text	Y	50	A geographic location label as derived from the table of assigned Stations given to each Sampling Organization.
OccupationDate	Date/Time	Y		The date the sample was collected expressed as yyyy-mm-dd. All values numeric.
OccupationTime	Text	Y	8	The time of arrival on station expressed in 24hour time (hh:mm:ss).
OccupationTimeZone	Text	Y	10	The time zone of the arrival time. "PST" Pacific Standard Time, "PDT" Pacific Daylight Savings Time, or "NR" for Not Recorded. From lu_TimeZones.
SamplingOrganization	Text	Y	255	The name of the organization doing the sampling. From look-up list lu_Agency.
CollectionType	Text	Y	25	From lu_SampleTypes

Field Name	*Type*	*Required*	*Size*	*Description*
Vessel	Text	Y	50	The name of the vessel. lu_Vessels
NavType	Text	Y	10	DGPS for differential/GPS for non-differential. From lu_NavTypes. Default = "DGPS"
Salinity	Decimal	*		The field measure of the salinity of the sample water as reported by the instrument expressed in psu or ppt. This is used for estuary samples only.
SalinityUnits	Text		15	Required if Salinity is recorded. See look-up list lu_Units. Default = "ppt".
Weather	Text	Y	35	Field observation of habitat weather from lu_Weather.
WindSpeed	Decimal	Y		Field measurement of habitat wind speed from instrument expressed in knots.
WindSpeedUnits	Text	Y	15	Default = "kts". See look-up list lu_Units.
WindDirection	Text	Y	10	Field observation of wind direction N (North), NE (Northeast), E (East), SE (Southeast), S (South), SW (Southwest), W (West), NW (Northwest), C (calm), NR (Not Recorded). Report in magnetic North. Default = "C". See lu_Directions.
SwellHeight	Decimal	Y		Field Observation of the estimated swell height expressed in feet.
SwellHeightUnits	Text	Y	15	Units the swell height was measured in. Default = "ft". See look-up list lu_Units.
SwellPeriod	Integer	Y		Field observation of the estimated average swell period in seconds. See look-up list lu_Units.
SwellDirection	Text	Y	10	Field Observation of magnetic direction from which the swell travels. N (North), NE (Northeast), E (East), SE (Southeast), S

Field Name	Type	Required	Size	Description
				(South), SW (Southwest), W (West), NW (Northwest), C (calm), NR (Not Recorded). See look-up list lu_Directions.
SeaState	Text	Y	25	Field Observation of sea state. Calm, Rough, Choppy, or Confused from lu_SeaStates.
StationFail	Text	Y	255	From lu_StationFailure. Default value = "None".
Abandoned	Yes/No	Y	3	Was the station abandoned, never to be returned to? Default is "No", but a "Yes" requires a comment.
OccupationDepth	Decimal	Y		The Field Measure of the habitat depth expressed in meters.
OccupationDepthUnits	Text	Y	15	Units the OccupationDepth was measured in. See look-up list lu_Units. Default = "m".
OccupationLatitude	Decimal	Y		Degrees of latitude express in decimal degrees to 5 decimal places (NAD83).
OccupationLongitude	Decimal	Y		Degrees of longitude express in decimal degrees to 5 decimal places (NAD83) expressed as a negative number.
OccupationDatum	Text	Y	50	The datum on which the latitude and longitude are based. The default = NAD83. See look-up list lu_Datum.
Comments	Text		255	Additional comments. Required if Abandoned = "Yes" or for Station Fail Codes that require a comment.

SEDIMENT GRAB EVENT TABLE

PURPOSE: The sediment grab event table documents all relevant information about each grab sample attempt. The attributes of the grab event include date, time, water depth, geographic position (latitude/longitude) and whether if it was successful. Each successful grab will generate

additional information describing penetration depth, color, composition, and odor. Presence/absence categories include shell hash and debris, plus sample usage for the individual grab. A comment field is available for ancillary information.

SUBMISSION GUIDELINES:

FILE SPECIFICATIONS: It is recommended that the Sediment Grab Event template file be downloaded from the Bight 23 Data Submission Website (https://bight.sccwrp.org/pages/bight-2023-field). The file must be a Microsoft Excel file and can be named at the discretion of the user. In addition, the tab name can also be named at the discretion of the user; however, the field names must match the order and names listed below for the checker to recognize the type of data being submitted and to provide the necessary checks.

These guidelines ensure that all Sediment Grab Event data matches corresponding Station Occupation data.

- Sediment Grab Event data must be submitted with the Station Occupation data.
- Each Sediment Grab Event record must have a corresponding Station Occupation record.
- The combination of the fields StationID, SampleDate, SampleTime, GrabEventNumber, and SamplingOrganization ensure unique values for each record in the table.
- Records are matched on StationID, SampleDate, SamplingOrganization.

EXAMPLE DATA:

StationID	StationWaterDepth	StationWaterDepthUnits	**SampleDate**	**SampleTime**	**GrabEventNumber**	**SamplingOrganization**	Gear	Latitude	Longitude	Datum	Penetration	PenetrationUnits
B23-12000	133	m	2023-07-09	09:44:47	1	Los Angeles County Sanitation Districts	Tandem Van Veen	33.7668	-118.46	NAD83	-99	cm
B23-12000	134	m	2023-07-09	09:55:17	2	Los Angeles County Sanitation Districts	Tandem Van Veen	33.7668	-118.46	NAD83	7	cm
B23-12000	127	m	2023-07-09	10:06:04	3	Los Angeles County Sanitation Districts	Tandem Van Veen	33.7671	-118.46	NAD83	14	cm
B23-12000	133	m	2023-07-09	10:22:17	4	Los Angeles County Sanitation Districts	Tandem Van Veen	33.7666	-118.46	NAD83	14	cm

Color	Composition	Odor	ShellHash	BenthicInfauna	SedimentChemistry	Toxicity	GrainSize	GrabFail	Microplastic	PFAS	Comments
Not Recorded	Not Recorded	Not Recorded	No	None	No	No	No	Premature closure	No	No	
Olive Green	Silt/Clay	No Odor	No	None	No	Yes	No	None	No	No	
Olive Green	Silt/Clay	No Odor	Yes	None	Yes	No	Yes	None	No	Yes	
Olive Green	Silt/Clay	No Odor	No	None	No	Yes	No	None	No	No	13cm penetration on other van veen.

DATA STRUCTURE:

Table 4. Sediment Grab Event table structure (primary key fields are indicated with bold text).

Field Name	*Type*	*Required*	*Size*	*Description*
StationID	Text	Y	50	A geographic location label as derived from the table of assigned Stations given to each Sampling Organization.
SampleDate	Date/Time	Y		The date the sample was collected expressed as yyyy-mm-dd. All values numeric.
SampleTime	Text	Y	50	The time the sample was collected expressed as 24-hour time (hh:mm:ss).
GrabEventNumber	Integer	Y		Sequential number of each grab.
SamplingOrganization	Text	Y	255	The name of the organization doing the sampling. From look-up list lu_Agency.
Gear	Text	Y	255	From lu_Equipment.
Latitude	Decimal	Y		Degrees of latitude expressed in decimal degrees to 5 decimal places (NAD83).

Field Name	***Type***	***Required***	***Size***	***Description***
Longitude	Decimal	Y		Degrees of longitude expressed in decimal degrees to 5 decimal places (NAD83) expressed as a negative number.
Datum	Text	Y	50	The datum on which the latitude and longitude are based. The default = NAD83. See look-up list lu_Datum.
StationWaterDepth	Decimal	Y		The field measure of the habitat sample depth expressed in meters.
StationWaterDepthUnits	Text	Y	15	Units the StationWaterDepth was measured in. See look-up list lu_Units.
Penetration	Decimal	Y		Penetration of the grab into the sediment expressed in CM.
PenetrationUnits	Text	Y	15	From lu_Units. The default value is "cm"
Composition	Text	Y	20	Composition of the sediment. The Fraction and units are none. See lu_Composition.
Color	Text	Y	20	Field observation of the Color of the sediment. The default is "Olive Green". The Fraction and units are none. See lu_Color.
Odor	Text	Y	30	Odor of the sediment. The Fraction and units are none. See lu_Odor.
ShellHash	Text	Y	255	Category percentage description: None, Low (1-25%), Medium (26-50%), High (>51%). See lu_ShellHashCategories.
BenthicInfauna	Yes/No	Y	3	Was this grab used for collecting Benthic Infauna?
SedimentChemistry	Yes/No	Y	3	Was this grab used for testing Sediment Chemistry?
GrainSize	Yes/No	Y	3	Was this grab used for testing Grain Size?
Toxicity	Yes/No	Y	3	Was this grab used for testing Toxicity?

Field Name	*Type*	*Required*	*Size*	*Description*
GrabFail	Text	Y	255	Use to report any grab failures. Default = "None". From lu_GrabFail.
Microplastic	Yes/No	Y	3	Was this grab used for testing Microplastics?
MicroplasticFieldBlank	Yes/No	Y	3	Was a Microplastic Field Blank collected for this grab?
PFAS	Yes/No	Y	3	Was this grab used for testing PFAS?
PFASFieldBlank	Yes/No	Y	3	Was a PFAS Field Blank collected for this grab?
PFASEquipmentBlank	Yes/No	Y	3	Was a PFAS Equipment Blank collected for this grab?
DebrisDetected	Yes/No	Y	3	Was there debris detected in the grab?
Comments	Text	*	255	Additional remarks relative to the grab.

TRAWL RESULTS

Trawl results include data collected to support fish abundance, fish biomass, invertebrate abundance, invertebrate biomass, trawl-caught debris.

TRAWL ASSEMBLAGE EVENT

PURPOSE: The Trawl Assemblage Event table documents all relevant information about each trawl attempt. The attributes of the trawl event include date, start/end times, geographic position (latitude/longitude) of the trawl track, and whether it was successful. Each record represents a record of an individual trawl track. There are four positions recorded during a trawl: net over, net on the bottom, end of trawl, and net on deck. The latitude, longitude, and time are recorded for all positions in terms of decimal degrees. The first and last positions are recorded for Quality Assurance purposes.

SUBMISSION GUIDELINES

FILE SPECIFICATIONS: It is recommended that the Trawl Assemblage Event template file be downloaded from the Bight 23 Data Submission Website (http://bight.sccwrp.org/pages/bight-2023-field). The file must be a Microsoft Excel file and can be named at the discretion of the user. In addition, the tab name can also be named at the discretion of the user; however, the field names must match the order and names listed below for the checker to recognize the type of data being submitted and to provide the necessary checks.

These guidelines ensure that all Trawl Assembalge data matches corresponding Station Occupation data.

- Station Occupation data must be submitted before the Trawl Assemblage Event data.
- Each Trawl Assemblage Event record must have a corresponding Station Occupation record
- Records are matched on StationID, SampleDate, SamplingOrganization, and TrawlNumber.

PRIMARY KEY: To ensure no duplicates within the data set the following fields will be used as a primary key to create unique records:

- StationID
- SampleDate
- SamplingOrganization
- TrawlNumber

EXAMPLE DATA

StationID	**SampleDate**	**SamplingOrganization**	Gear	**TrawlNumber**	Datum	OverTime	OverLatitude	OverLongitude	StartTime	StartLatitude	StartLongitude	StartDepth	DepthUnits	WireOut
B23-12000	2023-08-15	Los Angeles County Sanitation Districts	Otter Trawl w. 7.62 meter head rope	1	NAD83	08:42:36	33.66112	-118.13833	08:45:43	33.6603	-118.13449	28	m	133
B23-12001	2023-08-15	Los Angeles County Sanitation Districts	Otter Trawl w. 7.62 meter head rope	1	NAD83	09:35:28	33.64729	-118.15704	09:38:54	33.64763	-118.1538	31	m	150
B23-12002	2023-08-15	Los Angeles County Sanitation Districts	Otter Trawl w. 7.62 meter head rope	1	NAD83	10:29:23	33.62297	-118.20363	10:33:40	33.62181	-118.19858	43	m	190
B23-12003	2023-08-15	Los Angeles County Sanitation Districts	Otter Trawl w. 7.62 meter head rope	1	NAD83	12:06:27	33.60218	-118.10489	12:11:22	33.60313	-118.09835	54	m	232

EndTime	EndLatitude	EndLongitude	EndDepth	DeckTime	DeckLatitude	DeckLongitude	TrawlFail	PTSensor	PTSensorManufacturer	PTSensorSerialNumber	OnBottomTemp	OnBottomTime	Comments
08:55:45	33.65934	-118.12899	28	09:01:48	33.65999	-118.12543	None	Yes	Lotek	110A-0872	13.3	08:45:07	
09:48:55	33.6479	-118.14829	31	09:55:31	33.64974	-118.14477	None	Yes	Lotek	110A-0872	13.2	09:37:23	
10:43:42	33.62046	-118.19315	43	10:51:21	33.6199	-118.18819	Torn Net	Yes	Lotek	110A-0872	11.6	10:33:27	Majority of the net was lost
12:21:24	33.60345	-118.09274	55	12:29:50	33.60269	-118.08734	None	Yes	Lotek	110A-0872	10.2	12:10:59	

DATA STRUCTURE

Table 5. Trawl Assemblage Event table structure (primary key fields are indicated with bold text).

FIELD NAME	*TYPE*	*REQUIRED*	*SIZE*	*DESCRIPTION*
StationID	Text	Y	50	A geographic location label as derived from the table of assigned Stations given to each Sampling Organization.
SampleDate	Date/ Time	Y		The date the sample was collected expressed as yyyy-mm-dd.
SamplingOrganization	Text	Y	255	The name of the organization doing the sampling. From lu_Agency.
Gear	Text	Y	255	Value should be "Trawl" from lu_Equipment.
TrawlNumber	Integer	Y		The sequential number of the trawl at the station. Default = 1.
Datum	Text	Y	50	The datum on which the latitudes and longitudes are based. Default = "NAD83". See look-up list lu_Datum.
OverTime	Text	Y	50	The time the net was deployed expressed as 24-hour time (hh:mm:ss).
OverLatitude	Decimal	Y		Degrees of latitude expressed in decimal degrees to 5 places.
OverLongitude	Decimal	Y		Degrees of longitude expressed in decimal degrees to 5 places and as a negative number.
StartTime	Text	Y	50	The time the net started fishing expressed as 24-hour time (hh:mm:ss).

FIELD NAME	TYPE	REQUIRED	SIZE	DESCRIPTION
StartLatitude	Decimal	Y		Degrees of latitude expressed in decimal degrees to 5 places.
StartLongitude	Decimal	Y		Degrees of longitude expressed in decimal degrees to 5 places andas a negative number.
StartDepth	Decimal	Y		The depth at the start of trawl.
DepthUnits	Text	Y	50	From lu_Units.
WireOut	Integer	Y		The length of wire out expressed in meters.
EndTime	Text	Y	50	The time the net finish fishing expressed as 24-hour time (hh:mm:ss).
EndLatitude	Decimal	Y		Degrees of latitude expressed in decimal degrees to 5 places.
EndLongitude	Decimal	Y		Degrees of longitude expressed in decimal degrees to 5 places and as a negative number.
EndDepth	Decimal	Y		The depth at the end of the trawl in meters.
DeckTime	Text	Y	50	The time the net is recovered and on deck expressed as 24-hour (hh:mm:ss).
DeckLatitude	Decimal	Y		Degrees of latitude expressed in decimal degrees to 5 places.
DeckLongitude	Decimal	Y		Degrees of longitude expressed in decimal degrees to 5 places and as a negative number.

FIELD NAME	TYPE	REQUIRED	SIZE	DESCRIPTION
TrawlFailure	Text	Y	50	Use to report any trawl fails. Default = "None". From look-up list lu_TrawlFail.
PTSensor	Yes/No	Y	3	Is there Pressure Temperature Sensor data associated with this trawl? Default = "Yes".
PTSensorManufacturer	Text		50	Manufacturer of the pressure temperature sensor. Required if a pressure temperature device was used.
PTSensorSerialNumber	Text		50	Tag number listed on PT sensor or generated by user. Required if Pressure temperature device was used.
OnBottomTemp	Decimal	Y		Temperature from the PT sensor.
OnBottomTime	Text	Y	50	Time from PT sensor.
DebrisDetected	Yes/No	Y	3	Was there debris detected in the trawl?
Comments	Text	*	255	Additional comments relative to the trawl. A comment is required for some trawl failure codes.

PT SENSOR RESULTS

PURPOSE: This table, PT Sensor Results, is used to record Pressure and Temperature (PT) information specific to each trawl. Each record represents specific information collected at a certain time and depth. This data is generated by a PT sensor affixed to the doors of the trawl. The sensor produces a comma separated value ASCII file that will have supplemental data added to comply with the table structure described here. This is QA/QC data needed to document actual time a trawl net spends on the bottom of the ocean.

SUBMISSION GUIDELINES

FILE SPECIFICATIONS: It is recommended that the PT Sensor Results template file be downloaded from the Bight 23 Data Submission Website (http://bight.sccwrp.org/pages/bight-2023-field). The file must be a Microsoft Excel file and can be named at the discretion of the user. In addition, the tab name can also be named at the discretion of the user; however, the field names must match the order and names listed below for the checker to recognize the type of data being submitted and to provide the necessary checks.

These guidelines ensure that all PT Sensor Result data matches corresponding Trawl Assemblage data.

- Station Occupation and Trawl Assemblage Event data must be submitted before the Pressure Temperature data.
- Each Archive Data Tag record must have a corresponding Trawl Assemblage Event record.
- Records are matched on StationID, SampleDate, SamplingOrganization, and Trawl Number

PRIMARY KEY: To ensure no duplicates within the data set the following fields will be used as a primary key to create unique records:

- StationID
- SampleDate
- SamplingOrganization
- TrawlNumber
- SensorTime

EXAMPLE DATA

StationID	SamplingOrganization	TrawlNumber	SampleDate	SensorTime	Temperature	TemperatureUnit	SensorDepth	SensorDepthUnit	SensorCategory	BoatCategory	Comments
B23-12000	Southern California Coastal Water Research Project	1	2023-08-15	10:03:38	18.32	Deg C	-0.70	m	Surface	Descent	
B23-12000	Southern California Coastal Water Research Project	1	2023-08-15	10:03:41	18.28	Deg C	-0.70	m	Surface	Descent	
B23-12000	Southern California Coastal Water Research Project	1	2023-08-15	10:03:44	18.24	Deg C	-0.70	m	Surface	Descent	
B23-12000	Southern California Coastal Water Research Project	1	2023-08-15	10:03:47	18.18	Deg C	-2.23	m	Descent	Descent	

DATA STRUCTURE

Table 6. PT Sensor Results table structure (primary key fields are indicated with bold text).

Field Name	*Type*	*Required*	*Size*	*Description*
StationID	Text	Y	50	A geographic location label as derived from the table of assigned Stations given to each Sampling Organization.
SamplingOrganization	Text	Y	255	The name of the organization doing the sampling. From look-up list lu_Agency.
TrawlNumber	Integer	Y		The sequential number of the trawl. The field may contain a one if there are no replicates.
SampleDate	Date/ Time	Y		The date recorded by the instrument/sensor expressed as yyyy-mm-dd.
SensorTime	Text	Y		The time recorded by the instrument/sensor expressed as hh:mm:ss (include seconds)
Temperature	Decimal	Y		Temperature from the instrument or PT sensor.
TemperatureUnit	Text	Y	50	Units the temperature was recorded in. From lu_Units.
SensorDepth	Decimal	Y		The pressure/depth recorded by the instrument/sensor.
SensorDepthUnit	Text	Y	50	Units the depth was recorded in. From lu_Units.
SensorCategory	Text	Y	255	Categorization of the net's travel based on sensor pressure readings. From lu_PTSensorCategory
BoatCategory	Text	Y	255	Categorization by the boat/fieldcrew of the net's travel. From lu_PTSensorBoatCategories
Comments	Text	N	255	Additional comments.

FISH ABUNDANCE

The purpose of the Fish Abundance table is to document the number and condition of fish

of each species within a size class from a successful trawl. Additional information on the methodologies and specifics on the collection of fish abundance information can be found in the BIGHT '23 Field Methods Manual.

DATA RECORDING GUIDELINES

Individual fish are measured and examined for anomalies. The length of all fish specimens will be reported in size classes of 1 cm intervals and any anomalies are listed. In addition, the gross pathology of these fish will be recorded as anomalies to indicate the general health of the fish. Each record represents the number of fish in a size class of a species with a unique anomaly state.

Although the Fish Abundance table is simple in structure, entering the data can be tricky when anomalies are present. Below is an example to clarify how to enter fish abundance data relative to the inclusion of anomaly information. In this example, ten fish of size class 10 were collected, with two of the ten having the anomaly of lesions. It is important to note that this circumstance would require 2 records—one to show the amount without lesions (Abundance = 8, Anomaly = None), and another indicating how many had lesions (Abundance = 2, Anomaly = Lesion). If multiple anomalies occur use a comma to separate the anomalies within the Anomaly field ("Tumor, Lesion").

If the fish abundance within any species exceeds 250 individuals within a sample, the sampling agency may opt out of recording the size class of the fish in exceedance of 250. The size class information for those fish of that species in exceedance of 250 is recorded by using "-88" in the SizeClass field, "Aliquot" in the AbundanceQualifier field, and "None Examined" in the Anomaly field. The estimated number of fish based on the aliquot is recorded in the Abundance field. Additional information on aliquoting can be found in the B23 Field Methods Manual.

The Diversity Index Exclude field is a "Yes" or "No" answer. It represents the taxonomist's recommendation as to which taxon should be excluded from a station's diversity index calculation. It only pertains to organisms not identified to Species (e.g., a Class/Order/Family/Genus). Three conditions must co-exist for unidentified animals to be excluded: (1) identification is not to species-level; (2) the reported taxon is represented at the station by other members of the same taxon group identified to a lower level, e.g., species; (3) the taxonomist cannot determine if the animal is distinct from other members of same taxon group. It is necessary that the taxonomists make this evaluation during sample analysis (i.e., by annotation of the field sheet). It cannot be effectively applied after the fact because of the uncertainty associated with the third criterion. **Example**: The final identification of a specimen is "Sebastes sp". There is not enough information for the taxonomist to determine whether the specimen might be "*Sebastes diploproa*", which was also found in the same sample. The "Sebastes sp" record is given an Exclude ="Yes" on the datasheet.

SUBMISSION GUIDELINES

FILE SPECIFICATIONS: It is recommended that the Fish Abundance template file be downloaded from the Bight 23 Data Submission Website http://bight.sccwrp.org/pages/bight-2023-field). The file must be a Microsoft Excel file and can be named at the discretion of the user. In addition, the tab name can also be named at the discretion of the user; however, the field names must match the order and names listed below for the checker to recognize the type of data being submitted and to provide the necessary checks.

These guidelines ensure that all Fish Abundance matches corresponding field data.

- Station Occupation and Trawl Assemblage Event data must be submitted before the Trawl Fish Abundance data.
- Each Trawl Fish Abundance record must have a corresponding Trawl Assemblage Event record.
- Records are matched on StationID, SampleDate, Sampling Organization, and Trawl Number.

PRIMARY KEY: To ensure no duplicates within the data set the following fields will be used as a primary key to create unique records:

- StationID
- SampleDate
- TrawlNumber
- SamplingOrganization
- Species
- SizeClass
- Anomaly

EXAMPLE DATA

StationID	SampleID	Sample Date	Sampling Organization	Trawl Number	Species	Size Class	Abundance Qualifier	Abundance	Anomaly	DiversityIndex Exclude	Comments
B23-12001		2023-08-15	Los Angeles County Sanitation Districts	1	Citharichthys sordidus	10	None	8	None	No	
B23-12001		2023-08-15	Los Angeles County Sanitation Districts	1	Citharichthys sordidus	10	None	2	Lesion	No	
B23-12001		2023-08-15	Los Angeles County Sanitation Districts	1	Synodus lucioceps	9	None	123	None	No	
B23-12001		2023-08-15	Los Angeles County Sanitation Districts	1	Synodus lucioceps	10	None	250	None	No	
B23-12001		2023-08-15	Los Angeles County Sanitation Districts	1	Synodus lucioceps	11	None	99	None	No	
B23-12001		2023-08-15	Los Angeles County Sanitation Districts	1	Synodus lucioceps	12	None	28	None	No	

StationID	SampleID	Sample Date	Sampling Organization	Trawl Number	Species	Size Class	Abundance Qualifier	Abundance	Anomaly	DiversityIndex Exclude	Comments
B23-12001		2023-08-15	Los Angeles County Sanitation Districts	1	Synodus lucioceps	-88	Aliquot	1354	None Examined	No	
B23-12001		2023-08-15	Los Angeles County Sanitation Districts	1	Sebastes diploproa	10	None	1	None	No	
B23-12001		2023-08-15	Los Angeles County Sanitation Districts	1	Sebastes sp	5	None	1	None	Yes	Fish damaged. Could be S. diploproa.

DATA STRUCTURE

Table 7. Trawl Fish Abundance table structure (primary key fields are indicated with bold text).

FIELD NAME	*TYPE*	*REQUIRED*	*SIZE*	*DESCRIPTION*
StationID	Text	Y	50	A geographic location label as derived from the table of assigned Stations given to each Sampling Organization.
SampleID	Text	N	50	The Sampling Organization field sample identifier.
SampleDate	Date/Time	Y		The date the sample was collected expressed as yyyy-mm-dd. All values numeric.
SamplingOrganization	Text	Y	255	The name of the organization doing the sampling. From look-up list lu_Agency.
TrawlNumber	Integer	Y		The sequential number of the trawl taken at the station.
Species	Text	Y	255	The species being measured from lu_FishSpeciesList (see associated MS Excel file -based on M&L 2nd edition).
SizeClass	Integer	Y		Size class (standard length, total length, or wing width as required by field manual) expressed in cm.
AbundanceQualifier	Text	N	255	Any necessary qualifier from lu_QualifierCodes.
Abundance	Integer	Y		The number of fish in the size class.
Anomaly	Text	Y	255	Any present anomaly or combination of anomalies from lu_FishAnomalies. Default = "None".

FIELD NAME	TYPE	REQUIRED	SIZE	DESCRIPTION
DiversityIndexExclude	Yes/No	Y		Should this species be included in diversity index calculations? See explanation above under Data Recording Guidelines. Default is "No"
Comments	Text	N	255	Additional remarks. Include body location of anomalies. Conditionally required for the following anomalies: skeletal, tumor, and lesion.

FISH BIOMASS

The purpose of this table is to document the collective weight of each fish species collected in the trawl. Additional information on the methodologies and specifics on the collection of fish biomass information can be found in the B23 Field Methods Manual.

DATA RECORDING GUIDELINES

All fish of the same species at a given station will be weighed together. The weight will be recorded in the Biomass field to a single decimal place. The BiomassUnits field default value is "kg" and is carried to document the units used in this survey for historical purposes. If a species weighs less than 0.1 kg it will be recorded as < 0.1 kg. No composite weights will be recorded.

If the aliquot method is used for fish abundance, some individual fish may be size classed. In that event, the biomass of the size-classed fish will be recorded separately from the biomass of the aliquoted fish. In this case, two records will need to be generated. The BiomassQualifier field will be populated with a value of "Aliquot" to indicate which weight is the aliquot record.

SUBMISSION GUIDELINES

FILE SPECIFICATIONS: It is recommended that the Fish Biomass template file be downloaded from the Bight 23 Data Submission Website (http://bight.sccwrp.org/pages/bight-2023-field). The file must be a Microsoft Excel file and can be named at the discretion of the user. In addition, the tab name can also be named at the discretion of the user; however, the field names must match the order and names listed below for the checker to recognize the type of data being submitted and to provide the necessary checks.

These guidelines ensure that all Fish Biomass matches corresponding field data.

- Station Occupation and Trawl Assemblage Event data must be submitted before the Trawl Fish Biomass data.
- Each Trawl Fish Biomass record must have a corresponding Trawl Assemblage Event record.
- All species listed in the Fish Abundance table must have a matching record in the Fish Biomass table.
- Records are matched on StationID, SampleDate, Sampling Organization, and Trawl Number.

PRIMARY KEY: To ensure no duplicates within the data set the following fields will be used as a primary key to create unique records:

- StationID,
- SampleDate,
- SamplingOrganization,
- TrawlNumber
- BiomassQualifier
- Species

EXAMPLE DATA

StationID	SampleID	Sample Date	Sampling Organization	Trawl Number	Species	Biomass Qualifier	Biomass	Biomass Units	Comments
B23-12001		2023-08-15	Los Angeles County Sanitation Districts	1	Citharichthys stigmaeus	<	0.1	kg	
B23-12001		2023-08-15	Los Angeles County Sanitation Districts	1	Synodus lucioceps	Aliquot	33.2	kg	
B23-12001		2023-08-15	Los Angeles County Sanitation Districts	1	Synodus lucioceps	None	15.7	kg	

DATA STRUCTURE

Table 8. Trawl Fish Biomass table structure (primary key fields are indicated with bold text).

FIELD NAME	*TYPE*	*REQUIRED*	*SIZE*	*DESCRIPTION*
StationID	Text	Y	50	A geographic location label as derived from the table of assigned Stations given to each Sampling Organization.
SampleID	Text	N	50	The Sampling Organization field sample identifier.
SampleDate	Date/Time	Y		The date the sample was collected expressed as yyyy-mm-dd. All values numeric.
SamplingOrganization	Text	Y	255	The name of the organization doing

FIELD NAME	TYPE	REQUIRED	SIZE	DESCRIPTION
				the sampling. From look-up list lu_Agency.
TrawlNumber	Integer	Y		The sequential number of the trawl at that station.
Species	Text	Y	50	The species measured from lu_SpeciesList. (Based on M&L 2nd edition).
BiomassQualifier	Text	*	255	Any necessary qualifier from lu_QualifierCodes. This field is required if the aliquot method was used for size class or the weight is less than 0.1kg
Biomass	Decimal	Y		The weight of the collected members of the species in kg to 1 decimal place.
BiomassUnits	Text	Y	50	The unit used to measure the weight, normally kg, from lu_Units.biomass. "kg" is the recommended unit.
Comments	Text	N	255	Additional comments.

INVERTEBRATE ABUNDANCE

The trawl invertebrate abundance table is used to document the numerical abundance of megabenthic invertebrates collected in trawls used for assemblage characterization. Each record represents the abundance and occurrence of anomalies in an individual species. Additional information on the methodologies and specifics on the collection of invertebrate abundance information can be found in the B23 Field Methods Manual.

DATA RECORDING GUIDELINES

Although the Invertebate Abundance table is simple in structure, entering the data can be tricky when anomalies are present. Below is an example to clarify how to enter invertebrate abundance data relative to the inclusion of anomaly information. In this example, ten invertebrates of a given species were collected, with two of the ten having the anomaly of parasites. It is important to note that this circumstance would require 2 records—one to show the amount without parasites (Abundance = 8, Anomaly = None), and another indicating how many had parasites (Abundance = 2, Anomaly = Parasite). If multiple anomalies occur use a comma to separate the anomalies within the Anomaly field ("Parasite, Burnspot disease").

If the invertebrate abundance within any species exceeds 250 individuals within a sample, the

total count of the individuals may be derived by using the aliquot method. In the case of certain species like urchins, where very large numbers of individuals may be encountered, a 1 kg aliquot subsample may be weighed and the total haul number estimated from the abundance and weight of the subsample. Two records will be recorded for aliquoted species. The first record will include information on the individuals used to define the aliquot and will have an AbundanceQualifier of "None". For the second record, the abundance information for those invertebrates of that species in exceedance of 250 (or 1kg) is recorded by using "Aliquot" in the AbundanceQualifier field, and "None Examined" in the Anomaly field. Additional information on aliquoting can be found in the B23 Field Methods Manual.

The Diversity Index Exclude field is a "Yes" or "No" answer. It represents the taxonomist's recommendation as to which taxon should be excluded from a station's diversity index calculation. It only pertains to organisms not identified to Species (e.g., an Class/Order/Family/Genus). Three conditions must co-exist for unidentified animals to be excluded: (1) identification is not to species-level; (2) the reported taxon is represented at the station by other members of the same taxon group identified to a lower level, e.g., species; (3) the taxonomist cannot determine if the animal is distinct from other members of same taxon group. It is necessary that the taxonomists make this evaluation during sample analysis (i.e., by annotation of the field sheet). It cannot be effectively applied after the fact because of the uncertainty associated with the third criterion. **Example**: The final identification of a specimen is "Virgulariidae". There is not enough information for the taxonomist to determine whether the specimen might be "*Virgularia agassizii*", which was also found in the same sample. The "Virgulariidae" record is given an Exclude ="Yes" on the datasheet.

For colonial fouling, infauna and pelagic organisms a record will be generated; however, an AbundanceQualifier of "Present" and an Abundance of "-88" will be used. See the B23 Field Methods Manual for additional information.

SUBMISSION GUIDELINES

FILE SPECIFICATIONS: It is recommended that the Invertebrate Abundance template file be downloaded from the Bight 23 Data Submission Website (http://bight.sccwrp.org/pages/bight-2023-field). The file must be a Microsoft Excel file and can be named at the discretion of the user. In addition, the tab name can also be named at the discretion of the user; however, the field names must match the order and names listed below for the checker to recognize the type of data being submitted and to provide the necessary checks.

These guidelines ensure that all Invertebrate Abundance matches corresponding field data.

- Station Occupation and Trawl Assemblage Event data must be submitted before the Trawl Invertebrate Abundance data.
- Each Trawl Invertebrate Abundance record must have a corresponding Trawl Assemblage Event record.

- Records are matched on StationID, SampleDate, Sampling Organization, and Trawl Number.

PRIMARY KEY: To ensure no duplicates within the data set the following fields will be used as a primary key to create unique records:

- StationID
- SampleDate
- TrawlNumber
- SamplingOrganization
- Species
- Anomaly

EXAMPLE DATA

StationID	SampleID	Sample Date	Sampling Organization	Trawl Number	Species	Abundance Qualifier	Abundance	Anomaly	DiversityIndex Exclude	Comments
B23-12001		2023-08-15	Los Angeles County Sanitation Districts	1	Pisaster brevispinus	None	8	None	No	
B23-12001		2023-08-15	Los Angeles County Sanitation Districts	1	Pisaster brevispinus	None	2	Parasite	No	
B23-12001		2023-08-15	Los Angeles County Sanitation Districts	1	Strongylocentrotus fragilis	Aliquot	1445	None Examined	No	
B23-12001		2023-08-15	Los Angeles County Sanitation Districts	1	Strongylocentrotus fragilis	None	250	None	No	
B23-12001		2023-08-15	Los Angeles County Sanitation Districts	1	Virgulariidae	None	1	None	Yes	Specimen may be Virgularia agassizii
B23-12001		2023-08-15	Los Angeles County Sanitation Districts	1	Virgularia agazissizii	None	3	None	No	
B23-12001		2023-08-15	Los Angeles County Sanitation Districts	1	Althusa vulgaris	Present	-88	None	No	

DATA STRUCTURE

Table 9. Trawl Invertebrate Abundance table structure (primary key fields are indicated with bold text).

FIELD NAME	*TYPE*	*REQUIRED*	*SIZE*	*DESCRIPTION*
StationID	Text	Y	50	A geographic location label as derived from the table of assigned Stations given to each Sampling Organization.
SampleID	Text	N	50	The Sampling Organization field sample identifier.
SampleDate	Date/Ti			The date the sample was collected

FIELD NAME	TYPE	REQUIRED	SIZE	DESCRIPTION
	me	Y		expressed as yyyy-mm-dd. All values numeric.
SamplingOrganization	Text	Y	255	The name of the organization doing the sampling. From look-up list lu_Agency.
TrawlNumber	Integer	Y		The sequential number of the trawl taken at that station.
Species	Text	Y	255	Scientific names of collected invertebrates from lu_InvertSpeciesList. (SCAMIT 14th edition)
AbundanceQualifier	Text	N	255	A qualifier from lu_QualifierCodes.
Abundance	Integer	Y		Number of individuals of the species.
Anomaly	Text	Y	255	Anomaly from lu_InvertAnomalies recorded as None if no anomaly. Default = "None".
DiversityIndexExclude	Yes/No	Y		Should this species be included in diversity index calculations? See explanation above under Data Recording Guidelines. Default="No"
Comments	Text	N	255	Additional remarks.

INVERTEBRATE BIOMASS

The purpose of the trawl invertebrate biomass table is to record the collective biomass of each megabenthic invertebrate species collected at a trawl station. Each record represents the collective biomass of an individual species expressed in kilograms. Additional information on the methodologies and specifics on the collection of invertebrate biomass information can be found in the B23 Field Methods Manual.

DATA RECORDING GUIDELINES

As with the fish biomass, the biomass of megabenthic invertebrates will be recorded to a single decimal place. The "units" field default value is "kg" and is carried to document the units used in this survey for historical purposes. If a species group weighs less than 0.1 kg it will be recorded as < 0.1 kg and be retained and weighed with other species groups that fall into this weight category.

If the aliquot estimate method is used for some invertebrate abundance, the biomass of the

counted invertebrates will be recorded separately from the biomass of the non-counted invertebrates. Thereby generating two distinct records in the table. A BiomassQualifier of "Aliquot" will indicate which weight is the aliquot record.

SUBMISSION GUIDELINES

FILE SPECIFICATIONS: It is recommended that the Invertebrate Biomass template file be downloaded from the Bight 23 Data Submission Website (http://bight.sccwrp.org/pages/bight-2023-field). The file must be a Microsoft Excel file and can be named at the discretion of the user. In addition, the tab name can also be named at the discretion of the user; however, the field names must match the order and names listed below for the checker to recognize the type of data being submitted and to provide the necessary checks.

These guidelines ensure that all Invertebrate Biomass matches corresponding field data.

- Station Occupation and Trawl Assemblage Event data must be submitted before the Trawl Invertebrate Biomass data.
- Each Trawl Invertebrate Biomass record must have a corresponding Trawl Assemblage Event record.
- Records are matched on StationID, SampleDate, Sampling Organization, and Trawl Number.

PRIMARY KEY: To ensure no duplicates within the data set the following fields will be used as a primary key to create unique records:

- StationID
- SampleDate
- TrawlNumber
- SamplingOrganization
- Species
- BiomassQualifier

EXAMPLE DATA

StationID	SampleID	SampleDate	Sampling Organization	Trawl Number	Species	Biomass Qualifier	Biomass	Biomass Units	Comments
B23-12001		2023-08-15	City of San Diego	1	Pyromaia tuberculata	<	0.1	kg	
B23-12001		2023-08-15	City of San Diego	1	Strongylocentrotus fragilis	None	5.2	kg	
B23-12001		2023-08-15	City of San Diego	1	Strongylocentrotus fragilis	Aliquot	31.3	kg	

DATA STRUCTURE

Table 10. Trawl Invertebrate Biomass table structure (primary key fields are indicated with bold text).

FIELD NAME	TYPE	REQUIRED	SIZE	DESCRIPTION
StationID	Text	Y	50	A geographic location label as derived from the table of assigned Stations given to each Sampling Organization.
SampleID	Text	N	50	The Sampling Organization field sample identifier.
SampleDate	Date/Time	Y		The date the sample was collected expressed as yyyy-mm-dd. All values numeric.
SamplingOrganization	Text	Y	255	The name of the organization doing the sampling. From look-up list lu_Agency.
TrawlNumber	Integer	Y		The sequential number of the trawl at that station from which assemblage data was collected expressed as yyyy-mm-dd.
Species	Text	Y	255	The species being measured from lu_SpeciesList. (use SCAMIT edition 14)
BiomassQualifier	Text	N	255	Any necessary qualifier code from lu_QualifierCodes. Default = "None".
Biomass	Decimal	Y		The weight of the collected individual species expressed in kg to 1 decimal place.
BiomassUnits	Text	Y	255	Default = "kg". See lu_Units.The unit used to measure the biomass. "Kilograms" is the recommended unit.
Comments	Text	N	255	Additional comments.

TRAWL DEBRIS

The trawl debris table is used to document the type and amount of debris encountered during each trawl. Additional information on the methodologies and specifics on the collection of invertebrate biomass information can be found in the B23 Field Methods Manual.

DATA RECORDING GUIDELINES

Debris, anthropogenic or otherwise, collected during any trawl will be quantified by

recording the specific types of material and their quantities on the Trawl Debris Form (See Field Manual). If possible, debris should be quantified by direct enumeration and recorded on the form.

All DebrisTypes must be counted except for Natural DebrisTypes (see lu_DebrisType). These DebrisTypes can be binned into "Moderate", which represents a count of 11-100, or "High", which represents >100. If the count for these items is <11 the actual count should be recorded in the DebrisCount field. The DebrisCount field should be populated with -88 if an estimate is given.

Debris items that have a DebrisType beginning in Other will require a comment.

SUBMISSION GUIDELINES

FILE SPECIFICATIONS: It is recommended that the Trawl Debris template file be downloaded from the Bight 23 Data Submission Website (http://bight.sccwrp.org/pages/bight-2023-field). The file must be a Microsoft Excel file and can be named at the discretion of the user. In addition, the tab name can also be named at the discretion of the user; however, the field names must match the order and names listed below for the checker to recognize the type of data being submitted and to provide the necessary checks.

These guidelines ensure that all Trawl Debris matches corresponding field data.

- Each Trawl Debris record must have a corresponding Trawl Assemblage Event record.
- Each Trawl Assemblage Event record must have a corresponding Trawl Debris record.
- Records are matched on StationID, SampleDate, Sampling Organization, and Trawl Number.

PRIMARY KEY: To ensure no duplicates within the data set the following fields will be used as a primary key to create unique records:

- StationID
- SampleDate
- TrawlNumber
- SamplingOrganization
- DebrisType

EXAMPLE DATA

StationID	SampleDate	SamplingOrganization	TrawlNumber	DebrisType	DebrisCount	EstimateCategory	Comments

B23-12001	2023-08-14	Los Angeles County Sanitation Districts	1	Beer Bottle	3	Not Recorded	
B23-12001	2023-08-14	Los Angeles County Sanitation Districts	1	Single use food container	1	Not Recorded	
B23-12001	2023-08-14	Los Angeles County Sanitation Districts	1	Leaves/Seed Pod	-88	Moderate	
B23-12001	2023-08-14	Los Angeles County Sanitation Districts	1	Other Plastic	1	Not Recorded	Item is a straw

DATA STRUCTURE

Table 11. Trawl Debris table structure (primary key fields are indicated with bold text).

FIELD NAME	*TYPE*	*REQUIRED*	*SIZE*	*DESCRIPTION*
StationID	Text	Y	50	A geographic location label as derived from the table of assigned Stations given to each Sampling Organization.
SampleDate	Date/Time	Y		The date the sample was collected expressed as yyyy-mm-dd. All values numeric.
TrawlNumber	Integer	Y		The number of the trawl from which the sample was collected.
SamplingOrganization	Text	Y	255	The name of the organization doing the sampling. From look-up list lu_Agency.
DebrisType	Text	Y	255	Debris type from lu_DebrisType. Comment required if DebrisType starts with the word "Other".
DebrisCount	Integer	Y*		Number of debris items. Record as -88 if EstimateCategory is used.
EstimateCategory	Text	Y*	15	Only use for Natural Debris whe estimating counts. se for Natural Debris for estimated counts. See data sheet for list of items that can be estimated. Acceptable values include: Moderate=11-100; High = >100. Default = "Not Recorded"
Comments	Text		255	Additional Remarks. Required if DebrisType starts with the word "Other".

FIELD METADATA

Metadata meeting standard ISO 19115 will be recorded and reported. The following headings for the metadata will be included:

- Title
- Description (abstract)
- Summary (purpose and results)
- Supplemental Information (methods)
- Keywords (tags)

Each section will be filled out and completed by the Technical Committee chair. An example metadata record can be found in Appendix I.

LABORATORY DATA SUBMISSION

CHEMISTRY DATA

Chemistry data includes all data from sediment chemistry laboratory testing.

For Bight '23, analyses will include: grain size, total organic carbon, total organic nitrogen, metals, CHCs, PCBs, PAHs, PBDEs, pyrethroids, Neonics, Tire Wear Compounds, PFAS, and Microplastics. All method descriptions and quality assurance requirements can be found in the Bight '23 Quality Assurance Plan.

Chemistry data includes chemistry batch information and chemistry results.

CHEMISTRY BATCH DATA

PURPOSE: This table contains information about preparation methods and dates within each lab. A batch is defined as a group of samples with which the QA results are associated. For some labs, QA data is associated with the preparation batch while other labs associate the QA data with analytical batches. Samples prepared in the same batch may move through the lab in different analytical batches. For Bight '23, the preparation batch information has been broken off into a separate table and is related to the Chemistry Results through the PreparationBatchID code. Each record in this table represents all information common to each preparation batch.

SUBMISSION GUIDELINES

FILE SPECIFICATIONS: It is recommended that the Chemistry Batch template file be downloaded from the Bight 23 Data Submission Website (https://bight.sccwrp.org/pages/bight-2023-chemistry). The file must be a Microsoft Excel file and can be named at the discretion of

the user. In addition, the tab name can also be named at the discretion of the user; however, the field names must match the order and names listed below for the checker to recognize the type of data being submitted and to provide the necessary checks.

These guidelines ensure that all Chemistry Batch data matches corresponding Station Occupation data.

- The PreparationBatchID and Lab fields will ensure that each record in the table is unique.
- Primary Key: Lab and PrepBatchID
- There will be an audit when the Chemistry Results data is submitted. Each Chemistry Results record must have a corresponding Chemistry Batch record. Each Chemistry Batch record must have a corresponding Chemistry Results record.

EXAMPLE DATA:

PreparationBatchID	Lab	PreparationMethod	PreparationDate	Comments
CLAEMD_E-7032_W_TM	City of Los Angeles Environmental Monitoring Division	EPA 3051	Monday, December 9, 2013	

Table Structure:

Table 12. Chemistry Batch Information table structure

Field Name	Type	Required	Size	Description
PREPARATIONBATCHID	Text	Y	50	The code for all of the samples processed in the same preparation batch.
LAB	Text	Y	255	Agency analyzing the samples from lu_ChemistryLab
PREPARATIONMETHOD	Text	Y	255	Code for method used to prepare samples from lu_PreparationMethodCode
PREPARATIONDATE	Date/Time	Y		Date of sample preparation expressed as yyyy-mm-dd. All values numeric.
Comments	Text	N	255	Additional comments

CHEMISTRY RESULTS

PURPOSE: The purpose of the chemistry results table is to document the analytical results for sediment and tissue chemistry. Each record represents a result from a specific analysis for a particular parameter at a single station or a single QA sample. This table will also contain all supporting QA sample results.

SUBMISSION GUIDELINES

FILE SPECIFICATIONS: It is recommended that the Chemistry Results template file be downloaded from the Bight 23 Data Submission Website (https://bight.sccwrp.org/pages/bight-2023-chemistry). The file must be a Microsoft Excel file and can be named at the discretion of the user. In addition, the tab name can also be named at the discretion of the user; however, the field names must match the order and names listed below for the checker to recognize the type of data being submitted and to provide the necessary checks.

These guidelines ensure that all Chemistry Results data matches corresponding Station Occupation data.

- Each Chemistry Results Table must have a corresponding Chemistry Batch table
- The combination of the fields StationID, SampleDate, PreparationBatchID, Matrix, SampleType, ParameterCode, FieldDuplicate, LabReplicate, LabSampleID and LabCode will ensure that all records in the table are unique.

SPECIAL CASES:

Results vs. TrueValue:

The reported result is the number gathered from the analytical instrument. The "True Value" is the concentration of the parameter in the reference sample or the concentration of the spike. The purpose of the "True Value" is to facilitate the calculation of percent recovery. The True Value is only reported for matrix spikes and surrogates. A True Value of –99 will be reported for all other samples.

The range values for the minimum and maximum for parameters in the certified reference material will be carried in an ancillary table within the analytical database and will not be described here.

Matrix spikes:

The reported result is the number gathered from the instrument and is the net amount recovered from the sample after being corrected for the concentration from the non-spiked sample. For spiked samples the "True Value" is the concentration of the parameter added to the sample before analysis. Percent recovery will be calculated by dividing the result by the True Value times 100. The SampleType must be MS1 or MS2 and the same LabSampleIDs must be used for both.

Recovery corrected data:

This is not reported because it can be calculated using the True Value of the reference material processed within the same batch.

Lab Replicates:

Lab replicates are defined as replicate samples taken from the same jar. The result for each replicate will be numbered starting at one, e.g. the result for the first replicate will have a LabReplicate of 1 and the result for the second duplicate will have a LabReplicate of 2, etc. Replicate samples taken in the field will have separate FieldDuplicate numbers and a LabReplicate of 1.

Non-Detects:

In the case where the result is below method detection level a qualifier of BMDL (below method detection limit) should be used. If the result is higher than the mdl but lower than the RL, a result may be reported and a qualifier of "Below reporting limit" will be used.

QA Samples:

QA samples not performed on site collected sediment samples will be given a StationID of "0000". All site collected sediment samples will retain the StationID relative to the origin of the sample. QA SampleTypes can be found in lu_SampleTypes. All non-QA records should have a SampleType of "Result".

Grain Size Parameter Codes:

The Gravel2m code is the mass percentage of the sediment sample retained on a 2-mm sieve. If no sediments are retained, the value will be zero. The other parameter codes refer to the frequency percentage of sample in the size range. These data should not be adjusted for material retained on the sieve. Optional parameter codes to describe the statistical properties of the laser analyzer are included and may be reported. Default unit is percent within phi size.

EXAMPLE DATA:

StationID	SampleDate	BioaccumulationSampleID	PreparationBatchID	AnalysisBatchID	AnalysisDate	SampleType	Matrix	Fraction	AnalyteName
SM	2023-11-30	None	CLAEMD_E-7032_W_TM	CLAEMD_E-7032_W_TM	December 17, 2013	Reference - ERA 540 Sed	sediment	Total	Aluminum

AnalysisMethod	Units	Qualifier	Result	FieldDuplicate	LabReplicate	LabSampleID	TrueValue	MDL	RL	Lab	QACode	Comments
EPA 6020m	ug/g dw	none	33927.69922	1	1	23547-CRM1	8920.00	1	5	City of Los Angeles Environmental Monitoring Division	None	

DATA STRUCTURE:

Table 13. Chemistry Results table structure (primary key fields are indicated with bold text).

Field Name	*Type*	*Required*	*Size*	*Description*
StationID	Text	Y	50	A geographic location label as derived from the table of assigned Stations given to each Sampling Organization.
SampleDate	Date/Time	Y		The date the sample was collected expressed as yyyy-mm-dd. All values numeric.
BioaccumulationSampleID	Text	*	50	*Required for tissue samples. Must match the BioaccumulationSampleID in the bioaccumulation organism table.
PreparationBatchID	Text	Y	50	A unique agency identifier for each batch of samples prepared together.
AnalysisBatchID	Text	Y	25	The code for all samples processed in the same batch
AnalysisDate	Date/Time	Y		The date the sample was processed in the instrument expressed as yyyy-mm-dd.
SampleType	Text	Y	50	The type of QA or sample result from lu_ChemistrySampleType.
Matrix	Text	Y	25	The test material from lu_ChemistryMatrices
Fraction	Text	Y	25	The fraction analyzed, ex. Total, Dissolved, etc. From lu_ChemistrySizeFraction
AnalyteName	Text	Y	50	The measured parameter from lu_ChemistryAnalytes.
AnalysisMethod	Text	Y	75	The analysis method from lu_ChemistryAnalysisMethod

Field Name	*Type*	*Required*	*Size*	*Description*
Units	Text	Y	15	Units for the result from lu_ChemistryUnits
Qualifier	Text	N	10	Any necessary qualifier from lu_ChemistryQualifier
Result	Text	Y		The measured result from the sample analysis. For spike samples, record spike amount. If Qualifier field = "not detected" or "below method detection limit" then Result value should be "-88".
FieldDuplicate	Integer	Y		Count from the field.
LabReplicate	Integer	Y		Count from the laboratory.
LabSampleID	Text	Y	50	Unique sample identifier for the reporting agency. Replicates and MS/MSD must have the same LabSampleID.
TrueValue	Decimal	*		Required for all CRM, Spiked Samples and surrogates. Concentration of spike amount added to the sample. If SampleType = "Result" then TrueValue should be "-88".
MDL	Decimal	Y		Method Detection Limit based on 40CFR136.
RL	Decimal	Y		Reporting Level as defined in metadata.
LabCode	Text	Y	15	Agency code from lu_ChemistryLabCodes.
QACode	Text	Y	50	Describes variations in processing From lu_ChemistryQACode
Comments	Text	N	255	Additional remarks.

TOXICITY DATA

Toxicity data includes all data from sediment toxicity laboratory testing. For Bight '23, there will be two sediment toxicity testing methods: 10-day amphipod survival test using *Eohaustorius estuarius* and the mussel larval development test using *Mytilus galloprovincials*. All method descriptions and quality assurance requirements can be found in the Bight '23 Quality Assurance Plan.

Toxicity data includes toxicity batch information, toxicity results, toxicity water quality, and toxicity summary results.

TOXICITY BATCH INFORMATION

PURPOSE: This table is used to record information specific to each test batch processed in the laboratory and is used as supporting documentation for the Toxicity Test data. Each record represents specific information common to a group of samples processed at the same time and is pertinent to all replicates processed. This contains QA/QC data needed to document the test results.

SUBMISSION GUIDELINES:

FILE SPECIFICATIONS: It is recommended that the Toxicity Batch template file be downloaded from the Bight 23 Data Submission Website (https://bight.sccwrp.org/pages/bight-2023-toxicity). The file must be a Microsoft Excel file and can be named at the discretion of the user. In addition, the tab name can also be named at the discretion of the user; however, the field names must match the order and names listed below for the checker to recognize the type of data being submitted and to provide the necessary checks.

These guidelines ensure that all Toxicity Batch data matches corresponding Station Occupation data.

- Each record will be unique based on a combination of the fields ToxBatch, Lab and ActualTestDuration.
- A file containing three tabs with Toxicity Batch, Toxicity Results, and Toxicity Water Quality tables must be submitted through the data portal.

EXAMPLE DATA:

ToxBatch	Lab	Species	Protocol	TestStartDate	Matrix
CSD005	City of San Diego	Mytilus galloprovincialis	EPA 1994	2023-08-15	Sediment Water Interface

ActualTestDuration	ActualTestDurationUnits	TargetTestDuration	TargetTestDurationUnits	TestAcceptability	Comments	ReferenceBatch
49	Hours	48	Hours	A		CSD006

Table Structure:

Table 14. Toxicity Batch Information table structure (primary key fields are indicated with bold text).

FIELD NAME	TYPE	REQUIRED	SIZE	DESCRIPTION
ToxBatch	Text	Y	50	The batch code for the sample processing batch.
Lab	Text	Y	255	The agency code from lu_ToxicityAgencies of the processing laboratory.
Species	Text	Y	255	The species code from lu_ToxicitySpecies.
Protocol	Text	Y	255	The test protocol from lu_ToxicityProtocols.
TestStartDate	Date/Time	Y		The starting date of the test expressed as yyyy-mm-dd.
Matrix	Text	Y	255	The test matrix from lu_ToxicityResultsMatrices.
ActualTestDuration	Integer	Y		The duration of the test expressed in days or hours.
ActualTestDurationUnits	Text	Y	50	From lu_ToxicityUnits (Days or Hours).
TargetTestDuration	Integer	Y		The anticipated or projected duration of the test expressed in days or hours.
TargetTestDurationUnits	Text	Y	50	From Units (Days or Hours).
TestAcceptability	Text	Y	50	Evaluation of the test results from lu_ToxicityTestAcceptabilityCodes.
Comments	Text	N	255	Additional remarks.
ReferenceBatch	Text	Y	50	BatchID for the reference toxicant for the samples associated with each QABatch.

TOXICITY RESULTS

PURPOSE: The Toxicity Results table carries data relevant to sediment or water toxicity tests and their replicates. Each record represents the results of an individual replicate for an individual species processed in a batch of replicates.

SUBMISSION GUIDELINES:

FILE SPECIFICATIONS: It is recommended that the Toxicity Results template file be downloaded from the Bight 23 Data Submission Website (https://bight.sccwrp.org/pages/bight-2023-toxicity). The file must be a Microsoft Excel file and can be named at the discretion of the user. In addition, the tab name can also be named at the discretion of the user; however, the field names must match the order and names listed below for the checker to recognize the type of data being submitted and to provide the necessary checks.

These guidelines ensure that all Toxicity Results data matches corresponding Station Occupation data.

- Each record will be unique based on a combination of the fields StationID, SampleTypeCode, ToxBatch, Lab, Species, Concentration, EndPoint and LabRep.
- Each Toxicity Results record must have a corresponding Toxicity Batch Information record. Records are matched on ToxBatch and Lab.
- Each Toxicity Batch Information record must have a corresponding Toxicity Result record. Records are matched on ToxBatch and Lab.
- **Batch Matrix "Whole Sediment" SampleType Audit** -- This procedure checks that a result record that has a corresponding toxicity batch record with a Matrix = "Whole Sediment" has a SampleTypeCode of either "Grab" or "CNEG".
- **Batch Matrix "Reference Toxicant" SampleType Audit** -- This procedure checks that a result record that has a corresponding toxicity batch record with a Matrix = "Reference" has a SampleTypeCode of either "RFCD" or "RFNH3".

Example Data:

StationID	SampleCollectDate	ToxBatch	Matrix	Lab	Species	Dilution	Treatment
B23-12000	2023-07-25	CSD005	Sediment Water Interface	City of San Diego	Mytilus galloprovincialis	-88	None
B23-12000	2023-07-25	CSD005	Sediment Water Interface	City of San Diego	Mytilus galloprovincialis	-88	None
B23-12000	2023-07-25	CSD005	Sediment Water Interface	City of San Diego	Mytilus galloprovincialis	-88	None
B23-12000	2023-07-25	CSD005	Sediment Water Interface	City of San Diego	Mytilus galloprovincialis	-88	None
B23-12000	2023-07-25	CSD005	Sediment Water Interface	City of San Diego	Mytilus galloprovincialis	-88	None

Concentration	ConcentrationUnits	EndPoint	LabRep	Result	ResultUnits	QACode	SampleTypeCode	FieldReplicate	Comments
-88	Not Recorded	Percent normal-alive	1	53.85	percentage	A	Grab	1	
-88	Not Recorded	Percent normal-alive	2	100.00	percentage	A	Grab	1	
-88	Not Recorded	Percent normal-alive	3	38.46	percentage	A	Grab	1	
-88	Not Recorded	Percent normal-alive	4	60.58	percentage	A	Grab	1	
-88	Not Recorded	Percent normal-alive	5	68.75	percentage	A	Grab	1	

Table Structure:

Table 15. Toxicity Reults table structure (primary key fields are indicated with bold text).

FIELD NAME	*TYPE*	*REQUIRED*	*SIZE*	*DESCRIPTION*
StationID	Text	Y	50	A geographic location label as derived from the table of assigned Stations given to each Sampling Organization.
ToxBatch	Text	Y	50	Batch number for batch processed samples.
Matrix	Text	Y	50	The test matrix from lu_ToxicityResultMatrices.
Lab	Text	Y	50	The analyzing agency code from lu_ToxicityAgencies.
Species	Text	Y	50	Test species from lu_ToxicitySpecies.
Dilution	Decimal	Y		The dilution factor expressed as a proportion. Report as –88 for stations with no dilution factor. (For TIE results only)
Treatment	Text	Y	255	Treatment performed on the sample (For TIEs only). "None" for non-TIE samples
Concentration	Decimal	Y		Concentration in mg/L. Report as –88 for stations with no concentration. Must have a value other than -88 for reference toxicant.
ConcentrationUnits	Text	Y	50	See lu_ToxicityUnits.
EndPoint	Text	Y	50	The type of end point from lu_ToxicityEndPoints.
LabRep	Integer	Y		The number of the replicate in which the measurement was taken.
Result	Decimal	Y		The numerical result of the test.
ResultUnits	Text	Y	50	"percentage" for all data in Bight'23
QACode	Text	Y	50	The quality assurance code from lu_ToxicityTestAcceptabilityCodes.

FIELD NAME	TYPE	REQUIRED	SIZE	DESCRIPTION
SampleTypeCode	Text	Y	50	See lookup list lu_ToxicitySampleTypes.
FieldReplicate	Integer	Y		Default of 1 except for split samples.
SampleCollectDate	Date/Time	Y		The date the sample was collected expressed as yyyy-mm-dd. All values numeric.
Comments	Text	N	255	Additional remarks relative to the Toxicity Results.

TOXICITY WATER QUALITY

PURPOSE: This table is used to document water quality measurements taken during the course of a toxicity test. Each record represents a measurement of an individual water quality parameter at a specific time interval and test batch exposure.

SUBMISSION GUIDELINES:

FILE SPECIFICATIONS: It is recommended that the Toxicity Results template file be downloaded from the Bight 23 Data Submission Website (https://bight.sccwrp.org/pages/bight-2023-toxicity). The file must be a Microsoft Excel file and can be named at the discretion of the user. In addition, the tab name can also be named at the discretion of the user; however, the field names must match the order and names listed below for the checker to recognize the type of data being submitted and to provide the necessary checks.

These guidelines ensure that all Toxicity Water Quality data matches corresponding Station Occupation data.

- Each record will be unique based on a combination of the fields StationID, SampleTypeCode, ToxBatch, Matrix, Concentration, TimePoint, Parameter, LabRep, dilution, and Lab.
- Each ToxicityWQ record must have a corresponding Toxicity Batch Information record. Records are matched on ToxBatch and Lab.
- Each Toxicity Batch Information record must have a corresponding ToxicityWQ record. Records are matched on ToxBatch and Lab.
- Each ToxicityWQ record must have a corresponding Toxicity Results record. Records are matched on ToxBatch and Lab.

Example Data:

StationID	ToxBatch	Matrix	Dilution	Treatment	Concentration	ConcentrationUnits	TimePoint	Parameter	Qualifier	Result	ResultUnits	LabRep	Lab	SampleTypeCode	Comments
B23-12000	CSD005	Overlaying Water	-88	None	-88	Not Recorded	0	Dissolved Oxygen	None	8.1	mg/L	0	City of San Diego	Grab	
B23-12000	CSD005	Overlaying Water	-88	None	-88	Not Recorded	0	pH	None	8	pH	0	City of San Diego	Grab	
B23-12000	CSD005	Overlaying Water	-88	None	-88	Not Recorded	0	Salinity	None	33	g/L	0	City of San Diego	Grab	
B23-12000	CSD005	Overlaying Water	-88	None	-88	Not Recorded	0	Temperature	None	14.7	C	0	City of San Diego	Grab	
B23-12000	CSD005	Overlaying Water	-88	None	-88	Not Recorded	0	Total Ammonia	None	0	mg/L	0	City of San Diego	Grab	
B23-12000	CSD005	Overlaying Water	-88	None	-88	Not Recorded	0	Unionized Ammonia	None	0	mg/L	0	City of San Diego	Grab	

Table Structure:

Table 16. Toxicity water quality table structure (primary key fields are indicated with bold text).

FIELD NAME	TYPE	REQUIRED	SIZE	DESCRIPTION
StationID	Text	Y	50	A geographic location label from the station table.
ToxBatch	Text	Y	50	The batch code for the sample processing batch.
Matrix	Text	Y	50	The test matrix from lu_ToxicityResultMatrices.
Dilution	Decimal	Y		The dilution factor expressed as a proportion. Report as –88 for stations with no dilution factor.
Treatment	Text	Y	255	Treatment performed on the sample (For TIEs only). "None" for non-TIE samples
Concentration	Decimal	Y		Concentration in mg/L. Report as –88 for stations with no concentration. Must have a value other than -88 for reference toxicant.
ConcentrationUnits	Text	Y	50	From lu_ToxicityUnits.
TimePoint	Integer	Y		The number of days from the start of the test. TimePoints done before the start of the tests can be negative.
Parameter	Text	Y	50	The water quality parameter being measured from lu_ToxicityWaterQualityParmeters.
Qualifier	Text	Y	50	Any necessary modifier for the numerical result. lu_ToxicityQualifierCodes.
Result	Decimal	Y		The numerical result for the parameter.
ResultUnits	Text	Y	50	See lookup lu_ToxicityUnits.
LabRep	Integer	Y		The number of the replicate in which the measurement was taken. Report "0" for surrogate chambers.
Lab	Text	Y	255	Analyzing agency from lu_ToxicityAgencies.
SampleTypeCode	Text	Y	50	See lu_ToxicitySampleTypes.

FIELD NAME	TYPE	REQUIRED	SIZE	DESCRIPTION
Comments	Text	N	255	Additional remarks.

TOXICITY SUMMARY RESULTS

PURPOSE: This table is used to document the final determination of toxicity for each station. This table has been added to make the results easier to interpret by the final end users of the data set. This table is generated automatically by the checker system as data is submitted.

Table Structure:

Table 17. Toxicity Summary Results

FIELD NAME	DESCRIPTION
StationID	A geographic location label from the station table.
latitude	Degrees of latitude expressed in decimal degrees to 5 decimal places (NAD83).
longitude	Degrees of longitude expressed as a negative number in decimal degrees to 5 decimal places (NAD83).
stationwaterdepth	The field measurement of the sample depth below the surface.
stationwaterdepthunits	Units in which the station water depth is expressed.
stratum	The Bight habitat in which the station is located.
lab	From lu_ToxicityAgencies.
sampletypecode	See lu_ToxicitySampleTypes
ToxBatch	Identifier to match samples analyzed as a group.
species	Species or type of biological system used for the toxicity test; refer to lu_ToxicitySpecies.
endpoint	The type of endpoint for the test. Refer to lu_ToxicityEndPointConstituents.
units	Units for the type of endpoint for the test. Refer to lu_ToxicityUnits.
sqocategory	Refer to Table A40 lu_SQOcategories.
mean	The mean value for the test and sample generated from the lab replicates in ToxicityResults table
n	The number of replicates used to calculate mean and standard deviation from the lab replicates in ToxicityResults table
stddev	The standard deviation for the test and sample generated from the lab replicates in ToxicityResults table
pctcontrol	The mean expressed as a percentage of the mean for the control (i.e., mean of the lab replicates divided by the mean for the control and multiplied by 100)
sigeffect	Statistically significant effect based on control response. Significantly different= "SC", Not significantly different= "NSC", Not tested= "NT"
qacode	The quality assurance code for the analysis. Refer to lu_ToxicityTestAcceptabilityCodes.
pvalue	The statistical significane P value for the test.

FIELD NAME	DESCRIPTION
comments	Additonal remarks
coefficientvariance	Coefficient of variation for sample.
dilution	The dilution factor expressed as a proportion. Report as –88 for stations with no dilution factor. (For TIE results only)
fieldreplicate	Value will be "1" except for split samples where the value will be assigned for each lab.
matrix	Sample test matrix from lu_ToxicityResultMatrixName
samplecollectdate	Date sample was collected in the field
treatment	Treatment performed on the sample (For TIEs only). "None" for non-TIE samples

INFAUNA DATA

Infauna data includes all data from benthic infaunal laboratory analysis. For Bight '23, macrobenthic (infaunal) communities will be analyzed for species composition and abundance. All method descriptions and quality assurance requirements can be found in the Bight '23 Quality Assurance Plan and Infauna Lab Manual.

Infaunal data includes infaunal abundance and QA reanalysis.

INFAUNAL ABUNDANCE

PURPOSE: The purpose of the initial infaunal abundance table is to document the initial numerical presence of all infaunal animals collected at a station prior to QA/QC. Each record represents the abundance of a particular infaunal species in an individual sample. This table is used in the generation of random sample selection for subsequent QA/QC and for populating the Original portion of the Match-Not Match QA/QC data sheet.

The exclude code is explained below. If the agency wishes to separate adults and juveniles of the same species, the number of juveniles can be carried in the comments field, but the abundance number will reflect the total number of animals of that species at that station.

The Taxon field should contain the lowest possible taxonomic level – typically the binomial genus-species name – free of any punctuation, including periods, commas, and quotation marks. However, parentheses for subgenera are acceptable. The ScreenSize field refers to the size screen used to process the sample on board ship and is carried for historical purposes.

The Voucher field should contain the number of individuals of that taxon that were placed into the official Bight '23 voucher collection. The PersonalVoucher field should refer to the number of individuals retained by the taxonomist for their personal voucher collection beyond the official Bight '23 voucher collection (reserved for taxa of interest, erection of new species, etc) as detailed in the Bight '23 Benthic infauna lab manual.

Exclude Notation

The exclude notation provides an aid to data analysis when calculating metrics using the number of taxa present (e.g., diversity, species richness). This field in the final data set represents the taxonomist's recommendation that the reported taxon be excluded from counts of the number of taxa reported in the sample.

Rule of Use: The Exclude annotation is made on the bench sheet whenever a taxon should be excluded from counts of the number of taxa reported in the sample. This annotation is employed when three conditions co- exist:

The identification is not at the species-level (e.g., Pleustidae or Polydora sp).

And

The reported taxon is represented in the sample by other members of its taxon, which have been identified at lower levels.

And

The taxonomist cannot determine if the specimen is distinct from the other members of its taxon represented in the sample.

It is necessary that the taxonomists make this evaluation during sample analysis (i.e., by annotation of the bench sheet). It cannot be effectively applied after the fact, as there is no way of determining later whether the third criterion for use was met.

SUBMISSION GUIDELINES:

FILE SPECIFICATIONS: It is recommended that the Infaunal Abundance template file be downloaded from the Bight 23 Data Submission Website (http://bight.sccwrp.org/pages/bight-2023-infauna). The file must be a Microsoft Excel file and can be named at the discretion of the user. In addition, the tab name can also be named at the discretion of the user; however, the field names must match the order and names listed below for the checker to recognize the type of data being submitted and to provide the necessary checks.

- The combination of StationID, Replicate, SampleDate, SampleTime, Species, and LabCode, will ensure that each record in the table is unique.

EXAMPLE DATA:

StationID	Replicate	SampleDate	SampleTime	Taxon	Qualifier	Abundance	Exclude	Lab	SieveSize	SieveSizeUnits	Voucher	Personal Voucher	AnalysisType	Taxonomist	Comments
B23-12000	1	2023-11-30	8:00	Rhepoxynius bicuspidatus		19	No	City of Los Angeles	1	mm	5		Initial	Pasko, D	

DATA STRUCTURE:

Table 18. Infaunal Abundance table structure (primary key fields are indicated with bold text).

Field Name	*Type*	*Required*	*Size*	*Description*
StationID	Text	Y	50	An alpha numeric label from Station Assignments Table unique to each station.
Replicate	Integer	Y		The sequential number of the benthic samples. Field may contain a 1 if there are no replicates.
SampleDate	Date/Time	Y		The date the sample was collected expressed as yyyy-mm-dd. All values numeric.
SampleTime	Text	Y		Time the sample was collected expressed in 24 hour time (hh:mm).
Taxon	Text	Y	50	The lowest possible taxonomic name of infauna collected, following SCAMIT 12 or M-AMBI taxa list.
Qualifier	Text	N	10	Any qualifier pertaining to the abundance from lu_QualifierCodes (special case p for colonials to indicate their presence only).
Abundance	Integer	Y		The number of individuals (0 for colonials).
Exclude	Yes/No	Y		Flag to exclude from the analysis.
Lab	Text	Y	255	The agency code from lu_Agency.
SieveSize	Text	Y	3	Sieve size in MM. The default for this project is 1.0.
SieveSizeUnits	Text	Y	15	From lu_Units. The default will be millimeters (mm)
Voucher	Integer	*		The number of animals vouchered of this species from this station.
Personal Voucher	Integer	*		The number of animals retained by the taxonomist
AnalysisType	Text	Y	24	Type of analysis. Either "Initial" or "QAReanalysis".
Taxonomist	Text	Y	35	"Last Name, First Initial"
Comments	Text	N	255	Additional comments.

INFAUNAL ABUNDANCE- QA REANALYSIS

PURPOSE: The purpose of the QA Reanalysis infaunal abundance table is to document the final numerical presence of all infaunal animals collected at a station that reflects any changes made to the data after QA/QC process. Each record represents the abundance of a particular infaunal species in an individual sample.

The exclude code is explained below. If the agency wishes to separate adults and juveniles of the same species, the number of juveniles can be carried in the comments field, but the abundance number will reflect the total number of animals of that species at that station.

The Taxon field should contain the lowest possible taxonomic level – typically the binomial genus-species name – free of any punctuation, including, periods, commas, and quotation marks. The ScreenSize field refers to the size screen used to process the sample on board ship and is carried for historical purposes.

The Voucher field should contain the number of individuals of that taxon that were placed into the official Bight '23 voucher collection. The personal voucher field should refer to the number of individuals retained by the taxonomist for their personal voucher collection beyond the official Bight '23 voucher collection (reserved for taxa of interest, erection of new species, etc.) as detailed in the Bight '23 Benthic infauna lab manual.

SUBMISSION GUIDELINES:

Two types of benthic data will be submitted at different times. First, project data from identification and enumeration of all the samples will be submitted into the InfaunaAbundance Initial table. After these submissions are complete, these data submissions will be closed down and submissions of the data from samples selected for QA reanalysis will commence. The data type of submission is displayed on the welcome screen and recorded at the time of submission by the audit program in the "Analysis Type" field as "Initial" or "QAReanalysis." This field will be auto-filled during the data submission processes.

- The combination of StationID, Replicate, SampleDate, SampleTime, Species, and LabCode will ensure that each record in the table is unique.

- We prefer that each organization submit all their Bight'23 data of each type at one time in a single submission. Identification and enumeration data for initial analysis and QA reanalysis should each be included in single submissions.

- Duplication of entered data for stations where entry has previously been completed is not permitted. The audit program rejects new data of the same type for stations where initial or reanalysis data have been successfully submitted.

- Each infaunal abundance record must have a corresponding record in the Sediment Grab Event Table where BenthicInfauna = true. The tables are matched on the StationID, SampleDate, and Replicate fields.

- Species and taxon names are audited at two levels. First, "valid" entries contravening naming rules and conventions by including information such as "fragments" or "juveniles" in the name, rather than the comments field will be rejected by the audit program. Details are provided in Section 4 of the Bight'23 Macrobenthic Sample Analysis Laboratory Manual.

- After the audit program determines that taxon names in the submission conform with the rules, names are compared with the SCAMIT Edition 14 list and the M-AMBI taxon list, and the submitter is provided a summary and details of names that do not match existing entries. These mismatches are not rejected by the audit program because there is an expectation that provisional names and previously unrecorded taxa may be encountered during regional surveys. Instead, the submitter is provided the mismatch information and has the choice of reviewing the names for typographical and other errors offline and finalizing the data submission later, or finalizing the data submission immediately. The list of names being used for comparison can be downloaded from the Bight '23 Data Submission Page. The link is the first item," Bight '23 Infauna Species List" in the "DOWNLOAD THE MOST CURRENT VERSION SECTION"

- Once the data submission is finalized, please e-mail copies of the encountered species list for the submission to Benthic Committee co-chairs Wendy Enright (wenright@sandiego.gov) and David Gillett (davidg@sccwrp.org) as specified in the Bight'23 Macrobenthic Sample Analysis Laboratory Manual, Section 4.6. The main purpose of the encountered species list is the "Authority" field in the species list, which serves to identify the description associated with the name as well as the authority, in order to identify and resolve discrepancies for the Synoptic Data Review (Bight'23 Macrobenthic Sample Analysis Laboratory Manual, Section 4.6).

APPENDIX I. SAMPLE METADATA RECORD

Title: Bight '13 Fish Abundance Data

Description (abstract): This data set contains Fish Abundance data from the 2013 Southern California Bight Regional Marine Monitoring Program (Bight '13). Please see http://ftp.sccwrp.org/pub/download/DOCUMENTS/TechnicalReports/972_B13TrawlReport.pdf for a complete description of methods, results, and conclusions about Fish Abundance. Data were collected and analyzed by multiple agencies, and included a rigorous, performance-based Quality Assurance/Quality Control process.

Summary (purpose and results): Regional monitoring has become an important component of assessing the status of our coastal resources in the Southern California Bight (SCB). The Southern California Bight 2013 Regional Monitoring Program (Bight '13) is the fifth in a series of regional marine monitoring efforts beginning in 1994 and repeated again in 1998, 2003, and 2008. More than 90 different organizations encompassing regulatory, regulated, academic, and non-governmental agencies collaborated to create Bight '13. Collectively, these organizations asked three primary questions: 1) What is the extent and magnitude of impact in the SCB?; 2) Does the extent and magnitude of impact vary among different habitats of interest?; and 3) What are the temporal trends in impacts?

Bight '13 had five components: Contaminant Impact Assessment, Water Column Nutrients, Shoreline Microbiology, Marine Protected Areas, and Trash and Marine Debris. The Contaminant Impact Assessment component included sediment chemistry and toxicity, benthic infauna, fish assemblages, and bioaccumulation. The focus of this data set is on fish abundance.

Keywords (tags): Fish, Abundance, Trawls, Soft-bottom Habitat, Anomalies, Southern California, Southern California Bight

APPENDIX II. FIELD APPLICATION WORKFLOW

INSTALL THE "PARENT APPLICTAION", SURVEY123 FOR ARCGIS, ONTO A TABLET, IPAD, OR COMPUTER

- Obtain (free app) the Survey123 application from an App Store or from the web site (https://doc.arcgis.com/en/survey123/download/) to collect field data. Choose Survey123 for ArcGIS. Not the "connect" software.
- There are separate survey forms which need to be downloaded into the application.

INSTALL THE SURVEY FORMS SPECIFIC TO BIGHT 2023 GRABS AND TRAWLS

Open the Survey123 application and login to SCCWRP's Portal. By default, the ESRI program points to "ArcGIS Online", so change it to "Portal for ArcGIS" to obtain survey forms.

- Open the app (it may ask for a user name and password for online ArcGIS), ignore for the moment.
- Tap the menu bar in the right top corner.
- Select settings (sprocket icon).
- On bottom select "Portals", then "Add Portal"
- Enter the SCCWRP URL portal: https://gis.sccwrp.org/arcgis
- Hit the "Add Portal" button.
- Return to the "My Surveys" page using the back-arrow icon.
- The first time someone gets a survey, it will say "No survey on device" and a "Get Survey" button appears. Click on the button. Usually to download a survey select the menu icon in the right corner. Select the "Download Surveys" tab from the menu icon in the upper right corner.
- On the SCCWRP Portal, select the Bight 2023 Grab Survey and Bight 2023 Trawl Survey (one at a time) to download survey. Hit the "Ok" button to complete download onto the application.
- Return to the "My Surveys" page using the back-arrow icon.
- Both icons representing the survey should appear.

Note: Periodically, minor changes are made to the survey form. A notice will be sent out.

The next section highlights the process.

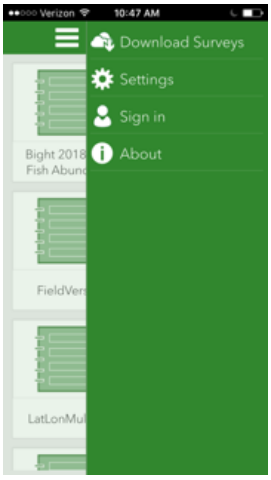
INSTALL THE SURVEY FORMS SPECIFIC TO BIGHT 2023 GRABS AND TRAWLS

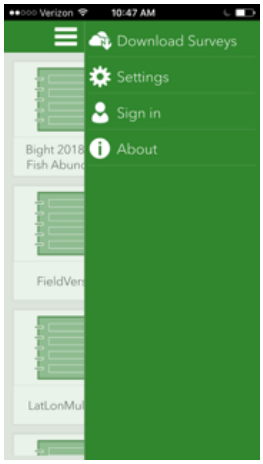
A. Click "Sign in"

B. Login to our portal: https://gis.sccwrp.org/arcgis (ask SCCWRP)

C. Enter username/password

D. Click "Download Surveys"





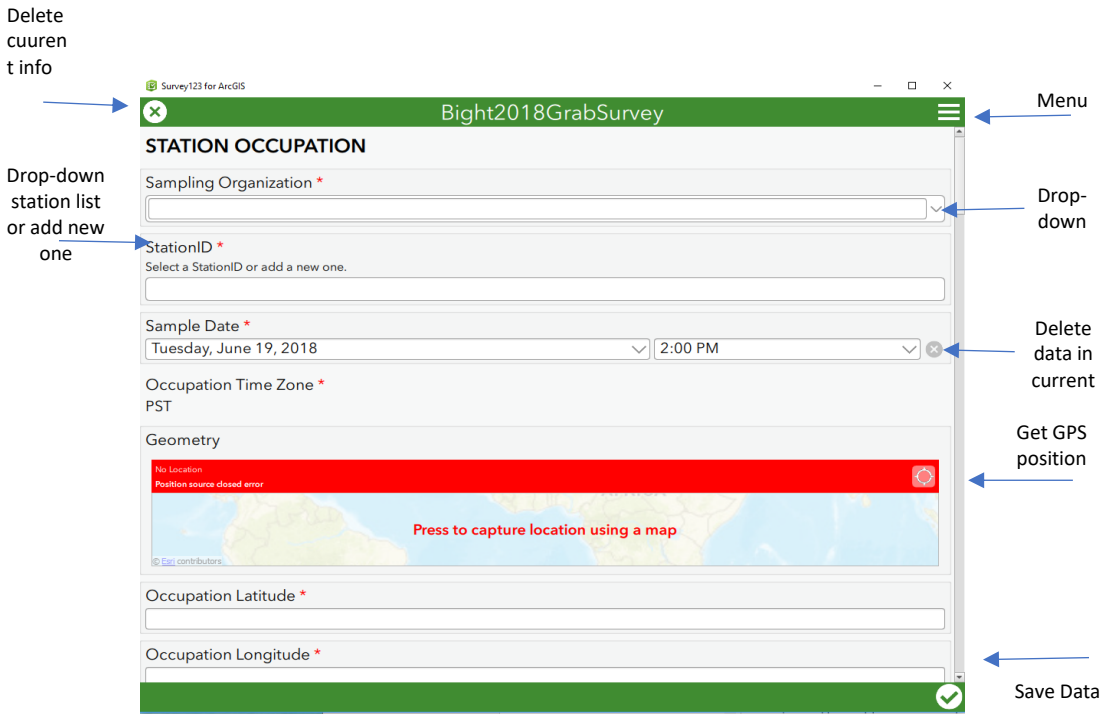
E. Select "Bight 2023 Grab Survey" for grab app (exact name)

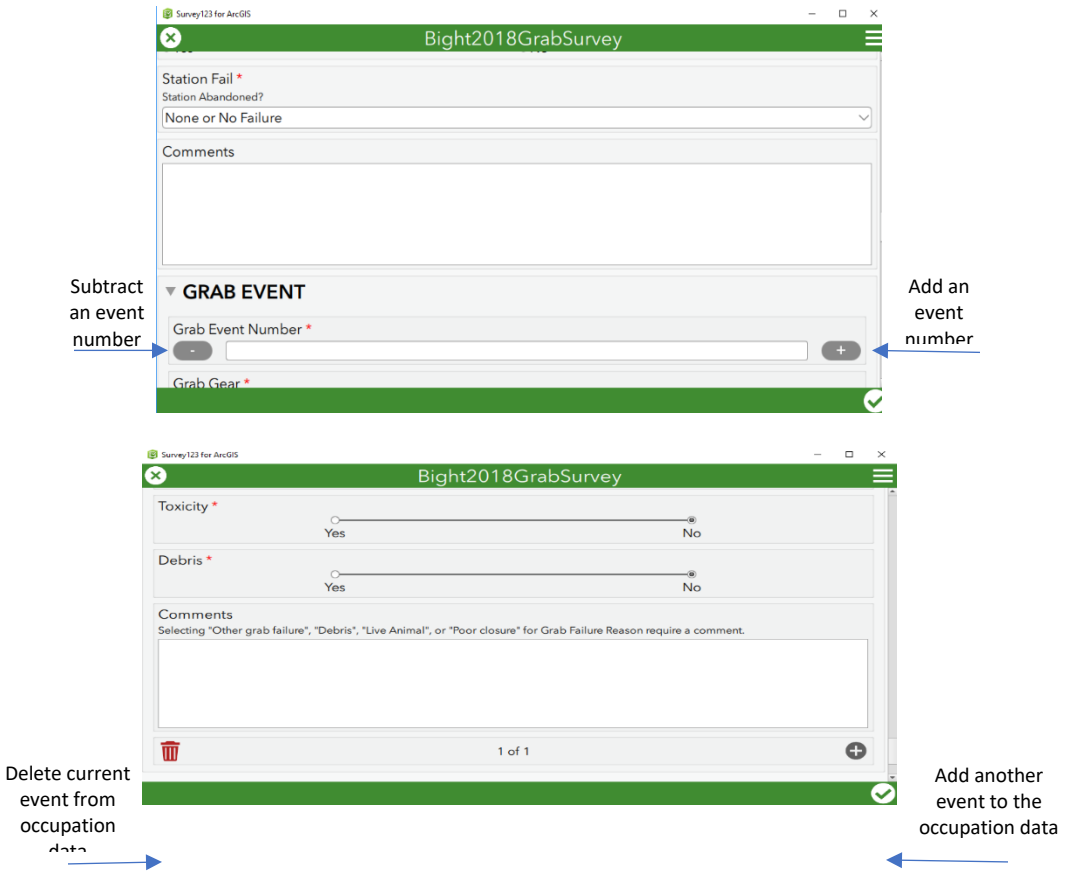
F. Select "Bight 2023 Trawl Survey" for trawl app (exact name)

USING THE APPLICATION TO COLLECT DATA

- The Survey form includes the Occupation and Event data fields, so to move between the 2 sections, scrolling down or up.
- The "X" icon causes the survey to stop. The user is asked to either to "close survey and lose changes", "continue this survey", or "save draft survey" (complete survey once app starts again).
- To enter a new station, select "New Station" from drop-down list. A pop-up field appears requesting a station name. Type a name, note no coordinates are requested.
- Data boxes with a red asterisk indicate a "Required Field" on the survey. The survey will not let you save the data without values entered into these boxes.
- Pressing the "Get GPS Position" icon does not automatically enter the correct time, especially in the "event section" of the form. Please verify that the time is the same as your field watch.
- Some data fields have defaults. Use the small "x" in a data field to clear the default value.

- Pressing the "Comments" field box, the default screen keyboard appears (tablets and iPads). While other data field keyboards have a "Done" key, the "Comments" keyboard may not. After entering comments, press another data field to eliminate keyboard. Be sure to correct items if data field has changed.
- The "Event Number" field does not automatically increment (software bug). You must enter a new event number every time another event is "+" added to a station occupation.
- The "+" icon at the bottom left of the form adds a new "Event" record. Pressing the icon keeps the screen at the bottom. Scroll up to the "Event Number" (it should be blank) and add another event number.
- Pressing the "3" trashcan icon deletes the data for the current "Event", not the station occupation.





Data accumulates every time data is sent to SCCWRP's ESRI portal.

VIEWING DATA SUBMITTED ONLINE BY THE APPLICATION

1. Edit - Login into portal to edit collected field data (same username/password as above)
   https://gis.sccwrp.org/arcgis/home/
2. Go to "Search" bar in upper right-hand corner and enter one of the following:

   MobileOccupationTrawl

   or

   MobileOccupationGrab
3. To view/edit your data online, add to "My Favorites" using the star icon. If you see another organizations data please let me know. Also, ESRI's web management tools are imperfect.

4. In the "My Favorites" tab, open the desired file by clicking on it or using the "View Item Detals" tab.
5. Change from the "Overview" tab to the "Data" tab. The "Layer Box" shows the current data. You should be able to edit most fields by double clicking on them, but we have run into limitations using the web tool to edit data. To change from change from occupation data to event data, use the arrow icon in the "Layer Box" on right.
6. Remember to "sign out" when you are done.

SUBMITTING THE DATA

1. To Export data to your computer, copy the link to your web browser. Replace "CODE" you're your organizations lookup code found on the other link. If your organization is not listed, contact Paul Smith (pauls@sccwrp.org).

   http://checker.sccwrp.org/checker/export?agency=CODE

   CODE is the OldBight13Code on the agency lookup list page:

   http://checker.sccwrp.org/checker/scraper?action=help&layer=lu_agencies

2. The "Export" page collected field data into data submission format ready for data submittal. Click on the "Export – download" link to download the Excel file onto your computer.
3. Check and edit your data in Excel. Make sure the fields are in the proper format according to the Bight 2023 Information Management format and match any field data sheets. Follow the link "Data checker" to open the submittal page. You will be asked to "Sign in" with your email the organization you represent.

DRAG AND DROP SUBMITAL - SUBMIT EXPORTED FILE TO DATA CHECKER

http://checker.sccwrp.org/checker/

APPENDIX III. DATA SUBMISSION PROTOCOLS

Data will be submitted through the SCCWRP data portal and will be subjected to two types of checks. The first type of check will be for critical formatting issues. If data fails this check it will not be allowed to be submitted until the errors are corrected. The second type of check is for issues related specifically to the type of data (Field, Chemistry, Toxicity, Infauna). This second type of check may either not allow data submission (e.g. data not meeting control acceptability criteria) or simply provide warnings (e.g. water quality data out of expected range).

Web portal. Data should be submitted through SCCWRP's online data submission page. Each data type has its own page (hyperlinks provided below):

https://bight.sccwrp.org/pages/bight-2023-field.

https://bight.sccwrp.org/pages/bight-2023-chemistry

https://bight.sccwrp.org/pages/bight-2023-toxicity

https://bight.sccwrp.org/pages/bight-2023-infauna

The "First Step" on each project page is to download the appropriate Excel templates. Each template has example data demonstrating the formatting. Each template has tabs relevant to the components of the project element (e.g, Field has tabs for occupation, trawl and grab; Toxcity has tabs for experimental batch, results and water quality data, etc.). Hyperlinks to templates are provided below:

Field Templates:

- Field Template - Click on this link to download the field template
- Fish Template - Click on this link to download the fish template
- Invertebrate Template - Click on this link to download the invertebrate template
- Debris Template - Click on this link to download the debris template
- PTSensor Template - Click on this link to download the ptsensor template
- Chemistry Template- Click on this link to download chemistry submission template
- Toxicity Template- Click on this link to download toxicity submission template
- Infauna Template- Click on this link to download infauna submission template

Enter your data into the templates as described. The template monitors for some common entry errors. If the template detects an improper entry, it will turn the text in that cell red. The LookUps tab in the template file is used to detect some of the possible errors

Save your file using the name of your choice. The system requires that files be submitted as Microsoft Excel spreadsheets with specific tab names and field names (see table structures in the IM plan or instructions on the web portal). No csv files will be accepted.

Data Submision.

To submit your data go to "Second Step" which will send you to the checker web application. A Python-based program checks for appropriate parameter ranges, required fields, valid values from constrained look-up lists, and proper formatting/adherence to Standard Data Transfer Protocols (SDTPs) described in B'23 IM Manual or on the web portal. Spelling, punctuation, and proper formatting are extremely important. For example, improper capital letter, additional characters (*i.e.*, spaces, underscores), character data in numerical fields, inputted values into fields constrained by a list, or omitting fields that require a value will generate an error that needs fixing. In addition, there may be QA calculations done on the data to look for outliers which generate warnings but meet IM checks.

DATA SUBMISSION

An Excel data template will be provided which will check for common errors and highlight them so that they can be fixed before data submission. The data will be submitted in a multistep process as described below.

1. Go to project page: https://bight.sccwrp.org/pages/bight-2023-chemistry
2. Go to "First Step" to download the Chemistry submission template to your computer;
    a. This file has one batch worth of data as an example of formatting. For those of you who are new to the structure, there is a tab for information related to either batch or result.
    b. Enter your data into the template. At the end of this document is a description of each data field. If the field has constraints on what can be entered, a list of possible entries is included.

DRAG-N-DROP THE TOXICITY FILE YOU CREATED ONTO THE WEB PAGE. DATA SUBMISSION

An Excel data template will be provided which will check for common errors and highlight them so that they can be fixed before data submission. The data will be submitted in a multistep process as described below.

3. Go to project page: https://bight.sccwrp.org/pages/bight-2023-toxicity
4. Go to "First Step" to download the toxicity submission template to your computer;
    a. This file has one batch worth of data as an example of formatting. For those of you who are new to the structure, there is a tab for information related to each experimental batch, one for the results of the toxicity tests, and one for the water quality data. After you have familiarized yourself with the format, erase this data by highlighting and deleting the entire rows (not just the data in the table).
    b. Enter your data into the template. At the end of this document is a description of each data field. If the field has constraints on what can be entered, a list of possible entries is included.

When the checker has finished processing your file click on each tab to see any resulting error messages.

The checker runs in two phases. The first level of checking is for critical formatting type errors (e.g. text in a numeric field or value in a field that does not match a constrained list, such as an invalid sample ID). If the checker finds errors in this phase it stops and reports those errors which must be fixed and the file resubmitted before moving onto phase two. Be aware that the checker is case sensitive; follow the case in the instructions and look-up lists exactly. In the second phase, the checks are more specific to the needs of each project element (Field, Toxicity, Chemistry, Infauna). In the second phase, the feedback can be either errors that need to be fixed before final submittal (e.g. a test that does not meet acceptability criteria) or warnings which do not need to be fixed to submit, but should be checked for accuracy before proceeding (e.g. a water quality parameter outside of the expected range).

Use the row number and error code to locate the error in your Excel template file. Alternatively, you can click on the "Print to Excel" link near the bottom of the page. This will replicate your submission file and all of the locations of errors will be highlighted in different colors depending on the error type. Hovering the cursor over the highlighted cells will give more information on the error. This function will highlight all errors, whereas the template file used for the intitial submittal is designed to only find a limited number of common errors.

If needed, correct all errors and resubmit to the data checkers to recheck the revised Excel file. Before resubmitting the file to the checker, make sure to click on the "Reload Application" button near the top of the page (this may look like a title box, but it is a button);

Once you have cleaned all errors you will find a "Final Submit" button at the bottom of the web page. Click on the button to submit your template to the Bight database.

After successful submission, a report table will pop-up showing what data has been placed in the database versus what was expected based on sample assignments.

Metadata.

Each release of Bight'23 data to the public will include comprehensive documentation of the data sets. Referred to as metadata, this documentation will include database table structures (including table relationships) and lookup tables used to populate the fields in each table. It will also include quality assurance classifications of the data and documentation of the methodologies by which the data were collected.

A second type of metadata will document changes made to the data over time. As the data are used, we anticipate that errors will be found. As changes to the data are made, they will be documented in a file organized by date and data table. Including this file with each data download will allow users to reconcile potential differences in analysis output that result from using different versions of the data.

APPENDIX IV. LOOKUP LISTS

Look up lists are expected to evolve over time. The look up lists provided in this appendix are accurate as of the date printed on the cover of the document. It is recommended that you check the most recent versions of the lookup lists on the project pages.

FIELD LOOKUP LISTS

The most recent versions of the lookup lists can be found online:

StationOccupation Lookup Lists:

Datum:
http://checker.sccwrp.org/bight23checker/scraper?action=help&layer=lu_datum

NavTypes:
http://checker.sccwrp.org/bight23checker/scraper?action=help&layer=lu_navtypes

Sampling Organization:
http://checker.sccwrp.org/bight23checker/scraper?action=help&layer=lu_agencies

SampleType:
http://checker.sccwrp.org/bight23checker/scraper?action=help&layer=lu_sampletypes

Seastates:
http://checker.sccwrp.org/bight23checker/scraper?action=help&layer=lu_seastates

StationFails:
http://checker.sccwrp.org/bight23checker/scraper?action=help&layer=lu_stationfails

SwellDirection/WindDirection:
http://checker.sccwrp.org/bight23checker/scraper?action=help&layer=lu_directions

Timezones:
http://checker.sccwrp.org/bight23checker/scraper?action=help&layer=lu_timezones

Units/SwellDirectionUnits/WindSpeedUnits:
http://checker.sccwrp.org/bight23checker/scraper?action=help&layer=lu_units

Weather:
http://checker.sccwrp.org/bight23checker/scraper?action=help&layer=lu_weather

Grab Lookup Lists:

Color:
http://checker.sccwrp.org/bight23checker/scraper?action=help&layer=lu_color

Composition:
http://checker.sccwrp.org/bight23checker/scraper?action=help&layer=lu_composition

Shell Hash:
http://checker.sccwrp.org/bight23checker/scraper?action=help&layer=lu_shellhashcategories

Datum:
http://checker.sccwrp.org/bight23checker/scraper?action=help&layer=lu_datum

Gear:
http://checker.sccwrp.org/bight23checker/scraper?action=help&layer=lu_equipment

GrabFail:
http://checker.sccwrp.org/bight23checker/scraper?action=help&layer=lu_grabfails

Odor:
http://checker.sccwrp.org/bight23checker/scraper?action=help&layer=lu_odor

PenetrationUnits/StationWaterDepthUnits:
http://checker.sccwrp.org/bight23checker/scraper?action=help&layer=lu_units

Sampling Organization:
http://checker.sccwrp.org/bight23checker/scraper?action=help&layer=lu_agencies

Trawl Lookup Lists:

Datum:
http://checker.sccwrp.org/bight23checker/scraper?action=help&layer=lu_datum

DepthUnits:
http://checker.sccwrp.org/bight23checker/scraper?action=help&layer=lu_units

Gear:
http://checker.sccwrp.org/bight23checker/scraper?action=help&layer=lu_equipment

Sampling Organization:
http://checker.sccwrp.org/bight23checker/scraper?action=help&layer=lu_agencies

TrawlFail:
http://checker.sccwrp.org/bight23checker/scraper?action=help&layer=lu_trawlfails

lu_Agency

Agency
AES Corporation

Agency
ALS Global
AMEC, Foster, & Wheeler
Aquatic Bioassay and Consulting Laboratories
Brooks Applied Labs
California State University at Channel Islands
Calscience
Caltest Analytical Laboratory
Carlsbad Watershed Group
Channel Islands National Marine Sanctuary
Chevron USA Products Company
City of Long Beach
City of Los Angeles Environmental Monitoring Division
City of Los Angeles Watershed Protection District
City of Oceanside
City of Oxnard
City of San Diego
City of San Diego Ocean Operations
City of Ventura
Dancing Coyote Environmental
EcoAnalysts, Inc
Encina Waste Water Authority
Enthalpy Analytical
Eurofins Calscience
Frontier Analytical Laboratory
Granite Canyon Marine Pollution Studies Lab
Houston Industries Inc.
Institute for Integrated Research on Materials, Environment and Society
Instituto de Investigacione Oceanologicas
Jet Propulsion Laboratory
Los Angeles County Department of Beaches and Harbors
Los Angeles County Department of Public Works
Los Angeles County Dept. of Health Services
Los Angeles County Regional Water Quality Control Board
Los Angeles County Sanitation Districts
Los Angeles Department of Water and Power
Loyola Marymount University
Marine Biological Consulting
Marine Corps Base Camp Pendleton

Agency
Marine Pollution Studies Lab
Minerals Management Service
National Park Service
Nautilus Environmental
NES Energy Inc.
NOAA Charleston
NOAA County Health Services
NOAA TDI
NOAA CINMS
Northwest Aquatic Sciences
Not Applicable
NRG Energy Inc.
Orange County Environmental Health Division
Orange County Public Facilities and Resources
Orange County Public Works
Orange County Sanitation
Pacific EcoRisk
PHYSIS Environmental Lab
Port of Los Angeles
Port of San Diego
Regional Harbor Monitoring Program
Riverside County Flood Control and Water Conservation District
RMP (Greater Los Angeles and Long Beach Harbor Waters Regional Monitoring Program)
Reliant Corporation
San Diego County Department of Environmental Health
San Diego Regional Water Quality Control Board
San Diego Watershed Group
San Elijo Joint Powers Authority
Santa Ana Regional Water Quality Control Board
Santa Barbara Health Care Services
Santa Monica Bay Restoration Commission
Sea Ventures
SGS-AXYS
Southeast Laboratory San Francisco PUC
Southern California Coastal Water Research Project
Southern California Wetland Recovery Project
Southern Orange County Water Authority
Space and Naval Warfare Systems Command

Agency
State Water Resources Control Board
The Bay Foundation - Santa Monica Bay Restoration Project
Tijuana Estuary National Estuarine Research Reserve
United States Fish and Wildlife Service
United States Geological Survey
USN NIWC Pacific
University of California at Los Angeles
University of California Santa Barbara
URS Corporation
Vantuna Research Group
Vista Analytical Laboratory
Weck Labs
Weston Solutions
WSP USA Environment & Infrastructure

lu_Vessels

VesselName	Owner
La Mer	City of L.A.
Marine Surveyor	City of L.A.
Ocean Sentinel	LACSD
Phaon	LACSD
Skiff	Any
Nerissa	OCSD
Monitor III	City of S.D.
Oceanus	City of S.D.
Shearwater	NOAA/CINMS
Hey Jude	ABC/Any
Kathryn M	MBC
Davis	MBC
Poco Loco	MBC
Scorpaena	MBC
Pacman	Weston
Weston inflatable	Weston
Early Bird II	Sea Ventures
Yellowfin	SCMI
M/V Jab	Brayton Pointner
Waterline	Any
Algalita	AMRI
Zephyr	Zephyr Marine Inc

Westerly	Zephyr Marine Inc
Chinook	Zephyr Marine Inc
Minotaur	Zephyr Marine Inc
Spirit of Santa Barbara	Any
ECOS	U.S. Navy
Benthic Cat	Orca Maritime, Inc.
Inflatable	Any
Other	Comment Required

lu_NavTypes

Navigation Instrument
Global Positioning Satellite (GPS)
Enhanced Wide Area Augmentation System (WAAS)
Enhanced Global Navigation Satellite System (GNSS)
Android Tablet (AGPS)
Other (comment required)

lu_Datum

Datum
NAD83
Not Recorded
WGS84
Not Known
Other (comment required)

lu_TimeZones

TimeZoneCode		TimeZoneCodeDescription
NR		Not Recorded
PDT		Pacific Daylight Savings Time
PST		Pacific Standard Time

lu_SampleTypes

SampleType	Human Readable	SampleTypeDescription	AssociatedTable
GRAB	Grab	A 0.1 m2 van Veen Grab	StationOccupation
TRAWL-10min	Trawl	A 7.62 meter Marinovich trawl	StationOccupation
TRAWL-5min	Trawl	A 7.62 meter Marinovich trawl	StationOccupation
WQ	WQ	Water Quality	StationOccupation
Other	Other	Comment or describe event	StationOccupation

lu_Weather

Weather	Matrix	Method	Analyte	Fraction	Unit

Clear	Habitat	FieldObservations	SkyCode	None	None
Drizzle	Habitat	FieldObservations	SkyCode	None	None
Fog	Habitat	FieldObservations	SkyCode	None	None
Fog and Drizzle	Habitat	FieldObservations	SkyCode	None	None
Hazy	Habitat	FieldObservations	SkyCode	None	None
Not Recorded	Habitat	FieldObservations	SkyCode	None	None
Overcast	Habitat	FieldObservations	SkyCode	None	None
Partly Cloudy	Habitat	FieldObservations	SkyCode	None	None
Rain	Habitat	FieldObservations	SkyCode	None	None
Thunderstorm	Habitat	FieldObservations	SkyCode	None	None
Smoky	Habitat	FieldObservations	SkyCode	None	None

lu_SeaStates

VariableCodes	Matrix	Method	Analyte	Fraction	Unit
Calm	Habitat	FieldObservation	SeaState	None	None
Choppy	Habitat	FieldObservation	SeaState	None	None
Confused	Habitat	FieldObservation	SeaState	None	None
Not Recorded	Habitat	FieldObservation	SeaState	None	None
Rough	Habitat	FieldObservation	SeaState	None	None

lu_Directions

VariableResult	Matrix	Method	Analyte	Fraction	Unit
E	Habitat	FieldObservations	WindDirection	None	None
N	Habitat	FieldObservations	WindDirection	None	None
NE	Habitat	FieldObservations	WindDirection	None	None
NR	Habitat	FieldObservations	WindDirection	None	None
NW	Habitat	FieldObservations	WindDirection	None	None
S	Habitat	FieldObservations	WindDirection	None	None
SE	Habitat	FieldObservations	WindDirection	None	None
SW	Habitat	FieldObservations	WindDirection	None	None
W	Habitat	FieldObservations	WindDirection	None	None
C	Habitat	FieldObservations	WindDirection	None	None

lu_units

Units	Description
cfu/100ml	colony forming units per 100 mililiters
cm	Centimeters
days	Days
deg C	degrees Celsius
% dry weight	percent dry weight
ft	Feet

g	grams
g/L	grams per liter
hours	hours
kg	kilograms
kts	nautical miles per hour (knots)
m	meters
mg/day	milligrams per day
mg/kg dw	milligrams per kilogram dry weight
mg/kg ww	milligrams per kilogram wet weight
mg/L	miligrams per liter
mm	millimeters
% moisture	percent moisture
mpn/100ml	most probable number per 100 mililiters
m/s	meters per second
ng	nanograms
ng/g dw	nanograms per gram dry weight
ng/g ww	nanograms per gram dry weight
Not Recorded	Not Recorded
percent	percent
pH	Log of hydrogen ion concentration
ppt	parts per thousand
psi	pounds per square inch (decibars)
psu	practical salinity units
% recovery	percent recovery (for surrogates)
% solids	percent solids
ug/g dw	micrograms per gram dry weight
ug/g ww	micrograms per gram wet weight
ug/kg dw	micrograms per kilogram dry weight
ug/kg ww	micrograms per kilogram wet weight
ug/L	micrograms per liter
ug/L dw	micrograms per liter dry weight
ug/L ww	micrograms per liter wet weight
uS/cm	microsiemens per centimeter
% wet weight	percent wet weight

lu_StationFails

EventFailure	Definition	Comment Required
None or No Failure	None or No Failure	No
Temporary - sea conditions (comment req.)	Temporarily leave site due to sea (rough) conditions	Yes

Temporary - atmosphere (comment req.)	Temporarily leave site due to atmosphere (wind, lightning) conditions	Yes
Temporary - mechanical (comment req.)	Temporarily leave site due to vessel mechanical issues	Yes
Pre-abandoned (comment req.)	Site pre-abandoned prior to starting of survey	Yes
Site On Land (comment req.)	Site plots on land from vessel navigation system or nautical charts	Yes
Vessel safety (comment req.)	Captain refuses to sample site because of vessel safety procedures (e.g., too close to shore)	Yes
No Access Allowed (comment req.)	An authority denies access to site for sampling (e.g., navy)	Yes
Prolonged rough seas	After a temporary visit, site remains unsamplable due to rough seas	No
Too Shallow (comment req.)	Depth < 3 m at an estuary strata station or < 6 m at a embayment/inner shelf strata station	Yes
Too many Event Failures (comment req.)	Too many Event Failures (a minimum of 6-9 grab attempts or a minimum of 2 trawl attempts needed before abandonment)	Yes
Anthropogenic obstruction (comment req.)	A man-made obstacle (e.g., dock, freighter, immovable large debris, etc.) prevents sampling the site	Yes
Natural hard bottom obstructions (comment req.)	A natural obstacle (e.g., kelp bed, pinnacle, low relief rocky bottom, etc.) prevents sampling the site	Yes
Not trawlable - smooth, undulating bottom	Site unsuitable for trawling (e,g,. fluctuating or undulating bottom, sharp curve or turn)	yes
Not samplable - other (comment req.)	Other - another reason not listed why site was abandoned	Yes
Sampling organization logistics	After a temporary visit, site remains unsamplable due to boat schedule conflicts	No
Brackish estuary >27ppt	For brackish estuaries only, measures salinity was greater than the definition of the stratum (0 – 27 ppt)	No
Temporarily - high density species incidence	1 min trawl reveals excessive biomass of species (e.g., red crabs) that would preclude 10 min trawl of site	yes
Permanently - high density species incidence	After revisit to site, 1 min trawl continues to reveal excessive biomass of species (e.g., red crabs) that would preclude 10 min trawl of site	Yes

lu_Equipment

EquipmentCode	EquipmentType
Trawl	Otter Trawl w. 7.62 meter head rope
TVV	Tandem van Veen 0.1 m^2
VV	Van Veen Grab
SBE19	Water Quality Analyzer SeaBird SBE/19
SBE25	Water Quality Analyzer SeaBird SBE/25
SBE911	Water Quality Analyzer Seabird SBE/911
RigFishing	Hook and Line
NR	Not recorded
Ponar	Petite Ponar

lu_Composition

VariableResult	Description	Matrix
Cobble	Tennis ball size rocks or bigger (can be flat).	Sediment
Coarse Gravel	Marble size to near tennis ball size (can be flat).	Sediment
Fine Gravel	2mm to marble size.	Sediment
Coarse Sand	Texture mostly larger grained sand particles.	Sediment
Fine Sand	Texture mostly smaller grained sand with some fine.	Sediment
Silt/Clay	Fine particles (texture smooth).	Sediment
Shell Hash	Mostly shell hash (50% or greater).	Sediment
Mixed	Any combination of above – requires comment.	Sediment
NR	Not Recorded	Sediment

lu_Odor

VariableResult	Description	Matrix	Method	Analyte	Fraction	Unit
Humic	Decay	Sediment	FieldObservations	Odor	None	None
Hydrogen Sulfide	Sulfur	Sediment	FieldObservations	Odor	None	None
None	No Detectable Odor	Sediment	FieldObservations	Odor	None	None
NR	Not Recorded	Sediment	FieldObservations	Odor	None	None
Other	(requires comment)	Sediment	FieldObservations	Odor	None	None
Petroleum	Oil and grease	Sediment	FieldObservations	Odor	None	None

lu_Color

VariableResult	Matrix	Method	Analyte	Fraction	Unit
Black	Sediment	FieldObservation	Color	None	None
Dark Brown	Sediment	FieldObservation	Color	None	None
Gray	Sediment	FieldObservation	Color	None	None
NR	Sediment	FieldObservation	Color	None	None
Olive Green	Sediment	FieldObservation	Color	None	None

Other	Sediment	FieldObservation	Color	None	None
Red	Sediment	FieldObservation	Color	None	None
Light Brown	Sediment	FieldObservation	Color	None	None

lu_GrabFailure

Grab Event Failure Reason	Definition	Comment Required
None or No Failure	None or No Failure, grab processed according to field manual.	No
Outside Radius Limit	Outside Radius Limit, unacceptable because sample was not within 100 m of target coordinate (200 m for island).	No
Outside Target Depth	Outside Target Depth, unacceptable becasuse sample was greater then 10% of the target site depth.	No
Premature closure	Premature closure before hitting the bottom caused the grab to be full of water.	No
Poor closure	Closure allowed washout	No
Flipped	Grab flipped with open jaws pointing upward (very dangerous).	No
Rocks/gravel	Leaking grab, rocks or gravel between jaws caused poor closure.	No
Dead shell	Leaking grab, dead shell hash between jaws caused poor closure.	No
Live animal (comment req.)	Leaking grab, live animal between jaws caused poor closure. What animal?	Yes
Debris (comment req.)	Leaking grab, debris between jaws caused poor closure. What debris?	Yes
Hard bottom	Hard bottom, grab mostly water with rocks.	No
Heavily canted	Grab pentrated sediment at an angle, unacceptable field manual criteria.	No
Large humping	Large amounts of humping along the midline may have caused surface disturbance and washing during retretrieval. Minor humping is acceptable.	No
Washed	Sedimant surface appears washed, sections with holes. Something cause the washing during retreival. Sample unacceptable.	No
Disturbed surface	Sediment interface uneven with undulations. A mechanical closure problem or a potentially compromise sample (unacceptable).	No

< 5 cm penetration	Chemistry penetration depth < 5 cm. Unacceptable but common in sandy habitats. Field manual prefered penetration depth of 7-10+ cm.	No
<= 7 cm penetration - biology only	Biology penetration depth < 7 cm. Unacceptable but common in sandy habitats. Field manual prefered penetration depth of 8+ cm.	No
Other (comment req.)	Other - another reason not listed why grab failed.	Yes

lu_TrawlFail

Trawl Event Failure Reason	Definition	Comment Required
None or No Failure	None or No Failure, catch processed according to field manual.	No
Outside Radius Limit	Outside Radius Limit, any point along a trawl track not within 100 m of target coordinate.	No
Outside Target Depth	Outside Target Depth, trawl track depth from start to end was not within 10% of the target site depth.	No
Fouled Net (comment req.)	Fouled Net: fishing improperly. Examples include visably fouled, twisted net/doors, bunched doors, or improper spread.	Yes
Open cod end (knot untied)	Open cod end, crew forgot to tie up the end of the net or the knot came loose so animals could easily escape.	No
Trawl hit unknown obstruction	Trawl hit an unknown obstruction, such as the boat stops or crew recognize a bump on the winch/wire.	No
Doors - No contact with bottom	No contact with bottom, the catch is nearly empty with no obvious evidence of mud on the doors from digging into the sediment.	No
Torn Net	Torn Net, parts of the net were torn and animals could potentially escape.	No
Unusually low catch	Unusually low catch, fish and invertebrate abandance was unexpectedly low so cruise leader decides to re-trawl.	Yes
Improper Deck Time	Improper Deck Time, crew did not follow the expected surface trawl time established in the manual for depths < 200m (expect 10 minutes but can be adjusted to pressuse sensor data).	No

Improper Bottom Time	Improper Bottom Time, pressuse sensor indicates bottom contact was less then 8 minutes or greater then 15 minute.	No
Inadequate trawl track	Inadequate trawl track, pressure sensor shows an undulating bottom while fathometer indicates an even bottom (irregular net bottom contact throughout trawl).	No
High Density Species Incidence	1 min trawl reveals excessive biomass of species (e.g., red crabs) that would preclude 10 min trawl of site	Yes
Other trawl failure (comment req.)	Other - another reason not listed why trawl failed.	Yes

lu_TrawlQualifier

Qualifier	Description	AssociatedTable
<	less than	Trawl Fish Abundance, Trawl Invertebrate Abundance
<=	less than or equal to	
>	greater than	
>=	greater than or equal to	
Aliquot	Count base on calculation of Aliquot	Trawl Invertebrate Abundance, Trawl Fish Abundance, Trawl Fish Biomass, Trawl Invertebrate Biomass
AE	Analyst Error	
BMDL	Below Method Detection Limit	Chemistry
BRL	Below Reporting Level	Chemistry
None	None	
NA	Not Analyzed	
ND	Not Detected	
Present	Present, not counted	Trawl Invertebrate Abundance

lu_DebrisType

Collection Method	DebrisOrigin	DebrisCategory	DebrisType	Comment Required
Trawl	Anthropogenic	Plastic	Bag	N
Trawl	Anthropogenic	Plastic	Bandaid	N
Trawl	Anthropogenic	Plastic	Balloon (mylar/latex)/Ribbon	N
Trawl	Anthropogenic	Plastic	Bottle	N
Trawl	Anthropogenic	Plastic	Buoy	N
Trawl	Anthropogenic	Plastic	Cap/Lid	N
Trawl	Anthropogenic	Plastic	Cigarette box/wrapper	N

Collection Method	DebrisOrigin	DebrisCategory	DebrisType	Comment Required
Trawl	Anthropogenic	Plastic	Cup	N
Trawl	Anthropogenic	Plastic	Filmstrip (movie)	N
Trawl	Anthropogenic	Plastic	Fishing Line/Net	N
Trawl	Anthropogenic	Plastic	Food Bag / Wrapper	N
Trawl	Anthropogenic	Plastic	Polypropylene Rope	N
Trawl	Anthropogenic	Plastic	Single use food container	N
Trawl	Anthropogenic	Plastic	Toy	N
Trawl	Anthropogenic	Plastic	Utensil	N
Trawl	Anthropogenic	Plastic	Plastic Piece (unid.)	N
Trawl	Anthropogenic	Plastic	Other Plastic (comment req.)	Y
Trawl	Anthropogenic	Glass	Beer Bottle	N
Trawl	Anthropogenic	Glass	Glass Bottle/Jar -other	N
Trawl	Anthropogenic	Glass	Glass Piece (unid.)	N
Trawl	Anthropogenic	Glass	Other Glass (comment req.)	Y
Trawl	Anthropogenic	Misc. Items/Pieces	Boat/Ship/Engine part	N
Trawl	Anthropogenic	Misc. Items/Pieces	Clothing	N
Trawl	Anthropogenic	Misc. Items/Pieces	Concrete/Asphalt	N
Trawl	Anthropogenic	Misc. Items/Pieces	Fiberglass	N
Trawl	Anthropogenic	Misc. Items/Pieces	Food	N
Trawl	Anthropogenic	Misc. Items/Pieces	Latex/nitrile gloves	N
Trawl	Anthropogenic	Misc. Items/Pieces	Leather	N
Trawl	Anthropogenic	Misc. Items/Pieces	Lumber	N
Trawl	Anthropogenic	Misc. Items/Pieces	Mask - single use	N
Trawl	Anthropogenic	Misc. Items/Pieces	Mask - cloth	N
Trawl	Anthropogenic	Misc. Items/Pieces	Paper	N
Trawl	Anthropogenic	Misc. Items/Pieces	Rag/Cloth	N
Trawl	Anthropogenic	Misc. Items/Pieces	Rubber	N
Trawl	Anthropogenic	Misc. Items/Pieces	Shoe	N
Trawl	Anthropogenic	Misc. Items/Pieces	Tape	N
Trawl	Anthropogenic	Misc. Items/Pieces	Tire	N
Trawl	Anthropogenic	Misc. Items/Pieces	Other Misc. (comment req.)	Y
Trawl	Anthropogenic	Metal	Drink Can	N
Trawl	Anthropogenic	Metal	Can - other	N
Trawl	Anthropogenic	Metal	Fishing Gear	N
Trawl	Anthropogenic	Metal	Wire	N
Trawl	Anthropogenic	Metal	Metal Piece (unid.)	N
Trawl	Anthropogenic	Metal	Other Metal (comment req)	Y
Trawl	Natural	Marine Origin	Foliose Algae - not kelp	N
Trawl	Natural	Marine Origin	Gorgonian Sea Fan (dead)	N

Collection Method	DebrisOrigin	DebrisCategory	DebrisType	Comment Required
Trawl	Natural	Marine Origin	Kelp Holdfast	N
Trawl	Natural	Marine Origin	Kelp Stipe/Blade	N
Trawl	Natural	Marine Origin	Rock	N
Trawl	Natural	Marine Origin	Seagrass	N
Trawl	Natural	Marine Origin	Other Marine (comment req)	Y
Trawl	Natural	Terrestrial Vegetation	Leaves/Seed Pod	N
Trawl	Natural	Terrestrial Vegetation	Stick/Branch/Driftwood	N
Trawl	Natural	Terrestrial Vegetation	Other Terrest. (comment req)	Y
Trawl	None	No Debris Present in Sample	No Debris Present	Y

lu_NaturalDebrisCount

Code	Description
L	Low:2-10 items
M	Moderate: 11-100 items
H	High: >100 items

lu_FishAnomalies

Anomaly
Ambicoloration
Albinism
Deformity (Skeletal)
Fin Erosion
Leeches (Hirudinida)
Lesion
Monogeneans
None
None Examined
Other (requires a comment)
Parasite (Eye)
Parasite (Other)
Tumor

lu_InvertAnomalies

Anomaly
Burnspot disease
None
Other (requires a comment)
Parasite
Wasting disease

lu_MissingValueCodes

Missing Values	DataType
01/Jan/SampleYear (i.e. 01/Jan/2023)	Date
-88	Time
-88	Numerical
NR	Text

lu_ PTSensorCategory

SensorCategory
Surface
Descent
Bottom
Retrieval
Not Recorded

lu_ PTSensorBoatCategory

SurveyLevel
Surface
Descent
Bottom
Retrieval
Not Recorded

lu_CTDMethodCodes

Method	Description
RAM	Data recorded in RAM of device
REAL TIME	Data recorded on a computer

lu_ShellHashCategories

Code	Category
None	No shell hash present
Low	Low quantities (1-25%)
Medium	Medium quantities (26-50%)
High	High quantities (>51 %)

CHEMISTRY LOOKUP LISTS

The most recent versions of the lookup lists can be found online:

{PLACE HOLDER}

lu_ChemistryLab

Agency
City of Los Angeles Environmental Monitoring Division
City of San Diego
Los Angeles County Sanitation Districts
Eurofins Calscience
Frontier Analytical Laboratory
Marine Pollution Studies Lab
NOAA Charleston
NOAA TDI
PHYSIS Environmental Lab
SGS-AXYS
Orange County Sanitation Districts
Southern California Coastal Water Research Project
Weck Labs

lu_ChemistryPreparationMethodCode

PrepCode	PreparationMethod
Chl a-90% Acetone	90% Acetone Extract for chlorophyll a and phaeopigment
ASE	Accelerated Solvent Extraction
Conventional Oven	Conventional Oven
EPA160.3	EPA method for preserved total solids
EPA245.5	Mercury in Sediment (Cold Vapor with Permanganate Digestion)
EPA245.7	Mercury in water by cold-vapor atomic fluorescence spectrometry
EPA1633	Draft method for PFAS in Aqueous, Solid, Biosolids, and Tissue Samples by LC-MS/MS
EPA3050A	Acid Digestion of Sediments**,** Sludges, and Soils
EPA3050B	Acid Digestion of Sediments**,** Sludges, and Soils
EPA3051	Microwave Assisted Acid Digestion of Sediments**,** Sludges, and Soils
EPA3052	Microwave Assisted Acid Digestion of Siliceous and Organically Based Matrices
EPA3540C	Soxhlet Extraction
EPA3550C	Ultrasonic Extraction
EPA6020m	Modification of Metals by ICP-MS
EPA625m	Modification of Semivolatile Organic Compounds by Isotope Dilution GC/MS
EPA8270Cm	Modification of Semivolatile Organic Compounds by GC/MS
MASE	Microwave Assisted Solvent Extraction
MgNO3	Magnesium Nitrate
QuEChERS	QuEChERS-based solid phase extraction
NA	No Applicable Prepcode

NR	Missing data
PSEP86	Sediment Grain Size

lu_ChemistryMatrices

Matrix
sediment
tissue
labwater

lu_ChemistryAnalytes

Analytes
1,6,7-Trimethylnaphthalene
1-Methylnaphthalene
1-Methylphenanthrene
2,4'-DDD
2,4'-DDE
2,4'-DDT
2,6-Dimethylnaphthalene
2-Methylnaphthalene
4,4'-DDD
4,4'-DDE
4,4'-DDMU
4,4'-DDT
6PPD-quinone
Acenaphthene
Acenaphthylene
Acetamiprid
alpha-Chlordane
Aluminum
Anthracene
Antimony
Arsenic
Barium
Benz[a]anthracene
Benzo(a)pyrene
Benzo(b)fluoranthene
Benzo(e)pyrene
Benzo(g,h,i)perylene
Benzo(k)fluoranthene
Beryllium

Bifenthrin
Biphenyl
Cadmium
Chromium
Chrysene
cis-nonachlor
Clothianidin
Copper
Cyfluthrin
Cyhalothrin, lambda
Cypermethrin
Deltamethrin
Dibenz(a,h)anthracene
Esfenvalerate
Fipronil
Fipronil Desulfinyl
Fipronil Sulfide
Fipronil Sulfone
Fluoranthene
Fluorene
gamma-Chlordane
Imidacloprid
Indeno(1,2,3-cd)pyrene
Iron
Lead
Lipid
Mercury
Moisture
Naphthalene
Nickel
Oxychlordane
PBDE-017
PBDE-028
PBDE-047
PBDE-049
PBDE-066
PBDE-085
PBDE-099
PBDE-100

PBDE-138
PBDE-153
PBDE-154
PBDE-183
PBDE-190
PCB-008
PCB-018
PCB-028
PCB-037
PCB-044
PCB-049
PCB-052
PCB-066
PCB-070
PCB-074
PCB-077
PCB-081
PCB-087
PCB-099
PCB-101
PCB-105
PCB-110
PCB-114
PCB-118
PCB-119
PCB-123
PCB-126
PCB-128
PCB-138
PCB-149
PCB-151
PCB-153
PCB-156
PCB-157
PCB-158
PCB-167
PCB-168
PCB-169
PCB-170

PCB-177
PCB-180
PCB-183
PCB-187
PCB-189
PCB-194
PCB-195
PCB-201
PCB-206
Permethrin, cis
Permethrin, trans
Perylene
PFOA
PFOS
Phenanthrene
Pyrene
Selenium
Silver
Thiamethoxam
TN
TOC
trans-nonachlor
Zinc

lu_ChemistryMethodCodes

MethodCode	Method
CF Nutrient Analyzer	Continuous Flow Nutrient Analyzer
CHN	CHN Elemental Analyzer
Conductivity Meter	Conductivity Meter
CVAA	Cold Vapor Atomic Absorption Spectrometry
CVAF	Cold Vapor Atomic Fluorescence
EPA160.2	Total Suspended Solids
EPA160.3	Total Residue by Drying Oven
EPA200.7	Metals and Trace Elements by Inductively Coupled Plasma-Atomic Emission Spectrometry
EPA200.8	Metals and Trace Elements by Inductively Coupled Plasma-Mass Spectrometry
EPA206.2	Arsenic by Graphite Furnace Atomic Absorption Spectrometry
EPA245.5	Mercury in Sediment by Cold Vapor Atomic Absorption Spectrometry

EPA245.7m	Mercury in Water by Cold Vapor Atomic Fluorescence Spectrometry
EPA270.2	Selenium by Graphite Furnace Atomic Absorption Spectrometry
EPA1633	Draft method for PFAS in Aqueous, Solid, Biosolids, and Tissue Samples by LC-MS/MS
EPA6020m	Metals and Trace Elements by Inductively Coupled Plasma-Mass Spectrometry
EPA8270Cm	Semi-volatile Organic compounds by Gas Chromatography/Mass Spectrometry
FAA	Flame Atomic Absorption Spectrometry
FIAS	Flow Injection Analysis System
FIMS	Flow Injection Mercury System
Chl a-FLUORO	Fluorometric analysis method for chlorophyll a and phaeopigment
GCECD	Gas Chromatography/Electron Capture Detector
GCMS	Gas Chromatography/Mass Spectrometry
GFAA	Graphite Furnace Atomic Absorption Spectrometry
Grain Size- light-scattering	Sediment Grain Size light-scattering Analysis
Grain Size-Sieve	Sediment Grain Size Sieve Analysis
HAA	Hydride Atomic Absorption Analysis
ICPAES	Metals and Trace Elements by Inductively Coupled Plasma-Atomic Emission Spectrometry
ICPMS	Metals and Trace Elements by Inductively Coupled Plasma- Mass Spectrometry
ICPOES	Metals and Trace Elements by Inductively Coupled Plasma- Optical Emission Spectrometry
IONGCMS	Ion Trap Gas Chromatography/Mass Spectrometry
LCMSMS	liquid chromatography coupled with tandem mass spectrometry (LC–MS/MS)
HPLCMSMS	High performance liquid chromatography coupled with tandem mass spectrometry (HPLC–MS/MS)
MARPCN I	High temperature combustion method
Gravimetric	Gravimetric
NA	Not analyzed
NR	Missing data
608-PCB	PCB Congeners Consistent with NPDES method 608
PSEP86	Sediment Grain Size
SW6010	Metals and Trace Elements by Inductively Coupled Plasma-Atomic Emission Spectrometry
EPA7473	Mercury in Solids and Solutions by Thermal Decomposition, Amalgamation, and Atomic Absorption Spectrophotometry

SW846 7471	Mercury analysis for sediments and tissues

lu_ChemistryQualifier

Qualifier
greater than or equal to
less than or equal to
equal to
below method detection limit
below reporting limit
Contaminated
Estimated
not analyzed
result with blank contamination
None
analyst error
Interference

lu_ChemistryQACode

Qacode
No concentration sample container broken
Sample container broken but analyzed
Insufficient sample to perform the analysis
Sample stored at improper temperature
Sample received at improper temperature
Analyte concentration is in excess of the instrument calibration; considered estimated
QA results outside of acceptance limits due to matrix effects
Reporting limits elevated due to matrix interferences
reporting limits elevated due to sample dilution
Coelution
Exceeds reference control limits
Analyte present in the instrument blank
Matrix spike recovery not within control limits
CRM analyte recovery not within control limits
Surrogate recovery is outside of control limits
Internal standard recovery is outside method recovery limit
RSD exceeds control limit
Analyte positively identified but quantitation is an estimate
None
Calibration verification outside control limits

Matrix spike done with the actual sediment sample as the matrix for spiking

lu_ChemistrySizeFraction

Fraction
<0.0039 mm
<0.005 mm
<0.0625 mm
<0.075 mm
0.0039 to <0.0625 mm
0.005 to <0.075 mm
0.0625 to <2.0 mm
0.075 to <4.75 mm
2.0 to <4.0 mm
2.0 to <64 mm
4 to <64 mm
4.75 to <75 mm
64 to <256 mm
75 to <300 mm
=>256 mm
=>300 mm

lu_ChemistrySampleType

sampletype
Reference - ERA 540 Sed
Reference – SRM 1974c tissue
Equipment blank
Field blank
Lab blank
Matrix spike
QA value
Result
Reference – 1941b sed Reference - 1944 sed Reference- 2976 tissue

lu_ChemistryUnits

unit	notes
ug/g dw	For sediment
ug/g ww	For tissue
ug/kg dw	For sediment
ug/kg ww	For tissue

ug/L	For aqueous matrices
ng/g dw	For sediment
ng/g ww	For tissue
% by weight	For Lipid, Moisture, TOC

TOXICITY LOOKUP LISTS

The most recent versions of the lookup lists can be found online:

{PLACE HOLDER}

lu_ToxicityAgencies

AgencyDescription
AMEC, Foster, & Wheeler / WOOD
Aquatic Bioassay and Consulting Laboratories
City of Los Angeles Environmental Monitoring Division
City of San Diego
EcoAnalysts Inc
Granite Canyon Marine Pollution Studies Lab
Los Angeles County Department of Beaches and Harbors
Los Angeles County Dept. of Health Services
Los Angeles County Regional Water Quality Control Board
Los Angeles County Sanitation Districts
Marine Biological Consulting
Orange County Environmental Health Division
Orange County Public Facilities and Resources
Orange County Sanitation Districts
Pacific EcoRisk
Port of Los Angeles
Port of San Diego
San Diego County Department of Environmental Health
San Diego Regional Water Quality Control Board
San Elijo Joint Powers Authority
Santa Ana Regional Water Quality Control Board
Southern California Coastal Water Research Project
Space and Naval Warfare Systems Command
United States Geological Survey
Weston Solutions
Nautilus Environmental
NOAA
Northwest Aquatic Sciences

lu_ToxicityQualifierCodes

Qualifier	Description
<	less than
<=	less than or equal to
>	greater than
>=	greater than or equal to
AE	Analyst Error
CT	Contaminated
E	Estimated
I	Interference
None	None
NA	Not Analyzed
ND	Not Detected
NS	Not Sampled
P	Present, not counted
NM	Not Measured

lu_SQOCategories

Description
Nontoxic
Low Toxicity
Moderate Toxicity
High Toxicity

lu_ToxicityResultsMatrices

MatrixName	MatrixDescription
Whole Sediment	bulk sediment (whole sediment)
Sediment, interstitialwater	Water occupying the spaces between sediment particles-same as pore water
overlayingwater	The water above the sediment surface within a test container
referencetoxicant	Individual chemicals used to evaluate the health and sensitivity of test organisms over time and assessing laboratory performance
Sediment Water Interface	Toxicity sample just above the sediment

lu_ToxicityUnits

Units	Description	AssociatedTable
percentage	Percent	Chemistry / Toxicity
MG/L	Milligrams per liter	Chemistry / Toxicity / Water Quality
CM	Centimeters	Grab Event
MM	Millimeters	Infauna
C	Degrees Centigrade	Micro
M	Meters	Sediment Grab Event,
Hours	The number of hours	Toxicity
pH	Log of hydrogen ion concentration	Toxicity

Units	Description	AssociatedTable
Days	The number of days	Toxicity Batch
PSU	Practical Salinity Units	WQCast, StationOccupation
UG/L	micrograms per liter	All
Not Recorded	Not Recorded	Toxicity

lu_ToxicityMissingValueCodes

DataType	Code
Date	01/Jan/SampleYear (i.e. 01/Jan/2013)
Time	-88
Numerical	-88
Text	Not Recorded

lu_ToxicitySpecies

SpeciesName
Eohaustorius estuarius
Strongylocentrotus purpuratus
Mytilus galloprovincialis

lu_ToxicityProtocols

ProtocolCode	ProtocolDescription
ASTM 1853	ASTM. 1997. E 1853-96
EPA 1994	EPA amphipod test method (EPA/600/R-94/025)
ANDERSON1996	For Sediment Water Interface
EPA2007	For Sediment TIEs
EPA 1995	EPA Purple Sea Urchin Methods ((EPA/600/R-95/136)

lu_ToxicityMatrices

MatrixDescription
Whole Sediment
Dilution Water
Elutriate
Extract
Interstitial Water
Overlaying Water
Reference Toxicant
Sediment Water Interface

lu_ToxicityEndPoints

EndPoint	Applicable Species
Percent Normal	Sea urchin embryo
4 day survival percent	Amphipod reference toxicant
10 day survival percent	Amphiod sediment exposure

EndPoint	Applicable Species
Percent normal-alive	Sediment water interface (Mytilus)

lu_ToxicityWaterQualityParameters

Parameter	Units
Conductivity	uS/cm
Dissolved Oxygen	mg/L
Total Ammonia	mg/L
Unionized Ammonia	mg/L
pH	pH
Salinity	g/L
Temperature	C

lu_ToxicityTestAcceptabilityCodes

AcceptCode	CodeDescription
A	Acceptable data for analysis
C	Reduced number of replicates
D	Control performance criteria not met
E	Sample stored > 14 days
G	Reference test missing or outside limits
H	Water quality data incomplete
J	Minor deviation in test conditions
K	Incoming sample temperature exceeds limits
Q	Control did not meet replicate acceptability criterion (>or=80% in any one rep)
O	Outlier
X	Excluded

lu_ToxicitySampleTypes

SampleTypeCode	SampleTypeDescription
CNEG	Clean water or sediment free of contaminants or test material used to determine test acceptability and as a baseline for gauging adverse effects among animals exposed to treatments.
Grab	Single sample
RFNH3	Ammonia reference toxicant
QA	Quality control sample, such as grain size control or split samples.