No	Metadata element name	Your input	Help reference no.
1	Submission Date		1
2	Accession no. of related data sets		2
3	Investigator-1 name	Rusty Brainard	3.1
4	Investigator-1 institution	NMFS/PIFSC/ESD	3.2
5	Investigator-1 address	1845 Wasp Blvd, Honolulu, HI 96818	3.3
6	Investigator-1 phone	(808) 725-5419	3.4
7	Investigator-1 email	Rusty.Brainard@noaa.gov	3.5
8	Investigator-1 researcher ID		3.6
9	Investigator-1 ID type (ORCID, Researcher ID, etc.)		3.7
10	Investigator-2 name	Thomas Oliver	3.1
11	Investigator-2 institution	NMFS/PIFSC/ESD	3.2
12	Investigator-2 address	1845 Wasp Blvd, Honolulu, HI 96818	3.3
13	Investigator-2 phone	(808) 725-5444	3.4
14	Investigator-2 email	Thomas.Oliver@noaa.gov	3.5
15	Investigator-2 researcher ID		3.6
16	Investigator-2 ID type (ORCID, Researcher ID, etc.)		3.7
17	Investigator-3 name	Charles Young	3.1
18	Investigator-3 institution	NMFS/PIFSC/ESD	3.2
19	Investigator-3 address	1845 Wasp Blvd, Honolulu, HI 96818	3.3
20	Investigator-3 phone	(808) 725-5408	3.4
21	Investigator-3 email	Charles.Young@noaa.gov	3.5
22	Investigator-3 researcher ID		3.6
23	Investigator-3 ID type (ORCID, Researcher ID, etc.)		3.7
24	Data submitter name	Kevin L Trick	4.1
25	Data submitter institution	National Marine Fisheries Service/Pacific Island Fisheries Science Center/Ecosystem Sciences Division	4.2
26	Data submitter address	1845 Wasp Blvd, Honolulu, HI 96818	4.3
27	Data submitter phone	808-725-5421	4.4
28	Data submitter email	Kevin.Trick@NOAA.gov	4.5
29	Data submitter researcher ID		4.6
30	Data submitter ID type (ORCID, Researcher ID, etc.)		4.7
31	Title	National Coral Reef Monitoring Program - Ocean Acidification Enterprise_Class 0 and II	5
32	Abstract	This project monitors changes to coral reef carbonate chemistry over time, at US affiliated coral reef sites, through quantifying key chemical parameters that are expected to be impacted by ocean acidification. This effort addresses OAP programmatic themes 1 and 5 by maintaining the coral reef portion of the OA monitoring network and developing a procedure for data synthesis, assimilation, and distribution. Incorporating an interdisciplinary approach, this project will collect, process, analyze, and steward dissolved inorganic carbon (DIC) and total alkalinity (TA) water sample data to document seawater carbonate chemistry at Class 0, II, III climate monitoring sites in coral reef areas of the US Atlantic and Pacific regions..	6
33	Purpose	Provide high-quality carbonate chemistry data (dissolved inorganic carbonand total alkalinity) for US coral reef areas at a several spatial and temporal scales, in close partnership with the larger CRCP NCRMP and OAP/PMEL NOA-ON efforts.	7
34	Start date	7/14/2016	8.1
35	End date	9/27/2016	8.2
36	Westbd longitude	-178.3891327	9.1
37	Eastbd longitude	-154.8055483	9.2
38	Northbd latitude	28.5069935	9.3
39	Southbd latitude	19.05712229	9.4
40	Spatial reference system		10
41	Geographic names	Pacific Ocean, Hawaiian Archapelago	11

42	**Location of organism collection**	n/a	12
43	**Funding agency name**	NOAA's Ocean Acidification Program	13.1
44	**Funding project title**	National Coral Reef Monitoring Program - Ocean Acidification Enterprise	13.2
45	**Funding project ID (Grant no.)**		13.3
46	**Research projects**		14
47	**Platform-1 name**		15.1
48	**Platform-1 ID**		15.2
49	**Platform-1 type**		15.3
50	**Platform-1 owner**		15.4
51	**Platform-1 country**		15.5
62	**EXPOCODE**		16
63	**Cruise ID**		17
64	**Section**		18
65	**Author list for citation**	Oliver TA, Barkely H, Young C, Pomeroy N, Halperin A	19
66	**References**		20
67	**Supplemental information**		21
68	**DIC: Variable abbreviation in data files**	DIC	22.1
69	**DIC: Observation type**	discrete water sample	22.2
70	**DIC: In-situ observation / manipulation condition / response variable (SPECIAL USE ONLY)**	in-situ observation	22.3
71	**DIC: Manipulation method (SPECIAL USE ONLY) (SPECIAL USE ONLY)**	Not applicable	22.4
72	**DIC: Variable unit**	micromoles/kg	22.5
73	**DIC: Measured or calculated**	Measured	22.6
74	**DIC: Calculation method and parameters**	none	22.7
75	**DIC: Sampling instrument**	Niskin bottle - transferred to Borosilicate bottle	22.8
76	**DIC: Analyzing instrument**	SOMMA (Single Operator Multiparameter Metabolic Analyzer) systems, PMEL1 and PMEL2, each utilizing a 5011 coulometer (UIC, Inc.). The SOMMA systems were originally developed by Ken Johnson (Johnson et al., 1985,1987,1993; Johnson, 1992; Wilke et al., 1993) of Brookhaven National Laboratory (BNL).	22.9
77	**DIC: Detailed sampling and analyzing information**	Analyses conducted at PMEL. Measurements drawn according to procedures in the Guide to best practices for ocean CO2 measurements (Dickson et al., 2007). Borosilicate bottle were rinsed and filled from bottom, leaving a minimal amount of headspace while making sure no bubbles were introduced. Then 0.2 ml of saturated HgCl2 solution was added, bottles were sealed with glass stoppers lightly covered with Apiezon-L grease, and were stored at room temperature to be sent to PMEL for analysis.	22.10
78	**DIC: Field replicate information**	duplicate samples analyzed	22.11
79	**DIC: Standardization technique description**	Each coulometer was calibrated by injecting aliquots of pure CO2 (99.999%) by means of an 8-port valve (Wilke et al. 1993) outfitted with two calibrated sample loops of different sizes (~1 mL and ~2 mL). The instruments were each separately calibrated at the beginning of each cell with a minimum of two sets of these gas loop injections.	22.12.1
80	**DIC: Frequency of standardization**	1) Gas loops were run near the beginning of each cell; 2) CRM's supplied by Dr. A. Dickson of SIO, were also measured near the beginning; and 3) Duplicate samples were typically run throughout the life of the cell solution.	22.12.2
81	**DIC: CRM manufacturer**	Andrew Dickson's lab at Scripps Institute of Oceanography	22.12.3.1
82	**DIC: Batch number**	154	22.12.3.2
83	**DIC: Poison used to kill the sample**	saturated Mercury Chloride (HgCl2)	22.13.1
84	**DIC: Poison volume**	200um	22.13.2
85	**DIC Poisoning correction description**	The DIC values were corrected for dilution by 0.2 ml of saturated HgCl2 used for sample preservation. The total water volume of the sample bottles was 540 ml. The correction factor used for dilution was 1.0003705.	22.13.3
86	**DIC: Uncertainty**	±0.1%	22.14
87	**DIC: Data quality flag description**		22.15
88	**DIC: Method reference (citation)**	Dickson, A.G., Sabine, C.L. and Christian, J.R. (Eds.) 2007. Guide to best practices for ocean CO2 measurements. PICES Special Publication 3, 191 pp.	22.16

89	DIC: Researcher Name	Dana Greeley, Julian Herndon, and Morgan Ostendorf (contact PI Simone Alin for all inquiries)	22.17.1
90	DIC: Researcher Institution	Pacific Marine Environmental Laboratory, National Oceanic and Atmospheric Administration; and Joint Institute for the Study of the Atmosphere and Ocean, University of Washington	22.17.2
91	TA: Variable abbreviation in data files	TA	23.1
92	TA: Observation type	discrete water sample	23.2
93	TA: In-situ observation / manipulation condition / response variable (SPECIAL USE ONLY)	in-situ observation	23.3
94	TA: Manipulation method (SPECIAL USE ONLY)	none	23.4
95	TA: Variable unit	micromoles/kg	23.5
96	TA: Measured or calculated	Measured	23.6
97	TA: Calculation method and parameters	none	23.7
98	TA: Sampling instrument	Niskin bottle - transferred to Borosilicate bottle	23.8
99	TA: Analyzing instrument	Custom instrument built in Dr. Andrew Dickson's lab at Scripps-UCSD in 2016.	23.9
100	TA: Type of titration	Two-stage, potentiometric, open-cell titration using coulometrically analyzed hydrochloric acid.	23.10
101	TA: Cell type (open or closed)	Open	23.11
102	TA: Curve fitting method	Non-linear least squares	23.12
103	TA: Detailed sampling and analyzing information	Analyses conducted at PMEL. Samples run using remaining water from the same sample bottles used for DIC. Refer to DIC for more information on sampling and conservation of samples. Water samples were titrated with HCl solution provided by Dr. Andrew Dickson of UCSD (0.25175 moles per kilogram-solution).	23.13
104	TA: Field replicate information	500-ml sets of duplicate samples	23.14
105	TA: Standardization technique description	Duplicate samples are run in addition to Certified Reference Material (CRM), supplied by Dr. A. Dickson of UCSD	23.15.1
106	TA: Frequency of standardization	Along with duplicate samples being run throughout, CRMs are run at the beginning and end of each sampling period	23.15.2
107	TA: CRM manufacturer	Andrew Dickson's lab at Scripps Institute of Oceanography	23.15.3.1
108	TA: Batch Number	154	23.15.3.2
109	TA: Poison used to kill the sample	saturated Mercury Chloride (HgCl2)	23.16.1
110	TA: Poison volume	200um	23.16.2
111	TA: Poisoning correction description	The TA values were corrected for the resulting dilution of the added 0.2 ml of saturated HgCl2 used for sample preservation.	23.16.3
112	TA: Magnitude of blank correction	NA	23.17
113	TA: Uncertainty	±0.1%	23.18
114	TA: Data quality flag description		23.19
115	TA: Method reference (citation)	Used spectrometric method from Dickson, A.G., Sabine, C.L. and Christian, J.R. (Eds.) 2007. Guide to best practices for ocean CO2 measurements. PICES Special Publication 3, 191 pp.	23.20
116	TA: Researcher Name	Dana Greeley, Julian Herndon, and Morgan Ostendorf (contact PI Simone Alin for all inquiries)	23.21.1
117	TA: Researcher Institution	Pacific Marine Environmental Laboratory, National Oceanic and Atmospheric Administration; and Joint Institute for the Study of the Atmosphere and Ocean, University of Washington	23.21.2
118	pH: Variable abbreviation in data files	pH	24.1
119	pH: Observation type		24.2
120	pH: In-situ observation / manipulation condition / response variable (SPECIAL USE ONLY)	in-situ observation	24.3
121	pH: Manipulation method (SPECIAL USE ONLY)	none	24.4
122	pH: Measured or calculated	calculated	24.5
123	pH: Calculation method and parameters	R package - seacarb. DIC, TA, T, S, P	24.6
124	pH: Sampling instrument	NA	24.7
125	pH: Analyzing instrument	NA	24.8
126	pH: pH scale	Total	24.9
127	pH: Temperature of measurement	in-situ observation	24.10

128	pH: Detailed sampling and analyzing information	Refer to DIC for more information on sampling and conservation of samples.	24.11
129	pH: Field replicate information	500-ml sets of duplicate samples	24.12
130	pH: Standardization technique description	NA - calculated	24.13.1
131	pH: Frequency of standardization	NA - calculated	24.13.2
132	pH: pH values of the standards	NA - calculated	24.13.3
133	pH: Temperature of standardization	NA - calculated	24.13.4
134	pH: Temperature correction method	NA - calculated	24.14
135	pH: at what temperature was pH reported	in-situ temperature	24.15
136	pH: Uncertainty		24.16
137	pH: Data quality flag description		24.17
138	pH: Method reference (citation)	Refer to DIC for more information on sampling and conservation of samples.	24.18
139	pH: Researcher Name	Thomas Oliver	24.19.1
140	pH: Researcher Institution	Pacific Island Fisheries Science Center, National Oceanic and Atmospheric Administration	24.19.2
141	pCO2A: Variable abbreviation in data files	pCO2	25.1
142	pCO2A: Observation type	discrete water sample	25.2
143	pCO2A: In-situ observation / manipulation condition / response variable (SPECIAL USE ONLY)	in-situ observation	25.3
144	pCO2A: Manipulation method (SPECIAL USE ONLY)	none	25.4
145	pCO2A: Variable unit		25.5
146	pCO2A: Measured or calculated	calculated	25.6
147	pCO2A: Calculation method and parameters	R package - seacarb. DIC, TA, T, S, P	25.7
148	pCO2A: Sampling instrument		25.8
149	pCO2A: Location of seawater intake		25.9
150	pCO2A: Depth of seawater intake		25.10
151	pCO2A: Analyzing instrument		25.11
152	pCO2A: Detailed sampling and analyzing information		25.12
153	pCO2A: Equilbrator type		25.13.1
154	pCO2A: Equilibrator volume (L)		25.13.2
155	pCO2A: Vented or not		25.13.3
156	pCO2A: Water flow rate (L/min)		25.13.4
157	pCO2A: Headspace gas flow rate (L/min)		25.13.5
158	pCO2A: How was temperature inside the equilibrator measured .		25.13.6
159	pCO2A: How was pressure inside the equilibrator measured.		25.13.7
160	pCO2A: Drying method for CO2 gas		25.14
161	pCO2A: Manufacturer of the gas detector		25.15.1
162	pCO2A: Model of the gas detector		25.15.2
163	pCO2A: Resolution of the gas detector		25.15.3
164	pCO2A: Uncertainty of the gas detector		25.15.4
165	pCO2A: Standardization technique description		25.16.1
166	pCO2A: Frequency of standardization		25.16.2
167	pCO2A: Manufacturer of standard gas		25.16.3.1
168	pCO2A: Concentrations of standard gas		25.16.3.2
169	pCO2A: Uncertainties of standard gas		25.16.3.3
170	pCO2A: Water vapor correction method		25.17
171	pCO2A: Temperature correction method		25.18
172	pCO2A: at what temperature was pCO2 reported		25.19
173	pCO2A: Uncertainty		25.20
174	pCO2A: Data quality flag description		25.21
175	pCO2A: Method reference (citation)	Refer to DIC for more information on sampling and conservation of samples.	25.22
176	pCO2A: Researcher Name	Thomas Oliver	25.23.1
177	pCO2A: Researcher Institution	Pacific Island Fisheries Science Center, National Oceanic and Atmospheric Administration	25.23.2
178	pCO2D: Variable abbreviation in data files		26.1

179	**pCO2D: Observation type**		26.2
180	**pCO2D: In-situ observation / manipulation condition / response variable (SPECIAL USE ONLY)**		26.3
181	**pCO2D: Manipulation method (SPECIAL USE ONLY)**		26.4
182	**pCO2D: Variable unit**		26.5
183	**pCO2D: Measured or calculated**		26.6
184	**pCO2D: Calculation method and parameters**		26.7
185	**pCO2D: Sampling instrument**		26.8
186	**pCO2D: Analyzing instrument**		26.9
187	**pCO2D: Storage method**		26.10
188	**pCO2D: Seawater volume (mL)**		26.11
189	**pCO2D: Headspace volume (mL)**		26.12
190	**pCO2D: Temperature of measurement**		26.13
191	**pCO2D: Detailed sampling and analyzing information**		26.14
192	**pCO2D: Field replicate information**		26.15
193	**pCO2D: Manufacturer of the gas detector**		26.16.1
194	**pCO2D: Model of the gas detector**		26.16.2
195	**pCO2D: Resolution of the gas detector**		26.16.3
196	**pCO2D: Uncertainty of the gas detector**		26.16.4
197	**pCO2D: Standardization technique description**		26.17.1
198	**pCO2D: Frequency of standardization**		26.17.2
199	**pCO2D: Temperature of standardization**		26.17.3
200	**pCO2D: Manufacturer of standard gas**		26.17.4.1
201	**pCO2D: Concentrations of standard gas**		26.17.4.2
202	**pCO2D: Uncertainties of standard gas**		26.17.4.3
203	**pCO2D: Water vapor correction method**		26.18
204	**pCO2D: Temperature correction method**		26.19
205	**pCO2D: at what temperature was pCO2 reported**		26.20
206	**pCO2D: Uncertainty**		26.21
207	**pCO2D: Data quality flag description**		26.22
208	**pCO2D: Method reference (citation)**		26.23
209	**pCO2D: Researcher Name**		26.24.1
210	**pCO2D: Researcher Institution**		26.24.2
211	**Var1: Variable abbreviation in data files**	Temperature_C	27.1
212	**Var1: Full variable name**	Temperature measured during sample collection in degrees Celsius	27.2
213	**Var1: Observation type**	CTD Profile	27.4
214	**Var1: In-situ observation / manipulation condition / response variable (SPECIAL USE ONLY)**	in-situ observation	27.5
215	**Var1: Variable unit**	oC	27.7
216	**Var1: Measured or calculated**	measured	27.8
217	**Var1: Calculation method and parameters**		27.9
218	**Var1: Sampling instrument**	NA	27.10
219	**Var1: Analyzing instrument**	Seabird 19+	27.11
220	**Var1: Duration (for settlement/colonization methods) (SPECIAL USE ONLY)**	one-time measurement	27.12
221	**Var1: Detailed sampling and analyzing information**		27.13
222	**Var1: Field replicate information**		27.14
223	**Var1: Uncertainty**		27.15
224	**Var1: Data quality flag description**		27.16
225	**Var1: Method reference (citation)**		27.17
226	**Var1: Biological subject (SPECIAL USE ONLY)**		27.18
227	**Var1: Species Identification code (SPECIAL USE ONLY)**		27.19

228	Var1: Life stage of the Biological subject (SPECIAL USE ONLY)		27.20
229	Var1: Researcher Name	Thomas Oliver	27.21.1
230	Var1: Researcher Institution	Pacific Island Fisheries Science Center, National Oceanic and Atmospheric Administration	27.21.2
231	Var2: Variable abbreviation in data files	Salinity_CTD	27.1
232	Var2: Full variable name	Salinity measured during sample collection in psu	27.2
233	Var2: Observation type	CTD Profile	27.4
234	Var2: In-situ observation / manipulation condition / response variable (SPECIAL USE ONLY)		27.5
235	Var2: Variable unit	psu	27.7
236	Var2: Measured or calculated	calculated from conductivity and temperature	27.8
237	Var2: Calculation method and parameters		27.9
238	Var2: Sampling instrument		27.10
239	Var2: Analyzing instrument	Seabird 19+	27.11
240	Var2: Duration (for settlement/colonization methods) (SPECIAL USE ONLY)	one-time measurement	27.12
241	Var2: Detailed sampling and analyzing information		27.13
242	Var2: Field replicate information		27.14
243	Var2: Uncertainty		27.15
244	Var2: Data quality flag description		27.16
245	Var2: Method reference (citation)		27.17
246	Var2: Biological subject (SPECIAL USE ONLY)		27.18
247	Var2: Species Identification code (SPECIAL USE ONLY)		27.19
248	Var2: Life stage of the Biological subject (SPECIAL USE ONLY)		27.20
249	Var2: Researcher Name	Thomas Oliver	27.21.1
250	Var2: Researcher Institution	Pacific Island Fisheries Science Center, National Oceanic and Atmospheric Administration	27.21.2
251	Var3: Variable abbreviation in data files	Density_Sigmat	27.1
252	Var3: Full variable name	Calculated Density based on the Temperature and Salinity measured during sample collection	27.2
253	Var3: Observation type		27.4
254	Var3: In-situ observation / manipulation condition / response variable (SPECIAL USE ONLY)	in-situ observation	27.5
255	Var3: Variable unit	kg/m3	27.7
256	Var3: Measured or calculated	calculated	27.8
257	Var3: Calculation method and parameters	calculated from temperature	27.9
258	Var3: Sampling instrument		27.10
259	Var3: Analyzing instrument	Seabird 19+	27.11
260	Var3: Duration (for settlement/colonization methods) (SPECIAL USE ONLY)	one-time measurement	27.12
261	Var3: Detailed sampling and analyzing information		27.13
262	Var3: Field replicate information		27.14
263	Var3: Uncertainty		27.15
264	Var3: Data quality flag description		27.16
265	Var3: Method reference (citation)		27.17
266	Var3: Biological subject (SPECIAL USE ONLY)		27.18
267	Var3: Species Identification code (SPECIAL USE ONLY)		27.19
268	Var3: Life stage of the Biological subject (SPECIAL USE ONLY)		27.20
269	Var3: Researcher Name	Thomas Oliver	27.21.1
270	Var3: Researcher Institution	Pacific Island Fisheries Science Center, National Oceanic and Atmospheric Administration	27.21.2
271	Var4: Variable abbreviation in data files	Pressure_db	27.1
272	Var4: Full variable name	Pressure measured during sample collection in decibars	27.2
273	Var4: Observation type	CTD Profile	27.4

274	Var4: In-situ observation / manipulation condition / response variable (SPECIAL USE ONLY)	in-situ observation	27.5
275	Var4: Variable unit	db	27.7
276	Var4: Measured or calculated	measured	27.8
277	Var4: Calculation method and parameters		27.9
278	Var4: Sampling instrument	NA	27.10
279	Var4: Analyzing instrument	Seabird 19+	27.11
280	Var4: Duration (for settlement/colonization methods) (SPECIAL USE ONLY)	one-time measurement	27.12
281	Var4: Detailed sampling and analyzing information		27.13
282	Var4: Field replicate information		27.14
283	Var4: Uncertainty		27.15
284	Var4: Data quality flag description		27.16
285	Var4: Method reference (citation)		27.17
286	Var4: Biological subject (SPECIAL USE ONLY)		27.18
287	Var4: Species Identification code (SPECIAL USE ONLY)		27.19
288	Var4: Life stage of the Biological subject (SPECIAL USE ONLY)		27.20
289	Var4: Researcher Name	Thomas Oliver	27.21.1
290	Var4: Researcher Institution	Pacific Island Fisheries Science Center, National Oceanic and Atmospheric Administration	27.21.2
291	Var5: Variable abbreviation in data files	Salinity_Bottle	27.1
292	Var5: Full variable name	SALINITY_PSS78	27.2
293	Var5: Observation type		27.4
294	Var5: In-situ observation / manipulation condition / response variable (SPECIAL USE ONLY)		27.5
295	Var5: Variable unit	1978 Practical Salinity Scale	27.7
296	Var5: Measured or calculated	Measured and Calculated - see Detailed Sampling Information	27.8
297	Var5: Calculation method and parameters	Measured values corrected to average offset of CTD and bottle samples	27.9
298	Var5: Sampling instrument	500ml borosilicate glass bottle	27.10
299	Var5: Analyzing instrument	Seabird SBE4, modified to connect with the SOMMA systems PMEL1 and PMEL2.	27.11
300	Var5: Duration (for settlement/colonization methods) (SPECIAL USE ONLY)		27.12
301	Var5: Detailed sampling and analyzing information	These SBE4 salinity values are designed to be used only for the density correction to the SOMMA pipettes. The numbers provided for these 3 samples (flask 42 to 44) were corrected from the measured value by the average offset which was 0.087.	27.13
302	Var5: Field replicate information	None	27.14
303	Var5: Uncertainty	The uncertainty could be as much as plus or minus 0.5. As an example, if one were to increase salinity by 0.5, then the CO2sys calculated pH would drop by ~0.006, pCO2 rises up by 6, ΩAragonite goes down by 0.001.	27.15
304	Var5: Data quality flag description		27.16
305	Var5: Method reference (citation)		27.17
306	Var5: Biological subject (SPECIAL USE ONLY)		27.18
307	Var5: Species Identification code (SPECIAL USE ONLY)		27.19
308	Var5: Life stage of the Biological subject (SPECIAL USE ONLY)		27.20
309	Var5: Researcher Name	Dana Greeley, Julian Herndon, and Morgan Ostendorf (contact PI Simone Alin for all inquiries)	27.21.1
310	Var5: Researcher Institution	Pacific Marine Environmental Laboratory, National Oceanic and Atmospheric Administration; and Joint Institute for the Study of the Atmosphere and Ocean, University of Washington	27.21.2
311	Var6: Variable abbreviation in data files	Aragonite_Sat	27.1
312	Var6: Full variable name	Calculated Aragonite Saturation based on CTD measurements made during sample collection	27.2
313	Var6: Observation type		27.4
314	Var6: In-situ observation / manipulation condition / response variable (SPECIAL USE ONLY)	in-situ observation	27.5

315	**Var6: Variable unit**		27.7
316	**Var6: Measured or calculated**	calculated	27.8
317	**Var6: Calculation method and parameters**	R package - seacarb. DIC, TA, T, S, P	27.9
318	**Var6: Sampling instrument**		27.10
319	**Var6: Analyzing instrument**	Seabird 19+	27.11
320	**Var6: Duration (for settlement/colonization methods) (SPECIAL USE ONLY)**	one-time measurement	27.12
321	**Var6: Detailed sampling and analyzing information**		27.13
322	**Var6: Field replicate information**		27.14
323	**Var6: Uncertainty**		27.15
324	**Var6: Data quality flag description**		27.16
325	**Var6: Method reference (citation)**		27.17
326	**Var6: Biological subject (SPECIAL USE ONLY)**		27.18
327	**Var6: Species Identification code (SPECIAL USE ONLY)**		27.19
328	**Var6: Life stage of the Biological subject (SPECIAL USE ONLY)**		27.20
329	**Var6: Researcher Name**	Thomas Oliver	27.21.1
330	**Var6: Researcher Institution**	Pacific Island Fisheries Science Center, National Oceanic and Atmospheric Administration	27.21.2
331	**Var7: Variable abbreviation in data files**	Conductivity_Sm	27.1
332	**Var7: Full variable name**	Conductivity measured during sample collection in Siemens per meter	27.2
333	**Var7: Observation type**	CTD Profile	27.4
334	**Var7: In-situ observation / manipulation condition / response variable (SPECIAL USE ONLY)**	in-situ observation	27.5
335	**Var7: Variable unit**	Sm	27.7
336	**Var7: Measured or calculated**	measured	27.8
337	**Var7: Calculation method and parameters**		27.9
338	**Var7: Sampling instrument**	NA	27.10
339	**Var7: Analyzing instrument**	Seabird 19+	27.11
340	**Var7: Duration (for settlement/colonization methods) (SPECIAL USE ONLY)**	one-time measurement	27.12
341	**Var7: Detailed sampling and analyzing information**		27.13
342	**Var7: Field replicate information**		27.14
343	**Var7: Uncertainty**		27.15
344	**Var7: Data quality flag description**		27.16
345	**Var7: Method reference (citation)**		27.17
346	**Var7: Biological subject (SPECIAL USE ONLY)**		27.18
347	**Var7: Species Identification code (SPECIAL USE ONLY)**		27.19
348	**Var7: Life stage of the Biological subject (SPECIAL USE ONLY)**		27.20
349	**Var7: Researcher Name**	Thomas Oliver	27.21.1
350	**Var7: Researcher Institution**	Pacific Island Fisheries Science Center, National Oceanic and Atmospheric Administration	27.21.2