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1	QARTOD VARIABLE MATRIX					
2						
3	Core Variable	Date Completed	Initial Update Completed	Second Update Completed	Core Variables Addressed	Other Variables Addressed
4	Dissolved Oxygen	Dec_2012	Apr_2015	Aug_2018	Dissolved Oxygen	
5	In-Situ Currents	Jun_2013	Sep_2015	Jul_2019	Current Speed and Direction	
6	In-Situ Waves	Jun_2013	Jul_2015	Feb_2019	Surface Waves	
7	Temperature and Salinity	Dec_2013	Dec_2015	Feb_2020	Temperature Salinity	
8	Water Level	May_2014	Apr_2016	Projected Mar_2021	Sea Level	
9	Wind Speed and Direction	Oct_2014	May_2017		Wind Speed and Direction	
10	Ocean Optics	Jun_2015	August_2017		CDOM Ocean Color Optical Properties	In-water radiance/irradiance Above-water radiance/irradiance Beam attenuation Turbidity PAR Chlorophyll FDOM Backscattering/volume scattering
11	Dissolved Nutrients	Sep_2015	Feb_2018		Dissolved Nutrients	Nitrogen (NO3, NO2, and NH4) Phosphate Silicate
12	Phytoplankton Species and Abundance	May_2017			Phytoplankton Species and Abundance	
13	Passive Acoustics	Jun_2017			Sound	
14	Stream Flow	Sep_2018			Stream Flow	
15	pH	Aug_2019			Acidity	
16						
17	Other Manuals (not core variables)	Date Completed	Initial Update Completed	Second Update Completed	Core Variables Covered	Notes
18	Data Flags Manual	Jan_2014	May_2017	Jun_2020	N/A	
19	HFR Surface Currents	Apr_2016	Jul_2019		Currents	
20	Glider DAC	May_2016			N/A	
21	Quality Assurance	Nov_2019			N/A	Not a QARTOD Manual but is a peer-reviewed paper in the Frontiers Journal of Marine Science.
22						
23	Remaining Core Variables		Notes			
24	Bathymetry		Manual not feasible			
25	Biological vital rates		Manual not feasible			
26	Bottom character		Manual not feasible			
27	Contaminants		Manual not feasible			
28	Coral species and abundance		Manual not feasible			
29	Fish species and abundance		Manual not feasible			
30	Heat flux		Manual not needed			
31	Ice distribution		Manual not needed			
32	Invertebrate species and abundance		Manual not feasible			
33	Marine mammal species and abundance		Manual not feasible			
34	Microbial species and abundance		Manual not feasible			
35	Nekton diet		Manual not feasible			
36	pCO2		Future manual - Partial Pressure of CO2			
37	Pathogens		Manual not feasible			
38	Sea birds species and abundance		Manual not feasible			
39	Sea turtles species and abundance		Manual not feasible			
40	Submerged aquatic vegetation species and abundance		Manual not feasible			
41	Total suspended matter		Future manual			
42	Zooplankton species and abundance		Manual not feasible			