

The National Operational Wave Observation Plan, 2012 Draft Update

updated December 5, 2012



Note: This Document is the readme tab to an Excel spreadsheet containing the Wave Plan 2012 update which lists active and proposed wave observing locations. If you aren't reading this from within the spreadsheet, you are probably reading it in a pdf file created from the spreadsheet. For the latest information concerning the waves plan update, the spreadsheet, a companion KMZ map file (loads in Google Earth) and a document describing the plan in more detail, please link to <http://www.ioos.gov/waves/>. This information is being provided in order to encourage feedback on the plan as it is being written. Please send comments to wavesplan@noaa.gov.

Background: The National Operational Wave Observation Plan ("Waves Plan") is an effort under the Interagency Ocean Observation Committee (IOOC) and the Integrated Ocean Observing System (IOOS) to coordinate the wave observing activities and products of IOOS. The first Waves Plan was completed and published in 2009 (*Waves Plan 2009*). An update led by the IOOS program office, NDBC, the Navy and the US Army Corps of Engineers started in 2012 (*Waves Plan 2012*) and is a FY15 milestone of the Administration's National Ocean Policy Implementation Plan.

Design Approach: The update to the network is designed to reflect the network changes that have taken place since 2009 and to better recognize the fiscal realities of today. Design features that are different from 2009 include:

- Strategic recommendations for directional sensor upgrades;
- A reassessment of the number, location of, and priority for new locations recommended in 2009
- Tighter integration between wave observations and wave modeling
- Identifying the longest running wave sensors as **Sentinel** locations critical to wave climate studies.

Whereas in the 2009 Waves Plan, every existing wave sensor was automatically included in the design, in the 2012 update, the design is based on the sensors required to create a national perimeter of **Backbone Observations** for deep ocean, shelf, mid-shelf and coastal wave observations. Backbone locations are of the highest priority for long-term sustainment. Although traditionally the responsibility of the federal agencies, backbone locations may be supported by non-federal IOOS partners.

Sensor locations that fall outside the backbone are identified as **Supporting Observations**. Supporting observations may be important, even critical locally, but are not as important from a national perspective. All rover buoys, gauges that are redundant or too shallow and Environment Canada locations are considered to be Supporting. Supporting Observations are the responsibility of local IOOS regions and partners.

Exploring the Spreadsheet: This workbook provides detailed information including summary tables on existing and proposed wave measurement locations. (The companion KMZ file provides a more visual display - get it here: <http://www.ioos.gov/waves/>). The listing is based on multiple queries of the NDBC and IOOS observation databases during 2012 and on the original 2009 Waves Plan inventory.

Worksheets are locked from change to preserve the integrity of the underlying formulas and layout.

Worksheet tab *WavePlan* - contains the primary location database. Locations are listed as rows; columns provide parameter details including WMO station number, subnet, location, owner, years of service, etc. Some supporting columns are hidden using the grouping feature in Excel - expand the groups to see all and to get access to web links for each station (rightmost columns, unprotect the worksheet to expand the group).

If you sort the spreadsheet, Column A is to help resort.

By default each column has a filtering button that can be used to quickly display a subset of the rows based on their column values.

The workbook is formatted to print on a few landscape pages with the groups collapsed. We suggest using a filter option on the "Status" column (E) to hide the "Omit" rows (they are filtered by default). These are sensor locations that exist, but which are not included in the Plan.

Proposed locations are identified with WMO-like station numbers beginning with a digit that defines the basin (6-Atlantic, 7-Gulf of Mexico, 8-Pacific, 9-Great Lakes) followed by a digit associated with the subnet (1-Offshore, 2-Outer-Shelf, 3-Inner-Shelf, 4-Coastal and 5-Rover Buoy) which is followed by a two digit sequential number.

Network Status: In comparison to the 180 locations in 2009, in 2012 there are 200 active wave sites in the US being operated by a number of data partner organizations and reported through the National Data Buoy Center (<http://www.ndbc.noaa.gov>). Of these, 157 make up the Backbone and 43 are Supporting observations. An additional 17 of the locations operated by Environment Canada are considered as Supporting since they provide useful wave observations into adjacent, Canadian waters.

Ranking: The table includes proposed locations designed to fill in spatial gaps in the **Backbone Observations**. To help with prioritizing proposed locations and directional sensor upgrades, a point system was established to score/rank each location based on five draft criteria:

- Length of service (>20 yrs, 1 point; >35 yrs, 2 points)
- Proximity to a major US port (<80 km, 1 point)
- Directional capability (directional, 1 pt, High resolution or *First-5* directional, 2 points)
- Proximity to nearest backbone station (>100 km, 1 pt.)
- Network Location (Backbone, 2 pts; Supporting, 1 pt.)

The maximum score under this system is 8 points (6 points for a new location) and although these are draft criteria, it was found to have useful skill in identifying the highest priority network changes and upgrades. Scores can be found in **WavePlan, Column L** (supporting data are grouped and collapsed but can be revealed by unprotecting the worksheet).

A logical criteria to add is a measure of the quality of a location's historic record so that the Length of Service score reflects the completeness and accuracy of the record.

Table1 - summarizes the active locations by basin, platform, and whether the location measures wave direction or not.

Table2a summarizes just the Backbone locations. That 66% of the sensors are directional is an increase over the 57% in 2009. There's also been a shift in the observing platforms. In 2009 there were 13 10-m and 12-m discus buoys in use, now down to 4. The number of 6-m ship-like NOMAD buoys is also down from 38 to 23. The 3-m discus buoy (aluminum or foam) is the most popular platform with 73, up from 57. Supporting Observations are summarized in **Table2b**.

Table3 contains summary information of the station count by region and subnet including active, proposed and supporting columns.

Table4 & 5 summarizes the station scoring/ranking information overall (Active and Proposed locations) and separately for Active and Proposed locations based on the criteria described above under **Ranking**.

RA Build-Out - This tab lists any information related to wave observations provided in the IOOS 10-yr Regional Build-out Plans completed in 2011.

Key - Most acronyms and abbreviations used in the tables

Have a correction, comment, or addition? Please email:
wavesplan@noaa.gov.

When using the information in this spreadsheet please acknowledge the **National Operational Wave Observation Plan, 2012 Update**

WMO No.	Station Description	Network Position	Status (summer 2012)	Total Score 0-8 (Service Length, Directional)	Upgrade or Deployment Year (1-5)	Comment (as of Summer, 2012)	Owner	Latitude (deg)	Longitude (deg)	Depth (m)	Years of Data	Subnet	Buoy/Gauge Type	Hull Diameter (m)	Measurement Device	Wave Spectra	Directional Upgrade	
46232	191 Point Loma South, CA	Backbone	Active	5			CDIP/CDBW	32.530	-117.431	1,143	5	Outer-Shelf	Waverider	1	Datawell Hippy	2D	First5	
46236	156 Monterey Canyon, outer, CA	Supporting	Active	4			CDIP/CDBW/USACE	36.761	-121.947	168	6	Coastal	Waverider	1	Datawell Hippy	2D	First5	
46237	142 San Francisco bar, CA	Backbone	Active	5			CDIP/USACE	37.781	-122.999	15	5	Coastal	Waverider	1	Datawell Hippy	2D	First5	
46238	167 San Nicolas Island North, CA	Supporting	Active	3			CDIP/Navy	33.405	-119.467	772	2	Offshore	Waverider	1	Datawell Hippy	2D	First5	
46239	157 Point Sur, CA	Supporting	Active	3			CDIP/CDBW/USACE	36.338	-122.101	366	4	Outer-Shelf	Waverider	1	Datawell Hippy	2D	First5	
46240	158 Cabrillo Point, Monterey Bay, CA	Supporting	Active	3			CDIP/Haskins Marine Lab	36.626	-121.907	19	4	Coastal	Waverider	1	Datawell Hippy	2D	First5	
46242	043 Camp Pendleton Nearshore, CA	Supporting	Active	4			CDIP/Navy	33.220	-117.440	20	5	Coastal	Waverider	1	Datawell Hippy	2D	First5	
46243	162 Clatsop Spit, OR	Backbone	Active	5			CDIP/USACE	46.200	-124.117	25	3	Coastal	Waverider	1	Datawell Hippy	2D	First5	
46244	168 Humboldt Bay, North Spit, CA	Supporting	Active	3			CDIP/USACE	40.888	-124.357	112	3	Outer-Shelf	Waverider	1	Datawell Hippy	2D	First5	
46247	180 San Francisco Offshore, CA	Supporting	Active	4			CDIP/USACE	37.753	-122.833	53	2	Coastal	Waverider	1	Datawell Hippy	2D	First5	
46248	179 Astoria Canyon, OR	Supporting	Active	3			CDIP/USACE	46.133	-124.667	192	2	Outer-Shelf	Waverider	1	Datawell Hippy	2D	First5	
46249	182 Santa Cruz Island South, CA	Supporting	Active	4			CDIP/Navy	33.821	-119.708	1,737	2	Offshore	Waverider	1	Datawell Hippy	2D	First5	
81010	Proposed - Santa Cruz Offshore	Backbone	Proposed	5	3		Proposed	33.330	-123.090	4,300		Offshore				2D	First5	
85100	Rover Buoy - Pacific Coast	Supporting	Proposed	3	4		Proposed	47.901	-124.667	20		Rover Buoy				2D	First5	
85101	Rover Buoy - Pacific Coast	Supporting	Proposed	4	4		Proposed	44.623	-124.114	30		Rover Buoy				2D	First5	
85102	Rover Buoy - Pacific Coast	Supporting	Proposed	5	4		Proposed	42.867	-124.569	20		Rover Buoy				2D	First5	
85103	Rover Buoy - Pacific Coast	Supporting	Proposed	4	4	Add Hippy to 46027, not need 85103	Proposed	41.797	-124.307	20		Rover Buoy				2D	First5	
LJPC1	073 Scripps Pier, La Jolla, CA	Supporting	Active	4			CDIP	32.867	-117.257	6	37	Coastal	Pressure	Pier mount	Pressure	1D	no upgrade	
Pacific Islands																		
32012	Woods Hole Stratus Wave Station	Backbone	Active	4			WHOI	-19.713	-85.585	4,440		Offshore		2		2D	no upgrade	
51000	(LLNR 28007.5) - Northern Hawaii	Backbone	Active	3	2	Dual Station with 51100	NDBC	23.546	-154.056	4,097	4	Offshore	Discus-F	3		DDWM/3DMG	2D	upgrade
51001	NW Hawaii 170NM WNW Kauai, HI	Backbone	Active/Offline	6		stopped 12/25/2009, dual location with	NDBC	23.432	-162.208	3,252	29	Offshore	Discus	3		Datawell Hippy	2D	First5
51002	SW Hawaii 215NM SSE Hilo, HI	Backbone	Active	4	5		NDBC	17.084	-157.820	5,002	28	Offshore	Discus	3		Schaevitz LSOC	1D	upgrade
51003	W Hawaii 205NM SW Honolulu, HI	Backbone	Active	4	3		NDBC	19.018	-160.582	4,920	28	Offshore	Discus	3		Schaevitz LSOC	1D	upgrade
51004	SE Hawaii 185NM SE Hilo, HI	Backbone	Active	5	3		NDBC	17.525	-152.382	4,901	28	Offshore	Discus	3		DDWM/3DMG	2D	upgrade
51100	Northern Hawaii	Backbone	Active	3	5	Dual Station with 51000	NDBC	23.558	-153.900	4,755	4	Offshore	Discus	3		DDWM/3DMG	2D	upgrade
51101	(LLNR 28009) - NW Hawaii	Backbone	Active	4	5	Dual station with 51001	NDBC	24.321	-162.058	4,792	4	Offshore	Discus	3		DDWM/3DMG	2D	upgrade
51201	106 Waimea Bay, HI	Backbone	Active	5			CDIP/PaciOOS	21.673	-158.116	200	11	Coastal	Waverider	1		Datawell Hippy	2D	First5
51202	098 Mokapu Point, HI	Backbone	Active	5			CDIP/PaciOOS	21.415	-157.678	100	12	Coastal	Waverider	1		Datawell Hippy	2D	First5
51203	146 Kaunapali, Lanai, HI	Backbone	Active	6			CDIP/PaciOOS	20.788	-157.010	201	6	Coastal	Waverider	1		Datawell Hippy	2D	First5
51204	165 Barbers Point, HI	Backbone	Active	5			CDIP/PaciOOS	21.281	-158.124	3,000	2	Offshore	Waverider	1		Datawell Hippy	2D	First5
51205	187 Pauwela, Maui, HI	Backbone	Active	6			CDIP/PaciOOS	21.020	-156.427	213	1	Coastal	Waverider	1		Datawell Hippy	2D	First5
51206	188 Hilo, Hawaii, HI	Backbone	Active	6			CDIP/PaciOOS	19.781	-154.968	347	1	Coastal	Waverider	1		Datawell Hippy	2D	First5
51207	198 Kaneohe Bay, HI	Supporting	Active	4			CDIP/PaciOOS	21.478	-157.753	81	0	Coastal	Waverider	1		Datawell Hippy	2D	First5
52200	121 Ipan, Guam	Backbone	Active	5			CDIP/PaciOOS	13.354	144.788	200	9	Outer-Shelf	Waverider	1		Datawell Hippy	2D	First5
52201	163 Kalo Majuro, Marshall Islands	Backbone	Active	5			CDIP/NSF	7.092	171.394	465	3	Coastal	Waverider	1		Datawell Hippy	2D	First5
52202	196 Ritidian Point, Guam	Backbone	Active	5			CDIP/PaciOOS	13.683	144.812	515	0	Coastal	Waverider	1		Datawell Hippy	2D	First5
52211	197 Tanapag, Saipan, CNMI	Backbone	Active	4			CDIP/PaciOOS	15.267	145.662	475	0	Coastal	Waverider	1		Datawell Hippy	2D	First5
81020	Proposed - Christmas Island DWA	Backbone	Proposed	4	2	51028 ended 4/08, Proposed	Proposed	0.000	-153.913	4,572	10	Offshore				2D	First5	
84110	Proposed - Tutuila, American Samoa	Backbone	Proposed	5	3	PaciOOS location (2013)	Proposed	-14.400	-170.660	2,500		Coastal				2D	First5	
84130	Proposed - Kotor Palau	Backbone	Proposed	5	4	PaciOOS location (2014)	Proposed	7.117	135.150	5,000		Coastal				2D	First5	
84140	Rover Buoy - Hanalei, Kauai, HI	Supporting	Proposed	5	4	PaciOOS location (2014)	Proposed	22.270	-159.510	122		Rover Buoy				2D	First5	
84160	Rover Buoy - Midway Atoll, HI	Supporting	Proposed	4	2	PaciOOS location (2013)	Proposed	28.180	-177.360	200		Rover Buoy				2D	First5	

Table 1. Summary of Active Wave Observing Platforms

Region	Discus		Nomad	3-m	Other Buoy Configurations							Shallow			Total
	12	10	6	3	2.5	2.4	2	1.8	1.75	1.12	0.9	Bottom Mount	Pier Mount	Unknown	
Atlantic Coast			8	27		1	8		7		12	3			66
Non-Directional			8	10			8								26
Directional				17		1			7		12	3			40
Gulf of Mexico		2		9							1	3		2	17
Non-Directional				1										2	3
Directional	2			8							1	3			14
Pacific Coast			1	27							29		1		58
Non-Directional			1	12									1		14
Directional				15							29				44
Alaskan Coast	2		19	5							2				28
Non-Directional	2		19	4											25
Directional				1							2				3
Pacific Islands				7		1					11				19
Non-Directional				2											2
Directional				5		1					11				17
Great Lakes				9		4			2	6					21
Non-Directional				5		2			2						9
Directional				4		2				6					12
Caribbean			2	3	3						1				9
Non-directional			2		2										4
Directional				3	1						1				5
Total	2	2	30	87	3	6	8		9	6	56	6	1	2	218
Non-directional	2		30	34	2	2	8		2	6	56		1	2	83
Directional	2	2		53	1	4			7	6	56	6			135
Canadian			6	9					2						17

Note: Number of Canadian sites is included in the totals

Table 2a. Summary of Active Backbone Wave Observing Platforms
(diameters in m)

Region	Discus		Nomad	Discus	Other Buoy Configurations							Bottom Mount	Total
	12	10	6	3	2.5	2.4	2	1.8	1.75	1.12	0.9		
Atlantic Coast			6	25		1	1		1		10	2	46
Non-Directional			6	9			1						16
Directional				16		1			1		10	2	30
Gulf of Mexico		2		9							1		12
Non-Directional				1									1
Directional		2		8							1		11
Pacific Coast				25							16		41
Non-Directional				11									11
Directional				14							16		30
Alaskan Coast	2		14								2		18
Non-Directional	2		14										16
Directional											2		2
Pacific Islands				7		1					10		18
Non-Directional				2									2
Directional				5		1					10		16
Great Lakes				5		4				4			13
Non-Directional				1		2							3
Directional				4		2				4			10
Caribbean			2	3	3						1		9
Non-directional			2		2								4
Directional				3	1						1		5
Total	2	2	22	74	3	6	1		1	4	40	2	157
Non-directional	2		22	24	2	2	1						53
Directional		2		50	1	4			1	4	40	2	104

Table 2b. Summary of Active Supporting Wave Observation Platforms
(diameters in m)

Region	Discus		Nomad	Discus	Other Buoy Configurations							Shallow			Total
	12	10	6	3	2.5	2.4	2	1.8	1.75	1.12	0.9	Bottom Mount	Pier Mount	Unknown	
Atlantic Coast			2	2			7		6		2	1			20
Non-Directional			2	1			7								10
Directional				1					6		2	1			10
Gulf of Mexico												3		2	5
Non-Directional														2	2
Directional												3		3	3
Pacific Coast			1	2							13		1		17
Non-Directional			1	1									1	3	3
Directional				1							13			14	14
Alaskan Coast			5	5											10
Non-Directional			5	4										9	9
Directional				1										1	1
Pacific Islands											1				1
Non-Directional															
Directional											1			1	1
Great Lakes				4					2	2					8
Non-Directional				4					2						6
Directional										2				2	2
Caribbean															
Non-directional															
Directional															
Total			8	13			7		8	2	16	4	1	2	61
Non-directional			8	10			7		2				1	2	30
Directional				3					6	2	16	4		31	31
Canadian			6	9					2						17

Note: Table totals include Canadian sites, which are also totaled in the bottom row

Table 3. Summary of Proposed and Active Wave Observation Locations

Region	Subnet																								Total											
	Offshore						Outer-Shelf						Inner-Shelf						Coastal																	
	Backbone Design	Exists	Proposed	Directional Upgrade	Supporting	Sentinel	Sentinel, Supporting	Backbone Design	Exists	Proposed	Directional Upgrade	Supporting	Sentinel	Sentinel, Supporting	Backbone Design	Exists	Proposed	Directional Upgrade	Supporting	Sentinel	Sentinel, Supporting	Backbone Design	Exists	Proposed	Directional Upgrade	Supporting	Sentinel	Sentinel, Supporting	Backbone Design	Exists	Proposed	Directional Upgrade	Supporting	Sentinel	Sentinel, Supporting	Rover Buoy
Atlantic Coast	13	11	2	8	1	3	10	7	3	5	2	4	1	11	10	1	8	2	4		30	18	12	5	15	4	1	64	46	18	26	20	15	2	4	
Gulf of Mexico	4	4		3	1	3	6	2	4	2		1		5	4	1	3		1		10	2	8	2	4			25	12	13	10	5	5		1	
Pacific Coast	11	10	1	7	3	6	1	23	23		12	5	17					1		1	8	8		1	8	2	1	42	41	1	20	17	25	3	4	
Alaskan Coast	7	7		5	7	1	5	9	9		6		1		5		5				2	2			3			23	18	5	11	10	2	5	5	
Pacific Islands	10	9	1	6		4		1	1												10	8	2		1			21	18	3	6	1	4		2	
Great Lakes															13	9	4	9	6	8	2	4	4		2			17	13	4	9	8	8	2	13	
Caribbean	5	5		5																	4	4						9	9		5					
Total	50	46	4	34	12	17	6	49	42	7	25	7	23	1	34	23	11	20	9	13	3	68	46	22	8	33	6	2	201	157	44	87	61	59	12	29

Table 4. Ranking of Active & Proposed Wave Observing Locations, including Proposed Rover Buoys

Region	Ranking							Total
	1	2	3	4	5	6	7	
Atlantic Coast		11	17	31	24	5		88
Backbone	3	11	25	20	5			64
Supporting	8	6	6	4				24
Gulf of Mexico		3	3	10	10	5		31
Backbone		1	9	10	5			25
Supporting	3	2	1					6
Pacific Coast		1	13	21	22	2	4	63
Backbone	1	4	10	21	2	4		42
Supporting		9	11	1				21
Alaskan Coast		4	18	8	8			38
Backbone		14	1	8				23
Supporting	4	4	7					15
Pacific Islands			2	7	11	4		24
Backbone		2	5	10	4			21
Supporting			2	1				3
Great Lakes		3	4	15	8	6	2	38
Backbone		1	5	3	6	2		17
Supporting	3	3	10	5				21
Caribbean			3	4	1	1		9
Backbone		3	4	1	1			9
Supporting								
Total		22	60	96	84	23	6	291
Backbone	4	36	59	73	23	6		201
Supporting	18	24	37	11				90

Ranking Criteria (0-8 pts) - Sentinel location: >20 yrs, 1 pt., > 30 yrs, 2 pt.; Backbone Location: 2 pt, Supporting: 1 pt.; Port < 80 km: 1 pt; No other Backbone Buoy<100km: 1 pt; Directional: 1 pt, First-5 Directional: 2 pt

Table 5a. Ranking of Active Wave Observing Locations

Region	Ranking							Total
	1	2	3	4	5	6	7	
Atlantic Coast			11	17	23	11	4	66
Backbone	3	11	18	10	4			46
Supporting	8	6	5	1				20
Gulf of Mexico		3	3	6	3	2		17
Backbone		1	6	3	2			12
Supporting	3	2						5
Pacific Coast		1	12	19	20	2	4	58
Backbone	1	4	10	20	2	4		41
Supporting		8	9					17
Alaskan Coast		4	18	3	3			28
Backbone		14	1	3				18
Supporting	4	4	2					10
Pacific Islands			2	5	8	4		19
Backbone		2	4	8	4			18
Supporting			1					1
Great Lakes		3	3	7	2	4	2	21
Backbone		1	4	2	4	2		13
Supporting	3	2	3					8
Caribbean			3	4	1	1		9
Backbone		3	4	1	1			9
Supporting								
Total		22	58	67	48	17	6	218
Backbone	4	36	47	47	17	6		157
Supporting	18	22	20	1				61

Ranking Criteria (0-8 pts) - Sentinel location: >20 yrs, 1 pt., > 30 yrs, 2 pt.; Backbone Location: 2 pt, Supporting: 1 pt.; Port < 80 km: 1 pt; No other Backbone Buoy<100km: 1 pt; Directional: 1 pt, First-5 Directional: 2 pt

Table 5b. Ranking of Proposed Wave Observing Locations, including Proposed Rover Buoys

Region	Ranking							Total
	1	2	3	4	5	6	7	
Atlantic Coast				8	13	1		22
Backbone			7	10	1			18
Supporting			1	3				4
Gulf of Mexico				4	7	3		14
Backbone			3	7	3			13
Supporting			1					1
Pacific Coast			1	2	2			5
Backbone				1				1
Supporting			1	2	1			4
Alaskan Coast				5	5			10
Backbone				5				5
Supporting				5				5
Pacific Islands				2	3			5
Backbone			1	2				3
Supporting			1	1				2
Great Lakes			1	8	6	2		17
Backbone			1	1	2			4
Supporting			1	7	5			13
Caribbean								
Backbone								
Supporting								
Total			2	29	36	6		73
Backbone			12	26	6			44
Supporting			2	17	10			29

Ranking Criteria (0-8 pts) - Sentinel location: >20 yrs, 1 pt., > 30 yrs, 2 pt.; Backbone Location: 2 pt, Supporting: 1 pt.; Port < 80 km: 1 pt; No other Backbone Buoy<100km: 1 pt; Directional: 1 pt, First-5 Directional: 2 pt

**Table 6. Active Wave Observing Locations:
Total Scores**

Region	Score							Total Stations
	1	2	3	4	5	6	7	
Atlantic Coast		11	17	23	11	4		66
Gulf of Mexico		3	3	6	3	2		17
Pacific Coast		1	12	19	20	2	4	58
Alaskan Coast		4	18	3	3			28
Pacific Islands			2	5	8	4		19
Great Lakes		3	3	7	2	4	2	21
Caribbean			3	4	1	1		9
Total		22	58	67	48	17	6	218
Percent	0%	10%	27%	31%	22%	8%	3%	

Includes 17 Supporting Canadian Buoys

Regional Association	Wave Observation Information Extracted from the 2011 Regional Build-Out Plans
SCCOOS	15 datawells (3 nearshore, 9 shelf, 3 offshore) . Capital cost 900k, O&M 540k
A00S	15 datawells, one per area (100kmx100km)
CariCOOS	1 plain waverider, 2 waveriders with ADCP, 6 GoMOOS buoys
CenCOOS	assume existing buoys sustained, one mobile Datawell, 3 ADCP w/waves for harbors/entrances
GCOOS	10 multipurpose buoys >50m depth with waves. Couldn't tell from their map where these would go.
GLOS	wave sites not specified, used plan provided by Meadows. Build out plan does include 1 buoy/lake and sustain what's there
MARACOOS	50 estuary moorings, 14 Offshore moorings, 20 on platforms of opportunity - total 85
NERACOOS	CDIP - sufficient number to satisfy national wave plan - but exact number not clear; in addition: multipurpose buoys - 15 ocean, 15 nearshore/estuary, 15 shore/pier based - all with wave sensors
PacIOOS	CDIP - 11 new buoys in addition to the 8 they already have
SECOORA	<p>Models/Observations are integrated. Fixed platform statement mentions waveriders with bold comment: Note: We support the National waves plan, but a waverider buoy is not a multipurpose buoy and presently lacks capabilities to measure winds as well as other meteorological parameters. SECOORA will coordinate with NDBC waves plan within the SE region to leverage each others plan on locating resources. Therefore, the number of necessary buoys for column C (Fixed multipurpose) would decrease if Nat'l wave plan is implemented.</p> <p>50 pier/coastal stations with waves; 11 Ports and Harbors - 44 stations; 50 new multipurpose mooring stations w/waves; 24 buoys of National Waves Plan; add 4 bottom mount ADCPs to existing 4 on west shelf florida + 2 existing SC (waves? maybe)</p>
NANOOS	SWAN wave model plans; 15 Datawell buoys (3 open ocean, 9 shelf, 3 coastal) - 7 exist, need 8 - 5 spares

Key to ACRONYMS used

3DMG	MicroStrain 3DM-G sensor
ADCP	Acoustic Doppler Current Profiler
AMPS	NDBC payload package
AOOS	Alaska Ocean Observing System
ARES	NDBC payload package
ARS	Angular Rate Sensor
CariCOOS	Caribbean Coastal Ocean Observing System
CBIBS	Chesapeake Bay Interpretive Buoy System
CDBW	California Dept of Boating and Waterways
CDIP	Coastal Data Information Program (operated by the Scripps Institution of Oceanography)
CenCOOS	Central and Northern California Ocean Observing System
Coastal Storms	Coastal Storms Program (NOAA)
CORMP	UNCW Coastal Ocean Research and Monitoring Program
CSI-LSU	Coastal Studies Institute Louisiana State University
DACT	NDBC payload package
DCMP	Delaware Coastal Management Program
DDWM	Digital Directional Wave Module (DDWM)
DISCUS-F	Discus Buoy Foam
DWPM	Directional Wave Processing Module
GCOOS	Gulf of Mexico Ocean Observing System
GLOS	Great Lakes Observing System
GoMOOS	Gulf of Maine Ocean Observing System, now the <i>Gulf of Maine Moored Buoy Program</i>
IOOS	Integrated Ocean Observing System Joint Oceanographic Commission on Oceanography and Marine Meteorology (under the International Ocean Commission)
JCOMM	LimnoTech Inc., Ann Arbor Michigan
LimnoTech	LimnoTech Inc., Ann Arbor Michigan
MARACOOS	Mid-Atlantic Coastal Ocean Observing System
MARS	NDBC payload package
NANOOS	Northwest Association of Networked Ocean Observing Systems
NASA	National Aeronautic and Space Administration
NDBC	NOAA National Data Buoy Center
NERACOOS	Northeast Regional Association of Coastal Ocean Observing Systems
NOAA	National Oceanic and Atmospheric Administration
NSF	National Science Foundation
PacIOOS	Pacific Islands Ocean Observing System
PGE	Pacific Gas and Electric
SCCOOS	Southern California Coastal Ocean Observing System
SECOORA	Southeast Coastal Ocean Observing Regional Association
TRIAXYS	Axys Technologies Directional Wave Sensor
UConnDMS	University of Connecticut, Department of Marine Sciences
U-Mich	University of Michigan
UNC	University of North Carolina
UNCW	University of North Carolina, Wilmington
UNH	University of New Hampshire
USACE	United States Army Corps of Engineers
USCar	University of South Carolina
U-WA	University of Washington
VIMS	Virginia Institute of Marine Science