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 reflects 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 redunudant 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 2012and 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 proivided in the IOOS 10-yr Regional Build-out Plans completed in 2011.

Key - Most acronyns 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**

IOOS National Operational Wave Observation Plan, 2012 - Active and Proposed Locations

	•	Network	Status	Total Score 0- 8 (Service	Upgrade or	Comment		Latitude	Longitude	Depth	Years of		Buoy/Gauge	Hull	Measurement	Wave	Directional
WMO No.	Station Description	Position	(summer 2012)	Length, Directional,	Deployment Year (1-5)	(as of Summer, 2012)	Owner	(deg)	(deg)	(m)	Data	Subnet	Type	Diameter (m)	Device	Spectra	Upgrade
	Alaskan Coast			Diroctional													
46001 46004	Gulf of Alaska 88NM S Kodiak, AK	Backbone	Active	5 4	5		NDBC	56.300 50.933	-148.021	4,206	38.0	Offshore	NOMAD NOMAD	6	Schaevitz LSOC_	1D	upgrade
46004	Middle Nomad, Canada Bering Sea 310NM N Adak, AK	Supporting Backbone	Canadian Active	4	3		Env. Canada NDBC	57.051	-136.100 -177.576	3,600	36.3 27.2	Offshore Outer-Shelf	Discus	6 12	Datawell Hippy Schaevitz I SOC	1D 1D	no upgrade upgrade
46060	West Orca Bay 36NM SSW Valdez AK	Supporting	Active	4	Ü		NDBC	60.584	-146.784		17.6		Discus	3	DDWM/3DMG	2D	no upgrade
46061	Seal Rocks 55NM S Valdez AK	Backbone	Active	3			NDBC	60.233	-146.834	219	17.6	Coastal	NOMAD	6	Schaevitz LSOC_	1D	no upgrade
46066	S Aleutians 380NM SW Kodiak, AK	Backbone	Active/Offline	3	5	stopped 10/25/2011, no schedule	NDBC	52.737	-154.961	4,542	11.5	Offshore	NOMAD	6	Schaevitz LSOC_	1D	upgrade
46070 46071	SW Bering Sea, AK Western Aleutians, AK	Backbone Backbone	Active Active	3	5	Missing 2010 & 2011, returned to servi	NDBC NDBC	55.003 51.157	175.284 179.050	3,804 1,269	6.2 4.2		NOMAD NOMAD	6	Schaevitz LSOC_ Schaevitz LSOC	1D 1D	upgrade
46072	Central Aleutians 230NM Southwest of Dutch Harbor	Backbone	Active	3	5	IVISSING 2010 & 2011, Telumed to servi	NDBC	51.663	-172.162		10.4		NOMAD	6	Schaevitz LSOC_	1D	upgrade upgrade
46073	Southeast Bering Sea	Backbone	Active/Offline	3	4	stopped 4/07/2011, no schedule	NDBC	54.942	-172.029	4,184	5.9	Outer-Shelf	Discus	12	Schaevitz LSOC_	1D	upgrade
46075	Shumagin Islands, AK	Backbone	Active	3			NDBC	53.926	-160.806	2,345		Outer-Shelf	NOMAD	6	Schaevitz LSOC_	1D	no upgrade
46076 46077	Cape Cleare AK Shelikof Strait, AK	Backbone	Active Active	3	4		NDBC NDBC	59.498 57.920	-147.983 -154.254	201		Outer-Shelf Coastal	NOMAD NOMAD	6	Schaevitz LSOC_ Schaevitz LSOC	1D 1D	upgrade
46078	Albatross Banks, AK	Supporting Backbone	Active/Offline	3		stopped 1/18/2012	NDBC	56.074	-152.572			Outer-Shelf	NOMAD	6	Schaevitz LSOC_	1D	no upgrade no upgrade
46080	Northwest Gulf 57NM E Kodiak AK	Backbone	Active	3			NDBC	58.036	-149.985	274	9.9	Outer-Shelf	NOMAD	6	Schaevitz LSOC_	1D	no upgrade
46081	Western Prince William Sound, AK	Supporting	Active	2			NDBC	60.803	-148.263	434	9.2	Coastal	NOMAD	6	Schaevitz LSOC_	1D	no upgrade
46082 46083	Cape Suckling 84NM SE Cordova, AK Fairweather Grounds 92NM SE Yakutat, AK	Backbone Backbone	Active Active	3	4		NDBC NDBC	59.668 58.249	-143.392 -137.993	296 137		Outer-Shelf Outer-Shelf	NOMAD NOMAD	6	Schaevitz LSOC_	1D 1D	upgrade
46084	Cape Edgecumbe, AK	Backbone	Active	3	4		NDBC	56.593	-137.993			Outer-Shelf	NOMAD	6	Schaevitz LSOC_ Schaevitz LSOC_	1D	upgrade upgrade
46085	Central Gulf of Alaska Buoy, AK	Backbone	Active	3			NDBC	55.868	-142.492		5.6		NOMAD	6	Schaevitz LSOC_	1D	no upgrade
46108	175 Central Cook Inlet, AK	Backbone	Active	5			CDIP/AOOS	59.757	-152.092	46	1.6	Coastal	Waverider	1	Datawell Hippy	2D	First5
	SouthBrooks, Canada	Supporting	Canadian	2			Env. Canada	49.734	-127.918		18.6		Discus	3	Schaevitz LSOC_	1D	no upgrade
	South Moresby, Canada North Nomad, Canada	Supporting Supporting	Canadian Canadian	2		This is the Test NOMAD for directional	Env. Canada Env. Canada	51.833 53.917	-131.233 -138.850	2,000 3,600	19.5 25.2		Discus NOMAD	6	Schaevitz LSOC_ Datawell Hippy	1D 1D	no upgrade Testing
46205	West Dixon Entrance, Canada	Supporting	Canadian	3		This is the rest NOWAD for directional	Env. Canada	54.167	-134.269	2,675	24.1	Offshore	NOMAD	6	Schaevitz LSOC	1D	no upgrade
46207	East Dellwood, Canada	Supporting	Canadian	3			Env. Canada	50.883	-129.933		23.2		Discus	3	Schaevitz LSOC_	1D	no upgrade
46208	West Moresby, Canada	Supporting	Canadian	3			Env. Canada	52.517			22.4		Discus	3	Schaevitz LSOC_	1D	no upgrade
46246 83010	166 Ocean Station PAPA	Backbone Backbone	Active	5	3		CDIP/U-WA Proposed	49.985 70.878	-145.089 -165.244	4,253 50	2.5	Offshore Inner-Shelf	Waverider	1	Datawell Hippy	2D 2D	First5
83020	Proposed - Chukchi Sea, AK Proposed - Bering Strait, AK	Backbone	Proposed Proposed	5	4		Proposed	65.806	-168.726	50		Inner-Shelf				2D	First5
83030	Proposed - Norton Sound, AK	Backbone	Proposed	5	3		Proposed	63.937	-164.534	20		Inner-Shelf				2D	First5
83040	Proposed - Kokechik Bay, AK	Backbone	Proposed	5	4		Proposed	61.857	-167.158	20		Inner-Shelf				2D	First5
83050	Proposed - Bristol Bay, AK	Backbone	Proposed	5	1		Proposed	57.704				Inner-Shelf				2D	First5
85010 85020	Rover Buoy - Alaska Rover Buoy - Alaska	Supporting Supporting	Proposed Proposed	4	4		Proposed Proposed	71.321 66.955	-157.002 -165.000	30 10		Rover Buoy Rover Buoy				2D 2D	First5 First5
85030	Rover Buoy - Alaska	Supporting	Proposed	4	4		Proposed	57.917	-152.001	30		Rover Buoy				2D	First5
85040	Rover Buoy - Alaska	Supporting	Proposed	4	4		Proposed	59.389	-140.062	80		Rover Buoy				2D	First5
85050	Rover Buoy - Alaska Atlantic Coast	Supporting	Proposed	4	4		Proposed	57.926	-136.707	440	0.0	Rover Buoy		ļ		2D	First5
41001 41002	150 NM East of Cape Hatteras, NC S Hatteras 250 NM E Charleston, SC	Backbone Backbone	Active Active	6	5		NDBC NDBC	34.729 32.319	-72.678 -75.360	4,426 3,316	36.5 37.5	Offshore Offshore	Discus Discus	3	DDWM/3DMG DDWM/3DMG	2D 2D	upgrade
41002	EDISTO-41 NM SE Charleston, SC	Backbone	Active	4	4		NDBC	32.501	-79.099	3,310		Inner-Shelf	Discus	3	Schaevitz LSOC	1D	upgrade upgrade
41008	Grays Reef 40NM SE Savannah, GA	Backbone	Active	5	3		NDBC	31.402	-80.871	18	24.7		Discus	3	DDWM/3DMG	2D	upgrade
41009	Canaveral 20NM E Cape Canaveral, FL	Backbone	Active	5	1		NDBC/NASA	28.523	-80.184	41		Outer-Shelf	Discis	3	DDWM/3DMG	2D	upgrade
41010 41012	Canaveral E 120NM E Cape Canaveral, FL	Backbone	Active	4	4		NDBC/NASA	28.906 30.042	-78.471	873 37	24.1	Offshore	NOMAD	6	Schaevitz LSOC_ DDWM/3DMG Ar	1D 2D	upgrade
41012	ST Augustine, FL 40NM ENE St Augustine Frying Pan Shoals, NC	Backbone Backbone	Active Active	3	4	Replaced Frying Pan Shoals FPS7N (1	NDBC/Coastal Storms NDBC	33.436	-80.534 -77.743	24		Inner-Shelf Inner-Shelf	Discus Discus	3	DDWM/3DMG Ar	2D	upgrade upgrade
41025	Diamond Shoals	Backbone	Active/Offline	2	4	replaced Diamond Shoals DSLN7 (198	NDBC	35.006	-75.402	68			Discus	3	Schaevitz LSOC_	1D	upgrade
41036	Onslow Bay, NC	Supporting	Active	3	3	Move to 62020 Location	NDBC/UNC	34.211	-76.953	31		Inner-Shelf	Discus	3	DDWM/3DMG Ar	2D	no upgrade
41040	Western Atlantic	Backbone	Active	3	3		NDBC	14.480	-53.039	4,801	7.5	Offshore	NOMAD	6	Schaevitz LSOC_	1D	upgrade
41041 41043	Middle Atlantic Southwest Atlantic	Backbone Backbone	Active Active	4	3		NDBC NDBC	14.175 20.990	-45.998 -65.010	3,353 5,375	7.5 5.7		NOMAD Discus	6	Schaevitz LSOC_ DDMW/3DMG	1D 2D	no upgrade
41044	South Atlantic	Backbone	Active	3	4		NDBC	21.652	-58.695		3.6		NOMAD	6	Schaevitz LSOC_	1D	upgrade upgrade
41046	E Bahamas	Backbone	Active	3		moved	NDBC	23.838	-68.333	5,500	5.2	Offshore	NOMAD	6	Schaevitz LSOC_	1D	no upgrade
41047	NE Bahamas	Backbone	Active	4	4	moved, May 2012, 3m buoy replaced 1	NDBC	27.517	-71.483	5,221	5.2		Discus-F	3	DDMW/3DMG	2D	upgrade
41048 41049	W Bermuda Atlantic (South)	Backbone Backbone	Active Active	4	5		NDBC NDBC	31.978 27.500	-69.649 -63.000	5,261 4.885	5.2 3.6	Offshore Offshore	Discus Discus	3	DWPM/ARS Ang DWMM/3DMG	2D 2D	no upgrade
41060	Woods Hole Northwest Tropical Atlantic Wave Station	Supporting	Active	2	J		WHOI	14.750	-50.950	4,978	1.0		Discus	3	DVV IVIIV/ 3DIVIG	1D	no upgrade
41109	190 New River Inlet, NC	Supporting	Active	5		1 year deployment	CDIP/USACE	34.484	-77.300	13	0.6		Waverider	1	Datawell Hippy	2D	First5
41110	150 Masonboro Inlet, ILM2, NC	Backbone	Active	5			CDIP/UNCW-CORMP	34.141	-77.709	16	4.7		Waverider	1	Datawell Hippy	2D	First5
41112 41113	132 Fernandina Beach, FL	Backbone	Active	5			CDIP/Navy	30.719	-81.293	16	6.8	Coastal	Waverider	1	Datawell Hippy	2D	First5
41113	143 Cape Canaveral nearshore, FL 134 Fort Pierce, FL	Backbone Backbone	Active Active	5 4			CDIP/Navy CDIP/USACE	28.400 27.562	-80.530 -80.220	10 16	6.3 6.3		Waverider Waverider	1	Datawell Hippy Datawell Hippy	2D 2D	First5 First5
44005	Gulf of Maine 28NM Portsmouth, NH	Backbone	Active	4	5		NDBC	43.204	-69.128	201		Inner-Shelf	NOMAD	6	Schaevitz LSOC_	1D	upgrade
44007	Portland 12 NM SE Portland, ME	Backbone	Active	5	5		NDBC	43.531	-70.144	24	30.8	Coastal	Discus	3	MicroStrain 3DM-	1D	upgrade
44008	Nantucket 54NM SE Nantucket, MA	Backbone	Active	6	3		NDBC	40.500	-69.431	59		Outer-Shelf	Discus	3	Angular Rate Ser	2D	upgrade
44009 44011	Delaware Bay 26NM SE Cape May, NJ	Backbone	Active	3	4		NDBC	38.464 41.111	-74.702	24 87		Inner-Shelf	Discus	3	Schaevitz LSOC_	1D	upgrade
44011	Georges Bank 170NM E Hyannis MA Boston 16NM E Boston, MA	Backbone Backbone	Active Active	4	5		NDBC NDBC	41.111	-66.580 -70.691	87 55		Outer-Shelf Coastal	Discus Discus	3	Schaevitz LSOC_ Schaevitz LSOC	1D 1D	upgrade upgrade
44014	Virginia Beach 64NM E Virginia Beach, VA	Backbone	Active	5	, i		NDBC/USACE	36.611	-74.836	54		Outer-Shelf	Discus	3	DWPM/Hippy DD	2D	First5
	23NM SW Montauk Point, NY	Backbone	Active/Offline	2	2	stopped 8/20/2011	NDBC	40.692	-72.048	45	9.0	Inner-Shelf	Discus-F	3	Schaevitz LSOC_	1D	upgrade
44018	NE Cape Cod 30NM E Nantucket, MA	Backbone	Active/Offline	3	2	relocated, stopped 3/6/2012	NDBC	42.126	-69.630	74		Inner-Shelf	Discus-F	3	DDWM/3DMG	2D	upgrade
44020 44024	(LLNR 13665) - NANTUCKET SOUND N01-Northeast Channel ((NERACOOS N01)	Backbone Backbone	Active Active	3	4		NDBC NERACOOS	41.443 42.312	-70.186 -65.927	10 225	3.7 8.5	Coastal Outer-Shelf	Discus Discus-F	3	DDWM/3DMG Summit 34203A	2D 1D	upgrade
44024	Long Island 33NM S Islip, NY	Backbone	Active	4	3		NERACOUS NDBC	42.312	-73.166	36		Inner-Shelf	Discus-F Discus-F	3	DDWM/3DMG	2D	no upgrade upgrade
44027	Jonesport, ME	Backbone	Active	3			NDBC	44.273	-67.314	189	9.6	Inner-Shelf	Discus-F	3	Schaevitz LSOC_	1D	no upgrade
44029	A01 Massachusetts Bay (NERACOOS A01)	Supporting	Active	2			NERACOOS	42.520	-70.570	65	11.4	Coastal	Discus-F	2	Summit 34203A	1D	no upgrade
44030	B01 Western Maine Shelf (NERACOOS B01)	Supporting	Active	2			NERACOOS	43.183	-70.418	62	11.4		Discus-F	2	Summit 34203A	1D	no upgrade
44032 44033	E01 Central Maine Shelf (NERACOOS E01) F01 Penobscot Bay (NERACOOS F01)	Supporting Supporting	Active Active	2	 		NERACOOS NERACOOS	43.715 44.060	-69.358 -69.000	100 110	11.4 11.4		Discus-F Discus-F	2	Summit 34203A Summit 34203A	1D 1D	no upgrade no upgrade
	I01 Eastern Maine Shelf (NERACOOS I01)	Supporting	Active	3			NERACOOS	44.110	-68.110	100	11.4		Discus-F	2	Summit 34203A	1D	no upgrade
44037	M01 Jordan Basin (NERACOOS M01)	Supporting	Active	2			NERACOOS	43.484		285	11.4	Inner-Shelf	Discus-F	2	Summit 34203A		no upgrade
						•										. —	

National Operational Wave Observation Plan, 2012 update: Table of Locations

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Communication Communicatii Communication Communication Communication Communication	VMO 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
EACH Depoted Depoted	1 1000																2D	no upgrade
1400 100		Western Long Island Sound									18						s 1D	no upgrade
Description Company No. Company Compan												5.3					2D 2D	no upgrade
Accordance Acc																	2D	no upgrade no upgrade
1-800 Prince P							Was Station #620 and nondirectional <				17				1		2D	First5
According to Decision According to Decision According to Property According to P					3										2		2D	no upgrade
According Acco				Active	5				38.553	-76.415	-	2.4	Coastal	XYS Watchkeepe	2	TRIAXYS	2D	no upgrade
1-00.00 10.00 pm											-						2D	no upgrade
Additional Trace of the Control of Control	44064 I	First Landing								-76.043	-				2		2D	no upgrade
1400 1400				Active		2									3		2D 1D	upgrade
1802 1902 1903 1 1 1 1 1 1 1 1 1				Active/Offline		2	Stopped 1/9/2012, no schedule	NDBC									2D	upgrade First5
Applied September Property Applied September September Applied September Applied September Applied September September Applied September Septe																	2D	First5
March Marc					4						49				1		2D	First5
4100 161 February 161		160 Jeffrey's Ledge, NH	Backbone	Active	5			CDIP/UNH	42.801	-70.169	77	4.4	Coastal		1		2D	First5
According Description De							replaced: 44010 (1994-1995), CHLV2 (Datawell Hippy	2D	First5
Attribute Author Reserved Department															_		2D	First5
Proposed - Designed Service (1996) Proposed Designed Proposed Propo					3												1D 1D	no upgrade
Figure Proposed Enthance Children Proposed Scott Proposed					- 2	- 1	Wee 44004					6.8		NOMAD	ь	Schaevitz LSOC	2D	no upgrade First5
Proposed Proposed					5	2	VV as 44004										2D	First5
						_								1		1	2D	First5
Proposed - Congregat Track Date: Special Backbore Proposed 4 3 Proposed 100 Control Cont					5	3	Could move 41013 or 41036 to here		33.800	-76.570							2D	First5
Section Proceed Address Proceed Section Sectio				Proposed	4	3		Proposed	31.100	-80.000	100					1	2D	First5
Proposal Section Proposal Se					5			Proposed			200				ļ	1	2D	First5
				Proposed	4	3		Proposed								1	2D	First5
				Proposed	4	2			40.720					1		+	2D 2D	First5
Proposed Cape May, N. Sockhore Proposed 4 2 Proposed 38,000 74,200 6 Countal				Proposed	_	3								1		+	2D 2D	First5
				Proposed		-		Proposed						1		+	2D	First5
				Proposed	4	3		Proposed									2D	First5
Proposed Section Proposed Section Proposed Section Proposed Section Proposed Section Proposed Section Section	64070			Proposed	5	2			33.803	-78.058	10		Coastal				2D	First5
Section Proposed Authorowite FL Backbore Proposed 5 2 Proposed 30.340 41.270 17 Count		Proposed - Charleston, SC			5	2		Proposed					Coastal				2D	First5
				Proposed	5	2											2D	First5
Bell 20				Proposed	5	2		Proposed									2D	First5
65120 Rover Busy - Cape Lebout Rover Busy					6	2					50						2D 2D	First5
					5									,			2D	First5
Rower Busy - Attentic Coast					5	1				-76.433	25						2D	First5
Betton Proposed 26,000 79,902 110 Rover Buyy Repeated 5 1 4 64s and on NBEC USCC 38,504 75,004 16 8 65,005 14 65,005		Rover Buoy - Atlantic Coast		Proposed	4	1		Proposed									2D	First5
FRFFL United Printy Duck NC Supporting Advance/Orine 4 data and on NGBC USACE 38.187 75.763 23.3 Costatal Pressure Bettom Mod Pressure Pressure Bettom Mod Pressure Pressure Bettom Mod Pressure Pressure Pressure Bettom Mod					Ü	1							Rover Buoy	1			2D	First5
MODIO Cocan City, MD MODIO Backborne Active 4 gata not on NGE USACE 33.40 7-5.070 9 192 Cocastal Pressure Bottom Mod Pressure Bottom Mod Pressure Color Cocan				Active													2D	First5
Carribosa Sea Carribosa Carribosa				Active/Offline													2D	First5
41053 PRZ03 San Jun Puter Rico Backbore Active 4			Backbone	Active	4		data not on NDBC	USACE	38.340	-/5.0/0	9	19.2	Coastai	Pressure	Bottom IVIC	yPressure	2D	First5
Hard			Rackhone	Activo	3			CariCOOS	18 251	-64 763	45	16	Coastal	ODAS	3	Summit 3/12/13 A	1D	no upgrade
Add					4										3		1D	no upgrade
#42058 Central Caribbean			Backbone	Active	6			CDIP/CariCOOS	18.376	-67.280	33	1.7	Coastal	Waverider	1	Datawell Hippy	2D	First5
Active 4 2 NOBC 14.923 74.918 4.042 7.5 Offshore Discus 3 DOMW/3DM6 Active 3 4 NOBC 15.006 67.846 4.900 43.500 1.426 3.6 Offshore NOMAD 6 Schaentt LSDC Active 5 NOBC 16.500 63.500 1.426 3.8 0.0184						_											2D	upgrade
4000 Eastern Caribbean Backtone Active 3 4 NDBC 15.006 -67-496 4,900 5.6 Offshore NOMAD 6 Schwerit LSOC 42008 PR105 Southeast of Ponce, PR Backtone Active 5 NDBC 15.000 17.800 -66.524 18 3.4 Coastal ODAS 3 Summit 34203.						4											2D	upgrade
42006 Eastern Caribbean Backtone Active 3 5 NBBC 16:500 43:500 14:26 33:6 Offstore NOMAD 6 Schaentz LSR02					4	2											2D	upgrade
42006 PR105 Southesst of Ponce, PR					3	4 E								NOMAD			1D 1D	upgrade
Great Lakes						3											2D	no upgrade
45002 Michigan Manitou Washington Islands Backbone Active 7 3 NDBC 45,354 48,411 175 33,3 Inner-Sheff Discus-F 2 DDAWI/JOMG 45004 78NM EV Marquette MI Backbone Active 5 3 NDBC 47,584 48,587 226 32,6 Inner-Sheff Discus-F 2 DDAWI/JOMG 45005 WE fire JEMN WILL (Viewland, OH Backbone Active 6 4 NDBC 41,677 48,238 13,8 32,5 Inner-Sheff Discus-F 2 Scheevitz, LSOC, 140,000 45,000 47,484 48,825 178 31,5 Inner-Sheff Discus-F 3 DDAWI/JOMG 45,000 47,484 48,825 178 31,5 Inner-Sheff Discus-F 3 DDAWI/JOMG 45,000 47,484 48,825 178 31,5 Inner-Sheff Discus-F 3 DDAWI/JOMG 45,000 47,484 48,825 178 31,5 Inner-Sheff Discus-F 3 DDAWI/JOMG 45,000 47,484 48,825 178 31,5 Inner-Sheff Discus-F 3 DDAWI/JOMG 45,000			1		-		I.											no opgrade
45003 NHurion 37NN NE Alpena Mi	45001 I	Mid Superior 60NM NNE Hancock MI	Backbone	Active	6	4									3		2D	upgrade
45001 78PM EW Marquette MI	45002 I	N Michigan N Manitou Washington Islands	Backbone		7							33.3	Inner-Shelf	Discus-F			2D	upgrade
45006 W Efie 2BM NW Cleveland, OH Backbone Active 6 4 NDBC 41,677 82,398 13 32,5 Inner-Shelf Discus-F 3 DDMW/3DMG 45006 Active 4 2 NDBC 47,348 838,825 778 31,5 Inner-Shelf Discus-F 3 Schaevitz LSOC 45007 S Michigan 43NM SE Milwauke, WI Backbone Active 6 5 NDBC 44,289 82,51 77,405 145 10,7 Inner-Shelf Discus-F 3 DDMW/3DMG 45008 Extended to the control of the contro						3											2D	upgrade
45000 W Superior 48NM N Ironwood MI Backbone					Ü	3									2		1D 2D	upgrade
45000 S Michigan 43MM SE Milwaukee, WI						2									3		1D	upgrade upgrade
Active A						5									-		2D	upgrade
45012 L Ontario 20NM NNE Rochester NY			Backbone	Active	6	5		NDBC		-82.415		31.2	Inner-Shelf	Discus	3	DWPM/ARS	2D	upgrade
45022 Little Traverse Bay, MI	45012 I	L Ontario 20NM NNE Rochester NY		Active	3	3						10.7	Inner-Shelf	Discus-F	2	Schaevitz LSOC	1D	upgrade
45023 Portage Canal, MI				Active/Offline			waiting redeployment, not deployed in 2											First5
45024 Ludington, MI																		First5
45025 Suth Entrance to Keweenaw Waterway, MI Backbone Active 4 Michigan Technological Unive 46,950 -88,409 150 0.4 Coastal \$2 TIDAS 900 But 1 Inertial Wave Ser 45026 St. Joseph, MI - Near Cook Nuclear Plant Backbone Active 5 Limn Tech 41,983 -86,617 160 1.5 Coastal \$2 TIDAS 900 But 1 Inertial Wave Ser 45132 Port Stanley Supporting Canadian 4 Env. Canada 42,483 -81,233 21 23,3 Inner-Sheff Discus 3 Schaevitz LSOC. 45139 Prince Edward Pt Supporting Canadian 3 Env. Canada 42,473 -76,868 68 23,3 Inner-Sheff Discus 3 Schaevitz LSOC. 45142 Port Colborne Supporting Canadian 2 Env. Canada 42,777 -79,540 3.5 6.7 Inner-Sheff Discus 3 Schaevitz LSOC. 45142 Port Colborne Supporting Canadian 2 Env. Canada 42,774 -79,350 27 18.4 Inner-Sheff Discus 3 Schaevitz LSOC. 45142 Lake St. Clair Supporting Canadian 2 Env. Canada 42,774 -79,350 27 18.4 Inner-Sheff Discus 3 Schaevitz LSOC. 45149 Southern Lake Huron Supporting Canadian 2 Env. Canada 42,747 -82,668 6 12.6 Inner-Sheff LYS Watchkeepe 2 TRIAXYS 45149 Southern Lake Huron Supporting Canadian 2 Env. Canada 43,550 -82,668 6 12.6 Inner-Sheff LYS Watchkeepe 2 TRIAXYS 93010 Proposed - Lake Erie Backbone Proposed 6 2 Proposed 42,425 -79,933 130 Inner-Sheff LYS Watchkeepe 2 TRIAXYS 93010 Proposed - Lake Erie Backbone Proposed 4 2 Proposed 42,425 -79,933 130 Inner-Sheff LYS Watchkeepe 2 TRIAXYS 93010 Proposed - Lake Brie Backbone Proposed 4 2 Proposed 43,780 -79,933 130 Inner-Sheff LYS Watchkeepe 2 TRIAXYS 93010 Proposed - Lake Brie Backbone Proposed 4 2 Proposed 43,780 -79,933 130 Inner-Sheff LYS Watchkeepe 2 TRIAXYS 93010 Proposed 4 4 4 4 4 4 4 4 4															1 1			First5
45122 St. Joseph, MI - Near Cook Nuclear Plant Backbone Active 5 Limno Tech 41,931 -88,617 160 1.5 Coastal SZTIDAS 900 Bu 1 Inertial Wave Ser 145132 Proposed 142,433 -81,233 Liner-Shelf Discus 3 Schaevitz LSOC 45135 Prince Edward Pt Supporting Canadian 3 Env. Canada 42,433 -81,233 Liner-Shelf Discus 3 Schaevitz LSOC 45135 Prince Edward Pt Supporting Canadian 2 Env. Canada 43,800 -76,868 68 23,3 Inner-Shelf Discus 3 Schaevitz LSOC 45142 Prince Pt Canadian 2 Env. Canada 42,277 -79,540 35 6.7 Inner-Shelf Discus 3 Schaevitz LSOC 45142 Prince Pt Canadian 2 Env. Canada 42,277 -79,540 35 6.7 Inner-Shelf Discus 3 Schaevitz LSOC 45147 Lake St. Clair Supporting Canadian 2 Env. Canada 42,247 -79,3540 27 18,4 Inner-Shelf Discus 3 Schaevitz LSOC 45147 Lake St. Clair Supporting Canadian 3 Env. Canada 42,417 -82,668 6 12,6 Inner-Shelf Discus 3 Schaevitz LSOC 45147 Lake St. Clair Supporting Canadian 3 Env. Canada 42,417 -82,668 6 12,6 Inner-Shelf Usus 3 Schaevitz LSOC 45147 Lake St. Clair Supporting Canadian 3 Env. Canada 42,417 -82,668 6 12,6 Inner-Shelf Usus 3 Schaevitz LSOC Env. Canada 42,417 -82,668 6 12,6 Inner-Shelf Usus 4,417 Schaevitz LSOC Env. Canada 42,417 -82,668 6 12,6 Inner-Shelf Usus 4,417 Schaevitz LSOC Env. Canada 42,417 -82,668 6 12,6 Inner-Shelf Usus 4,417 Schaevitz LSOC Env. Canada 42,417 -82,668 6 12,6 Inner-Shelf Usus 4,417 Schaevitz LSOC Env. Canada 42,417 Sch										00c.db-	142				1			First5 First5
45132 Port Stanley Supporting Canadian 4 Env. Canada 42.483 -81.233 21 23.3 Inner-Shelf Discus 3 Schaevitz LSOC																		First5
45135															_			no upgrade
45142	45135 I	Prince Edward Pt			3			Env. Canada	43.800	-76.868		23.3	Inner-Shelf	Discus	3	Schaevitz LSOC	1D	no upgrade
45147					2												1D	no upgrade
45149 Southern Lake Huron Supporting Canadian 2 Env. Canada 43.550 -82.083 58 12.6 Inner-Shelf XYS Watchkeepe 2 TRIAXYS					2										-		1D	no upgrade
93010 Proposed - Lake Erie Backbone Proposed 6 2 Proposed 42,425 -79,923 130 Inner-Shelf 93020 Proposed - Lake Erie Backbone Proposed 5 3 GLOS location Proposed 42,400 -81,520 155 Inner-Shelf 93210 Proposed - Lake Michigan Backbone Proposed 4 2 Proposed 43,780 -87,050 44 Inner-Shelf 95010 Rover Buoy - Lake Erie Supporting Proposed 5 3 GLOS location Proposed 41,852 -83,113 170 Rover Buoy Supporting Proposed 43,780 -78,916 170 Rover Buoy Supporting Proposed 43,780 -78,916 170 Rover Buoy Supporting Proposed 43,780 -78,916 170 Rover Buoy 9510 Rover Buoy - Lake Superior Supporting Proposed 3 5 Proposed 47,568 -87,885 120 Rover Buoy 95120 Rover Buoy - Lake Superior Supporting Proposed 5 Proposed 46,852 -91,598 170 Rover Buoy Supporting Proposed 48,852 -91,598 170 Rover Buoy Supporting Proposed 48,854 -91,854 -91,854 -91,854 -91,854 -91,854 -91,854 -91,854 -91,854 -91,854 -91,854 -91,854 -91,854 -91,854 -91,854 -91,854 -91,854 -91,854 -91,854 -9					3										2		1D 1D	no upgrade
93020 Proposed - Lake Erie Backbone Proposed 5 3 GLOS location Proposed 42,040 -81,520 155 Inner-Shelf 93210 Proposed - Lake Michigan Backbone Proposed 4 2 Proposed 43,780 -87,050 44 Inner-Shelf 95010 Rover Buoy - Lake Erie Supporting Proposed 5 3 GLOS location Proposed 41,852 -83,113 170 Rover Buoy 95020 Rover Buoy - Lake Erie Supporting Proposed 4 3 GLOS location Proposed 42,854 -78,916 170 Rover Buoy 95110 Rover Buoy - Lake Superior Supporting Proposed 3 5 Proposed 47,568 -87,885 120 Rover Buoy 95120 Rover Buoy - Lake Superior Supporting Proposed 5 5 Proposed 46,852 -91,598 170 Rover Buoy 170 Rover Buo					- 2	2										CYXAIN	1D 2D	no upgrade First5
93210 Proposed - Lake Michigan Backbone Proposed 4 2 Proposed 43.780 44 Inner-Sheff 95010 Rover Buoy - Lake Erie Supporting Proposed 5 3 GLOS location Proposed 41.852 -83.113 170 Rover Buoy 95020 Rover Buoy - Lake Erie Supporting Proposed 4 3 GLOS location Proposed 42.854 -78.916 170 Rover Buoy 99110 Rover Buoy - Lake Superior Supporting Proposed 3 5 Proposed 47.568 -87.885 120 Rover Buoy 99120 Rover Buoy - Lake Superior Supporting Proposed 5 5 Proposed 46.852 -91.958 170 Rover Buoy					5	3	GLOS location									+	2D	First5
95010 Rover Buoy - Lake Erie Supporting Proposed 5 3 GLOS location Proposed 41.852 -83.113 170 Rover Buoy 95020 Rover Buoy - Lake Erie Supporting Proposed 4 3 GLOS location Proposed 42.854 -78.916 170 Rover Buoy 95110 Rover Buoy - Lake Superior Supporting Proposed 3 5 Proposed 47.588 -87.885 120 Rover Buoy 95120 Rover Buoy - Lake Superior Supporting Proposed 5 Proposed 46.852 -91.998 170 Rover Buoy					4	2										1	2D	First5
95020 Rover Buoy - Lake Erie Supporting Proposed 4 3 GLOS location Proposed 42.854 -78.916 170 Rover Buoy 95110 Rover Buoy - Lake Superior Supporting Proposed 3 5 Proposed 47.568 -87.885 120 Rover Buoy 95120 Rover Buoy - Lake Superior Supporting Proposed 5 5 Proposed 46.852 -91.958 170 Rover Buoy	95010			Proposed	5	3	GLOS location	Proposed	41.852								2D	First5
95120 Rover Buoy - Lake Superior Supporting Proposed 5 5 Proposed 46.852 -91.598 170 Rover Buoy	95020			Proposed	4	3		Proposed		-78.916	170		Rover Buoy	1			2D	First5
					3	5							Rover Buoy	,			2D	First5
					_	5										1	2D	First5
95130 Rover Buoy - Lake Superior Supporting Proposed 4 5 Proposed 44,040 -87,514 130 Rover Buoy 95210 Rover Buoy - Lake Superior Supporting Proposed 4 5 Proposed 44,040 -87,514 130 Rover Buoy	95130	Rover Buoy - Lake Superior	Supporting	Proposed	4	5		Proposed					Rover Buoy		-	1	2D 2D	First5 First5

National Operational Wave Observation Plan, 2012 update: Table of Locations

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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
95220	Rover Buoy - Lake Michigan	Supporting	Proposed	4	5		Proposed	42.042	-87.409	140		Rover Buoy			2D	First5
95230	Rover Buoy - Lake Michigan	Supporting	Proposed	5	5	GLOS location	Proposed	44.746	-87.809	170		Rover Buoy			2D	First5
95240 95310	Rover Buoy - Lake Michigan Rover Buoy - Lake Huron	Supporting	Proposed Proposed	4	3	GLOS location GLOS location	Proposed Proposed	43.026 43.819	-87.633 -83.669	100 170		Rover Buoy Rover Buoy			2D 2D	First5
95320	Rover Buoy - Lake Huron	Supporting	Proposed	5	3	GLOS location	Proposed	43.128	-82,459	170		Rover Buoy			2D 2D	First5
95410	Rover Buoy - Lake St. Clair	Supporting	Proposed	5	3		Proposed	42.450	-82.830	160		Rover Buoy			2D	First5
95510	Rover Buoy - Lake Ontario	Supporting	Proposed	4	3	GLOS location	Proposed	43.325	-77.537	20		Rover Buoy			2D	First5
95520	Proposed - Lake Ontario	Backbone	Proposed	6	2		Proposed	43.543	-78.891	60		Inner-Shelf			2D	First5
42001	Gulf of Mexico	Deathre	Anthur	5			NDBC	25.900	-89.667	3.274	00.0	Offshore	Diame E	3 DWMM/3DMG	1D	de
42001	Middle GoM 180NM S Southwest Pass LA West GoM 240NM SSE Sabine TX	Backbone Backbone	Active Active	5	3	intermitent starting 4/12 - Change to 3N	NDBC NDBC	25.790	-89.667	3,274	36.2 36.2	Offshore	Discus-F Discus	10 DWPM/ARS Angu	2D	no upgrade
42002	E GoM 262NM S Panama City FL	Backbone	Active	6	3	Upgrade to Hippy	NDBC	26.044	-85.612	3,233	35.4		Discus	3 DDWM/3DMG	2D	upgrade
42012	Orange Beach AL Buoy	Backbone	Active	5	2	No data between 1985-2008	NDBC	30.065	-87.555	26	5.1		Discus	3 DDWM/3DMG	2D	upgrade
42019	Freeport TX 60NM S Freeport TX	Backbone	Active	4	1		NDBC	27.913	-95.353	79	22.6	Outer-Shelf	Discus	3 DDWM/3DMG	2D	upgrade
42020	Corpus Chirsti TX 50NM SE Corpus Christi TX	Backbone	Active	4	3		NDBC	26.944	-96.696	88		Inner-Shelf	Discus	3 DDWM/3DMG	2D	upgrade
42035	Galveston 22NM E Galveston TX	Backbone	Active	4	4	Upgrade to Hippy	NDBC	29.232	-94.413	14	19.6	Coastal	Discus	3 DDWM/3DMG	2D	upgrade
42036 42039	West Tampa 106NM WNW Tampa FL Pensacola 115 ESE Pensacola FL	Backbone Backbone	Active Active	3	3	intermitent transmission 5/19	NDBC NDBC	28.500 28.794	-84.517 -86.021	55 291		Inner-Shelf Inner-Shelf	Discus-F Discus	3 DDWM/3DMG 3 Angular Rate Sen	2D 2D	upgrade
42040	Mobile South 64NM S Dauphin Island AL	Backbone	Active	4	1	intermitent transmission 3/19	NDBC	29.185	-88.214	274		Outer-Shelf	Discus	10 DWPM/ARS	2D	upgrade upgrade
42055	Bay of Campeche	Backbone	Active	4	4		NDBC	22.203	-94.000	3,566		Offshore	Discus-F	3 DDWM/3DMG	2D	upgrade
42099	144 ST. Petersburg, offshore, FL	Backbone	Active	5			CDIP/USACE	27.340	-84.275	94	5.5	Inner-Shelf	Waverider	 Datawell Hippy 	2D	First5
42360	BW Pioneer buoy - Walker Ridge 249	Supporting	Active	2			Petrobras	26.700	-90.460	2,499	2.8		Unknown	unknown unknown	1D	no upgrade
72010	Proposed - Replaces Sentinel 42020	Backbone	Proposed	5	2		Proposed	24.914	-83.690	210		Outer-Shelf			2D	First5
72020	Proposed - Northern Florida Escarpment	Backbone	Proposed	4	2		Proposed	27.990	-86.280 -90.200	1,400	-	Outer-Shelf			2D	First5
72040 72050	Proposed - Timbalier Bay Outer Shelf Proposed - McGrail Bank, Outer Shelf	Backbone Backbone	Proposed Proposed	- 4 - 5	2		Proposed Proposed	28.150 27.913	-90.200 -92.655	270 300		Outer-Shelf Outer-Shelf			2D 2D	First5
73010	Proposed - Florida Canyon, Outer Shelf	Backbone	Proposed	4	4	Replaces 42020 which will no longer ha	Proposed	26.944	-96.696	88		Inner-Shelf			2D	First5
74010	Proposed - Tampa	Backbone	Proposed	6	5		Proposed	27.480	-82.860	9		Coastal			2D	First5
74020	Proposed - Panama City	Backbone	Proposed	5	3		Proposed	29.962	-85.780	30		Coastal			2D	First5
74030	Proposed - Gulfport	Backbone	Proposed	6	1	Old 42007 location	Proposed	30.090	-88.769	15		Coastal			2D	First5
74040	Proposed - New Orleans	Backbone	Proposed	5	3		Proposed	28.892	-89.297	-		Coastal			2D	First5
74050 74060	Proposed - Sabine Proposed - Freeport	Backbone Backbone	Proposed Proposed	5	3		Proposed Proposed	29.628 28.780	-93.550 -95.290	10 20		Coastal Coastal			2D 2D	First5
74080	Proposed - Preeport Proposed - Corpus Christi	Backbone	Proposed	5	4		Proposed	27.696	-95.290	12		Coastal			2D 2D	First5
74090	Proposed - Brazos Island	Backbone	Proposed	6	4	Moved to new location	Proposed	26.100	-97.052	20		Coastal			2D	First5
75010	Rover Buoy - Fort Myers	Supporting	Proposed	4	2		Proposed	26.228	-82.176	20		Rover Buoy			2D	First5
LOPL1	Louisiana Offshore Oil Port, LA	Supporting	Active	2		L	ouisiana Offshore Oil Port	28.885	-90.024	30		Coastal	Unknown	unknown unknown	1D	no upgrade
MRSL1	CSI-03 - South of Vermilion Bay	Supporting	Active	3		Tower mounted	CSI-LSU	29.441	-92.061	6	10	Oddida	ADCP	Bottom Mou ADCP	2D	no upgrade
SPLL1 CS-09	CSI-06 - Chevron Platform, ST-52B, South of Terrebonne CSI-09 - Grand Isle Blocks, LA		Active Active	2		Tower mounted Tower mounted, not on NDBC	CSI-LSU CSI-LSU	28.867 29.102	-90.483 -89.978	21 16	11 6		ADCP ADCP	Bottom Mou ADCP Bottom Mou ADCP	2D 2D	no upgrade
C3-09	Pacific Coast	Supporting	Active	3		Tower mounted, not on NDBC	CSI-LSU	29.102	-09.970	10	0	Coastai	ADCP	BOILOTT MOYADCP	20	no upgrade
46002	Oregon 275NM W Coos Bay OR	Backbone	Active	5	2		NDBC	42.589	-130.474	3,374	37	Offshore	Discus	3 Schaevitz LSOC_	1D	upgrade
46005	Washington 315NM W Aberdeen WA	Backbone	Active	5	2		NDBC	46.100	-131.001	2,780	36		Discus	3 Schaevitz LSOC_	1D	upgrade
	SE PAPA 600NM W Eureka CA	Backbone	Active	5	5		NDBC	40.754	-137.464	4,151		Offshore	Discus	3 Schaevitz LSOC_	1D	upgrade
46011 46012	Santa Maria 21 NM NW Point Arguello CA Half Moon Bay 24NM SSW San Francisco CA	Backbone Backbone	Active Active	5	3		NDBC NDBC	35.000 37.357	-120.992 -122.881	188 213		Outer-Shelf Outer-Shelf	Discus Discus	3 DDWM/3DMG 3 DDWM/3DMG	2D 2D	upgrade
46012	Bodega Bay 48NM NNW San Francisco CA	Backbone	Active	4	4		NDBC NDBC	38.225	-123.317	127		Outer-Shelf	Discus	3 Schaevitz LSOC_	1D	upgrade upgrade
46014	Pt Arena 19NM N Point Arena CA	Backbone		-					-123.974	284		Outer-Shelf			1D	
46015	Port Orford 16NM W Point Orford OR			5	2			39 235					Discus			
46022			Active Active	5 4	2 2		NDBC NDBC	39.235 42.747	-124.847	424		Outer-Shelf	Discus Discus-F	3 Schaevitz LSOC_ 3 DDWM/3DMG	2D	upgrade upgrade
46025	Eel river 17NM WSW Eureka CA	Backbone Backbone		5 4 4	2 2 1		NDBC		-124.847 -124.542	424 509	10					upgrade
	Santa Monica Basin 33NM WSW, CA	Backbone Backbone	Active Active/Offline		2 2 1	stopped 4/11/2011, no schedule, no sta	NDBC NDBC NDBC NDBC	42.747 40.781 33.746	-124.847 -124.542 -119.076	509 860	10 31 30	Outer-Shelf Outer-Shelf Offshore	Discus-F Discus Discus	3 DDWM/3DMG 3 Schaevitz LSOC_ 3 DDWM/3DMG	2D 1D 2D	upgrade upgrade no upgrade
46026	Santa Monica Basin 33NM WSW, CA San Francisco 18NM W San Francisco CA	Backbone Backbone Backbone Backbone	Active Active/Offline Active	4	2 2 1	Add Hippy, then not need 46247	NDBC NDBC NDBC NDBC NDBC NDBC	42.747 40.781 33.746 37.759	-124.847 -124.542 -119.076 -122.833	509 860 55	10 31 30 30	Outer-Shelf Outer-Shelf Offshore Outer-Shelf	Discus-F Discus Discus Discus	3 DDWM/3DMG 3 Schaevitz LSOC 3 DDWM/3DMG 3 DDWM/3DMG	2D 1D 2D 2D	upgrade upgrade no upgrade upgrade
46026 46027	Santa Monica Basin 33NM WSW, CA San Francisco 18NM W San Francisco CA St Georges 8NM WNW Cresent City CA	Backbone Backbone Backbone Backbone	Active Active/Offline Active Active	4 5 6 5	1 1		NDBC NDBC NDBC NDBC NDBC NDBC	42.747 40.781 33.746 37.759 41.850	-124.847 -124.542 -119.076 -122.833 -124.381	509 860 55 48	10 31 30 30 28	Outer-Shelf Outer-Shelf Offshore Outer-Shelf Outer-Shelf	Discus-F Discus Discus Discus Discus	3 DDWM/3DMG 3 Schaevitz LSOC 3 DDWM/3DMG 3 DDWM/3DMG 3 DDWM/3DMG 3 DDWM/3DMG	2D 1D 2D 2D 2D 2D	upgrade upgrade no upgrade upgrade upgrade
46026 46027 46028	Santa Monica Basin 33NM WSW, CA San Francisco 18NM W San Francisco CA St Georges 8NM WNW Cresent City CA Cape San Martin 55NM WNW Morro Bay CA	Backbone Backbone Backbone Backbone Backbone Backbone	Active Active Active/Offline Active Active Active Active	4 5 6 5 5	2 2 1 1 1 1 3	Add Hippy, then not need 46247	NDBC NDBC NDBC NDBC NDBC NDBC NDBC	42.747 40.781 33.746 37.759 41.850 35.737	-124.847 -124.542 -119.076 -122.833 -124.381 -121.889	509 860 55 48 1,112	10 31 30 30 28 29	Outer-Shelf Outer-Shelf Offshore Outer-Shelf Outer-Shelf Outer-Shelf	Discus-F Discus Discus Discus Discus Discus Discus Discus	3 DDWW3DMG 3 Schaevitz LSOC_ 3 DDWW3DMG 3 DDWW3DMG 3 DDWW3DMG 3 DDWW3DMG 3 DDWW3DMG	2D 1D 2D 2D 2D 2D 2D	upgrade upgrade no upgrade upgrade upgrade upgrade
46026 46027 46028 46029 46036	Santa Monica Basin 33NM WSW, CA San Francisco 18NM W San Francisco CA St Georges 8NM WSW Cresent City CA Cape San Martin 55NM WNW Morro Bay CA Columbia River Bar 78NM SSW Aberdeen WA South Nomad	Backbone Backbone Backbone Backbone	Active Active Active/Offline Active Active Active Active Active Canadian	4 5 6 5	1 1	Add Hippy, then not need 46247	NDBC NDBC NDBC NDBC NDBC NDBC NDBC NDBC	42.747 40.781 33.746 37.759 41.850 35.737 46.144 48.351	-124.847 -124.542 -119.076 -122.833 -124.381 -121.889 -124.512 -133.940	509 860 55 48 1,112 135 3,500	10 31 30 30 28 29 29	Outer-Shelf Outer-Shelf Offshore Outer-Shelf Outer-Shelf Outer-Shelf Outer-Shelf Outer-Shelf	Discus-F Discus Discus Discus Discus Discus Discus Discus NOMAD	3 DDWM/3DMG 3 Schaevitz LSOC 3 DDWM/3DMG 3 DDWM/3DMG 3 DDWM/3DMG 3 DDWM/3DMG 3 DWPM/Hippy DD 6 Schaevitz LSOC	2D 1D 2D 2D 2D 2D 2D 2D 1D	upgrade upgrade no upgrade upgrade upgrade
46026 46027 46028 46029 46036 46041	Santa Monica Basin 33NM WSW, CA San Francisco 18NM W San Francisco CA St Georges 8NN WNW Cresent City CA Cape San Martin 55NM WNW Morro Bay CA Columbia River Bar 78NN SSW Aberdeen WA South Nomad Cape Elizabeth 450NM NW Aberdeen WA	Backbone Backbone Backbone Backbone Backbone Backbone Backbone Backbone	Active Active/Offline Active Active Active Active Active Active Active	4 5 6 5 5	1 1	Add Hippy, then not need 46247	NDBC NDBC NDBC NDBC NDBC NDBC NDBC NDBC	42.747 40.781 33.746 37.759 41.850 35.737 46.144 48.351 47.353	-124.847 -124.542 -119.076 -122.833 -124.381 -121.889 -124.512 -133.940 -124.731	509 860 55 48 1,112 135 3,500	10 31 30 30 28 29 29	Outer-Shelf Outer-Shelf Offshore Outer-Shelf Outer-Shelf Outer-Shelf Outer-Shelf	Discus-F Discus NOMAD Discus	3 DDWM/3DMG 3 Schaevitz LSOC 3 DDWM/3DMG 3 DDWM/3DMG 3 DDWM/3DMG 3 DDWM/3DMG 3 DDWM/3DMG 3 DWPM/Hippy DD 6 Schaevitz LSOC 3 DDWM/3DMG	2D 1D 2D 2D 2D 2D 2D 2D 1D 1D	upgrade upgrade no upgrade upgrade upgrade upgrade upgrade First5
46026 46027 46028 46029 46036 46041 46042	Santa Monica Basin 33NM WSW, CA San Francisco 18NM W San Francisco CA St Georges 8NM WNW Cresent City CA Cape San Martin 55NM WNW Morro Bay CA Columbia River Bar 78NM SSW Aberdeen WA South Nomad Cape Elizabeth 450NM NW Aberdeen WA Montrery ZPMW W Monterey Bay CA	Backbone Backbone Backbone Backbone Backbone Backbone Backbone Backbone Backbone Supporting Backbone Backbone	Active Active/Offline Active/Offline Active Active Active Active Canadian Active Active	4 5 6 5 5 5 3 4	1 1 3 3	Add Hippy, then not need 46247	NDBC NDBC NDBC NDBC NDBC NDBC NDBC NDBC	42.747 40.781 33.746 37.759 41.850 35.737 46.144 48.351 47.353 36.753	-124.847 -124.542 -119.076 -122.833 -124.381 -121.889 -124.512 -133.940 -124.731 -122.423	509 860 55 48 1,112 135 3,500 115 2,115	10 31 30 30 28 29 29 29 26 26	Outer-Shelf Outer-Shelf Offshore Outer-Shelf Outer-Shelf Outer-Shelf Outer-Shelf Outer-Shelf Offshore Outer-Shelf Outer-Shelf	Discus-F Discus Discus Discus Discus Discus Discus Discus Discus Discus NOMAD Discus Discus	3 DDWM/3DMG 3 Schaevitz LSOC 3 DDWM/3DMG 3 DDWM/3DMG 3 DDWM/3DMG 3 DDWM/3DMG 3 DWPM/Hippy DD 6 Schaevitz LSOC 3 DDWM/3DMG 9 DWPM/Hippy DD	2D 1D 2D 2D 2D 2D 2D 2D 1D 1D 1D	upgrade upgrade no upgrade upgrade upgrade upgrade upgrade upgrade upgrade First5 no upgrade upgrade First5
46026 46027 46028 46029 46036 46041 46042 46047	Santa Monica Basin 33NM WSW, CA San Francisco 18NM W San Francisco CA St Georges 8NM WNW Cresent City CA Cape San Martin 55NM WNW Morro Bay CA Columbia River Bar 78NM SSW Aberdeen WA South Nomad Cape Elizabeth 450NM NW Aberdeen WA Monterey 27NM W Monterey Bay CA Tanner Bank 121NM W San Diego CA	Backbone	Active Active Active/Offline Active Active Active Active Active Canadian Active Active Active	4 5 6 5 5 5 5 4 4 5	1 1 3 3	Add Hippy, then not need 46247	NDBC NDBC NDBC NDBC NDBC NDBC NDBC NDBC	42.747 40.781 33.746 37.759 41.850 35.737 46.144 48.351 47.353 36.753 32.433	-124.847 -124.542 -119.076 -122.833 -124.381 -121.889 -124.512 -133.940 -124.731 -122.423 -119.533	509 860 55 48 1,112 135 3,500 115 2,115 1,394	10 31 30 30 28 29 29 26 26 26 25	Outer-Shelf Outer-Shelf Offshore Outer-Shelf Outer-Shelf Outer-Shelf Outer-Shelf Offshore Outer-Shelf Outer-Shelf Offshore	Discus-F Discus NOMAD Discus Discus Discus	3 DDWM/3DMG 3 Schaevitz LSOC 3 DDWM/3DMG 4 Schaevitz LSOC 3 DDWM/3DMG 3 DWM/Hippy DD 3 DDWM/3DMG	2D 1D 2D 2D 2D 2D 2D 1D 1D 1D 2D 2D	upgrade upgrade no upgrade upgrade upgrade upgrade upgrade upgrade upgrade First5 no upgrade upgrade upgrade upgrade upgrade upgrade upgrade
46026 46027 46028 46029 46036 46041 46042 46047 46050	Santa Monica Basin 33NM WSW, CA San Francisco 18NM W San Francisco CA Si Georges 8NM WNW Cresent City CA Cape San Martin 55NM WNW Morro Bay CA Columbia River Bar 78NM SSW Aberdeen WA South Normad Cape Elizabeth 450NM NW Aberdeen WA Monterey 27NM W Monterey Bay CA Tanner Bank 121NM W San Diego CA Stonewall Bank 20NM W Newport OR	Backbone Backbone Backbone Backbone Backbone Backbone Backbone Backbone Backbone Supporting Backbone Backbone Backbone Backbone Backbone	Active Active Active/Offline Active Active Active Active Active Active Active Canadian Active Active Active Active Active	4 5 6 5 5 5 3 4	1 1 3 3	Add Hippy, then not need 48247 Add Hippy, then not need 85103	NDBC NDBC NDBC NDBC NDBC NDBC NDBC NDBC	42.747 40.781 33.746 37.759 41.850 35.737 46.144 48.351 47.353 36.753 32.433 44.639	-124.847 -124.542 -119.076 -122.833 -124.381 -121.889 -124.512 -133.940 -124.731 -122.423 -119.533 -124.534	509 860 55 48 1,112 135 3,500 115 2,115 1,394 118	10 31 30 30 28 29 29 26 26 25 21	Outer-Shelf Outer-Shelf Offshore Outer-Shelf Outer-Shelf Outer-Shelf Outer-Shelf Outer-Shelf Offshore Outer-Shelf Outer-Shelf Outer-Shelf Outer-Shelf Outer-Shelf Offshore Outer-Shelf	Discus-F Discus NOMAD Discus Discus Discus	3 DDWM/3DMG 3 Schaevitz LSOC 3 DDWM/3DMG 3 DDWM/3DMG 3 DDWM/3DMG 3 DDWM/3DMG 3 DDWM/3DMG 3 DWM/3DMG	2D 1D 2D 2D 2D 2D 2D 1D 1D 1D 2D 2D 1D	upgrade upgrade no upgrade upgrade upgrade upgrade upgrade pirst5 no upgrade upgrade upgrade upgrade upgrade upgrade upgrade upgrade
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46026 46027 46028 46029 46036 46041 46042 46047 46050 46053 46053 46059 46069	Santa Monica Basin 33NM WSW, CA San Francisco 18NM W San Francisco CA St Georges 8NN WNW Cresent City CA Cape San Martin 55NM WNW Morro Bay CA Columbia River Bar 78NN SSW Aberdeen WA South Nomad Cape Elizabeth 450NM NW Aberdeen WA Monterey 27NM W Monterey Bay CA Tanner Bank 121NM W San Diego CA Stonewall Bank 20NM W Newport OR Santa Barbara East 121NM SW Santa Barbara CA Santa Barbara West 38NM W, CA California 357NM W San Francisco CA South Santa Rosa Island CA	Backbone	Active Active/Active/Active/Active/Active Active	4 5 6 5 5 5 5 5 4 4 5 4 3 3 2 2 3 3	1 1 3 2 2 4	Add Hippy, then not need 48247 Add Hippy, then not need 88103 Existed but not included in 2009 plan, r	NDBC NDBC NDBC NDBC NDBC NDBC NDBC NDBC	42.747 40.781 33.746 37.759 41.850 35.737 46.144 48.351 47.353 36.753 32.433 34.4639 34.243 34.274 38.033 33.670	-124.847 -124.542 -119.076 -122.833 -124.381 -121.889 -124.512 -133.940 -124.731 -122.423 -119.533 -124.534 -119.856 -120.459 -130.000 -120.200	509 860 55 48 1,112 135 3,500 115 2,115 1,394 118 449 447 4,717 1,005	10 31 30 30 28 29 29 26 26 25 21 21 19 19	Outer-Shelf Outer-Shelf Offshore Outer-Shelf Outer-Shelf Outer-Shelf Outer-Shelf Outer-Shelf Offshore Outer-Shelf Outer-Shelf Outer-Shelf Outer-Shelf Outer-Shelf Outer-Shelf Outer-Shelf Outer-Shelf Outer-Shelf Offshore	Discus-F Discus	3 DDWM/3DMG 3 Schaevitz LSOC 3 DDWM/3DMG 3 DDWM/3DMG 3 DDWM/3DMG 3 DDWM/3DMG 3 DDWM/3DMG 3 DWM/3DMG 3 DWM/3DMG 3 DWM/3DMG 3 DWM/3DMG 3 DDWM/3DMG 3 DDWM/3DMG 3 DDWM/3DMG 3 DDWM/3DMG 3 DDWM/3DMG 3 Schaevitz LSOC 3 Schaevitz LSOC 3 Schaevitz LSOC 3 DDWM/3DMG 3 Schaevitz LSOC 3 Schaevitz LSOC	2D 1D 2D 2D 2D 2D 2D 1D 1D 1D 1D 1D 1D 1D 1D 1D 1D 1D 1D 1D	upgrade upgrade upgrade upgrade upgrade upgrade upgrade spirst5 no upgrade
46026 46027 46028 46029 46036 46041 46042 46047 46050 46053 46054 46059 46069	Santa Monica Basin 33NM WSW, CA San Francisco 18NM W San Francisco CA Si Georges 8NM WNW Cresent City CA Cape San Martin 55NM WNW Gresent City CA Cape San Martin 55NM WNW Morro Bay CA Columbia River Bar 78NM SSW Aberdeen WA South Normad Cape Elizabeth 450NM NW Aberdeen WA Monterey 27NM W Monterey Bay CA Tanner Bank 121NM W San Diego CA Stonewall Bank 20NM W Newport OR Santa Barbara East 121NM SW Santa Barbara CA Santa Barbara West 38NM W, CA California 357NM W San Francisco CA South Santa Rosa Island CA Sant Clemete Basin	Backbone	Active	4 5 6 5 5 5 5 5 4 4 5 4 2 3 3 2 2 3 4	2 2 4 4 2 5	Add Hippy, then not need 48247 Add Hippy, then not need 88103 Existed but not included in 2009 plan, r	NDBC NDBC NDBC NDBC NDBC NDBC NDBC NDBC	42.747 40.781 33.746 37.759 41.850 35.737 46.144 48.351 47.353 32.433 44.639 34.243 34.274 38.033 36.70 32.498	-124.847 -124.542 -119.076 -122.833 -124.389 -124.512 -133.940 -124.731 -122.423 -119.533 -124.534 -119.856 -120.459 -130.000 -120.200 -117.999	509 860 55 48 1,112 135 3,500 115 2,115 1,394 118 449 447 4,717 1,005 1,856	10 31 30 30 28 29 29 26 26 25 21 21 19 19	Outer-Shelf Outer-Shelf Offshore Outer-Shelf Outer-Shelf Outer-Shelf Outer-Shelf Outer-Shelf Offshore Outer-Shelf Offshore Outer-Shelf Offshore Outer-Shelf Offshore Outer-Shelf Outer-Shelf Outer-Shelf Offshore Offshore Offshore	Discus-F Discus	3 DDWM/3DMG 3 Schaevitz LSOC 3 DDWM/3DMG 3 DDWM/3DMG 3 DDWM/3DMG 3 DDWM/3DMG 3 DDWM/3DMG 4 DWM/3DMG 5 DDWM/3DMG 5 DDWM/3DMG 6 Schaevitz LSOC 3 DDWM/3DMG 6 Schaevitz LSOC 6 DDWM/3DMG 7 DDWM/3DMG 7 DDWM/3DMG 8 DDWM/3DMG 9 DDWM/3DMG 9 Schaevitz LSOC 1 Schaevitz LSOC 1 Schaevitz LSOC 2 Schaevitz LSOC 3 Schaevitz LSOC 3 Schaevitz LSOC 3 Schaevitz LSOC 3 DDWM/3DMG 4 DDWM/3DMG 5 DDWM/3DMG 5 DDWM/3DMG 6 Schaevitz LSOC 6 DDWM/3DMG 7 DDWM/3DMG 7 DDWM/3DMG 8 Schaevitz LSOC 7 DDWM/3DMG 8 Schaevitz LSOC 8 Schaevitz LSOC 9 DDWM/3DMG 8 Schaevitz LSOC 9 DDWM/3DMG	2D 1D 2D 2D 2D 2D 2D 2D 2D 1D 1D 1D 1D 1D 1D 1D 1D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D	upgrade
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46026 46027 46027 46028 46036 46041 46047 46053 46053 46059 46086	Santa Monica Basin 33NM WSW, CA San Francisco 18NM W San Francisco CA Si Georges 8NM WYW Cresent City CA Cape San Martin 55NM WNW Mort Par Columbia River Bar 78NM SSW Aberdeen WA South Nomad Cape Elizabeth 450NM NW Aberdeen WA Monterey 27NM W Monterey Bay CA Tanner Bank 121NM W San Diego CA Stonewall Bank 20NM W Newport OR Santa Barbara East 121NM SW Santa Barbara CA Santa Barbara West 38NM W, CA California 357NM W San Francisco CA South Santa Rosa Island CA San Clemete Basin Neah Bay WA New Dungeness- Hein Bank WA Tillamock OR 185 Montery Bay West, CA LaPerouseBank OR 185 Montery Bay West, CA LaPerouseBank OR 128 Humboit Bay, South Spit, CA O29 Point Reyes, CA O70 Soleta Point, CA O71 Harvest, CA O77 San Nicolas Island, CA O78 San Nicolas Island, CA O78 San Nicolas Island, CA O79 San Nicolas Island, CA O98 San Pedro, CA O99 Capa Monica Bay, CA O99 Capa Monica Bay, CA O99 Capa Monica Bay, CA O99 San Pedro, CA	Backbone	Active	4 5 6 5 5 5 3 4 4 4 3 3 2 2 2 3 3 4 4 4 4 4 4 4 4 4	2 2 4 4 2 5	Add Hippy, then not need 48247 Add Hippy, then not need 88103 Existed but not included in 2009 plan, r	NDBC NDBC NDBC NDBC NDBC NDBC NDBC NDBC	42,747 40,781 33,746 41,850 35,737 46,144 48,351 47,353 36,753 34,243 34,243 34,243 34,243 34,243 34,243 48,333 45,839 45,889 46,893 47,933 37,946 48,334 36,717 48,334 48,334 36,717 37,946 37	-124.847 -112.542 -119.076 -122.833 -124.817 -121.889 -124.512 -133.940 -124.534 -119.533 -124.534 -119.533 -124.534 -119.533 -124.534 -139.600 -117.999 -124.728 -123.167 -125.830 -126.000 -127.299 -124.728 -123.167 -125.830 -126.000 -127.299 -119.803 -124.243 -124.739 -124.731 -12	509 860 860 860 860 860 860 860 860 860 860	100 310 300 300 299 299 296 266 255 251 211 199 188 8 8 8 1 1 244 311 199 40 260 260 270 271 271 271 271 272 272 273 274 274 275 275 275 275 275 275 275 275 275 275	Outer-Shelf	Discus-Piscus Discus Waverider	3 DDWM/3DMG 1 DATAWALL SOC 3 Schaevitz LSOC 4 DDWM/3DMG 4 DDWM/3DMG 5 DDWM/3DMG 5 DDWM/3DMG 6 DATAWALL SOC 6 DDWM/3DMG 6 DATAWALL SOC 7 DATAWALL SOC 7 DATAWALL SOC 7 DATAWALL SOC 7 DATAWALL SOC 8 DDWM/3DMG 1 DATAWALL SOC 8 DDWM/3DMG 1 DATAWALL SOC 9 DATAWALL SO	2D	upgrade upgrade no upgrade upgrade upgrade in upgrade upgrade upgrade in upgrade in upgrade in upgrade
46026 46027 46028 46029 46036 46041 46041 46047 46053 46053 46053 46058 46087 46086 46087 46086 46087 46086 46087 46086 46087 46086 46087 46086 46087 46084 46214 4622 4622	Santa Monica Basin 33NM WSW, CA San Francisco 18NM W San Francisco CA St Georges 8NM WNW Cresent City CA Cape San Martin 55NM WNW Oresent City CA Cape San Martin 55NM WNW Oresent City CA Cape Bizabeth 450NM NW Morro Bay CA Countbia River Bar 78NN SW Aberdeen WA South Nomad Cape Elizabeth 450NM NW Aberdeen WA Monterey 27NM W Monterey Bay CA Tanner Bank 121NM W San Diego CA Stonewall Bank 20NM W Newport OR Santa Barbara East 121NM W San Diego CA Stonewall Bank 20NM W Newport OR Santa Barbara East 121NM W SA Trancisco CA Santa Barbara West 38NM W, CA California 357NM W San Francisco CA South Santa Rosa Island CA San Clemete Basin Nean Bay WA New Dungeness- Hein Bank WA Tillamook OR 185 Montery Bay West, CA LaperouseBank 036 Grays Harbor, WA 128 Humbolt Bay, South Spit, CA 039 Point Reyes, CA 076 Diablo Carryon, CA 1077 Glate Point, CA 1171 Anacapa Passage, CA 0771 Harvest, CA 077 San Nicolas Island, CA 028 Santa Monica Bay, CA 098 Capa Perior, CA	Backbone	Active Active Active/Coffline Active/Coffline Active/Coffline Active	4 5 6 5 5 5 5 5 3 4 4 4 3 3 2 2 3 3 4 4 4 4 4 4 4 4 4 4	2 2 4 4 2 5	Add Hippy, then not need 48247 Add Hippy, then not need 88103 Existed but not included in 2009 plan, r	NDBC NDBC NDBC NDBC NDBC NDBC NDBC NDBC	42,747 40,781 33,746 41,850 35,737 46,144 48,351 47,353 36,753 32,433 34,274 33,474 34,274 48,333 44,639 36,703 37,946 48,333 46,860 40,753 40,293 40,293 40,293 41,170 41	-124.847 -124.542 -119.076 -122.833 -124.381 -121.833 -124.512 -133.940 -124.731 -124.731 -124.534 -119.533 -124.534 -119.533 -124.534 -119.533 -124.534 -120.200 -120.200 -120.200 -121.200 -122.350 -124.728 -125.830 -124.728 -125.830 -124.739 -126.000 -12	509 8800 55 48 86 67 55 67 56 67 57 57 57 57 57 57 57 57 57 57 57 57 57	100 300 308 299 266 255 211 211 199 188 8 8 8 8 1 1 244 31 30 30 30 30 30 30 30 30 30 30 30 30 30	Outer-Shelf Offshore Outer-Shelf Coastal Coastal Outer-Shelf	Discus-Piscus Discus Waverider	3 DDWM/3DMG 3 Schaevitz LSOC 3 DDWM/3DMG 3 DDWM/3DMG 3 DDWM/3DMG 3 DDWM/3DMG 3 DDWM/3DMG 6 Schaevitz LSOC 3 DDWM/3DMG 4 DAM/3DMG 5 Schaevitz LSOC 4 DDWM/3DMG 5 DAM/3DMG 6 DAM/3DMG 6 DAM/3DMG 7 DAM/3DMG 7 DAM/3DMG 7 DAM/3DMG 8 DDWM/3DMG 8 DDWM/3DMG 9 DAM/3DMG 1 DAM/3D	2D 2D 2D 2D 1D 1D 1D 2D	upgrade ipgrade upgrade upgrade ipgrade ipgrad
46026 46027 46027 46028 46036 46041 46041 46053 46053 46053 46058 46059 46086	Santa Monica Basin 33NM WSW, CA San Francisco 18NM W San Francisco CA Si Georges 8NM WYW Cresent City CA Cape San Martin 55NM WNW Mort Par Columbia River Bar 78NM SSW Aberdeen WA South Nomad Cape Elizabeth 450NM NW Aberdeen WA Monterey 27NM W Monterey Bay CA Tanner Bank 121NM W San Diego CA Stonewall Bank 20NM W Newport OR Santa Barbara East 121NM SW Santa Barbara CA Santa Barbara West 38NM W, CA California 357NM W San Francisco CA South Santa Rosa Island CA San Clemete Basin Neah Bay WA New Dungeness- Hein Bank WA Tillamock OR 185 Montery Bay West, CA LaPerouseBank OR 185 Montery Bay West, CA LaPerouseBank OR 128 Humboit Bay, South Spit, CA O29 Point Reyes, CA O70 Soleta Point, CA O71 Harvest, CA O77 San Nicolas Island, CA O78 San Nicolas Island, CA O78 San Nicolas Island, CA O79 San Nicolas Island, CA O98 San Pedro, CA O99 Capa Monica Bay, CA O99 Capa Monica Bay, CA O99 Capa Monica Bay, CA O99 San Pedro, CA	Backbone	Active	4 5 6 5 5 5 5 3 4 4 5 5 4 4 4 4 4 4 4 4 4 4 4	2 2 4 4 2 5	Add Hippy, then not need 48247 Add Hippy, then not need 88103 Existed but not included in 2009 plan, r	NDBC NDBC NDBC NDBC NDBC NDBC NDBC NDBC	42,747 40,781 33,746 41,850 35,737 46,144 48,351 47,353 36,753 34,243 34,243 34,243 34,243 34,243 34,243 48,333 45,839 45,889 46,893 47,933 37,946 48,343 48,343 48,343 48,343 48,343 48,343 48,343 48,343 48,343 48,343 48,343 36,717 48,343 48,343 31,243 31	-124.847 -124.542 -119.076 -122.833 -124.381 -121.839 -124.512 -133.940 -124.731 -124.731 -124.534 -119.533 -124.534 -119.533 -124.534 -119.533 -124.534 -124.534 -127.200 -120.200 -120.200 -120.200 -121.2590 -124.728 -125.830 -124.739 -125.830 -124.739 -124.739 -124.739 -124.739 -124.739 -124.739 -124.739 -124.739 -139.730 -139.730 -139.730 -149.830 -1	509 860 860 860 860 860 860 860 860 860 860	100 311 300 388 299 299 266 261 211 211 199 199 9 9 8 8 8 8 8 8 8 8 1 1 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2	Outer-Shelf Offshore Outer-Shelf Coastal Coastal Outer-Shelf	Discus-Piscus Discus Waverider	3 DDWM/3DMG 1 DATAWALL SOC 3 Schaevitz LSOC 4 DDWM/3DMG 4 DDWM/3DMG 5 DDWM/3DMG 5 DDWM/3DMG 6 DATAWALL SOC 6 DDWM/3DMG 6 DATAWALL SOC 7 DATAWALL SOC 7 DATAWALL SOC 7 DATAWALL SOC 7 DATAWALL SOC 8 DDWM/3DMG 1 DATAWALL SOC 8 DDWM/3DMG 1 DATAWALL SOC 9 DATAWALL SO	2D	upgrade ino upgrade upgrade ino upgrade upgrade ino upgrade upgrade upgrade upgrade upgrade upgrade upgrade upgrade ino upgrade upgrade ino upgrade inst inst inst inst inst inst inst inst

National Operational Wave Observation Plan, 2012 update: Table of Locations

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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	-122.599	15	5 Coastal	Waverider	1	Datawell Hippy	2D	First5
46238	167 San Nicolas Island North, CA	Supporting	Active	3			CDIP/Navv	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/Hopkins 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	17.094	-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 Kaumalapau, 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	5			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 - Koror 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 Discus Nomad 3-m Other Buoy Configurations Shallow **Bottom Mount** Pier Mount Unknown Total Region 1.12 1.75 <u>~</u> 12 9 6 3 8 Atlantic Coast 8 27 8 12 66 Non-Directional 10 26 12 40 Directional 17 Gulf of Mexico Non-Directional Directional 8 14 Pacific Coast 27 58 Non-Directional 12 14 15 29 Directional 44 Alaskan Coast 28 Non-Directional 25 19 Directional Pacific Islands 19 Non-Directional Directional 21 **Great Lakes** Non-Directional 12 Directional Caribbean Non-directional Directional Total 87 56 218 9 Non-directional 34 53 30 83 135 56 Directional Canadian Note: Number of Canadian sites is included in the totals

Table 2a. Summ (diameters in m)	ary o	of Ac	tive Ba	ckbone	Wav	ve Ol	oserv	/ing	Platf	orms	3		
(diamotoro in m)	Dis	cus	Nomad	Discus		Othe	er Buo	y Con	figura	tions			
Region	12	10	6	3	2.5	2.4	2	1.8	1.75	1.12	6.0	Bottom Mount	Total
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 Directional		2		1 8							1		1 11
Pacific Coast				25							16		41
Non-Directional Directional				11 14							16		11 30
Alaskan Coast	2		14								2		18
Non-Directional Directional	2		14								2		16 2
Pacific Islands				7		1					10		18
Non-Directional Directional				2 5		1					10		2 16
Great Lakes				5		4				4			13
Non-Directional Directional				1 4		2 2				4			3 10
Caribbean			2	3	3						1		9
Non-directional Directional			2	3	2 1						1		4 5
Total	2	2	22	74		6	1		1	4	40	2	_
Non-directional			22	24	2	2	1			4	40		53
Directional	4	2		50	<u></u> 1	4	.	ļ	1	4	40	2	104

	Dis	cus	Nomad	Discus		Othe	r Buoy	y Conf	igurat	ions		5	Shallov	V	
Region	12	10	6	3	2.5	2.4	2	1.8	1.75	1.12	6.0	Bottom Mount	Pier Mount	Unknown	Total
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	į
Non-Directional														2	2
Directional												3			3
Pacific Coast			1	2							13		1		17
Non-Directional			1	1									1		3
Directional				1							13				14
Alaskan Coast			5	5											10
Non-Directional			5	4											9
Directional				1											1
Pacific Islands											1				•
Non-Directional															
Directional											1				1
Great Lakes				4					2	2					8
Non-Directional				4					2						6
Directional										2					2
Caribbean															
Non-directional															
Directional			1												
Гotal			8	13			7		8	2	16	4	1	2	6
Non-directional			8	10			7		2				1	2	30
Directional			{······	3	·····	† ·····	·····	·····	6	2	16	4			31

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

Canadian

Table 3. Summary of Proposed and Active Wave Observation Locations

		, -		•																																
														Sub	net																	To	tal			
			0	ffsho	re					Out	ter-SI	helf					lnn	er-SI	nelf					С	oasta	al										
Region	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

						Ran	king	3						
Region	1		2		3	•	4	-	5	Ť	6	7	Т	otal
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	1	63
Backbone		1		4		10		21		2		4	42	
Supporting				9		11		1					21	
Alaskan Coast			4		18		8		8				T	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	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	(3	291
Backbone		4		36		59		73		23		6	20	1
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

İ				Ranking	9			
Region	1	2	3	4	5	6	7	Total
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			I	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

				Ranking	9			
Region	1	2	3	4	5	6	7	Total
Atlantic Coast				8	13	1		2
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

				Score				Total
Region	1	2	3	4	5	6	7	Stations
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
AOOS	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
	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. 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)
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 <u>MicroStrain 3DM-G sensor</u>

ADCP Acoustic Doppler Current Profiler

AMPS NDBC payload package

AOOS <u>Alaska Ocean Observing System</u>

ARES <u>NDBC payload package</u>
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 Louisanna 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 Gulf of Maine Moored Buoy

Program

IOOS Integrated Ocean Observing System

Joint Oceanographic Commission on Oceanography and Marine Meteorology

JCOMM (under the International Ocean Commission)

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

Pacific Islands Ocean Obsering 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