

EXHIBIT F

PRESURVEY NOTIFICATION FORM

Applicant/Permittee's Mailing Address:

Date: 9/15/15

Jennifer White

Jurisdiction: Federal ____ State X Both ____

USGS Pacific Coastal and Marine Geology

If State: Permit #PRC 8394

400 Natural Bridges Drive

Region: II

Santa Cruz, CA 95060

Area: Santa Barbara, CA

GEOPHYSICAL SURVEY PERMIT

Check one: X New survey ____ Time extension of a previous survey

U.S.G.S. Pacific Coastal and Marine Geology (Applicant/Permittee) will conduct a geophysical survey offshore California in the survey area outlined on the accompanying navigation chart segment. If you foresee potential interference with commercial fishing or other activities, please contact the person(s) listed below:

FEDERAL WATERS (outside 3 nautical miles)

- 1) Applicant's representative:
- 2) Federal representative: (e.g., Bureau of Ocean Energy Management [BOEM] or National Science Foundation [NSF])

NOTE: Any comments regarding potential conflicts in Federal waters must be received by the Applicant's Representative and lead Federal agency within ten (10) days of the receipt of this notice.

STATE WATERS (Inside 3 nautical miles)

- 1) Permittee's representative: Jennifer White
- 2) CSLC representative: Richard Greenwood

NOTE: Any comments regarding potential conflicts in State waters should be received as soon as possible by the Permittee's representative, no more than fifteen (15) days after the receipt of this notice.

This notice is for up to four successive surveys of the same area to assess changes in seafloor morphology related to seasonal storms, El Nino impacts, and anthropogenic influences.

1. Expected Date of Operation: October 10-17, 2015.
2. Hours of Operation: 7AM to 6PM
3. Vessel Names: CPS Duke, CPS Eddie (Personal Watercraft - Jet Skis)
4. Vessel Official Number: USGS-9004807, USGS- 9004808
5. Vessel Radio Call Sign: None Assigned

6. Vessel Captain's Name: Timothy Elfers, Daniel Hoover

7. Vessel will monitor Radio Channel(s): 82a,16

8. Vessel Navigation System: Differential GPS

9. Equipment to be used:

1. Odom Echotrac Bathymetric Echo Sounder

a. Frequency (Hz, kHz): 200 kHz

b. Source level: (dB re 1 μ Pa at 1 meter (m) (rms): 93 dB RMS

c. Number of beams, across track beam width, and along track beam width:

1 beam, 9° conical beam. 1.6m along track, 1.6m across track at 10m depth

d. Pulse rate and length: 4.5-13.5 pps at 34-500 μ seconds depending on water depth.

e. Rise time: 7 μ seconds

f. Estimated distances to the 190 dB, 180 dB, and 160 dB re 1 uPa (rms) isopleths,

190 dB: <1M; 180 dB: <1M; 160 dB: <1M

These estimates are based on the underwater sound propagation equation:

$RSPL = SL - 20 \log (R/R_o) - AR$, where

RSPL=received sound potential level

SL= RMS source level re. 1 uPa (rms) based on manufacturer's specifications

R= Distance

R_o= Reference Distance (1 m)

A= sound absorption coefficient

g. Deployment depth: 0.25 m

h. Tow speed: 4 knots

i. Approximate length of cable tow: 0 m.

Applicant's Representative:

Jennifer White
US Geological Survey
400 Natural Bridges Drive
Santa Cruz, CA 95060
831-460-7485

California State Lands Representative:

Richard B. Greenwood
Statewide Geophysical Coordinator
200 Oceangate, 12th Floor
Long Beach, CA 90802-4331
(562) 590-5201

BOEM Representative:

Joan Barminski
Chief, Office of Reservoir & Production
770 Paseo Camarillo
Camarillo, CA 93010

(805) 389-7707

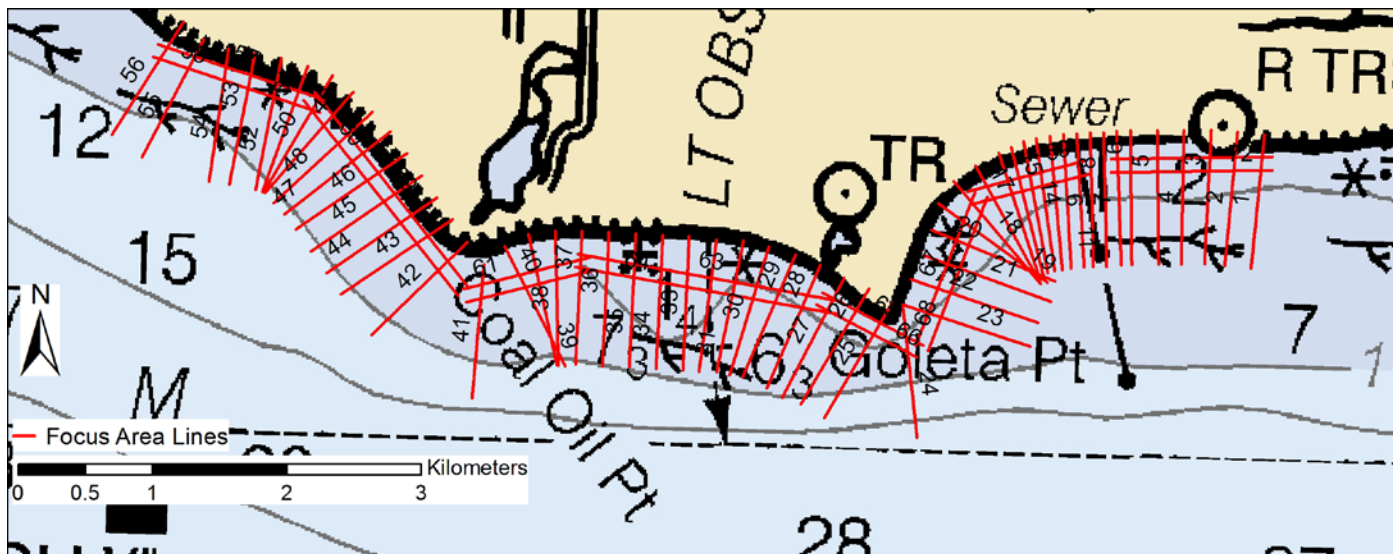


Figure 2a. Goleta focus area lines 1-72

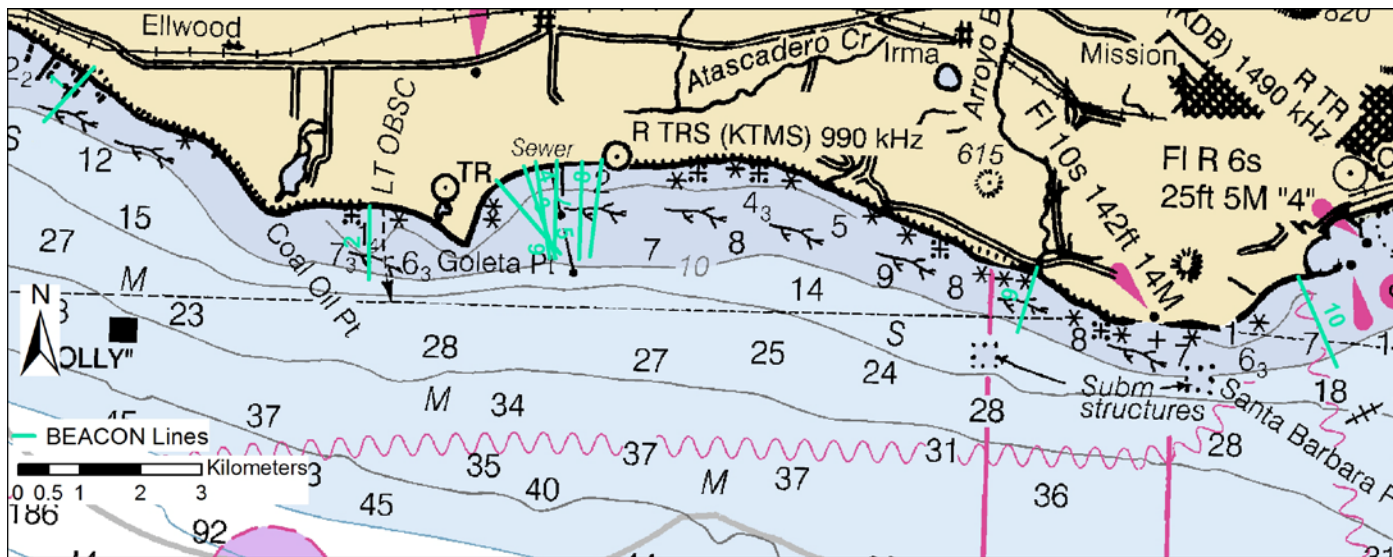


Figure 2b. Goleta-area BEACON lines 1-10

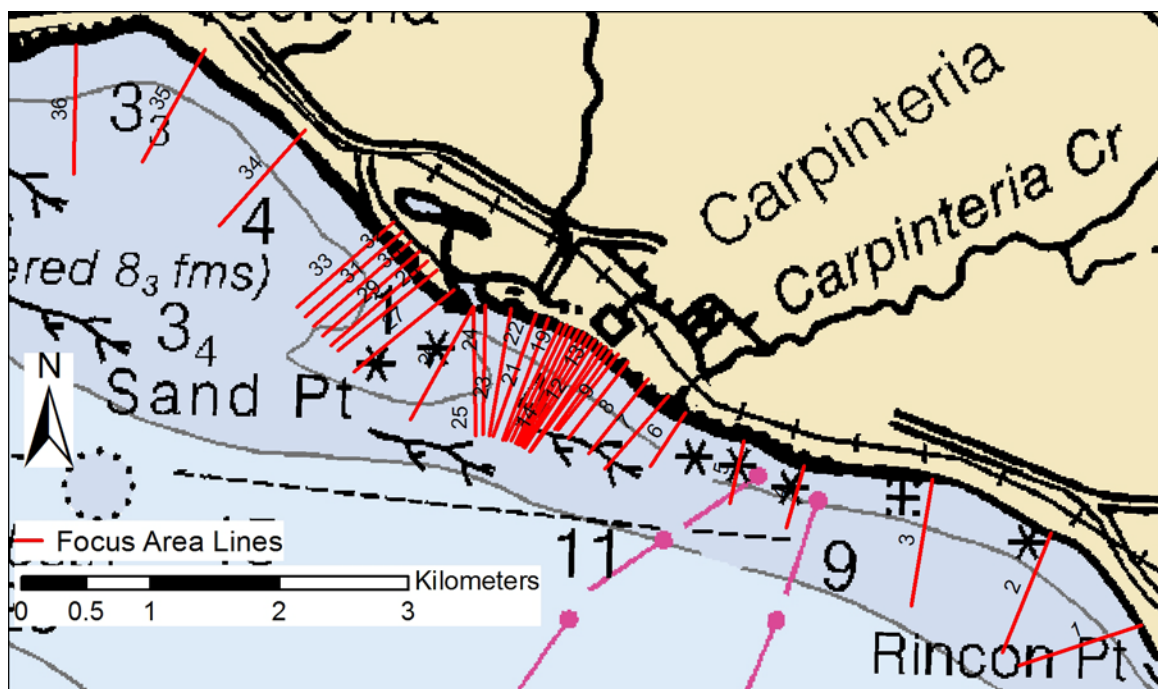


Figure 3a. Carpinteria focus area lines 1- 42

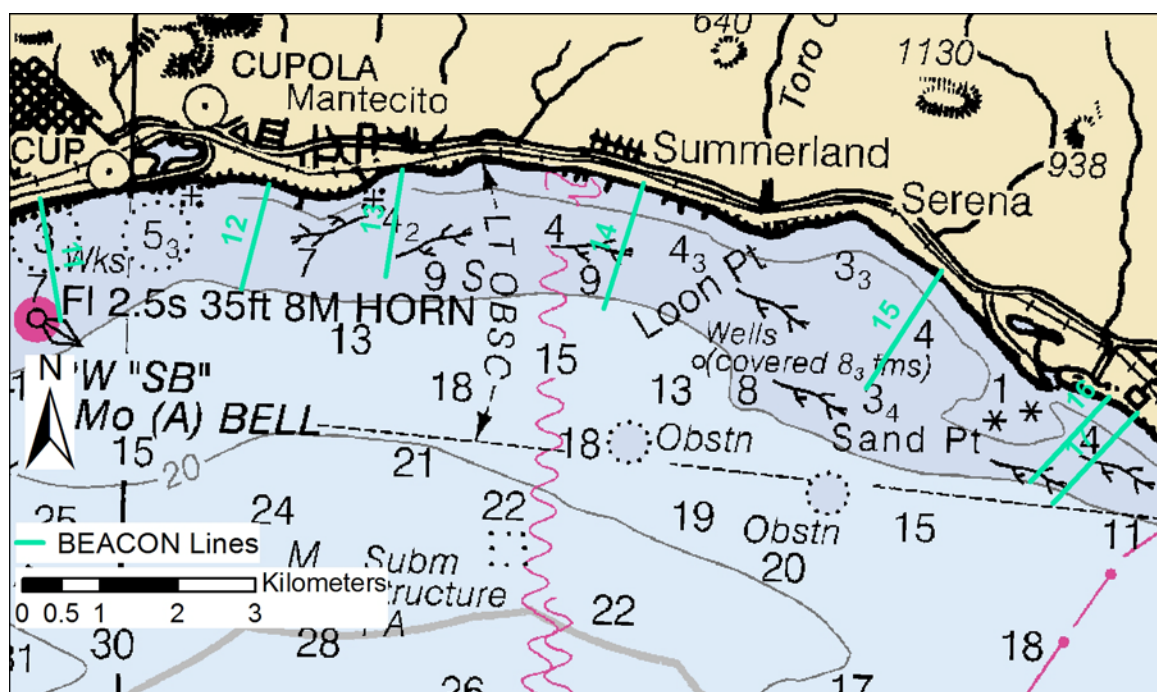


Figure 3b. Carpinteria area BEACON lines 11-17

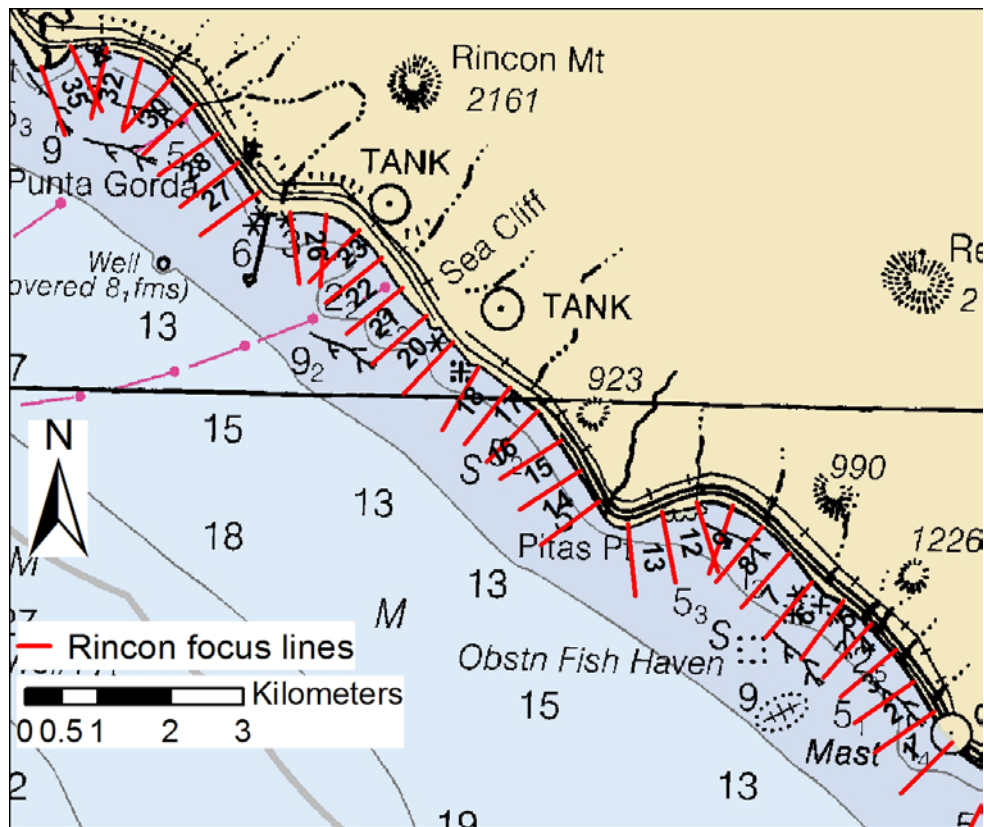


Figure 4a. Rincon focus area lines 1- 35

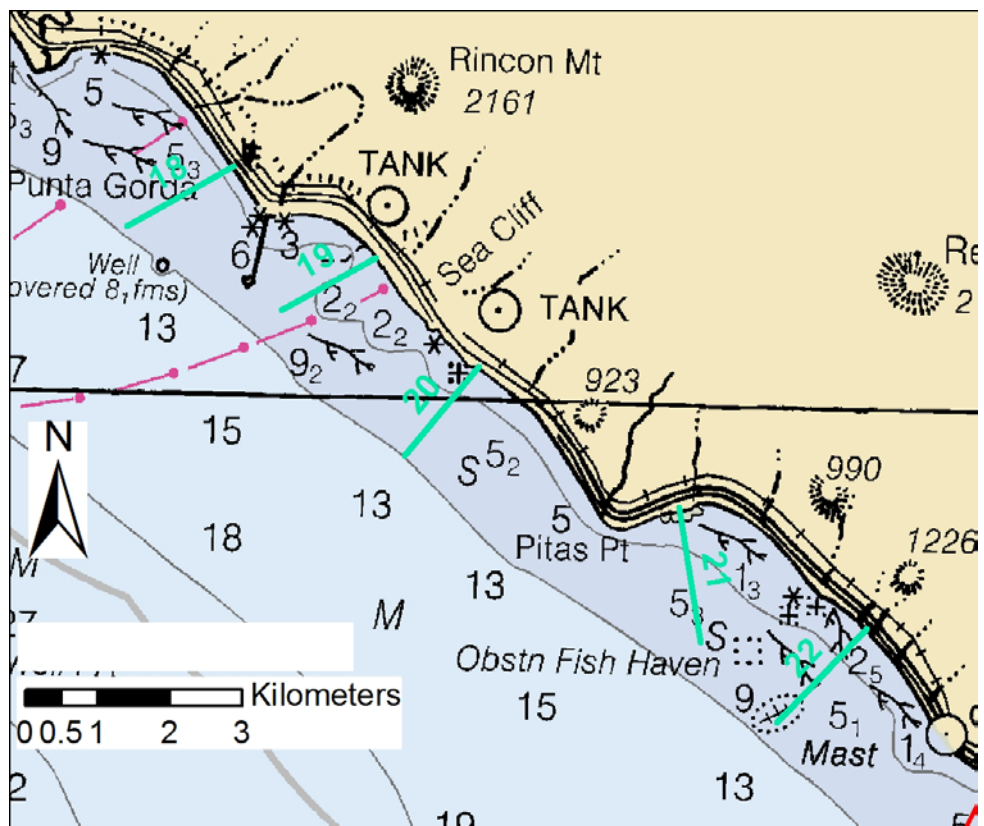


Figure 4b. Rincon-area BEACON lines 18-22

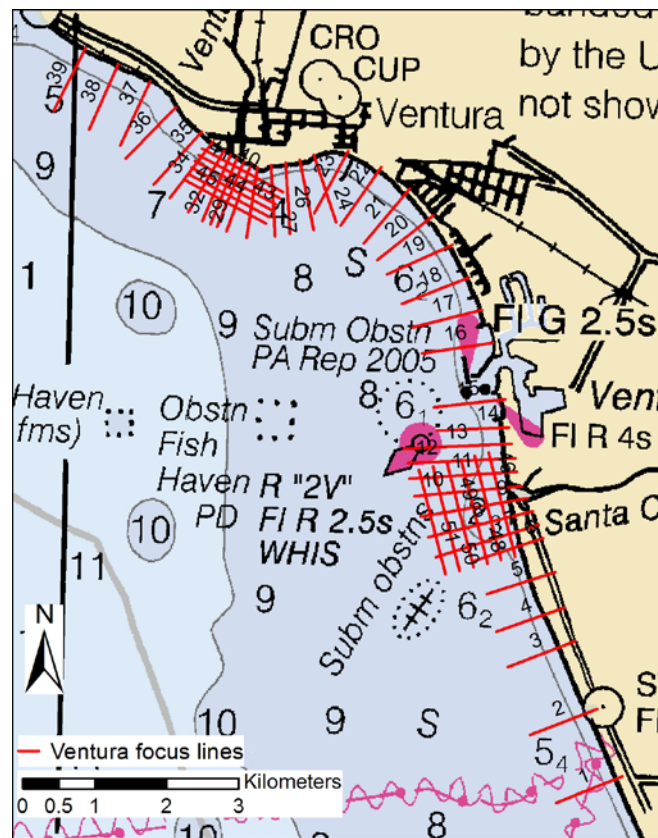


Figure 5a. Ventura focus area lines 1- 51

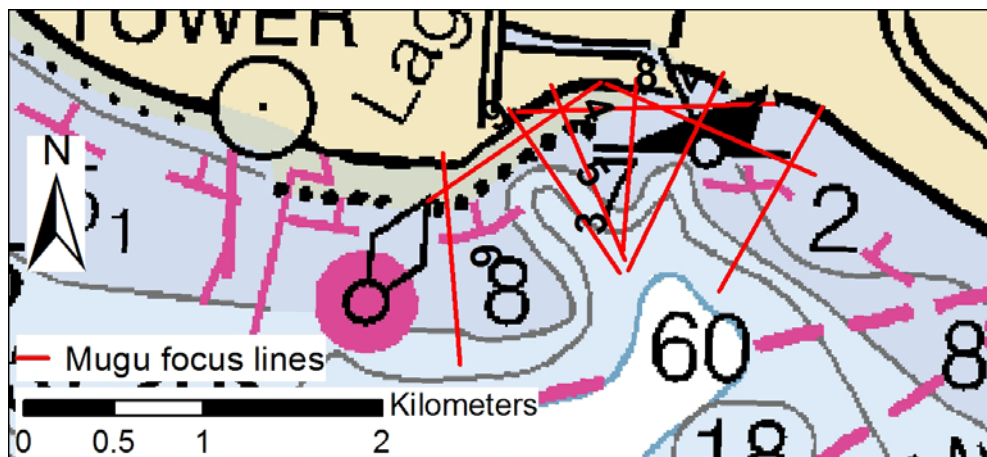


Figure 5b. Ventura-area BEACON lines 23-36

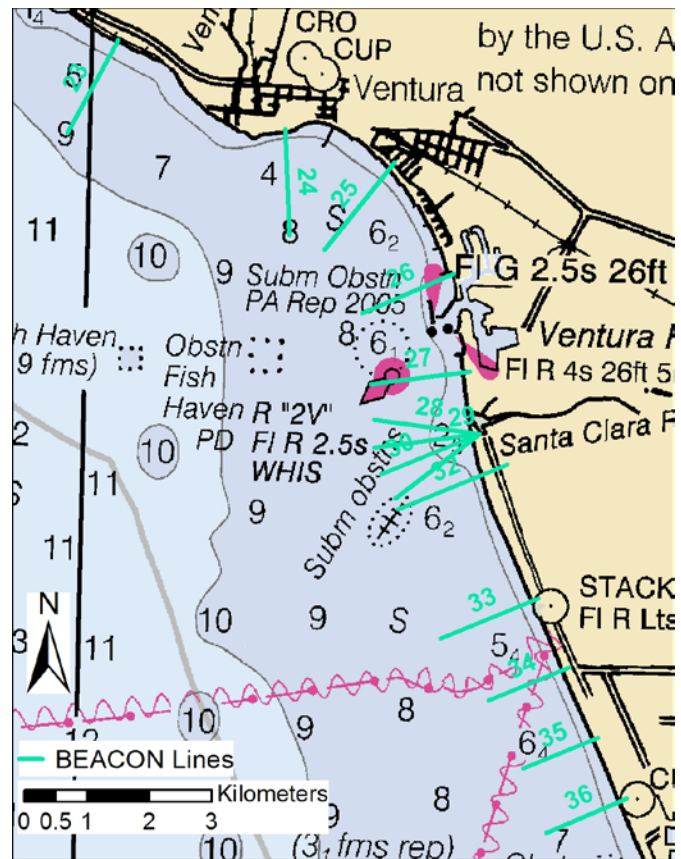


Figure 6a. Mugu focus area lines 1- 9

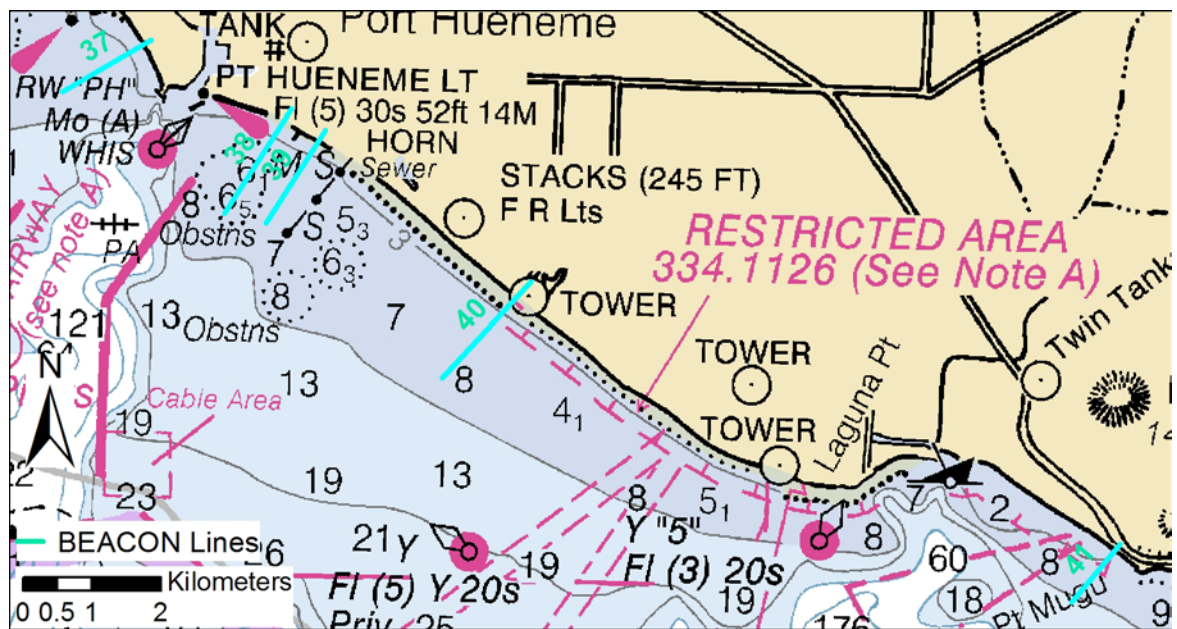


Figure 6b. Mugu-area BEACON lines 37-41

The overall survey area is bounded by the coordinates:

34° 4.877'	-119° 3.851'
34° 4.877'	-119° 55.254'
34° 25.733'	-119° 3.851'
34° 25.733'	-119° 55.254'

The focus area and associated BEACON line survey areas are bounded by the coordinates:

1a. Goleta focus

34° 23.777	-119° 54.519
34° 23.777	-119° 48.880
34° 25.369	-119° 54.519
34° 25.369	-119° 48.880

1b. Goleta-area BEACON

34° 23.386	-119° 55.254
34° 23.386	-119° 41.382
34° 25.733	-119° 55.254
34° 25.733	-119° 41.382

2a. Carpinteria focus

34° 22.335	-119° 34.233
34° 22.335	-119° 28.767
34° 24.844	-119° 34.233
34° 24.844	-119° 28.767

2b. Carpinteria-area BEACON

34° 22.969	-119° 40.751
34° 22.969	-119° 31.480
34° 25.183	-119° 40.751
34° 25.183	-119° 31.480

3a. Rincon focus

34° 17.130	-119° 28.628
34° 17.130	-119° 20.303
34° 22.564	-119° 28.628
34° 22.564	-119° 20.303

3b. Rincon-area BEACON

34° 17.646	-119° 27.816
34° 17.646	-119° 21.056
34° 21.709	-119° 27.816
34° 21.709	-119° 21.056

4a. Ventura focus

34° 11.659	-119° 20.175
34° 11.659	-119° 14.877
34° 17.289	-119° 20.175
34° 17.289	-119° 14.877

4b. Ventura-area BEACON

34° 10.427	-119° 20.225
34° 10.427	-119° 14.230
34° 17.208	-119° 20.225
34° 17.208	-119° 14.230

5a. Mugu focus

34° 5.132	-119° 6.472
34° 5.132	-119° 5.044
34° 6.031	-119° 6.472
34° 6.031	-119° 5.044

5b. Mugu-area BEACON

34° 4.877	-119° 13.916
34° 4.877	-119° 3.851
34° 9.122	-119° 13.916
34° 9.122	-119° 3.851

Track line start- and end-point coordinates for focus area lines are:

1. Goleta

Line	Start		End	
	Lon	Lat	Lon	Lat
1	-119.81539	34.41728	-119.81615	34.40829
2	-119.81756	34.41741	-119.81832	34.40842
3	-119.81971	34.41751	-119.81992	34.40850
4	-119.82192	34.41742	-119.82183	34.40841
5	-119.82406	34.41738	-119.82365	34.40837
6	-119.82623	34.41731	-119.82582	34.40830
7	-119.82733	34.41724	-119.82667	34.40824
8	-119.82840	34.41713	-119.82785	34.40813
9	-119.82948	34.41708	-119.82893	34.40808
10	-119.83057	34.41702	-119.82966	34.40802
11	-119.83164	34.41693	-119.83073	34.40794
12	-119.83274	34.41679	-119.83144	34.40781
13	-119.83384	34.41662	-119.83204	34.40773
14	-119.83486	34.41639	-119.83257	34.40757
15	-119.83585	34.41598	-119.83292	34.40730
16	-119.83683	34.41557	-119.83319	34.40709
17	-119.83869	34.41467	-119.83319	34.40691
18	-119.84040	34.41357	-119.83315	34.40685
19	-119.84160	34.41206	-119.83262	34.40698
20	-119.84215	34.41028	-119.83198	34.40705
21	-119.84262	34.40855	-119.83228	34.40568
22	-119.84367	34.40690	-119.83328	34.40425
23	-119.84426	34.40520	-119.83383	34.40264
24	-119.84426	34.40520	-119.84278	34.39628
25	-119.84510	34.40533	-119.85036	34.39744
26	-119.84700	34.40620	-119.85226	34.39831
27	-119.84907	34.40689	-119.85379	34.39874
28	-119.85103	34.40771	-119.85506	34.39934
29	-119.85305	34.40837	-119.85708	34.40000
30	-119.85524	34.40882	-119.85811	34.40012
31	-119.85728	34.40918	-119.85915	34.40030
32	-119.85946	34.40922	-119.86061	34.40030
33	-119.86168	34.40941	-119.86191	34.40040
34	-119.86385	34.40945	-119.86408	34.40044
35	-119.86602	34.40948	-119.86625	34.40048
36	-119.86820	34.40952	-119.86843	34.40051
37	-119.87037	34.40956	-119.87060	34.40055
38	-119.87252	34.40951	-119.87197	34.40048
39	-119.87472	34.40925	-119.87210	34.40050
40	-119.87658	34.40838	-119.87142	34.40043
41	-119.87821	34.40713	-119.87890	34.39813

42	-119.87962	34.40857	-119.88717	34.40214
43	-119.88088	34.41008	-119.88973	34.40482
44	-119.88218	34.41150	-119.89098	34.40621
45	-119.88346	34.41296	-119.89226	34.40766
46	-119.88473	34.41441	-119.89354	34.40912
47	-119.88611	34.41584	-119.89447	34.41008
48	-119.88762	34.41713	-119.89539	34.41083
49	-119.88919	34.41842	-119.89612	34.41149
50	-119.89091	34.41951	-119.89616	34.41161
51	-119.89296	34.42010	-119.89634	34.41153
52	-119.89508	34.42055	-119.89688	34.41167
53	-119.89723	34.42085	-119.89902	34.41197
54	-119.89938	34.42110	-119.90067	34.41214
55	-119.90143	34.42170	-119.90618	34.41364
56	-119.90308	34.42281	-119.90866	34.41508
57	-119.90514	34.42126	-119.89152	34.41785
58	-119.90546	34.42040	-119.89183	34.41699
59	-119.89236	34.41836	-119.87943	34.40553
60	-119.89320	34.41778	-119.88027	34.40495
61	-119.87987	34.40541	-119.86962	34.40781
62	-119.87958	34.40455	-119.86933	34.40694
63	-119.87070	34.40799	-119.84938	34.40534
64	-119.87087	34.40710	-119.84954	34.40445
65	-119.85079	34.40583	-119.84250	34.40251
66	-119.85126	34.40502	-119.84297	34.40170
67	-119.84313	34.40244	-119.83867	34.41289
68	-119.84211	34.40214	-119.83764	34.41259
69	-119.83928	34.41293	-119.82979	34.41520
70	-119.83898	34.41207	-119.82948	34.41434
71	-119.82776	34.41535	-119.81472	34.41581
72	-119.82772	34.41445	-119.81467	34.41491

2. Carpinteria

Line	Start		End	
	Lon	Lat	Lon	Lat
1	-119.47945	34.37531	-119.48970	34.37226
2	-119.48726	34.38158	-119.49114	34.37313
3	-119.49738	34.38516	-119.49893	34.37623
4	-119.50823	34.38587	-119.50962	34.38151
5	-119.51339	34.38751	-119.51442	34.38308
6	-119.51834	34.38938	-119.52123	34.38557
7	-119.51986	34.39053	-119.52506	34.38532
8	-119.52154	34.39172	-119.52646	34.38636
9	-119.52331	34.39284	-119.52819	34.38741
10	-119.52418	34.39338	-119.52906	34.38795
11	-119.52478	34.39358	-119.52937	34.38799
12	-119.52520	34.39383	-119.53134	34.38638
13	-119.52567	34.39406	-119.53141	34.38640
14	-119.52613	34.39430	-119.53187	34.38664
15	-119.52661	34.39453	-119.53205	34.38673
16	-119.52707	34.39478	-119.53228	34.38686
17	-119.52757	34.39495	-119.53240	34.38686
18	-119.52809	34.39513	-119.53264	34.38695
19	-119.52857	34.39534	-119.53302	34.38710
20	-119.52909	34.39539	-119.53346	34.38714
21	-119.53014	34.39571	-119.53370	34.38717
22	-119.53115	34.39599	-119.53455	34.38742
23	-119.53330	34.39636	-119.53484	34.38743
24	-119.53547	34.39653	-119.53543	34.38751
25	-119.53647	34.39642	-119.53601	34.38741
26	-119.53647	34.39642	-119.54153	34.38843
27	-119.53817	34.39756	-119.54640	34.39171
28	-119.53958	34.39893	-119.54782	34.39308
29	-119.54042	34.39955	-119.54842	34.39344
30	-119.54115	34.40021	-119.54916	34.39410
31	-119.54189	34.40087	-119.54989	34.39476
32	-119.54262	34.40154	-119.55063	34.39543
33	-119.54336	34.40220	-119.55137	34.39609
34	-119.55106	34.40850	-119.55810	34.40162
35	-119.55968	34.41398	-119.56471	34.40598
36	-119.57054	34.41407	-119.57046	34.40502

3. Rincon

Line	Start		End	
	Lon	Lat		
1	-119.33838	34.29198	-119.34594	34.28551
2	-119.34116	34.29576	-119.34998	34.29047
3	-119.34434	34.29942	-119.35316	34.29413
4	-119.34716	34.30329	-119.35530	34.29732
5	-119.35095	34.30652	-119.35793	34.29962
6	-119.35516	34.30933	-119.36132	34.30188
7	-119.36001	34.31153	-119.36670	34.30443
8	-119.36347	34.31510	-119.37046	34.30817
9	-119.36754	34.31825	-119.37432	34.31122
10	-119.37199	34.32086	-119.37544	34.31231
11	-119.37743	34.32112	-119.37395	34.31254
12	-119.38263	34.31988	-119.38027	34.31107
13	-119.38774	34.31823	-119.38631	34.30927
14	-119.39203	34.32097	-119.40063	34.31535
15	-119.39490	34.32475	-119.40388	34.31970
16	-119.39795	34.32848	-119.40693	34.32343
17	-119.40151	34.33203	-119.40903	34.32552
18	-119.40581	34.33487	-119.41242	34.32767
19	-119.41059	34.33730	-119.41576	34.32936
20	-119.41449	34.34042	-119.42172	34.33368
21	-119.41856	34.34354	-119.42654	34.33742
22	-119.42222	34.34693	-119.43041	34.34105
23	-119.42541	34.35060	-119.43373	34.34479
24	-119.42888	34.35404	-119.43615	34.34733
25	-119.43392	34.35585	-119.43456	34.34686
26	-119.43929	34.35602	-119.43765	34.34710
27	-119.44402	34.35841	-119.45267	34.35292
28	-119.44725	34.36202	-119.45577	34.35639
29	-119.45036	34.36559	-119.45917	34.36026
30	-119.45379	34.36915	-119.46152	34.36274
31	-119.45746	34.37245	-119.46456	34.36564
32	-119.46215	34.37471	-119.46465	34.36594
33	-119.46730	34.37595	-119.46944	34.36716
34	-119.47274	34.37607	-119.46780	34.36806
35	-119.47713	34.37339	-119.47323	34.36493

4. Ventura

Line	Start		End	
	Lon	Lat	Lon	Lat
1	-119.24794	34.19784	-119.25790	34.19431
2	-119.25196	34.20627	-119.26202	34.20281
3	-119.25557	34.21477	-119.26562	34.21131
4	-119.25729	34.21897	-119.26744	34.21574
5	-119.25879	34.22337	-119.26904	34.22041
6	-119.26072	34.22764	-119.27097	34.22464
7	-119.26145	34.22932	-119.27686	34.22492
8	-119.26233	34.23100	-119.27808	34.22747
9	-119.26326	34.23264	-119.27926	34.23003
10	-119.26409	34.23412	-119.28035	34.23259
11	-119.26487	34.23592	-119.28120	34.23477
12	-119.26520	34.23764	-119.28144	34.23672
13	-119.26585	34.23943	-119.28213	34.23851
14	-119.26623	34.24154	-119.27715	34.24088
15	-119.26693	34.24503	-119.27769	34.24383
16	-119.26897	34.25209	-119.27968	34.25058
17	-119.27075	34.25621	-119.28120	34.25382
18	-119.27285	34.26028	-119.28290	34.25674
19	-119.27546	34.26431	-119.28527	34.26043
20	-119.27839	34.26799	-119.28673	34.26223
21	-119.28211	34.27132	-119.28887	34.26423
22	-119.28649	34.27393	-119.29241	34.26647
23	-119.29150	34.27588	-119.29648	34.26786
24	-119.29677	34.27528	-119.29307	34.26681
25	-119.29884	34.27462	-119.29652	34.26582
26	-119.30096	34.27424	-119.30002	34.26525
27	-119.30313	34.27389	-119.30228	34.26490
28	-119.30521	34.27358	-119.30659	34.26463
29	-119.30619	34.27395	-119.30967	34.26538
30	-119.30727	34.27431	-119.31112	34.26589
31	-119.30832	34.27464	-119.31212	34.26618
32	-119.30935	34.27504	-119.31334	34.26662
33	-119.31025	34.27560	-119.31550	34.26773
34	-119.31195	34.27672	-119.31837	34.26945
35	-119.31369	34.27788	-119.32083	34.27109
36	-119.31776	34.28086	-119.32514	34.27426
37	-119.32170	34.28410	-119.32606	34.27586
38	-119.32657	34.28612	-119.33080	34.27781
39	-119.33157	34.28814	-119.33626	34.28001
40	-119.31369	34.27573	-119.30127	34.27053
41	-119.31417	34.27493	-119.30176	34.26973
42	-119.31466	34.27413	-119.30225	34.26892
43	-119.31515	34.27332	-119.30274	34.26812

44	-119.31564	34.27252	-119.30323	34.26731
45	-119.31613	34.27171	-119.30372	34.26651
46	-119.26927	34.23830	-119.26491	34.22523
47	-119.27136	34.23781	-119.26700	34.22475
48	-119.27345	34.23733	-119.26909	34.22427
49	-119.27554	34.23685	-119.27119	34.22378
50	-119.27764	34.23637	-119.27328	34.22330
51	-119.27973	34.23589	-119.27537	34.22282

5. Mugu

Line	Start		End	
	Lon	Lat	Lon	Lat
1	-119.08407	34.09890	-119.09014	34.08951
2	-119.09011	34.10052	-119.09566	34.09047
3	-119.09538	34.10014	-119.09601	34.09146
4	-119.10057	34.09973	-119.09585	34.09098
5	-119.10312	34.09846	-119.09616	34.09032
6	-119.10701	34.09619	-119.10570	34.08553
7	-119.08445	34.09549	-119.09720	34.09982
8	-119.08688	34.09901	-119.10254	34.09832
9	-119.09753	34.09989	-119.10787	34.09372

Track line start- and end-point coordinates for Mugu Area BEACON lines are:

Line	Start		End	
	Lon	Lat	Lon	Lat
1	-119.91231	34.42889	-119.92090	34.42074
2	-119.86257	34.40959	-119.86238	34.39877
3	-119.84018	34.41388	-119.82835	34.40330
4	-119.83536	34.41611	-119.82917	34.40263
5	-119.83325	34.41682	-119.83028	34.40261
6	-119.82944	34.41708	-119.82949	34.40265
7	-119.82499	34.41704	-119.82505	34.40261
8	-119.82152	34.41737	-119.82309	34.40300
9	-119.74352	34.40319	-119.74666	34.39362
10	-119.69699	34.40287	-119.68971	34.38977
11	-119.67918	34.41519	-119.67594	34.40102
12	-119.64720	34.41756	-119.65070	34.40528
13	-119.62850	34.41971	-119.63043	34.40719
14	-119.59464	34.41884	-119.59983	34.40413
15	-119.55258	34.40951	-119.56276	34.39565
16	-119.52864	34.39541	-119.53941	34.38525
17	-119.52466	34.39365	-119.53616	34.38282
18	-119.44769	34.36182	-119.46360	34.35402
19	-119.42605	34.35087	-119.44009	34.34399
20	-119.41016	34.33759	-119.42097	34.32628
21	-119.37959	34.32062	-119.37581	34.30378
22	-119.35093	34.30608	-119.36413	34.29410
23	-119.32858	34.28680	-119.33709	34.27320
24	-119.29913	34.27450	-119.29799	34.25920
25	-119.27994	34.27009	-119.29183	34.25721
26	-119.26922	34.25420	-119.28502	34.24822
27	-119.26607	34.24010	-119.28325	34.23797
28	-119.26415	34.23112	-119.28249	34.23285
29	-119.26415	34.23112	-119.28240	34.22885
30	-119.26415	34.23112	-119.28107	34.22501
31	-119.26415	34.23112	-119.27859	34.22158
32	-119.25916	34.22684	-119.27807	34.22001
33	-119.25323	34.20762	-119.27015	34.20150
34	-119.24763	34.19773	-119.26156	34.19270
35	-119.24237	34.18765	-119.25530	34.18297
36	-119.23717	34.17902	-119.25099	34.17378
37	-119.21807	34.15203	-119.23194	34.14497
38	-119.19580	34.14347	-119.20601	34.12964
39	-119.19041	34.14073	-119.19948	34.12844
40	-119.15763	34.12161	-119.17129	34.10879
41	-119.06418	34.08903	-119.07161	34.08128

Keen, Kelly@SLC

From: George Tate <gtate@usgs.gov>
Sent: Tuesday, September 15, 2015 11:44 AM
To: George Tate; SLCOGPP@SLC; D11LNM@uscg.mil
Cc: Greenwood, Richard@SLC; Keen, Kelly@SLC; Daniel Hoover; Jennifer White
Subject: Pre-survey Notice of Geophysical Survey Operations - Point Mugu to Goleta, CA - Geophysical Coordinator and Notice to Mariners
Attachments: CSLC EXHIBIT F - SB.pdf

PRE SURVEY NOTIFICATION FOR GEOPHYSICAL SURVEY

The USGS Pacific Coastal and Marine Geology Science Center (PCMGSC) will be conducting a geophysical survey of the Santa Barbara littoral cell along beaches from Goleta to Point Mugu, CA under California State Lands Permit #8394. The operations to be conducted will be a bathymetric survey using a 200 kHz single beam echo sounder mounted on a personal watercraft (jet ski). The survey operational window will be from September 13, 2015 to March 31, 2016.

Two personal watercraft will be used to conduct cross shore transects from within the surf zone out to 12m from shore. At least one survey will be conducted near the beginning of the project period to document end-of-summer nearshore bathymetric conditions prior to arrival of winter waves. Up to three additional surveys may be conducted in response to large wave and/or river discharge events if they occur.

In keeping with our California State Lands Permit requirements, we are providing you with the attached Geophysical Presurvey Notice for your information.

Best regards,

George Tate
*Pacific Coastal and Marine Geology
U.S. Geological Survey
Pacific Science Center
400 Natural Bridges Drive , Santa Cruz, CA 95060*

831.460.7484 voice
831.421.9209 FAX
831.234.7399 cell

Keen, Kelly@SLC

From: George Tate <gtate@usgs.gov>
Sent: Tuesday, September 15, 2015 11:43 AM
To: George Tate; mkronman@snatabarbaraca.gov; CIHarborVisitors@ventura.org; jhiggins@venturaharbor.com
Cc: Greenwood, Richard@SLC; Keen, Kelly@SLC; Daniel Hoover; Jennifer White
Subject: Pre-survey Notice of Geophysical Survey Operations - Point Mugu to Goleta, CA - Harbor Masters
Attachments: CSLC EXHIBIT F - SB.pdf

PRE SURVEY NOTIFICATION FOR GEOPHYSICAL SURVEY

The USGS Pacific Coastal and Marine Geology Science Center (PCMGSC) will be conducting a geophysical survey of the Santa Barbara littoral cell along beaches from Goleta to Point Mugu, CA under California State Lands Permit #8394. The operations to be conducted will be a bathymetric survey using a 200 kHz single beam echo sounder mounted on a personal watercraft (jet ski). The survey operational window will be October 10-17, 2015. The work was originally to begin on September 13, 2015.

Two personal watercraft will be used to conduct cross shore transects from within the surf zone out to 12m from shore. At least one survey will be conducted near the beginning of the project period to document end-of-summer nearshore bathymetric conditions prior to arrival of winter waves. Up to three additional surveys may be conducted in response to large wave and/or river discharge events if they occur.

In keeping with our California State Lands Permit requirements, we are providing you with the attached Geophysical Presurvey Notice for your information.

Best regards,

George Tate
*Pacific Coastal and Marine Geology
U.S. Geological Survey
Pacific Science Center
400 Natural Bridges Drive, Santa Cruz, CA 95060*

831.460.7484 voice
831.421.9209 FAX
831.234.7399 cell

Keen, Kelly@SLC

From: George Tate <gtate@usgs.gov>
Sent: Tuesday, September 15, 2015 11:44 AM
To: cmcdiver@aol.com; mail@centralcoastkayaks.com; Info@scubasb.com; info@santabarbarascuba.com
Cc: Greenwood, Richard@SLC; Keen, Kelly@SLC; Daniel Hoover; Jennifer White
Subject: Pre-survey Notice of Geophysical Survey Operations - Point Mugu to Goleta, CA - Dive Shops
Attachments: CSLC EXHIBIT F - SB.pdf

PRE SURVEY NOTIFICATION FOR GEOPHYSICAL SURVEY

The USGS Pacific Coastal and Marine Geology Science Center (PCMGSC) will be conducting a geophysical survey of the Santa Barbara littoral cell along beaches from Goleta to Point Mugu, CA under California State Lands Permit #8394. The operations to be conducted will be a bathymetric survey using a 200 kHz single beam echo sounder mounted on a personal watercraft (jet ski). The survey operational window will be October 10-17, 2015. The work was originally to begin on September 13, 2015.

Two personal watercraft will be used to conduct cross shore transects from within the surf zone out to 12m from shore. At least one survey will be conducted near the beginning of the project period to document end-of-summer nearshore bathymetric conditions prior to arrival of winter waves. Up to three additional surveys may be conducted in response to large wave and/or river discharge events if they occur.

In keeping with our California State Lands Permit requirements, we are providing you with the attached Geophysical Presurvey Notice for your information.

Best regards,

George Tate
*Pacific Coastal and Marine Geology
U.S. Geological Survey
Pacific Science Center
400 Natural Bridges Drive , Santa Cruz, CA 95060*

831.460.7484 voice
831.421.9209 FAX
831.234.7399 cell

EXHIBIT F

PRESURVEY NOTIFICATION FORM

Applicant/Permittee's Mailing Address:

Date: 8/24/15

Jennifer White

Jurisdiction: Federal ____ State X Both ____

USGS Pacific Coastal and Marine Geology

If State: Permit #PRC 8394

400 Natural Bridges Drive

Region: II

Santa Cruz, CA 95060

Area: Santa Barbara, CA

GEOPHYSICAL SURVEY PERMIT

Check one: X New survey ____ Time extension of a previous survey

U.S.G.S. Pacific Coastal and Marine Geology (Applicant/Permittee) will conduct a geophysical survey offshore California in the survey area outlined on the accompanying navigation chart segment. If you foresee potential interference with commercial fishing or other activities, please contact the person(s) listed below:

FEDERAL WATERS (outside 3 nautical miles)

- 1) Applicant's representative:
- 2) Federal representative: (e.g., Bureau of Ocean Energy Management [BOEM] or National Science Foundation [NSF])

NOTE: Any comments regarding potential conflicts in Federal waters must be received by the Applicant's Representative and lead Federal agency within ten (10) days of the receipt of this notice.

STATE WATERS (Inside 3 nautical miles)

- 1) Permittee's representative: Jennifer White
- 2) CSLC representative: Richard Greenwood

NOTE: Any comments regarding potential conflicts in State waters should be received as soon as possible by the Permittee's representative, no more than fifteen (15) days after the receipt of this notice.

This notice is for up to four successive surveys of the same area to assess changes in seafloor morphology related to seasonal storms, El Nino impacts, and anthropogenic influences.

1. Expected Date of Operation: September 13, 2015 to March 31, 2016 Up to four 6-day surveys will be conducted, as weather and project scheduling permit, At a minimum, one survey will be conducted near the beginning of the time interval, with additional surveys as needed to document the effects of large wave, storm, or overall ENSO winter effects on seafloor morphology.
2. Hours of Operation: 7AM to 6PM

3. Vessel Names: CPS Duke, CPS Eddie (Personal Watercraft - Jet Skis)
4. Vessel Official Number: USGS-9004807, USGS- 9004808
5. Vessel Radio Call Sign: None Assigned
6. Vessel Captain's Name: Timothy Elfers, Daniel Hoover
7. Vessel will monitor Radio Channel(s): 82a,16
8. Vessel Navigation System: Differential GPS
9. Equipment to be used:
 1. Odom Echotrac Bathymetric Echo Sounder
 - a. Frequency (Hz, kHz): 200 kHz
 - b. Source level: (dB re 1 μ Pa at 1 meter (m) (rms): 93 dB RMS
 - c. Number of beams, across track beam width, and along track beam width:
1 beam, 9° conical beam. 1.6m along track, 1.6m across track at 10m depth
 - d. Pulse rate and length: 4.5-13.5 pps at 34-500 μ seconds depending on water depth.
 - e. Rise time: 7 μ seconds
 - f. Estimated distances to the 190 dB, 180 dB, and 160 dB re 1 uPa (rms) isopleths,
190 dB: <1M ; 180 dB: <1M ; 160 dB: <1M

These estimates are based on the underwater sound propagation equation:

$$RSPL = SL - 20 \log(R/R_o) - AR, \text{ where}$$

RSPL=received sound potential level
SL= RMS source level re. 1 uPa (rms) based on manufacturer's specifications
R= Distance
R_o= Reference Distance (1 m)
A= sound absorption coefficient
 - g. Deployment depth: 0.25 m
 - h. Tow speed: 4 knots
 - i. Approximate length of cable tow: 0 m.

Applicant's Representative:
Jennifer White
US Geological Survey
400 Natural Bridges Drive
Santa Cruz, CA 95060
831-460-7485

California State Lands Representative:
Richard B. Greenwood
Statewide Geophysical Coordinator
200 Oceangate, 12th Floor
Long Beach, CA 90802-4331
(562) 590-5201

BOEM Representative:

Joan Barminski

Chief, Office of Reservoir & Production

770 Paseo Camarillo

Camarillo, CA 93010

(805) 389-7707

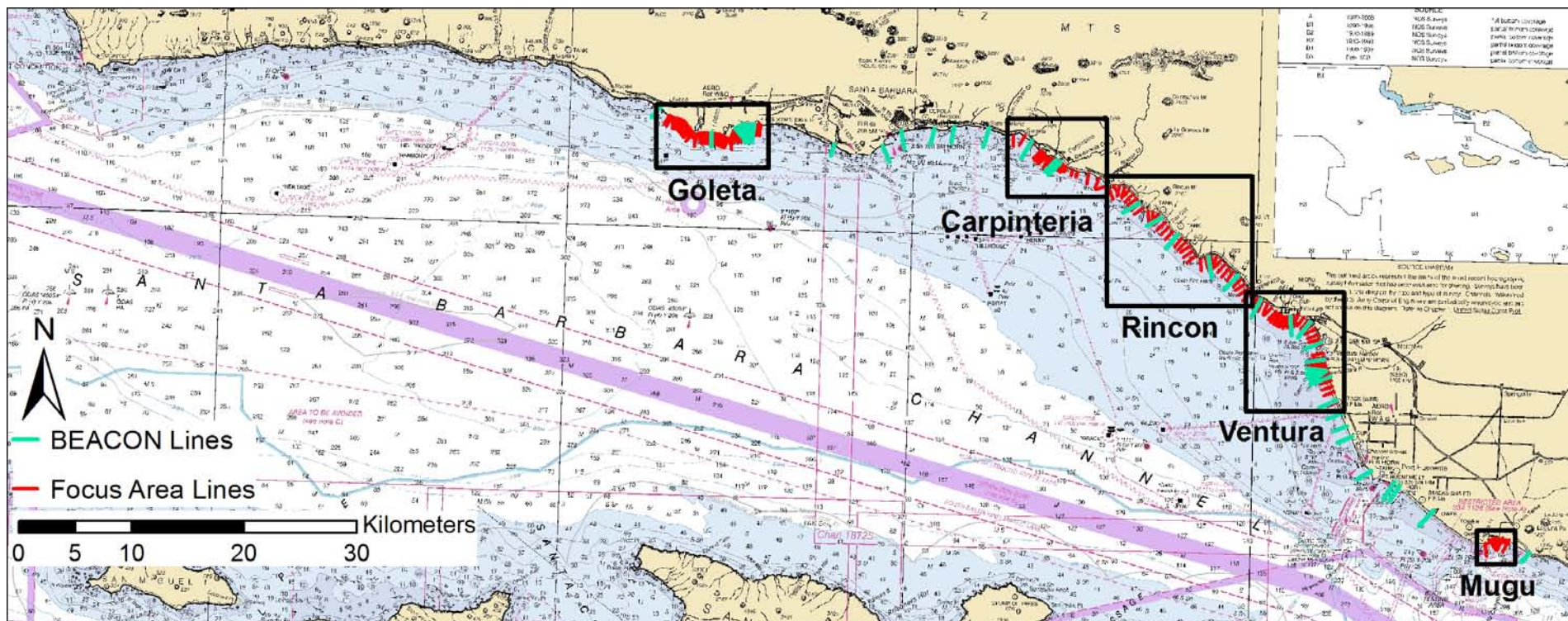


Figure 1. Santa Barbara littoral cell overview showing survey lines and focus areas around Goleta, Carpinteria, Rincon, Ventura and Mugu Canyon

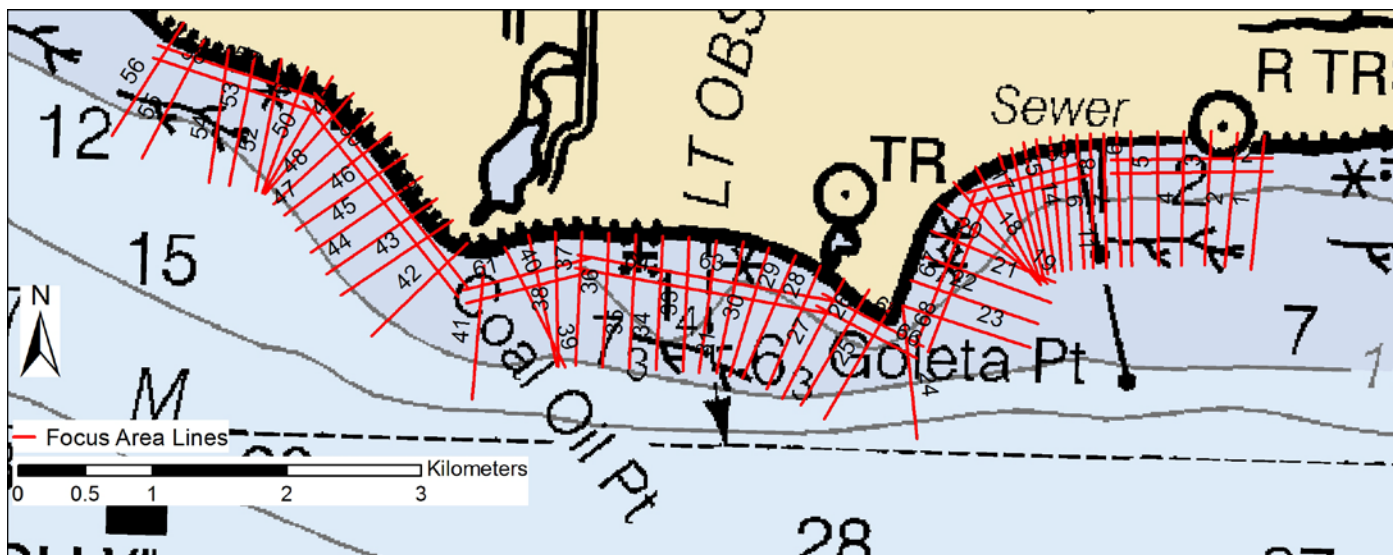


Figure 2a. Goleta focus area lines 1-72

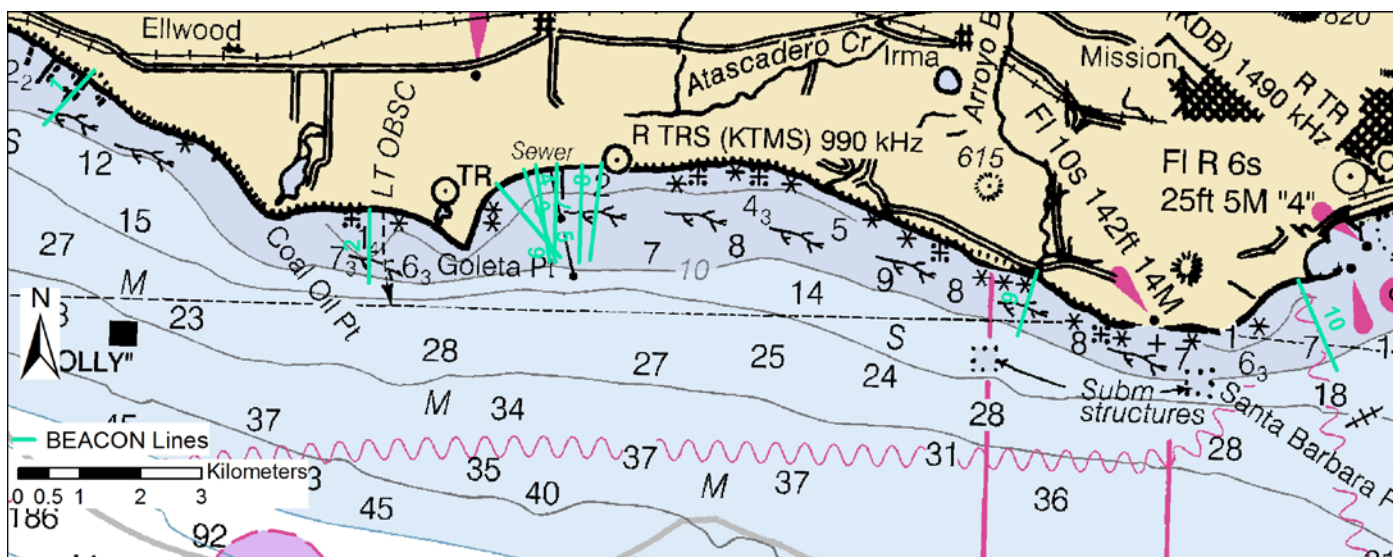


Figure 2b. Goleta-area BEACON lines 1-10

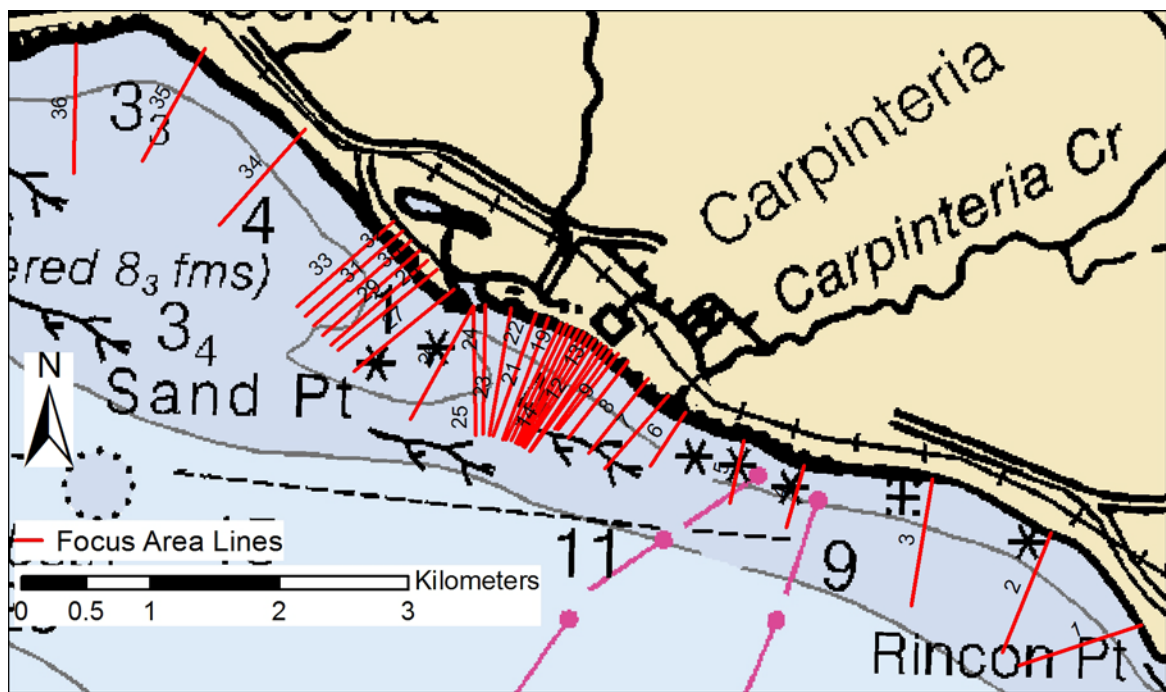


Figure 3a. Carpinteria focus area lines 1- 42

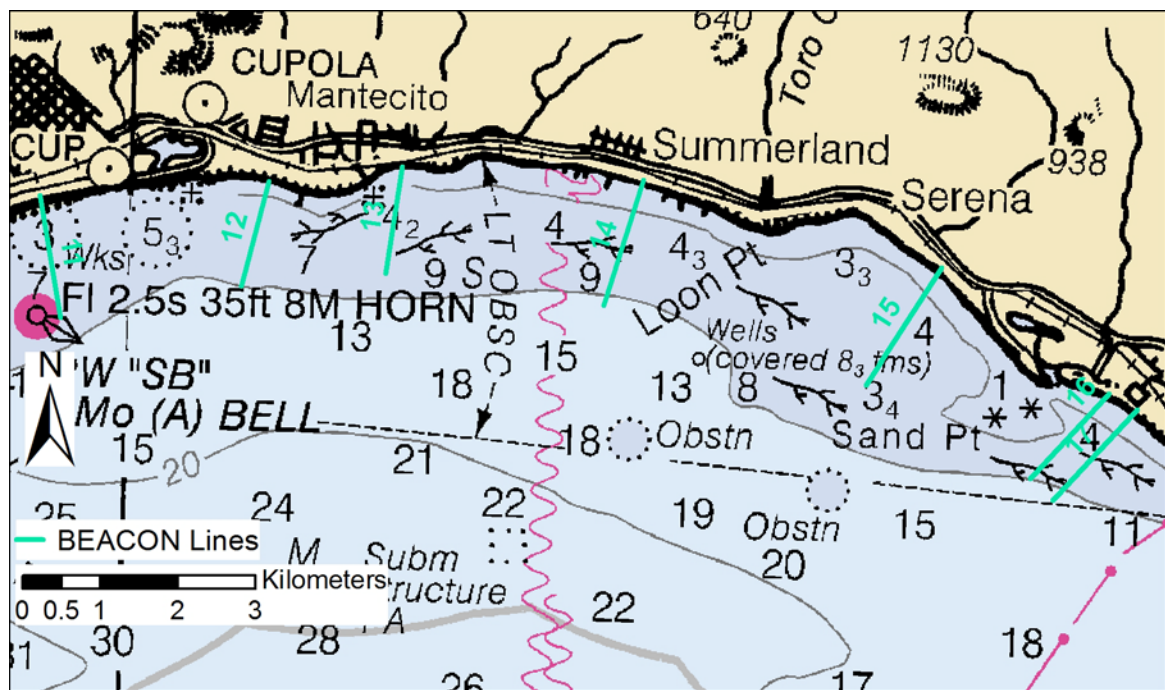


Figure 3b. Carpinteria area BEACON lines 11-17

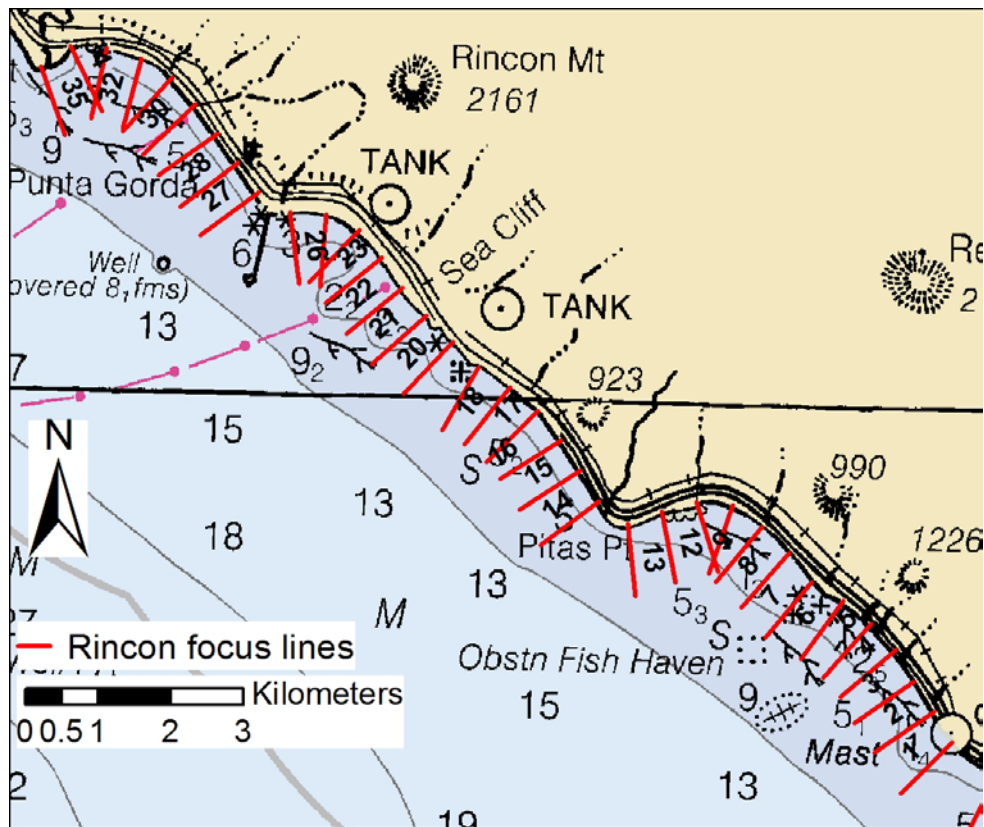


Figure 4a. Rincon focus area lines 1- 35

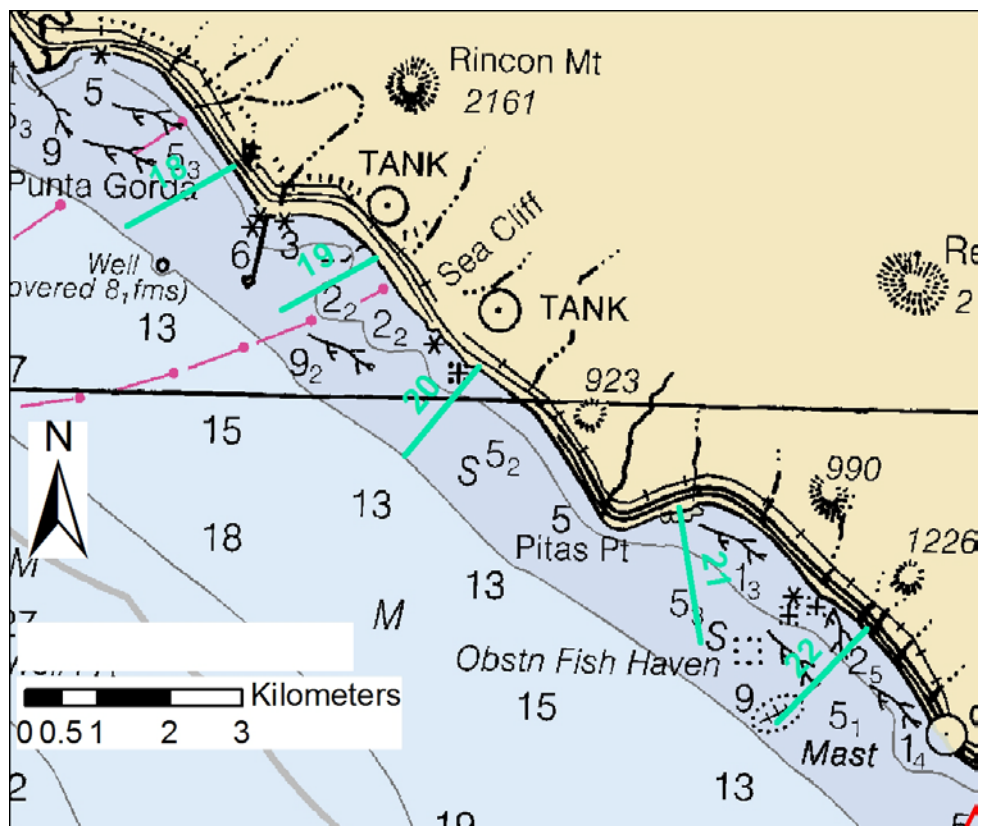


Figure 4b. Rincon-area BEACON lines 18-22

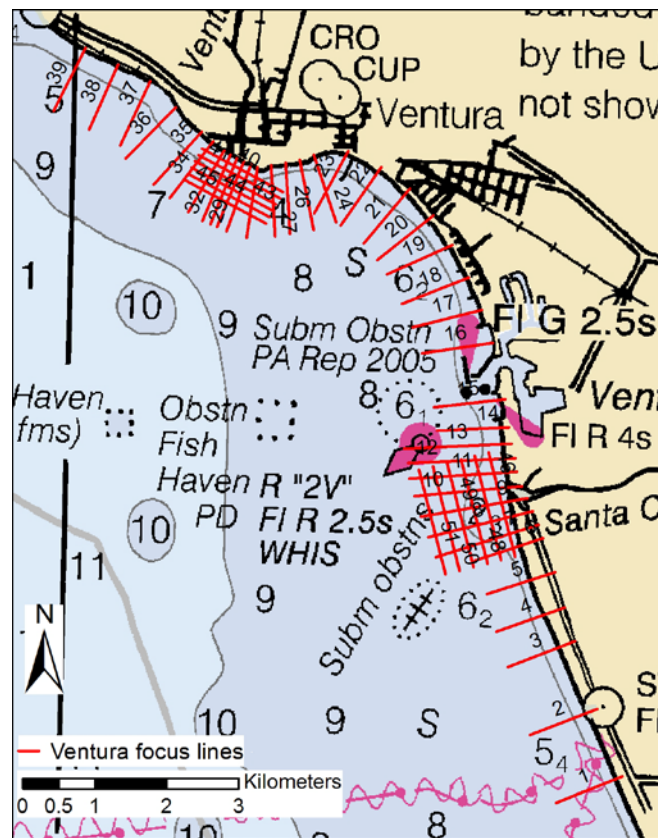


Figure 5a. Ventura focus area lines 1- 51

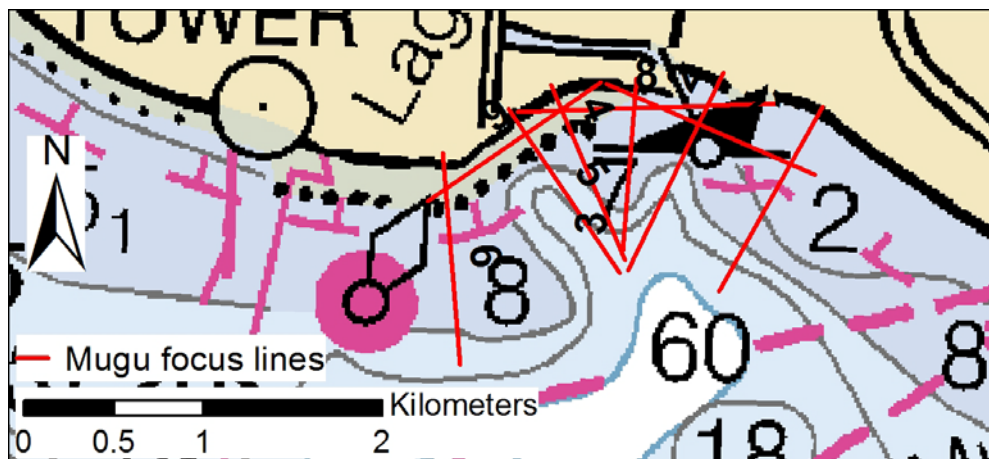


Figure 5b. Ventura-area BEACON lines 23-36

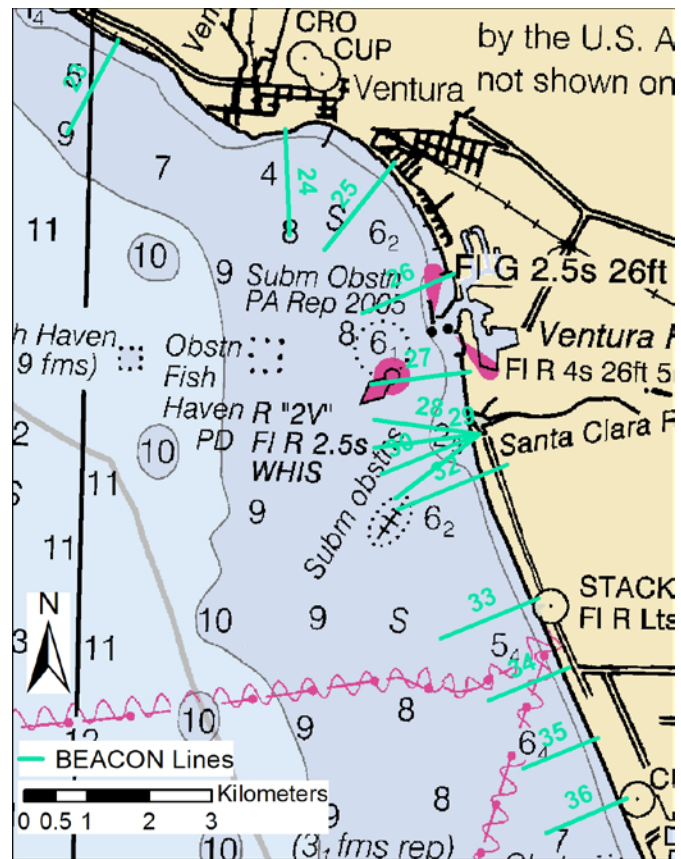


Figure 6a. Mugu focus area lines 1- 9

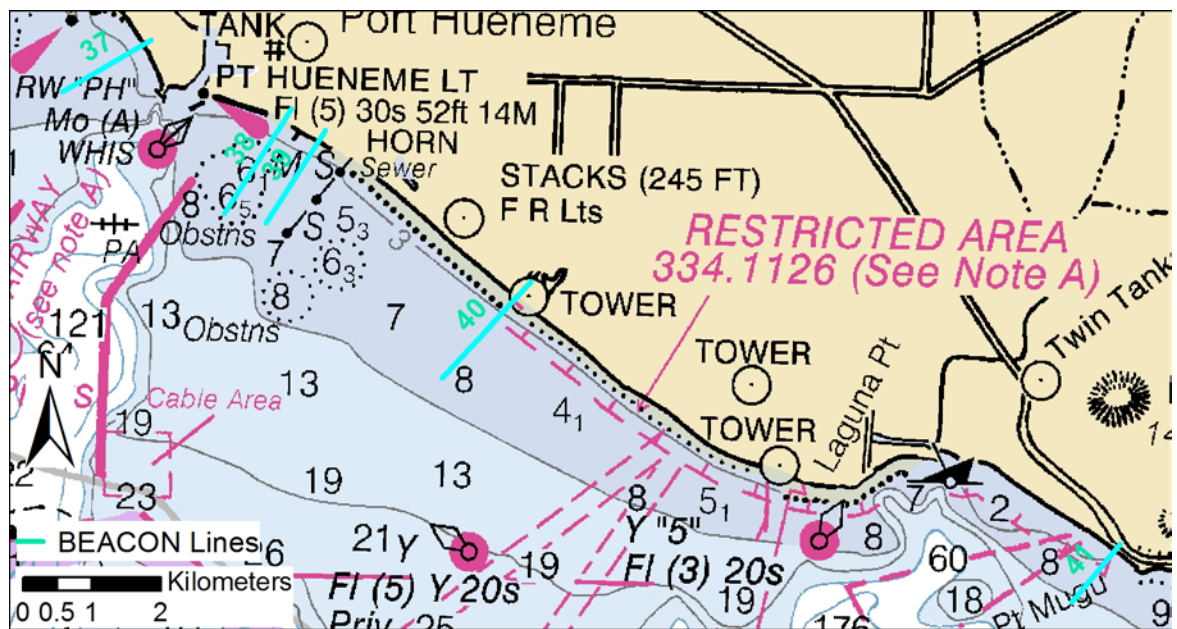


Figure 6b. Mugu-area BEACON lines 37-41

The overall survey area is bounded by the coordinates:

34° 4.877'	-119° 3.851'
34° 4.877'	-119° 55.254'
34° 25.733'	-119° 3.851'
34° 25.733'	-119° 55.254'

The focus area and associated BEACON line survey areas are bounded by the coordinates:

1a. Goleta focus

34° 23.777	-119° 54.519
34° 23.777	-119° 48.880
34° 25.369	-119° 54.519
34° 25.369	-119° 48.880

1b. Goleta-area BEACON

34° 23.386	-119° 55.254
34° 23.386	-119° 41.382
34° 25.733	-119° 55.254
34° 25.733	-119° 41.382

2a. Carpinteria focus

34° 22.335	-119° 34.233
34° 22.335	-119° 28.767
34° 24.844	-119° 34.233
34° 24.844	-119° 28.767

2b. Carpinteria-area BEACON

34° 22.969	-119° 40.751
34° 22.969	-119° 31.480
34° 25.183	-119° 40.751
34° 25.183	-119° 31.480

3a. Rincon focus

34° 17.130	-119° 28.628
34° 17.130	-119° 20.303
34° 22.564	-119° 28.628
34° 22.564	-119° 20.303

3b. Rincon-area BEACON

34° 17.646	-119° 27.816
34° 17.646	-119° 21.056
34° 21.709	-119° 27.816
34° 21.709	-119° 21.056

4a. Ventura focus

34° 11.659	-119° 20.175
34° 11.659	-119° 14.877
34° 17.289	-119° 20.175
34° 17.289	-119° 14.877

4b. Ventura-area BEACON

34° 10.427	-119° 20.225
34° 10.427	-119° 14.230
34° 17.208	-119° 20.225
34° 17.208	-119° 14.230

5a. Mugu focus

34° 5.132	-119° 6.472
34° 5.132	-119° 5.044
34° 6.031	-119° 6.472
34° 6.031	-119° 5.044

5b. Mugu-area BEACON

34° 4.877	-119° 13.916
34° 4.877	-119° 3.851
34° 9.122	-119° 13.916
34° 9.122	-119° 3.851

Track line start- and end-point coordinates for focus area lines are:

1. Goleta

Line	Start		End	
	Lon	Lat	Lon	Lat
1	-119.81539	34.41728	-119.81615	34.40829
2	-119.81756	34.41741	-119.81832	34.40842
3	-119.81971	34.41751	-119.81992	34.40850
4	-119.82192	34.41742	-119.82183	34.40841
5	-119.82406	34.41738	-119.82365	34.40837
6	-119.82623	34.41731	-119.82582	34.40830
7	-119.82733	34.41724	-119.82667	34.40824
8	-119.82840	34.41713	-119.82785	34.40813
9	-119.82948	34.41708	-119.82893	34.40808
10	-119.83057	34.41702	-119.82966	34.40802
11	-119.83164	34.41693	-119.83073	34.40794
12	-119.83274	34.41679	-119.83144	34.40781
13	-119.83384	34.41662	-119.83204	34.40773
14	-119.83486	34.41639	-119.83257	34.40757
15	-119.83585	34.41598	-119.83292	34.40730
16	-119.83683	34.41557	-119.83319	34.40709
17	-119.83869	34.41467	-119.83319	34.40691
18	-119.84040	34.41357	-119.83315	34.40685
19	-119.84160	34.41206	-119.83262	34.40698
20	-119.84215	34.41028	-119.83198	34.40705
21	-119.84262	34.40855	-119.83228	34.40568
22	-119.84367	34.40690	-119.83328	34.40425
23	-119.84426	34.40520	-119.83383	34.40264
24	-119.84426	34.40520	-119.84278	34.39628
25	-119.84510	34.40533	-119.85036	34.39744
26	-119.84700	34.40620	-119.85226	34.39831
27	-119.84907	34.40689	-119.85379	34.39874
28	-119.85103	34.40771	-119.85506	34.39934
29	-119.85305	34.40837	-119.85708	34.40000
30	-119.85524	34.40882	-119.85811	34.40012
31	-119.85728	34.40918	-119.85915	34.40030
32	-119.85946	34.40922	-119.86061	34.40030
33	-119.86168	34.40941	-119.86191	34.40040
34	-119.86385	34.40945	-119.86408	34.40044
35	-119.86602	34.40948	-119.86625	34.40048
36	-119.86820	34.40952	-119.86843	34.40051
37	-119.87037	34.40956	-119.87060	34.40055
38	-119.87252	34.40951	-119.87197	34.40048
39	-119.87472	34.40925	-119.87210	34.40050
40	-119.87658	34.40838	-119.87142	34.40043
41	-119.87821	34.40713	-119.87890	34.39813

42	-119.87962	34.40857	-119.88717	34.40214
43	-119.88088	34.41008	-119.88973	34.40482
44	-119.88218	34.41150	-119.89098	34.40621
45	-119.88346	34.41296	-119.89226	34.40766
46	-119.88473	34.41441	-119.89354	34.40912
47	-119.88611	34.41584	-119.89447	34.41008
48	-119.88762	34.41713	-119.89539	34.41083
49	-119.88919	34.41842	-119.89612	34.41149
50	-119.89091	34.41951	-119.89616	34.41161
51	-119.89296	34.42010	-119.89634	34.41153
52	-119.89508	34.42055	-119.89688	34.41167
53	-119.89723	34.42085	-119.89902	34.41197
54	-119.89938	34.42110	-119.90067	34.41214
55	-119.90143	34.42170	-119.90618	34.41364
56	-119.90308	34.42281	-119.90866	34.41508
57	-119.90514	34.42126	-119.89152	34.41785
58	-119.90546	34.42040	-119.89183	34.41699
59	-119.89236	34.41836	-119.87943	34.40553
60	-119.89320	34.41778	-119.88027	34.40495
61	-119.87987	34.40541	-119.86962	34.40781
62	-119.87958	34.40455	-119.86933	34.40694
63	-119.87070	34.40799	-119.84938	34.40534
64	-119.87087	34.40710	-119.84954	34.40445
65	-119.85079	34.40583	-119.84250	34.40251
66	-119.85126	34.40502	-119.84297	34.40170
67	-119.84313	34.40244	-119.83867	34.41289
68	-119.84211	34.40214	-119.83764	34.41259
69	-119.83928	34.41293	-119.82979	34.41520
70	-119.83898	34.41207	-119.82948	34.41434
71	-119.82776	34.41535	-119.81472	34.41581
72	-119.82772	34.41445	-119.81467	34.41491

2. Carpinteria

Line	Start		End	
	Lon	Lat	Lon	Lat
1	-119.47945	34.37531	-119.48970	34.37226
2	-119.48726	34.38158	-119.49114	34.37313
3	-119.49738	34.38516	-119.49893	34.37623
4	-119.50823	34.38587	-119.50962	34.38151
5	-119.51339	34.38751	-119.51442	34.38308
6	-119.51834	34.38938	-119.52123	34.38557
7	-119.51986	34.39053	-119.52506	34.38532
8	-119.52154	34.39172	-119.52646	34.38636
9	-119.52331	34.39284	-119.52819	34.38741
10	-119.52418	34.39338	-119.52906	34.38795
11	-119.52478	34.39358	-119.52937	34.38799
12	-119.52520	34.39383	-119.53134	34.38638
13	-119.52567	34.39406	-119.53141	34.38640
14	-119.52613	34.39430	-119.53187	34.38664
15	-119.52661	34.39453	-119.53205	34.38673
16	-119.52707	34.39478	-119.53228	34.38686
17	-119.52757	34.39495	-119.53240	34.38686
18	-119.52809	34.39513	-119.53264	34.38695
19	-119.52857	34.39534	-119.53302	34.38710
20	-119.52909	34.39539	-119.53346	34.38714
21	-119.53014	34.39571	-119.53370	34.38717
22	-119.53115	34.39599	-119.53455	34.38742
23	-119.53330	34.39636	-119.53484	34.38743
24	-119.53547	34.39653	-119.53543	34.38751
25	-119.53647	34.39642	-119.53601	34.38741
26	-119.53647	34.39642	-119.54153	34.38843
27	-119.53817	34.39756	-119.54640	34.39171
28	-119.53958	34.39893	-119.54782	34.39308
29	-119.54042	34.39955	-119.54842	34.39344
30	-119.54115	34.40021	-119.54916	34.39410
31	-119.54189	34.40087	-119.54989	34.39476
32	-119.54262	34.40154	-119.55063	34.39543
33	-119.54336	34.40220	-119.55137	34.39609
34	-119.55106	34.40850	-119.55810	34.40162
35	-119.55968	34.41398	-119.56471	34.40598
36	-119.57054	34.41407	-119.57046	34.40502

3. Rincon

Line	Start		End	
	Lon	Lat		
1	-119.33838	34.29198	-119.34594	34.28551
2	-119.34116	34.29576	-119.34998	34.29047
3	-119.34434	34.29942	-119.35316	34.29413
4	-119.34716	34.30329	-119.35530	34.29732
5	-119.35095	34.30652	-119.35793	34.29962
6	-119.35516	34.30933	-119.36132	34.30188
7	-119.36001	34.31153	-119.36670	34.30443
8	-119.36347	34.31510	-119.37046	34.30817
9	-119.36754	34.31825	-119.37432	34.31122
10	-119.37199	34.32086	-119.37544	34.31231
11	-119.37743	34.32112	-119.37395	34.31254
12	-119.38263	34.31988	-119.38027	34.31107
13	-119.38774	34.31823	-119.38631	34.30927
14	-119.39203	34.32097	-119.40063	34.31535
15	-119.39490	34.32475	-119.40388	34.31970
16	-119.39795	34.32848	-119.40693	34.32343
17	-119.40151	34.33203	-119.40903	34.32552
18	-119.40581	34.33487	-119.41242	34.32767
19	-119.41059	34.33730	-119.41576	34.32936
20	-119.41449	34.34042	-119.42172	34.33368
21	-119.41856	34.34354	-119.42654	34.33742
22	-119.42222	34.34693	-119.43041	34.34105
23	-119.42541	34.35060	-119.43373	34.34479
24	-119.42888	34.35404	-119.43615	34.34733
25	-119.43392	34.35585	-119.43456	34.34686
26	-119.43929	34.35602	-119.43765	34.34710
27	-119.44402	34.35841	-119.45267	34.35292
28	-119.44725	34.36202	-119.45577	34.35639
29	-119.45036	34.36559	-119.45917	34.36026
30	-119.45379	34.36915	-119.46152	34.36274
31	-119.45746	34.37245	-119.46456	34.36564
32	-119.46215	34.37471	-119.46465	34.36594
33	-119.46730	34.37595	-119.46944	34.36716
34	-119.47274	34.37607	-119.46780	34.36806
35	-119.47713	34.37339	-119.47323	34.36493

4. Ventura

Line	Start		End	
	Lon	Lat	Lon	Lat
1	-119.24794	34.19784	-119.25790	34.19431
2	-119.25196	34.20627	-119.26202	34.20281
3	-119.25557	34.21477	-119.26562	34.21131
4	-119.25729	34.21897	-119.26744	34.21574
5	-119.25879	34.22337	-119.26904	34.22041
6	-119.26072	34.22764	-119.27097	34.22464
7	-119.26145	34.22932	-119.27686	34.22492
8	-119.26233	34.23100	-119.27808	34.22747
9	-119.26326	34.23264	-119.27926	34.23003
10	-119.26409	34.23412	-119.28035	34.23259
11	-119.26487	34.23592	-119.28120	34.23477
12	-119.26520	34.23764	-119.28144	34.23672
13	-119.26585	34.23943	-119.28213	34.23851
14	-119.26623	34.24154	-119.27715	34.24088
15	-119.26693	34.24503	-119.27769	34.24383
16	-119.26897	34.25209	-119.27968	34.25058
17	-119.27075	34.25621	-119.28120	34.25382
18	-119.27285	34.26028	-119.28290	34.25674
19	-119.27546	34.26431	-119.28527	34.26043
20	-119.27839	34.26799	-119.28673	34.26223
21	-119.28211	34.27132	-119.28887	34.26423
22	-119.28649	34.27393	-119.29241	34.26647
23	-119.29150	34.27588	-119.29648	34.26786
24	-119.29677	34.27528	-119.29307	34.26681
25	-119.29884	34.27462	-119.29652	34.26582
26	-119.30096	34.27424	-119.30002	34.26525
27	-119.30313	34.27389	-119.30228	34.26490
28	-119.30521	34.27358	-119.30659	34.26463
29	-119.30619	34.27395	-119.30967	34.26538
30	-119.30727	34.27431	-119.31112	34.26589
31	-119.30832	34.27464	-119.31212	34.26618
32	-119.30935	34.27504	-119.31334	34.26662
33	-119.31025	34.27560	-119.31550	34.26773
34	-119.31195	34.27672	-119.31837	34.26945
35	-119.31369	34.27788	-119.32083	34.27109
36	-119.31776	34.28086	-119.32514	34.27426
37	-119.32170	34.28410	-119.32606	34.27586
38	-119.32657	34.28612	-119.33080	34.27781
39	-119.33157	34.28814	-119.33626	34.28001
40	-119.31369	34.27573	-119.30127	34.27053
41	-119.31417	34.27493	-119.30176	34.26973
42	-119.31466	34.27413	-119.30225	34.26892
43	-119.31515	34.27332	-119.30274	34.26812

44	-119.31564	34.27252	-119.30323	34.26731
45	-119.31613	34.27171	-119.30372	34.26651
46	-119.26927	34.23830	-119.26491	34.22523
47	-119.27136	34.23781	-119.26700	34.22475
48	-119.27345	34.23733	-119.26909	34.22427
49	-119.27554	34.23685	-119.27119	34.22378
50	-119.27764	34.23637	-119.27328	34.22330
51	-119.27973	34.23589	-119.27537	34.22282

5. Mugu

Line	Start		End	
	Lon	Lat	Lon	Lat
1	-119.08407	34.09890	-119.09014	34.08951
2	-119.09011	34.10052	-119.09566	34.09047
3	-119.09538	34.10014	-119.09601	34.09146
4	-119.10057	34.09973	-119.09585	34.09098
5	-119.10312	34.09846	-119.09616	34.09032
6	-119.10701	34.09619	-119.10570	34.08553
7	-119.08445	34.09549	-119.09720	34.09982
8	-119.08688	34.09901	-119.10254	34.09832
9	-119.09753	34.09989	-119.10787	34.09372

Track line start- and end-point coordinates for Mugu Area BEACON lines are:

Line	Start		End	
	Lon	Lat	Lon	Lat
1	-119.91231	34.42889	-119.92090	34.42074
2	-119.86257	34.40959	-119.86238	34.39877
3	-119.84018	34.41388	-119.82835	34.40330
4	-119.83536	34.41611	-119.82917	34.40263
5	-119.83325	34.41682	-119.83028	34.40261
6	-119.82944	34.41708	-119.82949	34.40265
7	-119.82499	34.41704	-119.82505	34.40261
8	-119.82152	34.41737	-119.82309	34.40300
9	-119.74352	34.40319	-119.74666	34.39362
10	-119.69699	34.40287	-119.68971	34.38977
11	-119.67918	34.41519	-119.67594	34.40102
12	-119.64720	34.41756	-119.65070	34.40528
13	-119.62850	34.41971	-119.63043	34.40719
14	-119.59464	34.41884	-119.59983	34.40413
15	-119.55258	34.40951	-119.56276	34.39565
16	-119.52864	34.39541	-119.53941	34.38525
17	-119.52466	34.39365	-119.53616	34.38282
18	-119.44769	34.36182	-119.46360	34.35402
19	-119.42605	34.35087	-119.44009	34.34399
20	-119.41016	34.33759	-119.42097	34.32628
21	-119.37959	34.32062	-119.37581	34.30378
22	-119.35093	34.30608	-119.36413	34.29410
23	-119.32858	34.28680	-119.33709	34.27320
24	-119.29913	34.27450	-119.29799	34.25920
25	-119.27994	34.27009	-119.29183	34.25721
26	-119.26922	34.25420	-119.28502	34.24822
27	-119.26607	34.24010	-119.28325	34.23797
28	-119.26415	34.23112	-119.28249	34.23285
29	-119.26415	34.23112	-119.28240	34.22885
30	-119.26415	34.23112	-119.28107	34.22501
31	-119.26415	34.23112	-119.27859	34.22158
32	-119.25916	34.22684	-119.27807	34.22001
33	-119.25323	34.20762	-119.27015	34.20150
34	-119.24763	34.19773	-119.26156	34.19270
35	-119.24237	34.18765	-119.25530	34.18297
36	-119.23717	34.17902	-119.25099	34.17378
37	-119.21807	34.15203	-119.23194	34.14497
38	-119.19580	34.14347	-119.20601	34.12964
39	-119.19041	34.14073	-119.19948	34.12844
40	-119.15763	34.12161	-119.17129	34.10879
41	-119.06418	34.08903	-119.07161	34.08128

EXHIBIT G

California State Lands Commission Presurvey Notice Requirements for Permittees to Conduct Geophysical Survey Activities

All parts of the Presurvey Notice must be adequately filled out and submitted to the CSLC staff a minimum of twenty-one (21) calendar days prior to the proposed survey date to ensure adequate review and approval time for CSLC staff. Note that one or more of the items may require the Permittee to plan well in advance in order to obtain the necessary documentation prior to the Notice due date (e.g., permits from other State or Federal entities). Please use the boxes below to verify that all the required documents are included in the Presurvey Notice. If "No" is checked for any item, please provide an explanation in the space provided. If additional space is needed, please attach separate pages.

Please use the boxes below to verify that all the required documents are included in the Presurvey Notice. If "No" is checked for any item, please provide an explanation in the space provided. If additional space is needed, please attach separate pages.

Yes	No	
X	<input type="checkbox"/>	Geophysical Survey Permit Exhibit F
X	<input type="checkbox"/>	Survey Location (including a full-sized navigation chart and GPS coordinates for each proposed track line and turning point) Explanation: _____
X	<input type="checkbox"/>	Permit(s) or Authorization from other Federal or State agencies (if applicable) Explanation: <i>Santa Barbara County Parks (Goleta), CA State Parks (Carpinteria, San Buenaventura, McGrath), UC Santa Barbara (Coal Oil Pt Reserve)</i>
X	<input type="checkbox"/>	21-Day Written Notice of Survey Operations to Statewide Geophysical Coordinator/
X	<input type="checkbox"/>	U.S. Coast Guard Local Notice to Mariners
X	<input type="checkbox"/>	Harbormaster and Dive Shop Notifications Explanation: _____
X	<input type="checkbox"/>	Marine Wildlife Contingency Plan Explanation: _____
X	<input type="checkbox"/>	Oil Spill Contingency Plan Explanation: _____
<input type="checkbox"/>	X	Verification of California Air Resources Board's Tier 2-Certified Engine Requirement Explanation: <i>Vehicle engines are gasoline fueled and exempt from Tier 2 Certification</i>
X	<input type="checkbox"/>	Verification of Equipment Service and/or Maintenance (must verify sound output) Explanation: _____
<input type="checkbox"/>	X	Permit(s) or Authorization from California Department of Fish and Wildlife for surveys in or affecting Marine Protected Area(s) (if applicable). Explanation: <i>Permit pending.</i>

NOTE: CSLC staff will also require verification that current biological information was obtained and transmitted as outlined in Section 5 of this permit

**Marine Wildlife Mitigation Plan
Santa Barbara Bathymetric Surveys**

(September 13, 2015 – March 31, 2016)

1.0 INTRODUCTION

This marine wildlife mitigation plan is prepared in compliance with the USGS Pacific Coastal and Marine Geology Science Center's existing State Geophysical Permit PRC 8394. This plan is intended to provide guidance to USGS vehicle operators and scientific field personnel collecting geophysical data for the Pacific Coastal and Marine Geology Science Center (PCMG) in Santa Cruz, CA to avoid significant impacts to marine wildlife that may occur during regular geophysical surveys.

1.1 Regulatory Basis

Species that are either currently in danger or soon likely to be in danger of extinction throughout all or a portion of its range are protected by the Endangered Species Act of 1973. The United States Fish and Wildlife Service (USFWS), and the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) implement the Endangered Species Act. During the consultation with NMFS to issue a permit for the offshore geophysical survey, it was determined no incidental take permits are required to use the equipment identified in this document to conduct scientific data acquisition in federal waters offshore of the California coast.

1.2 Geophysical Survey Purpose and Objectives

The USGS Pacific Coastal and Marine Science Center is studying the effects of waves, currents and human activity on the coastline and adjacent seabed in the Santa Barbara littoral cell, from Goleta to Pt. Mugu. The Santa Barbara littoral cell is subject to a variety of wave forcing regimes, with varying degrees of sheltering from swell by offshore islands, and includes extensive coastal developments that are vulnerable to wave-driven erosion. In 2005, we began conducting research and monitoring in the Santa Barbara littoral cell to obtain quantitative data on beach behavior and on processes affecting sediment transport.

Targeted bathymetric surveys will build on our earlier research by extending our beach and sub tidal monitoring program to near-decadal and hopefully longer timescales. The ultimate goal of this project is to identify and quantify the physical processes that control nearshore and beach morphology, enabling government agencies to make informed management decisions.

PCMG will contact the NOAA Long Beach Office staff and local whale-watching operations to acquire information on the current composition and relative abundance of marine wildlife offshore as well as any pinniped haul out sites. Whale activity is moderate at the moment. The peak whale season is February - May in the Monterey Bay. Whale activity in the area has decreased in the past month. Additionally, one day prior to survey activities, the NOAA Long Beach office, local whale watching operations will be contacted to get an update on marine wildlife sightings in the area. This information will be conveyed to the captain and crew prior to the survey.

A review of environmental responsibility of project operations will be conducted by the chief scientist in charge of the survey operations prior to commencing the first day of operations. When new personnel will be in the crew, this training will be repeated at least for those new to the crew. They will be made aware of their individual responsibility and will be shown how to be aware of possible environmental impacts and how to mitigate them during the geophysical survey operations. Information relating to seasonality, as an indication of the types of animals that might be in our survey area, at the time of survey work will also be presented to the crew. A copy of this document will be provided to the crew of our survey vehicles.

All personnel will be expected to be consistently aware that they are to be alert to any presence of marine wildlife while they are performing their duties. There are a number of signs/indications of marine wildlife presence and each crew member will be responsible to maintain vigilance for those signs within the constraints of their project duties. Some of those indications are:

- a. Sounds - such as splashing, vocalizations (by animals and birds), and blowing (breathing).
- b. Visual indications - birds aggregating, changes in water character such as areas of rippled water, white water caused by splashing, changes in color or shape of the ocean surface

1.3 Survey Schedule and Layout

The Project schedule will be from September 13, 2015 through March 31, 2016. At least one survey will be conducted near the beginning of the project period to document end-of-summer nearshore bathymetric conditions prior to arrival of winter waves. Up to three additional surveys may be conducted in response to large wave and/or river discharge events if they occur. The most likely period for these surveys is January through March. For safety reasons, the survey vehicles are always used in tandem—two at a time— with personnel support on the adjacent beach. Permits and permissions for beach use have been obtained from Santa Barbara County Parks (Goleta), California State Parks (Carpentaria, San Buenaventura, and McGrath State beaches) and UC Santa Barbara (Coal Oil Point reserve). Survey vehicles will be launched from Santa Barbara, Ventura, or Channel Islands Harbor, and will transit at safe speeds to the survey locations. Surveys normally will be conducted during spring high tides, and across-shore transects will be surveyed from the surf zone (about 1 m depth) to 1-2 km offshore. Survey vehicle operators will operate on survey lines only when conditions are safe and swimmers, paddlers, and wildlife are not present. Data collected in this region are critical however, as most of the sand movement in nearshore areas occurs at shallow depths (typically less than 3m). Sediment volume changes will be calculated from profile data to determine the rates of net sediment transport between different reaches of the beach, as well as the rates of net on- or offshore transport. This will aid in determining littoral drift rates and in constructing a sediment budget for the system.

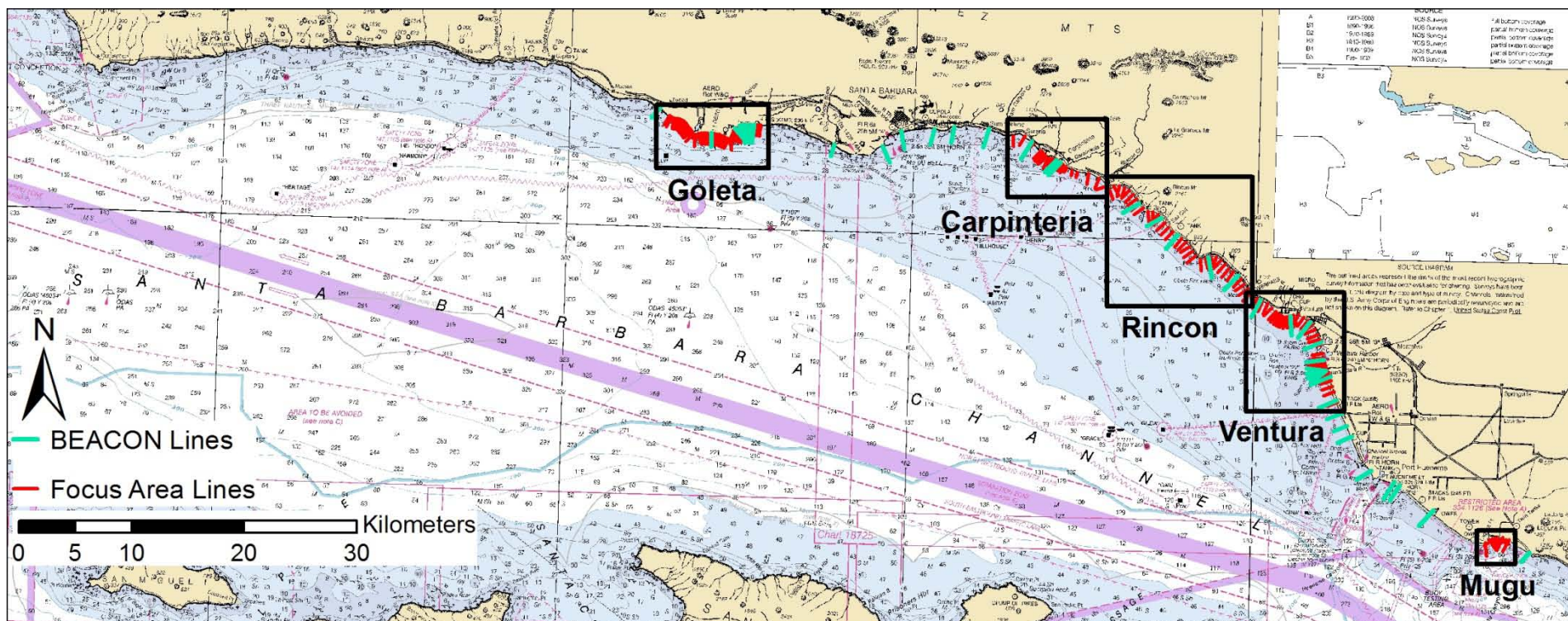


Figure 1. Regional Map of Survey Area

2.0 Survey Equipment and Activities

Nearshore mapping will utilize two USGS Coastal Profiling Systems (CPS), which consist of a personal watercraft instrumented with GPS-based mapping systems and fathometers. The CPS are identical to the systems used in previously permitted research in the Monterey Bay National Marine Sanctuary (see Storlazzi et al., 2007). CPS are not operated in high surf (generally greater than 5 feet) or in difficult weather conditions such as fog or rain. All CPS operators are USGS employees, insured, and safety-certified by the U.S. Department of Interior.

PCMG proposes to use the following equipment to collect the required data:

- Odom Echotrac CV100 echo sounder using a 200 kHz, 9° downward conical beam transducer

The proposed survey will require the use of a marine vehicle and in-water equipment that generate noise during data acquisition. The results of modeling of the noise generated by the survey equipment is shown in Table 1. Those results indicate that operational source level used for these surveys are less than 160 dB at any range.

Table 1. Distances to Received Pressure Levels from Equipment Sound Source

Sounder System	Frequency (kHz)	Source Level (dB peak)	Source Level (dB rms)	Distance to SL160 dBrms (meters)	Distance to SL 180 dB (rms) (meters)	Distance to SL190 dB (rms) (meters)
Odom Echotrac CV100 Echo Sounder	200 kHz	109	93	<1	<1	<1

These estimates are based on the underwater sound propagation equation:

$$RSPL = SL - 20 \log(R/R_o) - AR$$

where,
 RSPL=Received sound potential level
 SL= RMS source level re. 1 uPa (rms) based on manufacturer's specifications
 R= Distance
 Ro= Reference Distance (1 m)
 A= sound absorption coefficient

The greatest distance from the sound source to the 160 dB level (<1 m) for the proposed equipment) is considered the "safety zone" for this equipment. However, because the operating frequency of 200 kHz is above the cutoff hearing threshold for marine mammals, CSLC has determined that the observance of the "safety zones" is not a requirement for this survey (personal communication, K. Keen, CSLC).

3.0 Marine Wildlife

3.1 Marine Wildlife

The following discusses the marine wildlife that have been recorded within the project region, those taxa that are most likely to be within the larger project region during survey

operations, and methods that will be instituted by the vehicle operator to reduce or eliminate potential impacts to marine wildlife during transit and survey operations.

Table 2 provides information on the seasonal variations in the marine wildlife that are expected to be or have been reported within the Project area.

Table 2: Abundance Estimates for Marine Mammals and Reptiles of California Unless Otherwise Indicated

Common Name Scientific Name	Population Estimate	Current Population Trend
REPTILES		
Cryptodira		
Olive Ridley turtle <i>Lepidochelys olivacea</i>	1.39 million (Eastern Tropical Pacific)**	Increasing
Green turtle <i>Chelonia mydas</i>	3,319-3,479** (Eastern Pacific Stock)	Increasing
Loggerhead turtle <i>Caretta caretta</i>	1,000 (California)**	Decreasing
Leatherback turtle <i>Dermochelys coriacea</i>	178 (California)**	Decreasing
MAMMALS		
Mysticeti		
California gray whale <i>Eschrichtius robustus</i>	18,017 (Eastern North Pacific Stock)	Fluctuating annually
Fin whale <i>Balaenoptera physalus</i>	2,624 (California/Oregon/Washington Stock)	Increasing off California
Humpback whale <i>Megaptera novaeangliae</i>	1,878 (California/Oregon/Washington Stock)	Increasing
Blue whale <i>Balaenoptera musculus</i>	2,046 (Eastern North Pacific Stock)	Unable to determine
Minke whale <i>Balaenoptera acutorostrata</i>	202 (California/Oregon/Washington Stock)	No long-term trends suggested
Northern right whale <i>Eubalaena japonica</i>	17 (based on photo-identification) (Eastern North Pacific Stock)	No long-term trends suggested
Sei whale <i>Balaenoptera borealls</i>	83 (Eastern North Pacific Stock)	No long-term trends suggested
Odontoceti		
Short-beaked common dolphin <i>Delphinus delphis</i>	343,990 (California/Oregon/Washington Stock)	Unable to determine
Long-beaked common dolphin <i>Delphinus capensis</i>	17,127 (California Stock)	Unable to determine
Dall's porpoise <i>Phocoenoides dalli</i>	32,106 (California/Oregon/Washington Stock)	Unable to determine
Harbor porpoise <i>Phocoena phocoena</i>	1,478 (Morro Bay Stock)	Increasing
Pacific white-sided dolphin <i>Lagenorhynchus obllquidens</i>	21,406 (California/Oregon/Washington Stock)	No long-term trends suggested
Risso's dolphin <i>Grampus griseus</i>	4,913 (California/Oregon/Washington Stock)	No long-term trends suggested
Short-finned pilot whale <i>Globicephala macrorhynchus</i>	465 (California/Oregon/Washington Stock)	No long-term trends suggested
Bottlenose dolphin <i>Tursiops truncatus</i>	684 (California/Oregon/Washington Offshore Stock)	No long-term trends suggested
	290 (California Coastal Stock)	No long-term trends suggested
Northern right whale dolphin <i>Liissopelphis borealis</i>	6,019 (California/Oregon/Washington Stock)	No long-term trends suggested
Sperm whale <i>Physeter macrocephalus</i>	751 (California/Oregon/Washington Stock)	No long-term trends suggested

US Geological Survey - Pacific Coastal and Marine Geology Science Center
Marine Wildlife Mitigation Plan – Ocean Beach Study

Killer whale <i>Orcinus orca</i>	85 (Eastern North Pacific Southern Resident Stock)	Decreasing
	162 (Eastern North Pacific Offshore Stock)	No long-term trends suggested
Pinnipedia		
California sea lion <i>Zalophus californianus</i>	141,842 (U.S. Stock)	Unable to determine; increasing in most recent three year period
Northern fur seal <i>Callorhinus ursinus</i>	5,395 (San Miguel Island Stock)	Increasing
Guadalupe fur seal <i>Arctocephalus townsendi</i>	3,028 (Mexico Stock) Undetermined in California	Increasing
Northern (Steller) sea lion <i>Eumetopias jubatus</i>	2,479 California Stock	Decreasing
Northern elephant seal <i>Miroounga angustirostris</i>	74,913	Increasing
Pacific harbor seal <i>Phoca vitulina richardsi</i>	31,600	Stable
Fissipedia		
Southern sea otter <i>Enhydra lutris nereis</i>	2,711*	Unable to determine

Estimates provided by National Marine Fisheries Service (NOAA Fisheries 2011) *

Estimate provided by USGS (2010)

** Estimates provided by National Marine Fisheries Service (NMFS) (2004), Marquez, et al. (2002), Eguchi et al. (2007), Benson et al. (2007), and NMFS (2007). Estimates are based on number of current numbers of nesting females.

During the transit periods, there is a potential for encountering marine wildlife. Table 3 lists those species that are likely to occur in the survey area

Table 3. Marine Wildlife Species and Most Likely Periods of Occurrence within the Survey Area

Family Common Name	Month of Occurrence ^{<1)}											
	J	F	M	A	M	J	J	A	S	O	N	D
REPTILES												
Cryptodira												
Olive Ridley turtle (T) ⁽²⁾												
Green turtle (T) ^{(1),(2)}												
Loggerhead turtle (T) ⁽²⁾												
Leatherback turtle (E) ⁽²⁾												
MAMMALS												
Mysticeti												
California gray whale												
Blue whale (E)												
Fin whale (E)												
Humpback whale (E)												
Minke whale												
Sei whale (E)												
Northern right whale (E)												
Odontoceti												
Short-beaked common dolphin												
Dall's porpoise												
Harbor porpoise												
Long-beaked common dolphin												
Pacific white-sided dolphin												
Risso's dolphin												
Sperm whale												
Short-finned pilot whale												
Bottlenose dolphin												
Northern right whale dolphin												
Killer whale												
Pinnipedia												
Northern fur seal ⁽³⁾												
California sea lion												
Northern elephant seal ⁽⁴⁾												
Pacific harbor seal												
Guadalupe fur seal (T)												
Steller sea lion												
Fissipedia												
Southern sea otter (T) ⁽⁵⁾												
Relatively uniform distribution		Not expected to occur					Most likely to occur due to seasonal distribution					

(E) Federally listed endangered species.

(T) Federally listed threatened species.

(1) Not Used

(2) Rarely encountered, but may be present year-round. Greatest abundance during July through September.

(3) Only a small percent occur over continental shelf (except near San Miguel rookery, May-November).

(4) Common near land during winter breeding season and spring molting season.

(5) Only nearshore (diving limit 100 feet).

Sources: Bonnell and Dailey (1993), NOAA Fisheries (2011), NCCOS (2007)

4.0 ONBOARD MITIGATIONS

4.1 Fishing Gear Clearance

In addition to submitting the required Notice to Mariners that will advise commercial fishers of pending on-water activities, prior to the start of each survey day the vehicles will traverse the proposed survey corridor for that day to note and record the presence of deployed fishing gear. No survey lines within 30 m (100 ft) of the observed fishing gear will be completed. The survey crew will not remove or relocate any fishing gear; removal or relocation will only be accomplished by the owner or by an authorized CDFG agent.

4.3 Marine Wildlife Monitoring

NOAA does not require exclusion/safety zones to be monitored. The operational source level for these survey operations is 93 dB RMS at 200 kHz, well below the maximum 160 dB sound level considered safe for operating in the proximity of marine mammals. Because there is only one CPS operator on board the survey vehicle during survey operation, their primary responsibilities during survey operations is the safe operation of the vehicle and operation of the data acquisition system, it is not possible for them to log wildlife observation data. However, the operator will provide a narrative of any sightings or encounters with marine wildlife during the day's survey operations and these narratives will be provided in the summary report for each survey.

4.3 Mitigations During Transit and Survey

The research vehicles will transit during day-light hours from Santa Barbara, Ventura, or Channel Islands harbors. During transits, there is a potential for encountering marine wildlife and the vehicle operators will take every precaution to avoid close proximity to wildlife. During transits, the vehicle will maintain a minimum distance of 100 m (1,640 ft.) from observed animals. If the vehicle operator observes a marine mammal within the path of the transiting vehicle, they will immediately slow the vehicle and/or change course in order to avoid contact.

Cetaceans (whales) vary in their swimming patterns and duration of dives and therefore all shipboard personnel will be watchful as the vehicle crosses the path of a whale or anytime whales are observed in the area.

If whales are observed during transits, the vehicle operator will institute the following measures:

- Maintain a minimum distance of 100 m from sighted whales;
- Do not cross directly in front of or across the path of sighted whales;
- When transit directions is parallel to whale path, maintain constant speed that is not greater than the whales speed, or alter transit direction away from whale path;
- Do not position the vehicle in such a manner to separate female whales from their

calves;

- If a whale engages in evasive or defensive action, slow the vehicle and move away from the animal until the animal calms or moves out of the area.

During survey operations, the vehicle will maintain survey a speed of approximately 4 knots and will maintain a heading that coincides with survey track lines. If marine wildlife is observed within the vicinity of the vehicle, the vehicle operator will take precautions to avoid collision, ending and restarting the track line survey if necessary.

If a collision with marine wildlife occurs, the vehicle operator will document the conditions under which the accident occurred, including the following:

- Location of the vehicle when the collision occurred (latitude and longitude);
- Date and time;
- Speed and heading of the vehicle;
- Observed conditions (e.g., wind speed and direction, swell height, visibility in miles or kilometers, and presence of rain or fog);
- Species of marine wildlife contacted; and
- Organization, vehicle ID and name of master in charge of the vehicle at time of accident.

In accordance with NOAA requirements, after a collision, the vehicle should stop, if safe to do so. The vehicle may proceed after confirming that it will not further damage the animal by doing so. The vehicle will then communicate by radio or telephone all details to the vehicle's base of operations. The PCMG Marine Operations Superintendent will contact the Stranding Coordinator, NMFS, Southwest Region, Long Beach, to obtain instructions. Alternatively, the vehicle captain may contact the NMFS Stranding Coordinator directly using the marine operator to place the call or directly from an onboard telephone, if available to:

**NOAA Southwest Regional Stranding
Coordinator
National Marine Fisheries Service
501 West Ocean Blvd, Suite 4200
Long Beach, CA 90802-4213
562-980-4017
Contact: Sarah Wilkin
Email: sarah.wilkin@noaa.gov**

It is unlikely that the vehicle will be asked to stand by until NOAA or CDFG personnel arrive, however this will be determined by the Stranding Coordinator. According to the MMPA, the vehicle operator is not allowed to aid injured marine wildlife or recover the carcass unless requested to do so by the NOAA Stranding Coordinator.

Although NOAA has primary responsibility for marine mammals in both state and federal waters, the CDFG will also be advised that an incident has occurred in state waters affecting a protected species. Reports should be communicated to the federal and state agencies listed below:

Federal Sarah Wilkin, Stranding Coordinator Southwest Region National Marine Fisheries Service Long Beach, California (562)980-4017	State Enforcement Dispatch Desk California Department of Fish and Game Long Beach, California (562)590-5132	State California State Lands Commission Mineral Resources Management Division Long Beach, California (562) 590-5071
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4.4 Operational Measures

Soft Start

The soft-start technique required for sonar equipment operating above the hearing threshold for marine mammals at 200 kHz is predicated on research investigations of low frequency side lobes for 200 kHz sonar systems (Deng et al., 200 kHz Commercial Sonar Systems Generate Lower Frequency Side Lobes Audible to Some Marine Mammals, PLOS ONE, 2014). This work was based on a measured 90 kHz sub harmonic at 141 dB re. 1µPA @ 1m generated by a 200 kHz sonar signal at 195 dB re. 1µPA @ 1m and a marine mammal hearing threshold of 70 dB . Modeling of our system's equivalent source levels based on their measurements, our echo sounder would generate a 90 kHz harmonic at 69 dB re. 1µPA @ 1m, which is below the hearing threshold of concern, within 1 m from the vehicle. We conclude from this that a soft start technique has no practical application for our survey operations. However, we none the less intend to take a conservative approach by increasing power upon startup at a 25% increase in power from zero to our operational power level of 93 dB over a five minute period.

Wildlife Monitoring

Marine wildlife monitoring will not be required by onboard personnel for these operations, but the operator will provide a narrative of any observations that occur within the survey area.. Because the survey echo sounder operated above 200 kHz, no safety zone is required. However, USGS will take the following precautionary measures:

- Not approach within 300 m of haul-out site (Table 4), consistent with NMFS guidelines;
- Expedite survey activity in haul-out areas in order to minimize the potential for disturbance of pinnipeds on land;
- Continuously monitor the survey area to ascertain the presence, species and location of any marine wildlife in the intended survey area. The vehicle master and onboard personnel will be watchful when whales or other marine mammals are observed in the area. The vehicle operator shall observe the following guidelines:

- Make every effort to maintain distance from sighted marine mammals and other marine wildlife;
- Do not cross directly in front of (perpendicular to) migrating whales or any other marine mammal or turtle;
- When paralleling marine mammals or turtles, the vehicle will operate at a constant speed that is not faster than that of the animals;
- Care will be taken to ensure female whales are not separated from their calves; and, if a whale engages in evasive or defensive action, the vehicle will reduce speed or stop until the animal calms or moves out of the area.

Table 4 Pinniped Haul Out Locations

LOCATION	SPECIES	LATITUDE	LONGITUDE
Carpinteria Bluffs, Carpinteria, CA	Harbor Seal	34.39	-119.51
Point Mugu Lagoon, CA	Harbor Seal	34.10	-119.09

Vehicle Speed

The CPS operator will refrain from erratic operating behavior when transiting to the survey site and shall operate at, or less than, a speed of approximately 4 knots once on survey station.

Limitations on equipment usage

Limitations on the frequency, pulse length, and pulse rate will be implemented to reduce potential harmful noises. The shortest possible pulse length and lowest pulse rate (pings per second) will be used, dependent on water depth.

4.5 Monitoring Reporting

A Post Survey Field Operations and Compliance Report will be submitted to CSLC staff as soon as possible but no more than 30 days after the completion of survey activities.

**U.S. GEOLOGICAL SURVEY
PACIFIC COASTAL AND MARINE GEOLOGY SCIENCE CENTER**

**MANAGEMENT OF ACCIDENTAL DISCHARGE AND VESSEL INCIDENTS
DURING OFFSHORE GEOPHYSICAL SURVEYS**

1.0 INTRODUCTION

The survey operations will be conducted using two USGS personal watercraft (jet skis) that comprise our Coastal Profiling Systems (CPS). Because of the vehicle's small size, it is anticipated that response to any operational spills will be quickly identified and response will be initiated quickly and efficiently by the vehicle operator. Oil spills in United States (U.S.) marine waters shall be reported immediately.

2.0 OPERATIONAL SPILLS

Operational spills might involve one or more of the following substances carried on board the vehicles: (i) fuel and (ii) lube oil. The vehicles are equipped with woven polypropylene sheets (5 sheets) for rapid absorption of surface oil and protective gloves (1 pair), and a disposal bag (1). This oil spill materials are located in the forward cabinet of the vehicle. This spill kit is rated to clean up .25 gallons of liquid. All of the liquids (listed below) that could cause a hazardous spill are either in the fuel tank or in the vehicle engine. Spill occurrence will likely be during fueling, in the event of grounding or if any instance occurred that punctured the gas tank. In the event a spill occurred in the engine compartment, the oil spill kit would be used to contain the hazardous liquids and the bilge would not be emptied until it could be pumped out at a hazardous waste facility. We do not anticipate a spill of greater than .25 gallons.

(i) Fuel:

A spill kit shall be available for use in the event of a spill. If the fuel is spilled on the deck, it shall be immediately removed, bagged and disposed of at an appropriate hazardous waste reception facility. In the event of spillage in the water, the vessel master shall notify the Coast Guard and port facility.

(ii) Lube oil:

A spill kit shall be available for use in the event of a spill. If the oil is spilled in the machinery space, it shall be immediately removed, bagged and disposed of at an appropriate hazardous waste reception facility. In the event of spillage in the water, the vehicle operator shall notify the Coast Guard and port facility.

3.0 EMPLOYEE TRAINING ON OIL SPILL CONTINGENCY PLAN

Prior to the launching of the vessel for any activities, all captain and crew members on the vessel will have read the Oil Spill Contingency Plan, understand procedures to be implemented in the event of an oil spill, and know where the oil spill kit is located on the vessel.

4.0 VESSEL FUELING

All vessel fueling will be conducted at an approved docking facility. No cross vessel fueling will be performed. Appropriate spill avoidance measures during filling procedures will be observed. Refueling of the CPS is not allowed at the shoreline unless there is a compelling reason to do so and sufficient spill response equipment to address a spill is on site (i.e., sorbent and containment materials equal to approximately one-third the capacity of the fuel tank).

5.0 PRIORITY ACTIONS TO ENSURE PERSONNEL AND VESSEL SAFETY

Safety of vehicle operators and the vehicles are paramount. In the event that a crewman's injuries require outside emergency assistance, the PCMG safety officer shall be contacted immediately and emergency personnel contacted. While awaiting emergency assistance, the on board vessel master or qualified vessel crew personnel will render first aid and/or CPR. The nearest emergency medical facilities for this area is:

Goleta, Carpinteria and north Rincon:

Santa Barbara Cottage Hospital
400 W Pueblo St, Santa Barbara, CA 93105
(805) 682-7111

Ventura and south Rincon:

Community Memorial Hospital
147 N Brent St, Ventura, CA 93003
(805) 652-5011

Mugu:

Saint John's Regional Medical Center
1600 N Rose Ave, Oxnard, CA 93030
(805) 988-2663

6.0 MITIGATING ACTIVITIES

If safety of both the vessel and the personnel has been addressed, the vessel master shall care for the following issues:

- Assessment of the situation and monitoring of all activities as documented evidence.
- Care for further protection of the personnel, use of protective gear, assessment of further risk to health and safety.
- Containment of the spilled material by absorption and safe disposal within leak proof containers of all used material onboard until proper delivery ashore, with due consideration to possible fire risk.
- Decontamination of personnel after finishing the cleanup process.

7.0 EMERGENCY CONTACTS FOR STATE AND FEDERAL AGENCIES

Emergency numbers for U.S.C.G. for the Santa Barbara Area are:

Pacific SAR Coordinator - Alameda: 510-437-3700

Rescue Coordination Center, Alameda: 510-437-3700

Any oil spill in U.S. marine waters shall be reported immediately to the following state and agencies:

West Coast Oil Spill hot-line	800-OELS-911, <i>or</i>
Department of Fish and Game CalTIP	888-CFG-CALTip
(Californians Turn In Poachers & Polluters)	(888-334-2258). <i>and</i>
U.S. Coast Guard National Response Center	800-424-8802
California Office of Emergency Services (OES)	800-OILS-911 or 800-852-7550.

During the phone call, the following information will be given over the phone.

- a. Name and telephone number of caller.
- b. Spill location
- c. What was spilled (oil, gas, diesel, etc.)
- d. Estimated size of spill
- e. The date & time spill was identified (same day).
- f. Any oiled or threatened wildlife
- g. Source of spill, if known
- h. Activity observed at the spill site

After taking the necessary actions, the spill will be reported in writing to the Governor's Office of Emergency Services on their forms.

Additionally, California Department of Fish and Game certified wildlife rescue/response organizations will be contacted about the spill. In the Southern California area, these include the following contacts:

Oiled Wildlife Care Network
1-877-UCD-OWCN

Animal Advocates
323-651-1336

California Wildlife Center
310-458-9453

**U.S. GEOLOGICAL SURVEY
PACIFIC COASTAL AND MARINE GEOLOGY SCIENCE CENTER
GEOPHYSICAL SOUND SOURCE SYSTEMS MAINTENANCE RECORD**

Odom Echotrac CV-100 Echo Sounder - 200 kHz Serial # 26067

1.0 Introduction

The USGS Pacific Coastal and Marine Geology Science Center (PCMGSC) owns and operates a broad range of geophysical sound sources, seafloor mapping systems, geologic and geotechnical sediment sampling systems, and oceanographic instrument systems. This requires considerable technical and operational support to successfully undertake and complete its field programs. Operational and technical support for these systems is provided by the PCMG Marine Operations Facility (Marfac) in Santa Cruz, CA. Our Marfac group is staffed by a team of ten ocean engineers, electronics technicians, and marine engineering technicians. They operate, maintain and repair all geophysical and oceanographic systems used to support all of PCMGSC's scientific field operations.

The USGS-owned Odom Echotrac ECTV-100 echo sounder is owned and operated by USGS Pacific Coastal and Marine Geology Science Center (PCMGSC). This system has been thoroughly checked, tested and calibrated according to the manufacturer's (Teledyne Odom) recommended procedures. This system is comprised of the Echotrac CV-100 Acquisition Controller/Power supply (Serial # 26067) and a 200 kHz transducer, Model # SMBB200-9. The results of this evaluation confirms the echo sounder system to be operating at Teledyne Odom's stated specifications in all regards.

System checkout includes physical inspection of all components, cables, connectors and electronics for any signs of corrosion, wear or damage, all necessary cleaning and full functionality checks.

These procedures were followed by a full at-sea check of all system parameters in order to confirm system performance meets specs. The Odom Echotrac CV-100 is fully compliant with Teledyne Odom stated capabilities and specifications.



George Tate, Marine Operations Superintendent

10/14/14
Date



USGS Coastal and Marine Geology Program

Geophysical System Certification

ODOM ECHOTRAC ECTV-100

Date	12/16/2014
Serial #	26067

Power Supply (2417-0001-REVC)

Input Voltage (DC +24V)	✓
+12V (TP8)	✓
+24V (J3 Pin 1, 3)	✓
+5V (J3 Pin 2, 4)	✓

Communication (2416-0019-REVA)

+5V (TP2)	✓
+24V (TP1)	✓

Transceiver Board (2416-0012-REVB)

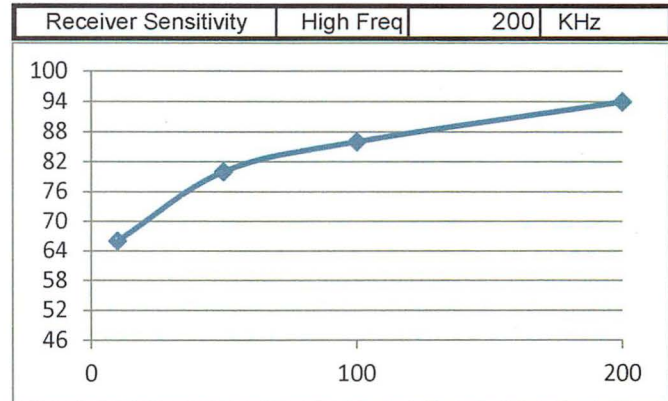
+12V (TP1)	✓
-12V (TP5)	✓
-5V (TP4)	✓
+5V (TP2)	✓

Communications

Com 1 (Depth I/O)	✓
Com 2 (Remote)	✓
Com 3 (GPS In)	✓
Com 4 (Heave)	✓
Ethernet	✓

Reverse Polarity Alarm	✓
Total Burn In Time	24 Hrs Minimum

Receiver Sensitivity Ch1	
Sensitivity	Depth in m
66	10
80	50
86	100
94	200
FREQ KHz	200



High Frequency Transmit Power (50ohm)

Settings	Low (1)	Med (6)	High (12)
Ch1	15.31V	74.40V	289.10V

Board Identification	SN	SW Ver
Ethernet / Comm I/O	110625	
Communications CPU	110193	4.06
Power Supply	111086	
High Freq Transceiver	110916	1.22
High Freq DSP	110617	4.02

George Tate

Marine Operations Superintendent

11/14/14
Date

**U.S. GEOLOGICAL SURVEY
PACIFIC COASTAL AND MARINE GEOLOGY SCIENCE CENTER
GEOPHYSICAL SOUND SOURCE SYSTEMS MAINTENANCE RECORD**

Odom Echotrac CV-100 Echo Sounder - 200 kHz Serial # 26331

1.0 Introduction

The USGS Pacific Coastal and Marine Geology Science Center (PCMGSC) owns and operates a broad range of geophysical sound sources, seafloor mapping systems, geologic and geotechnical sediment sampling systems, and oceanographic instrument systems. This requires considerable technical and operational support to successfully undertake and complete its field programs. Operational and technical support for these systems is provided by the PCMG Marine Operations Facility (Marfac) in Santa Cruz, CA. Our Marfac group is staffed by a team of ten ocean engineers, electronics technicians, and marine engineering technicians. They operate, maintain and repair all geophysical and oceanographic systems used to support all of PCMGSC's scientific field operations.

The USGS-owned Odom Echotrac ECTV-100 echo sounder is owned and operated by USGS Pacific Coastal and Marine Geology Science Center (PCMGSC). This system has been thoroughly checked, tested and calibrated according to the manufacturer's (Teledyne Odom) recommended procedures. This system is comprised of the Echotrac CV-100 Acquisition Controller/Power supply (Serial # 26331) and a 200 kHz transducer, Model # SMBB200-9. The results of this evaluation confirms the echo sounder system to be operating at Teledyne Odom's stated specifications in all regards.

System checkout includes physical inspection of all components, cables, connectors and electronics for any signs of corrosion, wear or damage, all necessary cleaning and full functionality checks.

These procedures were followed by a full at-sea check of all system parameters in order to confirm system performance meets specs. The Odom Echotrac CV-100 is fully compliant with Teledyne Odom stated capabilities and specifications.



George Tate, Marine Operations Superintendent

11/14/14
Date

Geophysical System Certification

ODOM ECHOTRAC ECTV-100

Date	12/16/2014
Serial #	26331

Power Supply (2417-0001-REVC)

Input Voltage (DC +24V)	✓
+12V (TP8)	✓
+24V (J3 Pin 1, 3)	✓
+5V (J3 Pin 2, 4)	✓

Communication (2416-0019-REVA)

+5V (TP2)	✓
+24V (TP1)	✓

Transceiver Board (2416-0012-REVB)

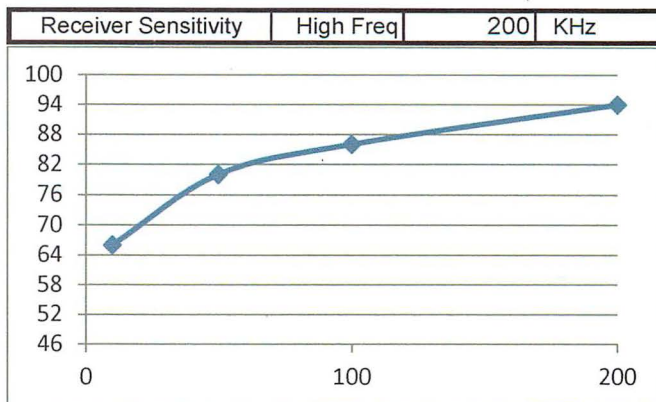
+12V (TP1)	✓
-12V (TP5)	✓
-5V (TP4)	✓
+5V (TP2)	✓

Communications

Com 1 (Depth I/O)	✓
Com 2 (Remote)	✓
Com 3 (GPS In)	✓
Com 4 (Heave)	✓
Ethernet	✓

Reverse Polarity Alarm	✓
Total Burn In Time	24 Hrs Minimum

Receiver Sensitivity Ch1	
Sensitivity	Depth in m
66	10
80	50
86	100
94	200
FREQ KHz	200



High Frequency Transmit Power (50ohm)

Settings	Low (1)	Med (6)	High (12)
Ch1	16.09V	80.00V	306.20V

Board Identification	SN	SW Ver
Ethernet / Comm I/O	110167	
Communications CPU	110180	4.06
Power Supply	110100	
High Freq Transceiver	110763	1.22
High Freq DSP	10983	4.02

George Tate Marine Operations Superintendent

Date

11/14/14

George Tate

From: George Tate
Sent: Monday, August 24, 2015 12:51 PM
To: 'Monica DeAngelis - NOAA Federal'
Cc: 'Greenwood, Richard@SLC'; 'Keen, Kelly@SLC'
Subject: Marine mammal activity between Gaviota and Point Mugu CA

Hi Monica,

I am inquiring regarding marine mammal activity in the Santa Barbara County vicinity. We are expecting to conduct beach/shoreline surveys between Gaviota and Point Mugu beginning around September 13 under a CA State Lands permit and I would like any advice you may have regarding recent observations and what animals we are likely to encounter so we can plan and effectively mitigate our operations.

Thank you in advance,

George Tate
Deputy Center Director for Operations
Pacific Coastal and Marine Geology
U.S. Geological Survey
Pacific Science Center
400 Natural Bridges Drive, Santa Cruz, CA 95060

831.460.7484 voice
831.421.9209 FAX
831.234.7399 cell

George Tate

From: George Tate
Sent: Monday, August 24, 2015 12:52 PM
To: 'cmcdiver@aol.com'; 'mail@centralcoastkayaks.com'; 'Info@scubasb.com';
'info@santabarbarascuba.com'
Cc: 'Greenwood, Richard@SLC'; 'Keen, Kelly@SLC'
Subject: Pre-survey Notice of Geophysical Survey Operations at San Francisco's Ocean Beach - Dive Shops
Attachments: CSLC EXHIBIT F - SB.pdf

PRE SURVEY NOTIFICATION FOR GEOPHYSICAL SURVEY

The USGS Pacific Coastal and Marine Geology Science Center (PCMGSC) will be conducting a geophysical survey of the Santa Barbara littoral cell along beaches from Goleta to Point Mugu, CA under California State Lands Permit #8394. The operations to be conducted will be a bathymetric survey using a 200 kHz single beam echo sounder mounted on a personal watercraft (jet ski). The survey operational window will be from September 13, 2015 to March 31, 2016.

Two personal watercraft will be used to conduct cross shore transects from within the surf zone out to 12m from shore. At least one survey will be conducted near the beginning of the project period to document end-of-summer nearshore bathymetric conditions prior to arrival of winter waves. Up to three additional surveys may be conducted in response to large wave and/or river discharge events if they occur.

In keeping with our California State Lands Permit requirements, we are providing you with the attached Geophysical Presurvey Notice for your information.

Best regards,

George Tate
Deputy Center Director for Operations
Pacific Coastal and Marine Geology
U.S. Geological Survey
Pacific Science Center
400 Natural Bridges Drive, Santa Cruz, CA 95060

831.460.7484 voice
831.421.9209 FAX
831.234.7399 cell

George Tate

From: George Tate
Sent: Monday, August 24, 2015 12:52 PM
To: 'mkronman@sntabarbaraca.gov'; 'CIHarborVisitors@ventura.org';
'jhiggins@venturaharbor.com'
Cc: 'Greenwood, Richard@SLC'; 'Keen, Kelly@SLC'
Subject: Pre-survey Notice of Geophysical Survey Operations at San Francisco's Ocean Beach - Harbor Masters
Attachments: CSLC EXHIBIT F - SB.pdf

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Pacific Coastal and Marine Geology
U.S. Geological Survey
Pacific Science Center
400 Natural Bridges Drive, Santa Cruz, CA 95060

831.460.7484 voice
831.421.9209 FAX
831.234.7399 cell

George Tate

From: George Tate
Sent: Monday, August 24, 2015 12:52 PM
To: 'slc.ogpp@slc.ca.gov'; 'D11LNM@uscg.mil'
Cc: 'Greenwood, Richard@SLC'; 'Keen, Kelly@SLC'
Subject: Pre-survey Notice of Geophysical Survey Operations at San Francisco's Ocean Beach - Geophysical Coordinator and Notice to Mariners
Attachments: CSLC EXHIBIT F - SB.pdf

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