

Cruise Report S-212

Scientific data collected aboard
SSV Robert C. Seamans

Honolulu, Hawaii to San Francisco, California
5 - 31 July 2007



Sea Education Association
Woods Hole, Massachusetts

Citation:

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To obtain unpublished data, contact the Chief Scientist or the SEA Data Archivist:

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Ship's Company

SSV *Robert C. Seamans*, Cruise S-212

Nautical Staff

Elliot Rappaport	Captain
Jeremy Law	Chief Mate
Carl Herzog	Second Mate
Matt Glenn	Third Mate
Seth Murray	Engineer
Mike McVeigh	Assistant Engineer
Laurie Weitzen	Steward

Scientific Staff

Kara Lavender	Chief Scientist
Lynn Asbeck	First Assistant Scientist
Austen Thomas	Second Assistant Scientist
Victoria Alla	Third Assistant Scientist

Students

Ashley Cannon	University of New England, Biddeford
Alison Cole	Michigan State University
Nathan Elliott	Bowdoin College
Eric Ettner	University of California, Santa Cruz
Sarah Giltz	College of William and Mary
Matthew Gordon	Colgate University
Lauren Hale	Northeastern University
Robyn Hoskins	University of North Carolina, Chapel Hill
Marina Kosenko	University of Washington, Seattle
Matthew Lubicky	University of New Hampshire
Sean McCormick	University of Idaho
Daniel Mello	Northeastern University
Ashley Meyer	University of Chicago
Andrés Millán	Kenyon College
Jennifer Norton	College of Charleston
Sean O'Brien	Providence College
Caitlin O'Brien	Oberlin College
Stephanie Petillo	University of Maryland, College Park
Kimberly Rich	Skidmore College
Elizabeth Robertson	Colgate University
Amy Sloan	Virginia Tech
Craig Smith	University of Arizona
Yuichiro Takeshita	Carleton College
Holly Taylor	Northeastern University
Henry van Wagenberg	Davidson College
Beverly Walker	Colgate University
Thomas J. Whiting	Mount St. Mary's University

Visiting Maritime Studies Faculty

Dan Brayton	Middlebury College
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Data Description

This cruise report provides a record of data collected aboard the SSV *Robert C. Seamans* during cruise S-212, which departed from Honolulu, Hawaii on 5 July 2007 and transited through the eastern North Pacific Subtropical Gyre, arriving in San Francisco on 31 July 2007 (Figure 1).

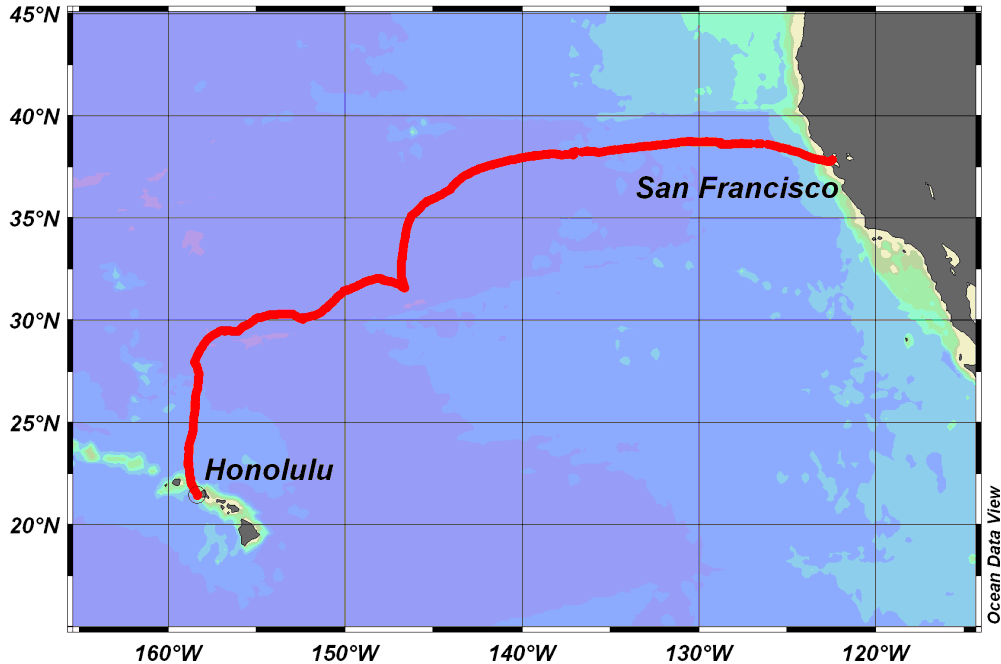


Figure 1: S-212 cruise track plotted from hourly positions.

During the four week voyage we collected samples or data at 70 discrete oceanographic stations (Table 1), surface samples at 66 locations (Table 2), and we continuously sampled water depth and sub-bottom profiles (CHIRP system), upper ocean currents (Acoustic Doppler Current Profiler, or ADCP), and sea surface temperature, salinity and in vivo fluorescence (seawater flow-through system). This report summarizes sea surface biological characteristics (Tables 2 and 3), and biological and chemical properties with depth (Table 4). Lengthy CTD, CHIRP, ADCP, and flow-through data are not reported here. All unpublished data can be made available by arrangement with the Sea Education Association (SEA) data archivist (contact information, p. 2). The information in this report is not intended to represent final interpretation of the data and should not be excerpted or cited without written permission from SEA.

As part of SEA's educational program, students conduct oceanographic research at sea for studies they have designed prior to the cruise. Student projects span the four major disciplines of oceanography – physical, chemical, biological, and geological oceanography (Table 5). Student research efforts culminate in a written paper and an oral presentation to the ship's company. The student research papers from cruise S-212 are available upon request from SEA.

Kara Lavender
Chief Scientist, S-212

Table 1: Oceanographic sampling stations.

Station Number	Date	Local Time [#]	Log (nm)	Latitude	Longitude	Cast Depth (m)	General Locale
Bathypotometer							
S212-014-BP	10-Jul-07	0140	279.0	25°10.2' N	158°33.6' W	100	N. Pac. Subtropical Gyre
S212-020-BP	11-Jul-07	2324	454.7	27°58.0' N	158°31.2' W	100	N. Pac. Subtropical Gyre
S212-024-BP	12-Jul-07	2356	596.5	29°28.8' N	156°49.8' W	100	N. Pac. Subtropical Gyre
S212-040-BP	18-Jul-07	0005	1162.6	31°40.1' N	146°48.1' W	100	N. Pac. Subtropical Gyre
S212-046-BP	19-Jul-07	2358	1386.5	35°07.2' N	146°13.0' W	100	N. Pac. Subtropical Gyre
S212-052-BP	22-Jul-07	0019	1625.2	37°35.7' N	141°43.3' W	100	N. Pac. Subtropical Gyre
S212-058-BP	24-Jul-07	0118	1786.5	38°04.3' N	137°46.3' W	100	N. Pac. Subtropical Gyre
CTD							
S212-003-CTD	7-Jul-07	1618	71.0	21°59.4' N	158°39.8' W	510	N. Pac. Subtropical Gyre
S212-004-CTD	7-Jul-07	2106	86.1	22°15.1' N	158°44.1' W	732	N. Pac. Subtropical Gyre
S212-006-CTD	8-Jul-07	0717	127.5	22°56.8' N	158°50.4' W	1011	N. Pac. Subtropical Gyre
S212-006-HC	8-Jul-07	0835	127.5	22°56.2' N	158°51.8' W	509	N. Pac. Subtropical Gyre
S212-008-CTD	8-Jul-07	1921	163.5	23°30.5' N	158°49.9' W	624	N. Pac. Subtropical Gyre
S212-011-CTD	9-Jul-07	0920	219.5	24°19.4' N	158°40.8' W	1002	N. Pac. Subtropical Gyre
S212-011-HC	9-Jul-07	1041	219.5	24°18.2' N	158°41.6' W	513	N. Pac. Subtropical Gyre
S212-014-CTD	10-Jul-07	0107	279.0	25°10.8' N	158°32.9' W	195	N. Pac. Subtropical Gyre
S212-015-CTD	10-Jul-07	0939	317.0	25°44.5' N	158°27.6' W	218	N. Pac. Subtropical Gyre
S212-015-HC	10-Jul-07	1027	317.0	25°42.9' N	158°28.4' W	934	N. Pac. Subtropical Gyre
S212-018-CTD	11-Jul-07	1038	415.3	27°20.0' N	158°14.4' W	1023	N. Pac. Subtropical Gyre
S212-020-CTD	11-Jul-07	2349	454.7	27°58.0' N	158°31.5' W	205	N. Pac. Subtropical Gyre
S212-022-CTD	12-Jul-07	0918	524.3	28°55.0' N	157°55.8' W	200	N. Pac. Subtropical Gyre
S212-022-HC	12-Jul-07	0953	524.3	28°54.6' N	157°55.9' W	993	N. Pac. Subtropical Gyre
S212-024-CTD	13-Jul-07	0034	596.5	29°28.2' N	156°49.7' W	197	N. Pac. Subtropical Gyre
S212-025-CTD	13-Jul-07	0935	631.5	29°27.4' N	156°08.0' W	1045	N. Pac. Subtropical Gyre
S212-025-HC	13-Jul-07	1049	631.5	29°27.1' N	156°07.3' W	532	N. Pac. Subtropical Gyre
S212-028-CTD	14-Jul-07	1007	744.4	30°17.2' N	154°06.6' W	223	N. Pac. Subtropical Gyre
S212-028-HC	14-Jul-07	1045	744.4	30°16.8' N	154°06.1' W	520	N. Pac. Subtropical Gyre
S212-031-CTD	15-Jul-07	0958	837.5	30°08.4' N	152°25.7' W	988	N. Pac. Subtropical Gyre
S212-035-CTD	16-Jul-07	1009	997.8	31°29.4' N	149°55.9' W	220	N. Pac. Subtropical Gyre
S212-035-HC	16-Jul-07	1050	997.8	31°29.1' N	149°55.3' W	540	N. Pac. Subtropical Gyre
S212-039-CTD	17-Jul-07	1027	1101.2	31°59.6' N	147°51.6' W	218	N. Pac. Subtropical Gyre
S212-040-CTD	17-Jul-07	2323	1162.6	31°40.6' N	146°47.4' W	213	N. Pac. Subtropical Gyre
S212-041-CTD	18-Jul-07	0938	1194.5	31°57.0' N	146°46.1' W	222	N. Pac. Subtropical Gyre
S212-041-HC	18-Jul-07	1014	1194.5	31°56.5' N	146°46.6' W	982	N. Pac. Subtropical Gyre
S212-044-CTD	19-Jul-07	1006	1325.1	34°06.1' N	146°36.1' W	201	N. Pac. Subtropical Gyre
S212-044-HC	19-Jul-07	1039	1325.1	34°05.8' N	146°36.1' W	501	N. Pac. Subtropical Gyre
S212-046-CTD	19-Jul-07	2330	1386.5	35°07.1' N	146°13.4' W	214	N. Pac. Subtropical Gyre
S212-048-CTD	20-Jul-07	0936	1442.6	35°49.8' N	145°21.2' W	212	N. Pac. Subtropical Gyre
S212-048-HC	20-Jul-07	1009	1442.6	35°49.9' N	145°20.2' W	913	N. Pac. Subtropical Gyre
S212-051-CTD	21-Jul-07	1109	1575.3	37°12.8' N	142°55.4' W	1036	N. Pac. Subtropical Gyre
S212-052-CTD	21-Jul-07	2352	1625.2	37°35.9' N	141°43.9' W	214	N. Pac. Subtropical Gyre
S212-053-CTD	22-Jul-07	1119	1678.7	37°51.7' N	140°31.9' W	542	N. Pac. Subtropical Gyre

[#] Local time is +10 GMT until 0000, 24-Jul-07, +9 GMT until 0000, 28-Jul-07, and +8 GMT afterwards

Table 1 continued

Station Number	Date	Local Time [#]	Log (nm)	Latitude	Longitude	Cast Depth (m)	General Locale
CTD continued							
S212-057-CTD	23-Jul-07	0823	1754.2	38°06.7' N	138°40.9' W	1024	N. Pac. Subtropical Gyre
S212-058-CTD	23-Jul-07	2349	1786.5	38°04.6' N	137°46.0' W	195	N. Pac. Subtropical Gyre
S212-059-CTD	24-Jul-07	1109	1856.3	38°16.4' N	136°18.2' W	519	N. Pac. Subtropical Gyre
S212-062-CTD	25-Jul-07	1018	1981.2	38°28.9' N	133°20.1' W	1011	N. Pac. Subtropical Gyre
S212-065-CTD	26-Jul-07	1100	2101.0	38°45.2' N	130°30.2' W	503	N. Pac. Subtropical Gyre
S212-068-CTD	27-Jul-07	0911	2168.8	38°40.5' N	128°45.4' W	2613	N. Pac. Subtropical Gyre
Hydrocast							
S212-006-HC	8-Jul-07	0835	127.5	22°56.2' N	158°51.8' W	509	N. Pac. Subtropical Gyre
S212-011-HC	9-Jul-07	1041	219.5	24°18.2' N	158°41.6' W	513	N. Pac. Subtropical Gyre
S212-015-HC	10-Jul-07	1027	317.0	25°42.9' N	158°28.4' W	934	N. Pac. Subtropical Gyre
S212-022-HC	12-Jul-07	0953	524.3	28°54.6' N	157°55.9' W	993	N. Pac. Subtropical Gyre
S212-025-HC	13-Jul-07	1049	631.5	29°27.1' N	156°07.3' W	532	N. Pac. Subtropical Gyre
S212-028-HC	14-Jul-07	1045	744.9	30°16.8' N	154°06.1' W	520	N. Pac. Subtropical Gyre
S212-035-HC	16-Jul-07	1050	997.8	31°29.1' N	149°55.3' W	540	N. Pac. Subtropical Gyre
S212-041-HC	18-Jul-07	1014	1194.5	31°56.5' N	146°46.6' W	982	N. Pac. Subtropical Gyre
S212-044-HC	19-Jul-07	1039	1325.1	34°05.8' N	146°36.1' W	501	N. Pac. Subtropical Gyre
S212-048-HC	20-Jul-07	1009	1442.6	35°49.9' N	145°20.2' W	913	N. Pac. Subtropical Gyre
Meter Net							
S212-009-MN	8-Jul-07	2323	179.2	23°44.6' N	158°51.7' W	100	N. Pac. Subtropical Gyre
S212-016-MN	10-Jul-07	2333	368.0	26°33.4' N	158°22.8' W	101	N. Pac. Subtropical Gyre
S212-026-MN	13-Jul-07	2337	705.4	30°08.4' N	154°54.3' W	100	N. Pac. Subtropical Gyre
S212-033-MN	16-Jul-07	0001	930.0	30°42.4' N	150°55.7' W	110	N. Pac. Subtropical Gyre
S212-043-MN	19-Jul-07	0022	1260.8	33°02.5' N	146°46.8' W	100	N. Pac. Subtropical Gyre
S212-050-MN	20-Jul-07	2336	1508.5	36°26.1' N	144°01.1' W	100	N. Pac. Subtropical Gyre
S212-055-MN	22-Jul-07	2347	1727.0	38°02.5' N	139°20.9' W	100	N. Pac. Subtropical Gyre
S212-070-2MN	28-Jul-07	2036	2306.4	38°25.6' N	125°20.3' W	300	California Current
S212-070-MN	28-Jul-07	2056	2306.6	38°25.6' N	125°19.5' W	100	California Current
Neuston Net							
S212-001-NT	7-Jul-07	0008	31.7	21°26.7' N	158°20.8' W	0	N. Pac. Subtropical Gyre
S212-002-NT	7-Jul-07	1147	47.0	21°39.9' N	158°29.3' W	0	N. Pac. Subtropical Gyre
S212-005-NT	7-Jul-07	2158	86.0	22°14.4' N	158°45.1' W	0	N. Pac. Subtropical Gyre
S212-007-NT	8-Jul-07	0955	127.5	22°55.6' N	158°53.3' W	0	N. Pac. Subtropical Gyre
S212-010-NT	9-Jul-07	0001	179.7	23°43.0' N	158°51.7' W	0	N. Pac. Subtropical Gyre
S212-012-NT	9-Jul-07	1143	219.5	24°17.0' N	158°42.2' W	0	N. Pac. Subtropical Gyre
S212-013-NT	9-Jul-07	2359	279.0	25°12.3' N	158°32.3' W	0	N. Pac. Subtropical Gyre
S212-017-NT	11-Jul-07	0004	368.5	26°32.3' N	158°22.8' W	0	N. Pac. Subtropical Gyre
S212-019-NT	11-Jul-07	1138	415.3	27°19.5' N	158°14.7' W	0	N. Pac. Subtropical Gyre
S212-021-NT	12-Jul-07	0030	454.7	27°57.7' N	158°31.6' W	0	N. Pac. Subtropical Gyre
S212-023-NT	12-Jul-07	1119	524.3	28°53.8' N	157°55.7' W	0	N. Pac. Subtropical Gyre
S212-027-NT	14-Jul-07	0013	707.6	30°07.9' N	154°52.9' W	0	N. Pac. Subtropical Gyre
S212-029-NT	14-Jul-07	1136	744.4	30°16.1' N	154°05.1' W	0	N. Pac. Subtropical Gyre

[#] Local time is +10 GMT until 0000, 24-Jul-07, +9 GMT until 0000, 28-Jul-07, and +8 GMT afterwards

Table 1 continued

Station Number	Date	Local Time [#]	Log (nm)	Latitude	Longitude	Cast Depth (m)	General Locale
Neuston Net continued							
S212-030-NT	14-Jul-07	2353	802.7	30°16.7' N	152°54.6' W	0	N. Pac. Subtropical Gyre
S212-032-NT	15-Jul-07	1052	837.5	30°07.2' N	152°25.5' W	0	N. Pac. Subtropical Gyre
S212-034-NT	16-Jul-07	0030	930.5	30°43.2' N	150°55.9' W	0	N. Pac. Subtropical Gyre
S212-036-NT	16-Jul-07	1138	997.8	31°28.6' N	149°54.6' W	0	N. Pac. Subtropical Gyre
S212-037-NT	17-Jul-07	0018	1055.5	31°54.3' N	148°47.6' W	0	N. Pac. Subtropical Gyre
S212-038-NT	17-Jul-07	0944	1100.2	32°00.3' N	147°52.8' W	0	N. Pac. Subtropical Gyre
S212-042-NT	18-Jul-07	2328	1260.0	33°04.0' N	146°47.3' W	0	N. Pac. Subtropical Gyre
S212-045-NT	19-Jul-07	1124	1325.1	34°05.5' N	146°36.1' W	0	N. Pac. Subtropical Gyre
S212-047-NT	20-Jul-07	0025	1386.5	35°07.3' N	146°12.5' W	0	N. Pac. Subtropical Gyre
S212-049-NT	20-Jul-07	1126	1442.6	35°49.9' N	145°17.8' W	0	N. Pac. Subtropical Gyre
S212-054-NT	22-Jul-07	1157	1678.7	37°51.5' N	140°31.1' W	0	N. Pac. Subtropical Gyre
S212-056-NT	22-Jul-07	0014	1727.3	38°02.3' N	139°19.9' W	0	N. Pac. Subtropical Gyre
S212-060-NT	24-Jul-07	1151	1856.3	38°16.0' N	136°17.7' W	0	N. Pac. Subtropical Gyre
S212-061-NT	25-Jul-07	0002	1916.0	38°19.7' N	134°49.8' W	0	N. Pac. Subtropical Gyre
S212-063-NT	25-Jul-07	1111	1981.2	38°28.8' N	133°19.4' W	0	N. Pac. Subtropical Gyre
S212-064-NT	25-Jul-07	2318	2013.3	38°33.8' N	132°21.5' W	0	N. Pac. Subtropical Gyre
S212-066-NT	26-Jul-07	1145	2101.0	38°44.6' N	130°29.7' W	0	N. Pac. Subtropical Gyre
S212-067-NT	26-Jul-07	2337	2134.2	38°43.9' N	129°39.4' W	0	N. Pac. Subtropical Gyre
S212-069-NT	28-Jul-07	1123	2266.7	38°37.8' N	126°31.0' W	0	California Current
Phytoplankton Net							
S212-006-PN	8-Jul-07	0720	127.5	22°56.8' N	158°50.4' W	0	N. Pac. Subtropical Gyre
S212-011-PN	9-Jul-07	0925	119.5	24°19.3' N	158°40.9' W	0	N. Pac. Subtropical Gyre
S212-018-PN	11-Jul-07	1051	415.3	27°20.0' N	158°14.4' W	0	N. Pac. Subtropical Gyre
S212-022-PN	12-Jul-07	0958	524.3	28°54.6' N	157°55.9' W	0	N. Pac. Subtropical Gyre
S212-025-PN	13-Jul-07	0932	631.5	29°27.4' N	156°08.0' W	0	N. Pac. Subtropical Gyre
S212-028-PN	14-Jul-07	1012	744.4	30°17.1' N	154°06.5' W	0	N. Pac. Subtropical Gyre
S212-035-PN	16-Jul-07	1011	997.7	31°29.2' N	149°55.6' W	0	N. Pac. Subtropical Gyre
S212-039-PN	17-Jul-07	1030	1101.2	31°59.5' N	147°51.7' W	0	N. Pac. Subtropical Gyre
S212-041-PN	18-Jul-07	0945	1194.5	31°56.8' N	146°46.2' W	0	N. Pac. Subtropical Gyre
S212-044-PN	19-Jul-07	1006	1325.1	34°06.1' N	146°36.1' W	0	N. Pac. Subtropical Gyre
S212-048-PN	20-Jul-07	0940	1442.6	35°49.9' N	145°21.0' W	0	N. Pac. Subtropical Gyre

[#] Local time is +10 GMT until 0000, 24-Jul-07, +9 GMT until 0000, 28-Jul-07, and +8 GMT afterwards

Table 2: Surface station data.

Station Number	Date	Local Time [#]	Log (nm)	Latitude	Longitude	Chl a* (µg/l)	Microplastics Sample
SS-001	6-Jul-07	1515	0.0	21°14.8' N	157°56.5' W	0.027	yes
SS-002	6-Jul-07	1755	11.0	21°14.5' N	158°07.9' W	0.045	yes
SS-003	7-Jul-07	0012	31.7	21°26.6' N	158°20.6' W	0.026	yes
SS-004	7-Jul-07	0600	31.9	21°25.5' N	158°20.5' W	0.029	yes
SS-005	7-Jul-07	1200	47.5	21°34.9' N	158°29.3' W		yes
SS-006	7-Jul-07	1815	73.0	22°01.8' N	158°41.7' W	0.028	yes
SS-007	8-Jul-07	0005	93.3	22°21.5' N	158°43.2' W		yes
SS-008	8-Jul-07	0600	122.3	22°51.5' N	158°50.5' W	0.022	yes
SS-009	8-Jul-07	1025	128.3	22°54.4' N	158°53.8' W	0.094	yes
SS-010	8-Jul-07	1802	159.2	23°25.9' N	158°50.9' W	0.096	yes
SS-011	9-Jul-07	0032	180.0	23°41.8' N	158°56.6' W	0.018	yes
SS-012	9-Jul-07	0627	207.4	24°07.0' N	158°44.9' W	0.026	yes
SS-013	9-Jul-07	1143	219.5	24°17.0' N	158°42.2' W	0.066	yes
SS-014	9-Jul-07	1743	244.8	24°40.7' N	158°35.7' W	0.025	yes
SS-015	10-Jul-07	0018	279.0	26°11.8' N	158°32.4' W	0.033	yes
SS-016	10-Jul-07	0600	297.9	25°27.6' N	158°30.4' W	0.066	yes
SS-017	10-Jul-07	1200	318.0	25°40.9' N	158°29.9' W		yes
SS-018	10-Jul-07	1800	340.8	26°04.4' N	158°27.9' W	0.025	yes
SS-019	11-Jul-07	0600	394.8	26°57.4' N	158°18.0' W	0.021	yes
SS-020	11-Jul-07	1140	415.3	27°19.5' N	158°14.7' W	0.018	yes
SS-021	11-Jul-07	1905	440.5	27°45.1' N	158°23.3' W	0.014	yes
SS-022	12-Jul-07	0040	449.8	27°57.5' N	158°31.0' W	0.019	yes
SS-023	12-Jul-07	0610	498.0	28°35.3' N	158°09.4' W	0.024	yes
SS-024	12-Jul-07	1150	524.0	28°53.8' N	157°55.7' W		yes
SS-025	12-Jul-07	1840	576.0	29°26.9' N	157°08.9' W	0.012	yes
SS-026	13-Jul-07	0058	596.6	29°27.7' N	156°49.3' W	0.012	no
SS-027	13-Jul-07	0600	618.0	29°28.1' N	156°25.0' W	0.029	yes
SS-028	13-Jul-07	1203	635.2	29°28.6' N	156°03.0' W	0.018	yes
SS-029	13-Jul-07	1800	666.0	29°47.1' N	155°33.0' W	0.020	yes
SS-030	14-Jul-07	0029	707.6	30°07.9' N	154°52.7' W	0.017	yes
SS-031	14-Jul-07	0600	727.5	30°13.2' N	154°25.6' W	0.017	yes
SS-032	14-Jul-07	1200	744.4	30°15.6' N	154°04.1' W	0.016	yes
SS-033	14-Jul-07	1807	776.5	30°18.3' N	153°25.0' W	0.019	yes
SS-034	15-Jul-07	0015	803.4	30°16.2' N	152°54.2' W		yes
SS-035	15-Jul-07	0603	826.2	30°04.4' N	152°27.7' W	0.019	yes
SS-036	15-Jul-07	1051	837.5	30°07.2' N	152°25.5' W	0.017	yes
SS-037	15-Jul-07	1800	885.3	30°17.0' N	151°36.9' W	0.014	yes
SS-038	16-Jul-07	0030	930.6	30°43.4' N	150°55.7' W	0.020	yes
SS-039	16-Jul-07	0703	982.2	31°20.0' N	150°11.0' W	0.018	yes
SS-040	16-Jul-07	1221	997.8	31°28.1' N	149°53.4' W	0.012	yes
SS-041	16-Jul-07	1811	1023.0	31°38.7' N	149°24.5' W	0.013	yes
SS-042	17-Jul-07	0021	1056.0	31°54.3' N	148°47.4' W	0.010	yes
SS-043	17-Jul-07	0600	1081.3	32°01.9' N	148°12.8' W	0.026	yes
SS-044	17-Jul-07	0950	1101.1	32°00.1' N	147°52.3' W	0.034	yes

[#] Local time is +10 GMT until 0000, 24-Jul-07, +9 GMT until 0000, 28-Jul-07, and +8 GMT afterwards

* Blank spaces indicate no data collected

Table 2 continued

Station Number	Date	Local Time[#]	Log (nm)	Latitude (N)	Longitude (W)	Chl a* (µg/l)	Microplastics Sample
SS-045	18-Jul-07	0548	1184.1	31°44.9' N	146°42.0' W	0.017	no
SS-046	18-Jul-07	1007	1194.5	31°56.4' N	146°46.6' W	0.015	yes
SS-047	18-Jul-07	1848	1234.7	32°37.5' N	146°49.6' W		yes
SS-048	18-Jul-07	1906	1235.1	32°39.1' N	146°49.4' W	0.026	no
SS-049	18-Jul-07	2348	1260.0	33°03.5' N	146°47.1' W	0.043	yes
SS-050	19-Jul-07	0600	1294.8	33°38.2' N	146°41.8' W	0.044	yes
SS-051	19-Jul-07	1147	1325.3	34°06.2' N	146°36.0' W	0.035	yes
SS-052	19-Jul-07	1809	1360.5	34°41.8' N	146°26.6' W	0.026	yes
SS-053	20-Jul-07	0050	1386.5	35°07.7' N	146°12.3' W	0.030	yes
SS-054	20-Jul-07	0604	1418.3	35°32.5' N	145°42.5' W	0.032	yes
SS-055	20-Jul-07	1130	1442.6	35°49.9' N	145°17.8' W	0.025	yes
SS-056	20-Jul-07	1803	1475.6	36°06.3' N	144°23.6' W	0.025	yes
SS-057	21-Jul-07	0607	1548.7	36°58.9' N	143°23.6' W	0.043	yes
SS-058	21-Jul-07	1115	1575.2	37°12.8' N	142°55.3' W	0.036	yes
SS-059	21-Jul-07	1800	1601.3	37°26.4' N	142°19.0' W	0.042	yes
SS-060	22-Jul-07	0010	1625.2	37°35.8' N	141°43.4' W	0.032	yes
SS-061	22-Jul-07	0609	1652.3	37°44.5' N	141°06.3' W	0.034	yes
SS-062	22-Jul-07	1157	1678.7	37°51.5' N	140°31.1' W	0.039	yes
SS-063	22-Jul-07	1806	1706.9	37°58.9' N	139°49.6' W	0.035	yes
SS-064	23-Jul-07	0028	1729.0	38°02.2' N	139°19.4' W		yes
SS-065	23-Jul-07	0617	1747.5	38°04.9' N	138°50.6' W		yes
SS-066	23-Jul-07	1201	1766.8	38°06.9' N	138°33.3' W		yes

[#] Local time is +10 GMT until 0000, 24-Jul-07, +9 GMT until 0000, 28-Jul-07, and +8 GMT afterwards

* Blank spaces indicate no data collected

Table 3: Neuston net tow data. See Table 1 for station information.

Station Number	Tow Length (m)	Temp. (°C)	Salinity (psu)	Zoop. Biomass* (ml)	Zoop. Density* (ml/m ²)	Plastic Pieces (#)	Plastic Pellets (#)	Tar Pieces (#)
S212-001-NT	1719	26.4	34.97	9.0	0.005	1	0	1
S212-002-NT	2968	25.8	34.94	1.4	0.001	8	0	0
S212-005-NT	1744	26.0	35.07	12.0	0.007	0	0	0
S212-007-NT	1778	25.8	35.09	4.0	0.002	9	0	0
S212-010-NT	2229	26.2	35.10	20.0	0.009	6	0	0
S212-012-NT	1857	26.0	35.31	10.0	0.005	13	0	0
S212-013-NT	1491	26.1	35.25	26.3	0.018	3	0	0
S212-017-NT	1667	25.9	35.42	23.5	0.014	6	0	0
S212-019-NT	1426	25.5	35.36	8.5	0.006	167	0	0
S212-021-NT	4383	25.6	35.40	17.5	0.004	110	0	0
S212-023-NT	747	25.5	35.39	6.6	0.009	132	0	0
S212-027-NT	1295	24.5	35.42	16.0	0.012	33	0	0
S212-029-NT	2081	24.9	35.43	4.0	0.002	161	0	0
S212-030-NT	1613	24.8	35.30	19.4	0.012	22	0	0
S212-032-NT	1913	24.5	35.21	4.5	0.002	100	0	0
S212-034-NT	1852	23.9	35.06	48.0	0.026	93	0	0
S212-036-NT	1831	24.2	35.12	5.4	0.003	89	0	0
S212-037-NT	1296	24.0	35.17	23.0	0.018	74	0	0
S212-038-NT	1823	23.3	34.78	3.5	0.002	45	0	0
S212-042-NT	1514	22.8	34.94	21.0	0.014	71	0	0
S212-045-NT	1877	21.7	34.16	220.0	0.117	437	0	1
S212-047-NT	3072	20.3	34.03	75.0	0.024	145	0	0
S212-049-NT	1331	19.6	33.64	4.5	0.003	91	0	0
S212-054-NT	1841	17.5	33.10	79.0	0.043	74	0	0
S212-056-NT	1789	17.5	33.04	17.0	0.010	19	0	0
S212-060-NT	1724	19.0	33.17	3.0	0.002	142	0	0
S212-061-NT	1852	18.4	32.87	75.0	0.040	48	0	5
S212-063-NT	2761	19.2	33.03	1.5	0.001	124	0	0
S212-064-NT	1883	19.6	33.25			133	0	0
S212-066-NT	1547	19.2	33.16	141.0	0.091	105	0	0
S212-067-NT	1683	18.8	32.85	86.0	0.051	15	0	0
S212-069-NT	2240	17.7	32.50	175.0	0.078	24	0	0

* Blank spaces indicate no data collected

Table 4: Hydrocast bottle data. See Table 1 for station information.

Station Number	Bottle Number	Bottle Depth (m)	O ₂ * (ml/l)	PO ₄ * (µM)	NO ₃ * (µM)	NO ₂ * (µM)	Chl a* (µg/l)
S212-006-HC	12	39.6	4.25	0.117	0.292	0.164	0.021
S212-006-HC	11	99.9					0.045
S212-006-HC	10	134.3		0.088	0.276	0.000	0.061
S212-006-HC	9	173.8		0.103			0.029
S212-006-HC	8	248.2	4.23	0.254	0.250	2.660	0.007
S212-006-HC	7	298.5		0.522			0.002
S212-006-HC	6	347.9		0.893	0.245	11.166	
S212-006-HC	4	397.7	4.10	0.995			
S212-006-HC	1	497.0	4.10	1.858			
S212-011-HC	13	0.0		0.054	0.344	0.000	0.031
S212-011-HC	12	49.1		0.098	0.224	0.042	0.030
S212-011-HC	10	109.2		0.054			0.128
S212-011-HC	9	122.0		0.171	0.297	0.384	0.098
S212-011-HC	7	149.3		0.147			0.042
S212-011-HC	6	198.9		0.317			0.010
S212-011-HC	4	347.9		0.922	0.162	10.524	
S212-011-HC	1	496.9		1.658	0.380	12.098	
S212-015-HC	13	0.0					0.028
S212-015-HC	11	114.4	5.25	0.103			0.125
S212-015-HC	10	145.3		0.103	0.370	1.107	0.088
S212-015-HC	9	300.3		0.473	0.240	9.599	
S212-015-HC	7	650.0	2.02		0.146	25.813	
S212-015-HC	6	700.3			0.152	15.988	
S212-015-HC	4	799.8	1.50	3.149	0.656	35.409	
S212-015-HC	3	849.3			0.656	33.305	
S212-015-HC	2	900.1			0.744	33.035	
S212-015-HC	1	929.4	1.48		0.671	29.107	
S212-022-HC	13	0.0					0.022
S212-022-HC	12	20.0	5.17	0.342	0.198	0.218	0.013
S212-022-HC	11	104.7		0.264			0.045
S212-022-HC	10	114.5		0.308	0.172	0.029	0.095
S212-022-HC	9	148.9		0.405	0.302	0.621	0.070
S212-022-HC	8	397.0	5.55	0.941	0.245	10.662	
S212-022-HC	7	695.5			0.167	30.442	
S212-022-HC	6	743.2			0.167	29.169	
S212-022-HC	4	794.5	1.74		0.183	33.310	
S212-022-HC	3	844.0			0.162	30.889	
S212-022-HC	2	893.1			0.188	30.603	
S212-022-HC	1	943.2	0.75		0.183	34.220	
S212-025-HC	13	0.0					0.013
S212-025-HC	10	89.6		0.390	0.152	0.553	0.077
S212-025-HC	9	112.9	4.96	0.464	0.334	1.063	0.148
S212-025-HC	7	139.6		0.566	0.190	3.533	0.048

* Blank spaces indicate no data collected

Table 4 continued

Station Number	Bottle Number	Bottle Depth (m)	O ₂ * (ml/l)	PO ₄ * (µM)	NO ₃ * (µM)	NO ₂ * (µM)	Chl a* (µg/l)
S212-025-HC	6	198.5		0.722	0.178	7.233	0.004
S212-025-HC	4	272.9	4.61	3.427	0.198	9.638	
S212-025-HC	3	372.3		1.117	0.198	15.707	
S212-025-HC	2	422.0	4.58	1.468	0.240	18.653	
S212-028-HC	12	15.7		0.054	0.193	-0.037	
S212-028-HC	10	113.9		0.132	0.230	0.392	
S212-028-HC	8	134.9		0.119	0.400	0.200	
S212-028-HC	6	213.8		0.765	0.198	5.580	
S212-028-HC	4	249.1		0.956	0.240	7.677	
S212-028-HC	3	299.0		0.973			
S212-028-HC	2	397.3		1.403	0.354	-0.111	
S212-028-HC	1	495.9		1.962	0.328	1.554	
S212-035-HC	12	15.1		0.106	0.000	3.849	0.016
S212-035-HC	11	15.6	5.05				
S212-035-HC	10	84.7		0.084	0.000	0.220	0.045
S212-035-HC	9	128.5		0.097	0.002	0.839	0.100
S212-035-HC	8	129.5	5.56				
S212-035-HC	7	149.1		0.262	0.000	1.167	0.083
S212-035-HC	6	199.2		0.553	0.000	6.753	0.015
S212-035-HC	4	298.9	5.10	0.952	0.071	9.410	
S212-035-HC	3	347.8		1.169	0.032	13.697	
S212-035-HC	2	422.2		1.346	0.123	16.935	
S212-035-HC	1	496.5	3.70	1.793	0.002	18.525	
S212-041-HC	13	0.0		0.119	0.015	0.089	0.013
S212-041-HC	12	15.6		0.032	0.019	0.063	0.016
S212-041-HC	11	89.9	5.64	1.429	0.036	0.089	0.036
S212-041-HC	10	124.2		0.136	0.166	0.073	0.086
S212-041-HC	9	159.8		0.375	0.067	1.193	0.052
S212-041-HC	8	397.4	4.82		0.028	8.415	
S212-041-HC	7	685.6		2.431	0.019	18.616	
S212-041-HC	6	733.8		2.886	0.049	23.794	
S212-041-HC	4	783.6		2.934	0.062	23.997	
S212-041-HC	3	834.4	0.76	2.934	0.106	16.217	
S212-041-HC	2	883.5		3.043	0.140	23.293	
S212-041-HC	1	942.0	0.80	3.064	0.330	28.267	
S212-044-HC	12	19.9	5.38	0.162	0.062	0.177	0.028
S212-044-HC	10	84.3		0.258	0.062	0.212	0.065
S212-044-HC	8	114.5	5.63	0.314	0.166	0.086	
S212-044-HC	7	144.2		0.388	0.503	2.436	0.043
S212-044-HC	6	174.1		0.635	0.071	5.986	0.017
S212-044-HC	4	248.8	5.14	0.856	0.000	4.523	
S212-044-HC	3	322.7		1.117	0.000	6.857	
S212-044-HC	2	397.7		1.546	0.000	11.568	
S212-044-HC	1	490.1	3.18	2.392	0.000	16.517	

* Blank spaces indicate no data collected

Table 4 continued

Station Number	Bottle Number	Bottle Depth (m)	O₂* (ml/l)	PO₄* (μM)	NO₃* (μM)	NO₂* (μM)	Chl a* (μg/l)
S212-048-HC	13	0.0		0.279			0.021
S212-048-HC	11	75.2		0.193	0.062	0.099	0.074
S212-048-HC	10	93.7		0.245	0.062	0.130	0.185
S212-048-HC	9	397.8		1.659	0.045	14.959	
S212-048-HC	8	497.9			0.041	20.107	
S212-048-HC	7	645.4		2.735	0.041	25.704	
S212-048-HC	6	743.3		2.921	0.097	25.735	
S212-048-HC	4	794.3		2.578	0.460	33.735	
S212-048-HC	3	842.7		3.030	0.464	30.684	
S212-048-HC	2	893.1		3.064	0.434	32.227	
S212-048-HC	1	900.4		2.826	0.464	31.570	

* Blank spaces indicate no data collected

Table 5: Student research projects, cruise S-212.

Title	Student Investigators
Locating the North Pacific Intermediate Water based on its Properties	Ashley Cannon Holly Taylor
Productivity of Autotrophic Bacterioplankton Relative to Macro-Phytoplankton in the Northeast Pacific	Nathan Elliott Caitlin O'Brien
Euphausiid Biogeography and Interspecies Relatedness in the North Pacific Subtropical Gyre and the North Pacific Transition Zone	Eric Ettner
Species Diversity of Euthecosomatous Pteropoda in the North Pacific as an Indicator of Water Mass Boundaries and Phytoplankton Abundance	Sarah Giltz
The Correlation Between Pelagic Plastic and Zooplankton in the Water Column	Matthew Gordon
Myctophids: Species of the Northeastern Pacific Ocean and the Water They Inhabit	Robyn G. Hoskins
Attenuation of Light in the North Eastern Pacific Ocean	Marina Kosenko
Vertical Distribution and Intensity of the DCM in the North Pacific	Matthew Lubicky Craig Smith
Identifying Eddies along the S-212 Cruise Track	Sean McCormick Amy Sloan
The Coexistence of Plastics and Seabirds in the Eastern North Pacific	Dan Mello Lauren Hale
Copepod Genera Distribution in the Pacific as Related to Density, Salinity, and Temperature	Ashley Meyer
The Influence of Cyanobacterial Symbiosis on Diatom Species Distribution across the Central North Pacific	Andrés Millán Jenny Norton
Determining the Relationship between Colored Dissolved Organic Matter and Oxygen in the Subtropical North Pacific	Sean O'Brien
Variations in Pycnoclines and Thermoclines Due to Small- and Large-Scale Currents in the Northeast Pacific Ocean	Stephanie Petillo
A Comparison of Primary Productivity to the Nutriclines of Nitrate and Phosphate Along the S-212 Cruise Track from Honolulu to San Francisco	Kim Rich
Nitrate and Nitrite Concentrations in the OMZ in the Northeastern Pacific	Lizzy Robertson Yui Takeshita
The Effect of Variance of Mixed Layer Depth on Diatom and Dinoflagellate Population Size in the North Pacific	Henry van Wagenberg
The Relationship between Bioluminescence, Phytoplankton, and Zooplankton in the North Pacific Ocean	Beverly Walker Alison Cole
The Relationship between Phytoplankton Biomass and Corresponding Surface Temperature for the Northeast Pacific Ocean	Thomas J. Whiting