

# Cruise Report S-209

Scientific data collected aboard  
*SSV Robert C. Seamans*

Papeete, Tahiti – Nuku Hiva, Marquesas – Honolulu, Hawaii  
12 February – 21 March 2007



Sea Education Association  
Woods Hole, Massachusetts

Citation:

Lavender, Kara, 2007. Final Report for S.E.A. cruise S-209. Sea Education Association, P.O. Box 6, Woods Hole, MA 02543, USA.

To obtain unpublished data, contact the Chief Scientist or the SEA Data Archivist:

Data Archivist

Sea Education Association

P.O. Box 6

Woods Hole, MA 02543

Phone: 508-540-3954

Fax: 508-457-4673

E-mail: [data\\_archive@sea.edu](mailto:data_archive@sea.edu)

Web: [www.sea.edu](http://www.sea.edu)

## Table of Contents

Ship's Company	4
Data Description	5
Figure 1: Cruise track	5
Table 1: Oceanographic sampling stations	7
Table 2: Neuston net tow data	11
Table 3: Hydrocast bottle data	12
Table 4: Student research projects, cruise S-209	16

## Ship's Company

SSV *Robert C. Seamans*, Cruise S-209

### Nautical Staff

Terry Hayward	Captain
Jeremy Law	Chief Mate
Justin Smith	Second Mate
Nate Darling	Third Mate
Dusty Smith	Engineer
AJ Johnson	Assistant Engineer
Maggie McCullough	Steward

### Scientific Staff

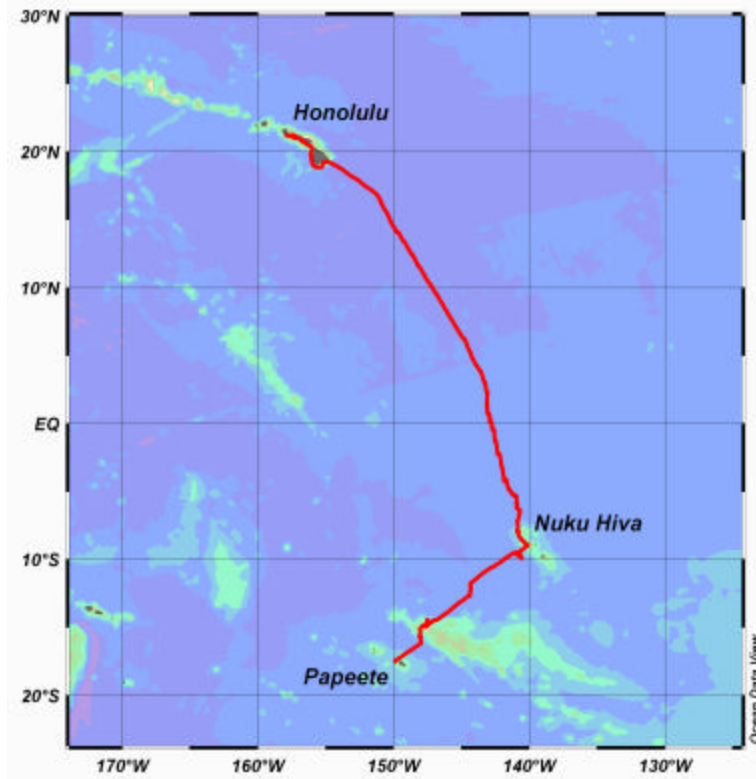
Kara Lavender	Chief Scientist
Skye Morét-Ferguson	First Assistant Scientist
Austen Thomas	Second Assistant Scientist
Victoria Alla	Third Assistant Scientist

### Students

Charles Abdelahad	Northeastern University
Skylar R. Bayer	Brown University
Eliza R. C. Berry	Carleton College
Katherine Bovee	Carleton College
Kimberly Ellenson	Cornell University
Gemina R. Garland-Lewis	Colgate University
Julie Gundersen	Wingate University
Lindsay J. Gurley	University of Denver
Ashton B. Haney	College of Charleston
Graham Healy-Day	Boston University Academy
Krista A. Hoff	Barnard College
Eleanor V. Johnson	Dartmouth College
Brandon E. Kampschuur	University of California, San Diego
Scott C. Loranger	Cornell University
Joshua P. Manger	Northeastern University
Dorene S. Nakata	Carleton College
Ryan M. O'Toole	University of Pennsylvania
Ian T. Smithgall	Skidmore College
Elizabeth M. Sneath	University of Vermont
Mara M. Snedden	Syracuse University
Deena M. Tvinnereim	Boise State University
Elizabeth S. van der Mandele	Cornell University
Melinda Webster	Oklahoma State University

## Data Description

This cruise report provides a record of data collected aboard the SSV *Robert C. Seamans* during cruise S-209 (U.S. State Department Cruise 2006-063 Leg 3), which departed from Papeete, Tahiti on 12 February 2007 and transited through the central tropical Pacific Ocean, arriving in Honolulu, Hawaii on 21 March 2007 (Figure 1).



**Figure 1:** S-209 cruise track plotted from hourly positions.

During the six-week voyage we collected samples or data at 95 discrete oceanographic stations (Table 1) 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 (Table 2), and biological and chemical properties with depth (Table 3). 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 4). Student research efforts culminate in a written paper and an oral presentation to the ship's company. The student research papers from cruise S-209 are available upon request from SEA.

Kara Lavender  
Chief Scientist, S-209

**Table 1:** Oceanographic sampling stations.

Station Number	Date	Local Time	Log* (nm)	Latitude	Longitude	Cast Depth* (m)	General Locale
<b>Bathyphtometer</b>							
S209-094-BP	18-Mar-07	2220		20°46.1' N	156°42.1' W	100	N. Pacific Subtropical Gyre
<b>CTD</b>							
S209-001-CTD	14-Feb-07	1014	142.0	16°05.9' S	147°56.1' W	526	S. Pacific Subtropical Gyre
S209-003-CTD	14-Feb-07	2220	176.1	15°39.5' S	147°59.3' W	508	S. Pacific Subtropical Gyre
S209-006-CTD	15-Feb-07	0909	215.0	15°11.9' S	148°03.6' W	1101	S. Pacific Subtropical Gyre
S209-006-HC	15-Feb-07	1033	215.0	15°11.9' S	148°03.5' W	500	S. Pacific Subtropical Gyre
S209-008-CTD	15-Feb-07	2215	285.6	14°28.3' S	147°30.3' W	518	S. Pacific Subtropical Gyre
S209-011-CTD	16-Feb-07	0945	306.9	14°48.9' S	147°37.4' W	520	S. Pacific Subtropical Gyre
S209-014-CTD	17-Feb-07	2212	369.0	14°28.2' S	146°58.7' W	498	S. Pacific Subtropical Gyre
S209-017-CTD	18-Feb-07	0902	411.6	14°05.7' S	146°17.5' W	1499	S. Pacific Subtropical Gyre
S209-017-HC	18-Feb-07	1051	411.6	14°05.6' S	146°17.4' W	527	S. Pacific Subtropical Gyre
S209-019-CTD	18-Feb-07	2216	488.8	13°17.4' S	145°15.9' W	501	S. Pacific Subtropical Gyre
S209-022-CTD	19-Feb-07	0914	555.3	12°37.8' S	144°22.7' W	535	S. Pacific Subtropical Gyre
S209-022-HC	19-Feb-07	1031	555.3	12°38.5' S	144°23.5' W	540	S. Pacific Subtropical Gyre
S209-024-CTD	19-Feb-07	2220	596.8	12°13.4' S	144°18.7' W	1377	S. Pacific Subtropical Gyre
S209-027-CTD	20-Feb-07	0921	624.0	11°58.3' S	144°18.0' W	529	S. Pacific Subtropical Gyre
S209-027-HC	20-Feb-07	1034	624.0	11°59.2' S	144°18.8' W	513	S. Pacific Subtropical Gyre
S209-031-CTD	21-Feb-07	0909	763.5	10°34.7' S	142°44.2' W	1470	S. Pacific Subtropical Gyre
S209-031-HC	21-Feb-07	1044	763.5	10°35.7' S	142°44.8' W	530	S. Pacific Subtropical Gyre
S209-035-CTD	22-Feb-07	0920	898.9	9°30.6' S	140°55.5' W	1535	S. Pacific Subtropical Gyre
S209-035-HC	22-Feb-07	1110	898.9	9°31.5' S	140°55.6' W	530	S. Pacific Subtropical Gyre
S209-039-CTD	23-Feb-07	0931	956.3	9°32.6' S	140°42.6' W	1466	S. Pacific Subtropical Gyre
S209-039-HC	23-Feb-07	1136	956.3	9°34.5' S	140°43.6' W	542	S. Pacific Subtropical Gyre
S209-044-CTD	28-Feb-07	0926	1110.5	7°59.4' S	140°46.1' W	520	S. Pacific Subtropical Gyre
S209-044-HC	28-Feb-07	1033	1110.9	7°59.7' S	140°47.2' W	500	S. Pacific Subtropical Gyre
S209-048-CTD	1-Mar-07	0904	1228.5	6°22.7' S	140°40.8' W	1344	S. Pacific Subtropical Gyre
S209-048-HC	1-Mar-07	1054	1238.5	6°24.4' S	140°42.4' W	523	S. Pacific Subtropical Gyre
S209-052-CTD	2-Mar-07	0855	1326.5	5°16.5' S	141°01.1' W	1369	S. Pacific Subtropical Gyre
S209-052-HC	2-Mar-07	1041	1326.5	5°18.7' S	141°02.9' W	510	S. Pacific Subtropical Gyre
S209-056-CTD	3-Mar-07	0926	1422.5	4°06.0' S	141°43.4' W	1095	S. Pacific Subtropical Gyre
S209-056-HC	3-Mar-07	1114	1422.9	4°07.8' S	141°46.8' W	435	S. Pacific Subtropical Gyre
S209-059-CTD	4-Mar-07	0909	1557.5	2°15.6' S	142°11.2' W	1031	Equatorial Pacific
S209-059-HC	4-Mar-07	1058	1557.5	2°15.6' S	142°15.3' W	426	Equatorial Pacific
S209-061-CTD	4-Mar-07	2106	1615.3	1°16.6' S	142°27.4' W	279	Equatorial Pacific
S209-061-HC	4-Mar-07	2154	1615.3	1°17.1' S	142°27.4' W	483	Equatorial Pacific
S209-064-CTD	5-Mar-07	0905	1671.3	0°25.6' S	142°37.1' W	1274	Equatorial Pacific
S209-064-HC	5-Mar-07	1046	1671.3	0°26.6' S	142°39.4' W	418	Equatorial Pacific
S209-066-CTD	5-Mar-07	2116	1716.0	0°10.9' N	142°48.7' W	199	Equatorial Pacific
S209-066-HC	5-Mar-07	2214	1716.0	0°09.7' N	142°49.8' W	407	Equatorial Pacific
S209-069-CTD	6-Mar-07	1431	1765.4	0°48.5' N	143°02.0' W	1342	Equatorial Pacific
S209-069-HC	6-Mar-07	1619	1765.4	0°47.6' N	143°04.0' W	456	Equatorial Pacific
S209-072-CTD	7-Mar-07	0913	1865.3	2°17.0' N	143°04.0' W	1476	Equatorial Pacific

\* Blank spaces indicate no data collected

Table 1 continued

Station Number	Date	Local Time	Log* (nm)	Latitude	Longitude	Cast Depth* (m)	General Locale
<b>CTD continued</b>							
S209-072-HC	7-Mar-07	1050	1865.3	2°16.6' N	143°05.4' W	544	Equatorial Pacific
S209-076-CTD	9-Mar-07	0911	2132.1	6°12.6' N	144°45.5' W	1400	N. Pacific Subtropical Gyre
S209-076-HC	9-Mar-07	1053	2132.1	6°10.9' N	144°46.8' W	532	N. Pacific Subtropical Gyre
S209-083-CTD	13-Mar-07	0910	2704.3	14°05.0' N	149°39.5' W		N. Pacific Subtropical Gyre
S209-085-CTD	14-Mar-07	2203	2859.6	16°25.7' N	150°58.0' W	300	N. Pacific Subtropical Gyre
<b>Hydrocast</b>							
S209-006-HC	15-Feb-07	0909	215.0	15°11.9' S	148°03.6' W	500	S. Pacific Subtropical Gyre
S209-017-HC	18-Feb-07	1051	411.6	14°05.6' S	146°17.4' W	527	S. Pacific Subtropical Gyre
S209-022-HC	19-Feb-07	1031	555.3	12°38.5' S	144°23.5' W	540	S. Pacific Subtropical Gyre
S209-027-HC	20-Feb-07	1034	624.0	11°59.2' S	144°18.8' W	513	S. Pacific Subtropical Gyre
S209-031-HC	21-Feb-07	1044	763.5	10°35.7' S	142°44.8' W	530	S. Pacific Subtropical Gyre
S209-035-HC	22-Feb-07	1110	898.9	9°31.5' S	140°55.6' W	530	S. Pacific Subtropical Gyre
S209-039-HC	23-Feb-07	1136	956.3	9°34.5' S	140°43.6' W	542	S. Pacific Subtropical Gyre
S209-044-HC	27-Feb-07	0933	1110.9	7°59.7' S	140°47.2' W	500	S. Pacific Subtropical Gyre
S209-048-HC	1-Mar-07	1054	1238.5	6°24.1' S	140°42.4' W	523	S. Pacific Subtropical Gyre
S209-052-HC	2-Mar-07	1041	1326.5	5°18.7' S	141°02.9' W	510	S. Pacific Subtropical Gyre
S209-056-HC	3-Mar-07	1114	1422.9	4°07.8' S	141°46.8' W	435	S. Pacific Subtropical Gyre
S209-059-HC	4-Mar-07	1058	1557.5	2°15.6' S	142°15.3' W	426	Equatorial Pacific
S209-061-HC	4-Mar-07	2106	1615.3	1°16.6' S	142°26.7' W	483	Equatorial Pacific
S209-064-HC	5-Mar-07	1046	1671.3	0°26.6' S	142°39.4' W	418	Equatorial Pacific
S209-066-HC	5-Mar-07	2214	1716.0	0°09.7' N	142°49.8' W	407	Equatorial Pacific
S209-069-HC	6-Mar-07	1619	1765.4	0°47.6' N	143°04.0' W	456	Equatorial Pacific
S209-072-HC	7-Mar-07	1050	1865.3	2°16.6' N	143°05.4' W	544	Equatorial Pacific
S209-076-HC	9-Mar-07	1053	2132.1	6°10.9' N	144°46.8' W	532	N. Pacific Subtropical Gyre
<b>Hydrophone</b>							
S209-088-HP	18-Mar-07	0755		20°35.6' N	156°26.8' W	0	Hawaiian Islands
S209-089-HP	18-Mar-07	0843		20°37.5' N	156°27.9' W	0	Hawaiian Islands
S209-090-HP	18-Mar-07	1326		20°44.5' N	156°39.4' W	0	Hawaiian Islands
S209-091-HP	18-Mar-07	1436		20°43.7' N	156°40.5' W	0	Hawaiian Islands
S209-092-HP	18-Mar-07	1452		20°43.7' N	156°40.6' W	0	Hawaiian Islands
S209-093-HP	18-Mar-07	1513		20°43.6' N	156°40.7' W	0	Hawaiian Islands
<b>Meter Net</b>							
S209-005-MN	15-Feb-07	0050	177.0	15°38.4' S	148°04.5' W	200	S. Pacific Subtropical Gyre
S209-009-MN	15-Feb-07	2329	285.6	14°28.7' S	147°36.2' W	200	S. Pacific Subtropical Gyre
S209-015-MN	17-Feb-07	2345	369.3	14°28.7' S	146°57.5' W	200	S. Pacific Subtropical Gyre
S209-020-MN	18-Feb-07	2315	488.8	13°17.4' S	145°15.6' W	200	S. Pacific Subtropical Gyre
S209-025-MN	20-Feb-07	0000	597.5	12°15.0' S	144°19.5' W	225	S. Pacific Subtropical Gyre
S209-029-MN	20-Feb-07	2211	678.1	11°22.2' S	143°49.8' W	200	S. Pacific Subtropical Gyre
S209-033-MN	21-Feb-07	2212	842.6	9°55.0' S	141°44.3' W	200	S. Pacific Subtropical Gyre

\* Blank spaces indicate no data collected



Table 1 continued

Station Number	Date	Local Time	Log* (nm)	Latitude	Longitude	Cast Depth* (m)	General Locale
<b>Meter Net continued</b>							
S209-037-MN	22-Feb-07	2220	926.0	9°49.9' S	140°34.4' W	200	S. Pacific Subtropical Gyre
S209-041-MN	23-Feb-07	2209	988.6	9°17.4' S	140°31.8' W	200	S. Pacific Subtropical Gyre
S209-046-MN	28-Feb-07	2226	1168.5	7°10.7' S	140°51.4' W	200	S. Pacific Subtropical Gyre
S209-050-MN	1-Mar-07	2208	1274.0	5°53.3' S	140°52.4' W	206	S. Pacific Subtropical Gyre
S209-054-MN	2-Mar-07	2208	1370.0	4°49.0' S	141°28.6' W	200	S. Pacific Subtropical Gyre
S209-062-MN	4-Mar-07	2313	1615.6	1°18.2' S	142°28.8' W	200	Equatorial Pacific
S209-067-MN	5-Mar-07	2326	1716.3	0°07.9' N	142°51.1' W	200	Equatorial Pacific
S209-070-MN	6-Mar-07	2201	1800.0	1°19.7' N	143°05.1' W	200	Equatorial Pacific
S209-074-MN	7-Mar-07	2214	1913.1	3°01.9' N	143°15.5' W	200	N. Pacific Subtropical Gyre
S209-087-2MN	15-Mar-07	2317	3006.5	17°59.3' N	152°43.7' W	376	N. Pacific Subtropical Gyre
<b>Neuston Net</b>							
S209-002-NT	14-Feb-07	1133	142.1	16°06.6' S	147°57.2' W	0	S. Pacific Subtropical Gyre
S209-004-NT	14-Feb-07	2333	176.1	15°39.2' S	148°01.5' W	0	S. Pacific Subtropical Gyre
S209-007-NT	15-Feb-07	1133	215.1	15°11.4' S	148°03.1' W	0	S. Pacific Subtropical Gyre
S209-010-NT	16-Feb-07	0106	285.8	14°29.6' S	147°30.2' W	0	S. Pacific Subtropical Gyre
S209-012-NT	16-Feb-07	1100	306.9	14°49.2' S	147°38.1' W	0	S. Pacific Subtropical Gyre
S209-016-NT	18-Feb-07	0110	371.0	14°28.0' S	146°54.0' W	0	S. Pacific Subtropical Gyre
S209-018-NT	18-Feb-07	1151	411.7	14°05.0' S	146°16.8' W	0	S. Pacific Subtropical Gyre
S209-021-NT	19-Feb-07	0015	490.0	13°16.0' S	145°15.1' W	0	S. Pacific Subtropical Gyre
S209-023-NT	19-Feb-07	1158	555.5	12°39.8' S	144°23.9' W	0	S. Pacific Subtropical Gyre
S209-026-NT	20-Feb-07	0116	599.5	12°17.5' S	144°19.9' W	0	S. Pacific Subtropical Gyre
S209-028-NT	20-Feb-07	1133	625.4	12°00.2' S	144°19.4' W	0	S. Pacific Subtropical Gyre
S209-030-NT	21-Feb-07	0013	689.2	11°15.6' S	143°42.5' W	0	S. Pacific Subtropical Gyre
S209-032-NT	21-Feb-07	1143	764.0	10°36.0' S	142°44.5' W	0	S. Pacific Subtropical Gyre
S209-034-NT	21-Feb-07	2327	846.5	9°52.8' S	141°40.4' W	0	S. Pacific Subtropical Gyre
S209-036-NT	22-Feb-07	1217	899.8	9°32.6' S	140°55.8' W	0	S. Pacific Subtropical Gyre
S209-038-NT	22-Feb-07	2325	926.7	9°51.3' S	140°34.6' W	0	S. Pacific Subtropical Gyre
S209-040-NT	23-Feb-07	1239	956.6	9°35.8' S	140°43.9' W	0	S. Pacific Subtropical Gyre
S209-042-NT	24-Feb-07	0016	997.9	9°14.2' S	140°26.8' W	0	S. Pacific Subtropical Gyre
S209-043-NT	27-Feb-07	2359	1063.0	8°35.6' S	140°29.0' W	0	S. Pacific Subtropical Gyre
S209-045-NT	28-Feb-07	1132	1111.0	8°00.3' S	140°48.6' W	0	S. Pacific Subtropical Gyre
S209-047-NT	28-Feb-07	2357	1169.9	7°13.2' S	140°52.1' W	0	S. Pacific Subtropical Gyre
S209-049-NT	1-Mar-07	1153	1228.5	6°25.1' S	140°43.3' W	0	S. Pacific Subtropical Gyre
S209-051-NT	1-Mar-07	2330	1276.1	5°54.7' S	140°53.0' W	0	S. Pacific Subtropical Gyre
S209-053-NT	2-Mar-07	1145	1326.9	5°20.3' S	141°03.5' W	0	S. Pacific Subtropical Gyre
S209-055-NT	2-Mar-07	2325	1372.2	4°49.6' S	141°30.2' W	0	S. Pacific Subtropical Gyre
S209-057-NT	3-Mar-07	1221	1422.9	4°09.0' S	141°48.7' W	0	S. Pacific Subtropical Gyre
S209-058-NT	4-Mar-07	0030	1499.5	3°12.7' S	142°00.1' W	0	S. Pacific Subtropical Gyre
S209-060-NT	4-Mar-07	1202	1557.7	2°16.0' S	142°17.6' W	0	Equatorial Pacific
S209-063-NT	5-Mar-07	0009	1616.3	1°19.7' S	142°29.8' W	0	Equatorial Pacific
S209-065-NT	5-Mar-07	1203	1671.6	0°27.8' S	142°41.4' W	0	Equatorial Pacific
S209-068-NT	6-Mar-07	0034	1716.8	0°06.0' N	142°52.2' W	0	Equatorial Pacific

\* Blank spaces indicate no data collected

Table 1 continued

Station Number	Date	Local Time	Log* (nm)	Latitude	Longitude	Cast Depth* (m)	General Locale
<b>Neuston Net continued</b>							
S209-071-NT	6-Mar-07	2329	1801.0	1°17.4' N	143°06.4' W	0	Equatorial Pacific
S209-073-NT	7-Mar-07	1209	1865.5	2°15.8' N	143°06.3' W	0	Equatorial Pacific
S209-075-NT	7-Mar-07	2338	1913.5	3°00.3' N	143°17.1' W	0	N. Pacific Subtropical Gyre
S209-077-NT	9-Mar-07	1159	2132.8	6°09.4' N	144°47.3' W	0	N. Pacific Subtropical Gyre
S209-078-NT	11-Mar-07	0018	2369.5	9°28.0' N	146°48.1' W	0	N. Pacific Subtropical Gyre
S209-079-NT	11-Mar-07	1203	2440.9	10°28.6' N	147°27.1' W	0	N. Pacific Subtropical Gyre
S209-080-NT	12-Mar-07	0009	2519.3	11°33.1' N	148°06.8' W	0	N. Pacific Subtropical Gyre
S209-081-NT	12-Mar-07	1209	2584.0	12°26.9' N	148°38.3' W	0	N. Pacific Subtropical Gyre
S209-082-NT	13-Mar-07	0013	2654.0	13°24.6' N	149°14.2' W	0	N. Pacific Subtropical Gyre
S209-084-NT	14-Mar-07	1159	2820.5	15°49.2' N	150°41.7' W	0	N. Pacific Subtropical Gyre
S209-086-NT	14-Mar-07	2238	2860.0	16°25.6' N	150°58.0' W	0	N. Pacific Subtropical Gyre
S209-095-NT	18-Mar-07	2351		20°50.4' N	156°45.1' W	0	N. Pacific Subtropical Gyre
<b>Secchi Disk</b>							
S209-001-SD	14-Feb-07	1014	142.0	16°05.9' S	147°56.1' W	39	S. Pacific Subtropical Gyre
S209-006-SD	15-Feb-07	0909	215.0	15°11.9' S	148°03.6' W	51	S. Pacific Subtropical Gyre
S209-011-SD	16-Feb-07	0945	306.9	14°49.0' S	147°37.4' W	43	S. Pacific Subtropical Gyre
S209-017-SD	18-Feb-07	0902	411.6	14°05.7' S	146°17.5' W	47	S. Pacific Subtropical Gyre
S209-022-SD	19-Feb-07	0914	555.3	12°38.5' S	144°23.5' W	30	S. Pacific Subtropical Gyre
S209-027-SD	20-Feb-07	1024	624.0	11°59.2' S	144°18.8' W	29	S. Pacific Subtropical Gyre
S209-031-SD	21-Feb-07	0909	763.5	10°34.7' S	142°44.2' W	31	S. Pacific Subtropical Gyre
S209-035-SD	22-Feb-07	1110	898.9	9°31.5' S	140°55.6' W	27	S. Pacific Subtropical Gyre
S209-039-SD	23-Feb-07	1136	956.3	9°34.5' S	140°43.0' W	25	S. Pacific Subtropical Gyre
S209-044-SD	28-Feb-07	1033	1110.9	7°59.7' S	140°47.2' W	21	S. Pacific Subtropical Gyre
S209-048-SD	1-Mar-07	0904	1228.5	6°22.7' S	140°40.8' W	28	S. Pacific Subtropical Gyre
S209-052-SD	2-Mar-07	1010	1326.5	5°18.2' S	141°02.5' W	34	S. Pacific Subtropical Gyre
S209-056-SD	3-Mar-07	0926	1422.9	4°07.8' S	141°46.8' W	24	S. Pacific Subtropical Gyre
S209-059-SD	4-Mar-07	0909	1557.5	2°15.6' S	142°11.2' W	25	Equatorial Pacific
S209-064-SD	5-Mar-07	0905	1671.3	0°25.6' S	142°29.8' W	28	Equatorial Pacific
S209-069-SD	6-Mar-07	1431	1765.4	0°48.5' N	143°02.0' W	19	Equatorial Pacific
S209-072-SD	7-Mar-07	0913	1865.3	2°17.0' N	143°03.8' W	21	Equatorial Pacific
S209-076-SD	9-Mar-07	0911	2132.1	6°12.6' N	144°45.5' W	22	N. Pacific Subtropical Gyre
<b>Shipek Grab</b>							
S209-013-SG	16-Feb-07	1655	314.1	14°58.3' S	147°38.3' W	20	Rangiroa Lagoon

\* Blank spaces indicate no data collected

**Table 2:** 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 <sup>2</sup> )	Plastic Pieces (#)	Plastic Pellets (#)	Tar Pieces (#)
S209-002-NT	1926	30.0	36.00	4.0	0.002	8	1	0
S209-004-NT	1868	29.9	35.98	5.2	0.003	1	0	0
S209-007-NT	2468	30.0	35.97	16.8	0.007	7	0	0
S209-010-NT	1815	30.1	36.09	12.0	0.007	1	0	0
S209-012-NT	403	30.2	35.99	3.0	0.007	2	0	0
S209-016-NT	1803	30.9	36.03	4.5	0.003	0	0	0
S209-018-NT	1935	30.4	36.01	6.0	0.003	29	0	0
S209-021-NT	1966	30.2	36.10	6.3	0.003	0	0	0
S209-023-NT	2461	30.3	35.96	2.4	0.001	14	0	0
S209-026-NT	2435	30.0	35.91	15.0	0.006	0	0	0
S209-028-NT	2094	30.1	35.91	3.0	0.001	0	0	0
S209-030-NT	1482	29.9	36.01	9.0	0.006	2	0	0
S209-032-NT	1274	30.1	35.82	5.0	0.004	0	0	0
S209-034-NT	2238	29.5	35.80	15.3	0.007	0	0	0
S209-036-NT	2415	29.7	35.83	8.6	0.004	1	0	0
S209-038-NT	1568	29.4	35.84	60.0	0.038	0	0	0
S209-040-NT	1111	29.5	35.86	14.0	0.013	0	0	0
S209-042-NT	662	29.2	35.83	69.0	0.104	0	0	0
S209-043-NT	2576	29.1	35.84	24.0	0.009	0	0	0
S209-045-NT	1698	29.2	35.80	15.0	0.009	0	0	0
S209-047-NT	1852	28.9	35.80	18.0	0.010	1	0	0
S209-049-NT	2256	28.5	35.42	5.0	0.002	2	0	0
S209-051-NT	1756	28.3	35.70	23.0	0.013	0	0	0
S209-053-NT	2415	28.3	35.00	5.5	0.002	2	0	0
S209-055-NT	2436	28.0	35.07	52.0	0.021	1	0	0
S209-057-NT	1977	28.2	35.09	5.0	0.003	0	0	0
S209-058-NT	1851	27.9	35.00	14.0	0.008	0	0	0
S209-060-NT	2069	27.7	35.05	5.0	0.002	1	0	0
S209-063-NT	1648	27.4	35.05	17.0	0.010	0	0	0
S209-065-NT	2467	27.2	35.24	40.0	0.020	4	0	0
S209-068-NT	1907	26.2	35.26	28.5	0.015	1	0	0
S209-071-NT	1702	26.2	35.17	50.0	0.029	0	0	0
S209-073-NT	2436	26.7	34.92	5.0	0.002	0	0	0
S209-075-NT	1851	27.5	34.80	20.0	0.011	0	0	0
S209-077-NT	1904	27.6	34.80	7.0	0.004	0	0	0
S209-078-NT	1580	27.1	34.70	33.0	0.021	0	0	0
S209-079-NT	1579	27.1	34.75	9.0	0.006	0	0	0
S209-080-NT	1677	26.6	34.66	14.8	0.009	0	0	0
S209-081-NT	1988	25.5	34.15	5.0	0.003	2	0	0
S209-082-NT	1816	25.0	34.21	10.0	0.006	0	0	0
S209-084-NT	1858	25.3	34.43	1.0	0.001	0	0	0
S209-086-NT	926	24.6	34.53	8.5	0.009	3	0	0
S209-095-NT	1521	25.2	34.61	8.5	0.006	19	0	0

**Table 3:** Hydrocast bottle data. See Table 1 for station information.

Station Number	Bottle Number	Bottle Depth (m)	O <sub>2</sub> * (ml/l)	PO <sub>4</sub> * (μM)	Chl a* (μg/l)
S209-006-HC	12	49.8		0.203	0.055
S209-006-HC	11	79.4	4.77	0.175	0.115
S209-006-HC	10	98.2		0.199	0.106
S209-006-HC	8	123.7		0.236	0.116
S209-006-HC	6	147.8		0.352	0.060
S209-006-HC	5	149.2	4.33		
S209-006-HC	4	199.2		0.259	0.054
S209-006-HC	3	248.9		0.310	0.005
S209-006-HC	2	347.8		0.640	0.001
S209-006-HC	1	488.7	2.96	1.430	0.001
S209-017-HC	12	29.5		0.185	0.035
S209-017-HC	11	49.9		0.217	0.042
S209-017-HC	9	109.4	4.64	0.203	0.082
S209-017-HC	8	129.3		0.217	0.102
S209-017-HC	6	167.7		0.268	0.083
S209-017-HC	4	237.8	4.52	0.389	0.009
S209-017-HC	3	297.7		0.649	0.001
S209-017-HC	2	397.3		1.281	0.008
S209-017-HC	1	496.5	2.65	1.290	0.011
S209-022-HC	12	15.1		0.231	0.041
S209-022-HC	11	79.5	4.80	0.203	0.140
S209-022-HC	9	99.8		0.264	0.125
S209-022-HC	8	128.1		0.264	0.093
S209-022-HC	6	178.0		0.310	0.048
S209-022-HC	4	248.6	4.13	0.459	0.003
S209-022-HC	3	323.5		1.054	0.007
S209-022-HC	1	496.0	2.73	1.899	0.007
S209-027-HC	12	20.3		0.175	0.068
S209-027-HC	10	69.9	4.50	0.162	0.210
S209-027-HC	9	89.0		0.417	0.248
S209-027-HC	7	139.0		0.319	0.119
S209-027-HC	6	196.6	3.90	0.375	0.012
S209-027-HC	3	248.9		0.468	0.002
S209-027-HC	1	472.0	2.40	1.281	0.048
S209-031-HC	13	0.0			0.050
S209-031-HC	12	20.0		0.208	0.085
S209-031-HC	11	74.5	2.02	0.194	0.231
S209-031-HC	9	99.7		0.259	0.157
S209-031-HC	7	123.8		0.264	0.046
S209-031-HC	5	148.9		0.310	0.024
S209-031-HC	4	224.1		0.529	0.003
S209-031-HC	3	298.6	4.60	1.137	0.002
S209-031-HC	2	397.2		0.775	
S209-031-HC	1	496.7	2.31	0.919	
S209-035-HC	12	15.6		0.301	0.065
S209-035-HC	11	40.1	4.52		0.125

\* Blank spaces indicate no data collected

**Table 3** continued

Station Number	Bottle Number	Bottle Depth (m)	O <sub>2</sub> * (ml/l)	PO <sub>4</sub> * (μM)	Chl a* (μg/l)
S209-035-HC	7	138.9		0.440	0.019
S209-035-HC	6	173.7	4.52		0.009
S209-035-HC	5	247.3		1.188	
S209-035-HC	3	323.4		1.541	
S209-035-HC	2	397.1		1.657	
S209-035-HC	1	496.3	2.39	1.843	
S209-039-HC	12	14.9		0.432	0.076
S209-039-HC	11	30.4	4.79		0.108
S209-039-HC	10	64.3		0.375	0.195
S209-039-HC	9	79.6		0.315	0.111
S209-039-HC	8	99.8		0.426	0.049
S209-039-HC	7	139.4		0.431	0.021
S209-039-HC	6	173.6		0.417	0.014
S209-039-HC	5	227.4	3.65	0.854	
S209-039-HC	2	372.7		2.011	
S209-039-HC	1	472.1	2.39	1.880	
S209-044-HC	12	15.8	4.60	0.361	0.210
S209-044-HC	11	44.7		0.384	0.267
S209-044-HC	10	58.6		0.394	0.230
S209-044-HC	8	79.2		0.508	0.199
S209-044-HC	7	99.0			0.078
S209-044-HC	6	124.4		0.555	0.032
S209-044-HC	4	248.5	1.77	2.059	
S209-044-HC	3	347.8		2.376	
S209-044-HC	1	471.9	1.48	2.481	
S209-048-HC	12	29.9	4.56	0.275	0.044
S209-048-HC	11	59.2		0.237	0.079
S209-048-HC	10	87.4		0.261	0.141
S209-048-HC	8	109.9	4.47	0.474	0.131
S209-048-HC	6	148.1		0.413	0.041
S209-048-HC	5	189.2		1.214	0.010
S209-048-HC	4	248.2		2.106	
S209-048-HC	2	397.3	1.08	1.580	
S209-052-HC	12	25.3		0.446	0.034
S209-052-HC	11	49.7	4.73		0.074
S209-052-HC	10	73.9		0.541	0.094
S209-052-HC	9	99.3			0.070
S209-052-HC	8	123.9			0.098
S209-052-HC	7	148.5		0.560	0.056
S209-052-HC	6	173.9			0.028
S209-052-HC	5	199.8		2.115	
S209-052-HC	4	273.7	1.73	1.684	
S209-052-HC	3	348.0		1.646	
S209-052-HC	2	422.8		1.826	
S209-052-HC	1	496.0	1.40	2.338	
S209-056-HC	12	20.3		0.503	0.061

\* Blank spaces indicate no data collected

**Table 3** continued

Station Number	Bottle Number	Bottle Depth (m)	O <sub>2</sub> * (ml/l)	PO <sub>4</sub> * (μM)	Chl a* (μg/l)
S209-056-HC	11	39.2	4.49		0.101
S209-056-HC	10	59.7		0.351	0.132
S209-056-HC	9	79.9			0.099
S209-056-HC	8	98.8	4.13	0.503	0.157
S209-056-HC	7	124.5			0.062
S209-056-HC	6	149.6		1.594	0.012
S209-056-HC	5	223.4		2.305	0.002
S209-056-HC	3	347.4		2.239	
S209-056-HC	2	421.5		2.585	
S209-056-HC	1	422.3	0.71	1.523	
S209-059-HC	12	10.4		0.503	0.023
S209-059-HC	11	45.4			0.041
S209-059-HC	10	83.5	3.83	0.712	0.068
S209-059-HC	9	84.6			0.059
S209-059-HC	8	109.4		1.395	0.134
S209-059-HC	7	128.7		1.608	0.053
S209-059-HC	6	164.1		1.760	0.007
S209-059-HC	4	249.0	1.19	1.921	
S209-059-HC	2	346.3		2.115	
S209-059-HC	1	396.9	1.00	1.466	
S209-061-HC	12	15.4		0.508	0.014
S209-061-HC	11	48.6	4.57		0.029
S209-061-HC	10	74.4		0.939	0.049
S209-061-HC	9	84.1		1.143	0.036
S209-061-HC	8	94.2			0.036
S209-061-HC	7	110.1		1.817	0.008
S209-061-HC	6	123.3			0.020
S209-061-HC	5	149.3	1.34	1.931	
S209-061-HC	4	224.3		1.826	
S209-061-HC	3	297.7		2.177	
S209-061-HC	1	472.2	1.80	2.462	
S209-064-HC	12	20.3		0.498	0.084
S209-064-HC	11	40.2	4.49		0.145
S209-064-HC	10	59.8		0.721	0.092
S209-064-HC	9	80.1		0.825	0.063
S209-064-HC	8	90.0		1.010	0.018
S209-064-HC	7	99.5			0.012
S209-064-HC	6	124.7			0.003
S209-064-HC	5	174.3	2.58	0.901	
S209-064-HC	4	249.6		2.163	
S209-064-HC	3	323.9		1.665	
S209-064-HC	1	407.5	1.15	1.869	
S209-066-HC	12	10.4	4.65	0.522	
S209-066-HC	11	25.1			0.155
S209-066-HC	10	40.0		0.323	0.189
S209-066-HC	9	50.8		0.579	0.167

\* Blank spaces indicate no data collected

**Table 3** continued

<b>Station Number</b>	<b>Bottle Number</b>	<b>Bottle Depth (m)</b>	<b>O<sub>2</sub>* (ml/l)</b>	<b>PO<sub>4</sub>* (μM)</b>	<b>Chl a* (μg/l)</b>
S209-066-HC	8	60.0		0.441	0.224
S209-066-HC	7	75.1		0.645	0.195
S209-066-HC	6	99.9	3.39	0.825	0.044
S209-066-HC	5	174.4		1.309	
S209-066-HC	3	322.9		1.295	
S209-066-HC	1	396.0	1.99	1.404	
S209-069-HC	13	0.0		0.584	
S209-069-HC	12	10.5		0.465	0.186
S209-069-HC	11	29.8	4.44		0.264
S209-069-HC	10	49.8		0.517	0.230
S209-069-HC	9	70.0		1.328	0.176
S209-069-HC	8	99.6			0.051
S209-069-HC	7	124.8	3.01	1.001	0.008
S209-069-HC	6	169.5		1.115	0.005
S209-069-HC	4	298.5		1.266	
S209-069-HC	3	348.0		1.333	
S209-069-HC	1	444.1	1.40	1.414	
S209-072-HC	12	20.0		0.493	0.139
S209-072-HC	11	40.2	4.48	0.474	0.187
S209-072-HC	10	75.3		0.640	0.147
S209-072-HC	8	123.6		1.765	0.061
S209-072-HC	4	308.6	1.62	2.068	
S209-072-HC	3	386.6		2.153	
S209-072-HC	2	447.1	1.15	2.452	
S209-076-HC	13	0.0		0.289	0.114
S209-076-HC	12	20.4	3.81	0.342	0.140
S209-076-HC	11	39.8	3.87		0.170
S209-076-HC	10	59.4	3.50	0.218	0.187
S209-076-HC	9	89.0	4.17	0.214	0.155
S209-076-HC	8	123.9		1.461	0.107
S209-076-HC	7	148.9	0.98		0.039
S209-076-HC	6	173.9	1.00	2.187	0.012
S209-076-HC	5	208.5	1.48		
S209-076-HC	4	248.1	1.17	1.674	
S209-076-HC	3	321.4	1.11	1.527	
S209-076-HC	2	396.9	0.84	1.874	
S209-076-HC	1	496.1	0.87	2.120	

\* Blank spaces indicate no data collected

**Table 4:** Student research projects, cruise S-209.

<b>Title</b>	<b>Student Investigators</b>
Biogeography of Pteropods in the Equatorial Pacific along the S-209 Cruise Track	Charles Abdelahad Mara Snedden
The Population Composition and Distribution of Heterotrophic Bacteria in the Equatorial Pacific Ocean	Eliza Berry
Determining a Correlation between Zooplankton and Bacteria Density and Dissolved Organic Matter (DOM) Production in the Pacific	Katie Bovee Nora Johnson
Diel Vertical Migration of Copepods in relation to Extent and Intensity of Pigmentation	Kimberly Ellenson
SOFAR Channel Axis Depth and Velocity during a Weak El Niño	Gemina Garland-Lewis
Equatorial Pacific Upwelling: A Study of Sea Surface Temperature, Thermocline Depth, Phosphate and Chlorophyll a Concentrations	Lindsay Gurley Sam Nakata
Controlling Factors of Primary Production along the Equatorial Transect	Ashton Haney Ryan O'Toole
A Historical Comparison of Zooplankton Biomass from Tahiti to Hawaii	Graham Healy-Day
Comparing the Influence of Winds and Ocean Currents on <i>Velevella</i> <i>velevella</i> and <i>Physalia physalis</i> Distributions in relation to Sail Orientation in the Equatorial Pacific	Krista Hoff Julie Gundersen
Transport and Salinity of the Pacific Equatorial Undercurrent during the 2007 El Niño	Ian Smithgall Brandon Kampschuur
A Study of Halobates in the Equatorial Pacific during the 2006-2007 El Nino	Josh Manger Skylar Bayer Scott Loranger
The Relationship between the Mixed Layer Depth and Surface Winds	Elizabeth Sneath Melinda Webster
The Relationship between Sea Surface Temperature and Surface Zooplankton Biomass Density in the Equatorial Pacific	Deena Tvinnereim
The Impact of El Nino on the Barrier Layers in the Central Equatorial Pacific	Liz van der Mandele