

# Cruise Report S-190AB

Scientific activities undertaken aboard  
*SSV Robert C. Seamans*

French Polynesia

20 January – 5 February 2004

Sea Education Association  
Woods Hole, Massachusetts



**To obtain unpublished data, contact the SEA data archivist:**

Erik Zettler, Science Coordinator  
Sea Education Association  
PO Box 6  
Woods Hole, MA 02543

508-540-3954 x.29 (phone)  
800-552-3633 x.29 (phone)  
508-457-4673 (fax)  
[ezettler@sea.edu](mailto:ezettler@sea.edu) (email)  
[www.sea.edu](http://www.sea.edu) (website)

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## Ship's Company, SSV *Robert C. Seamans*, Cruise S-190A

### Nautical Staff

Virginia Land	Captain
Chris McGuire	Chief Mate
Shane Walden	2 <sup>nd</sup> Mate
Scott Chappuis	3 <sup>rd</sup> Mate
Dusty Smith	Engineer
Ted Fleming	Assistant Engineer
Anne Catherine Kruger	Steward
Maggie McCullough	Assistant Steward
Juliette White	Deckhand
Dave Sprecher	Deckhand
Matt Blair	Deckhand
Ben Erne	Deckhand

### Scientific Staff

Paul Joyce	Chief Scientist
Sarah Piwinski	1 <sup>st</sup> Assistant Scientist
Dave Carlson	2 <sup>nd</sup> Assistant Scientist
Jen Barone	3 <sup>rd</sup> Assistant Scientist

### Participants

Jennifer Lund	Agnes Scott College
Steven Cornish	Brown University
Scot Gould	Claremont McKenna College
Peter DeMenocal	Columbia University
Donna Walker	Ethel Walker School
Bart De Stasio	Lawrence University
Nicole Canfield	Middlebury College
Dawn Anderson	Northeastern University
Brock McLeod	Oregon State University
Lisa White	San Francisco State University
Gene McGinis	Spelman College
Cathryn Newton	Syracuse University
Edmond Collier	U. S. Department of Defense
John Hay	United Church of Christ
Helen Rozwadowski	University of Connecticut/Avery Point
Carol Fairweather	University of Denver
Dennis Nixon	University of Rhode Island
Ibit Getchell	University of Vermont

## Ship's Company, SSV *Robert C. Seamans*, Cruise S-190B

### Nautical Staff

Virginia Land	Captain
Chris McGuire	Chief Mate
Shane Walden	2 <sup>nd</sup> Mate
Scott Chappuis	3 <sup>rd</sup> Mate
Dusty Smith	Engineer
Ted Fleming	Assistant Engineer
Anne Catherine Kruger	Steward
Maggie McCullough	Assistant Steward
Juliette White	Deckhand
Dave Sprecher	Deckhand
Matt Blair	Deckhand
Ben Erne	Deckhand

### Scientific Staff

Paul Joyce	Chief Scientist
Jim Watkins	1 <sup>st</sup> Assistant Scientist
Dave Carlson	2 <sup>nd</sup> Assistant Scientist
Jen Barone	3 <sup>rd</sup> Assistant Scientist

### Participants

John Bullard  
Laurie Bullard  
Rafe Parker  
Jan Wagner  
Dan Cooney  
Jodie Ireland  
Frank Louda  
Steve Chandler  
Rick Chandler  
Ned Cabot  
Lee Campbell  
Nancy Edwards  
Jim Edwards  
Jamie Deming  
Bob Geigengack  
Anne Madden  
Martin (Lark) Madden  
Bill Duggan  
Kiera Duggan  
Jane Tucker  
Jeremy Salesin  
Elodie Martinez

## Data Description

This cruise report provides a record of data collected during S-190AB aboard SSV *Robert C. Seamans* in the waters of French Polynesia. The cruise track for S-190AB (Figure 1) was between the islands of Tahiti, Mo'orea, and Huahine.

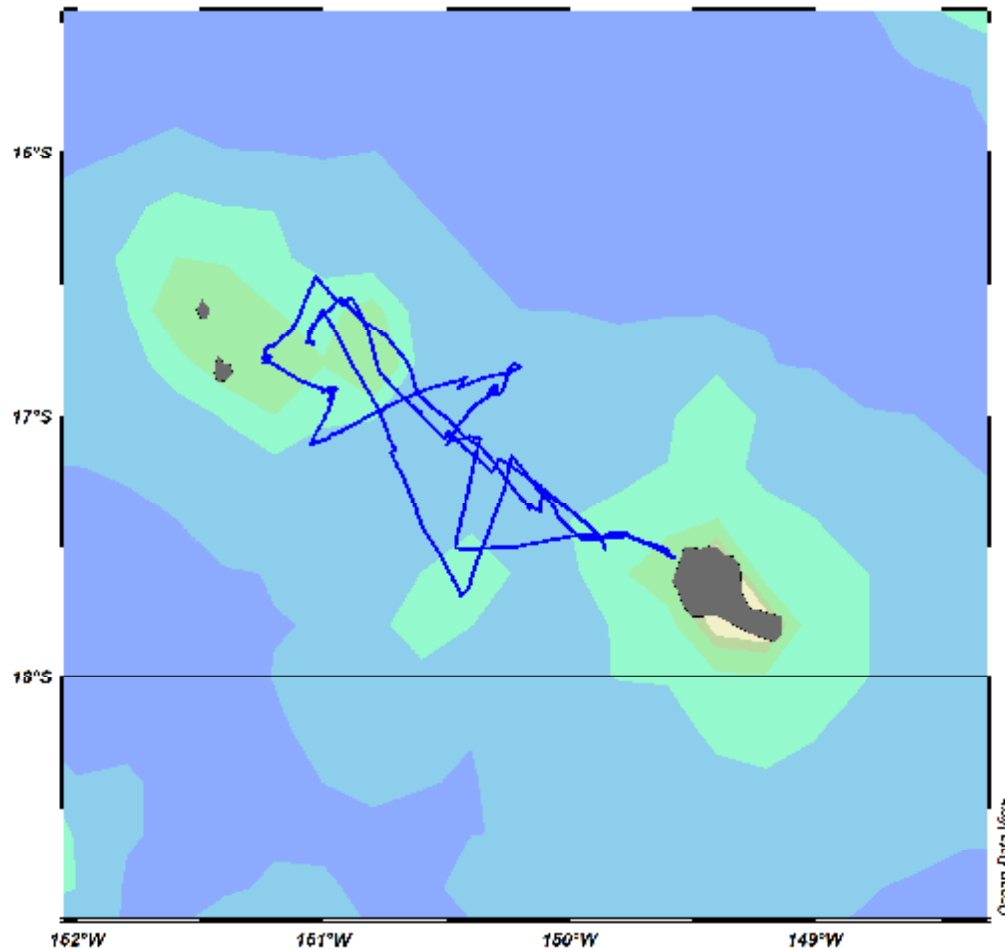


Figure 1: S-190AB Cruise Track.

During the cruise, sub-bottom profiles, Acoustic Doppler Current Profiles (ADCP), and flow-through sea surface temperature, salinity and in vivo fluorescence were collected. This report summarizes sea surface chemical and biological characteristics (Table 1). Lengthy CHIRP, ADCP, and complete flow-through data are not reported here. All unpublished data can be made available by arrangement with the Sea Education

Association (SEA) 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.

Paul Joyce  
Chief Scientist  
S-190AB

**Table 1**  
Hourly Positions and surface data

Date	Time (HHMMSS)	Lat (DDMM.tt)	Lon (DDDMM.tt)	T <sub>s</sub> Temp (° C)	S <sub>s</sub> Salinity (psu)	Chl <i>a</i> RawVal (raw)	Depth (Meters)
<b>S190A</b>							
1/20/2004	1:00:24	-17.437	-149.905	29.430	35.825	0.137	
1/20/2004	2:00:29	-17.378	-149.983	29.657	35.909	0.138	
1/20/2004	3:00:35	-17.324	-150.057	29.575	35.901	0.136	
1/20/2004	4:00:40	-17.265	-150.131	29.506	35.902	0.139	
1/20/2004	5:00:45	-17.213	-150.213	29.405	35.904	0.138	
1/20/2004	6:00:51	-17.174	-150.289	29.280	35.871	0.205	
1/20/2004	7:00:56	-17.199	-150.303	29.327	35.880	0.139	
1/20/2004	8:00:01	-17.190	-150.346	29.448	35.880	0.139	
1/20/2004	9:00:07	-17.129	-150.421	29.489	35.842	0.139	
1/20/2004	10:00:12	-17.069	-150.484	29.391	35.824	0.139	
1/20/2004	11:00:17	-17.083	-150.502	29.392	35.825	0.138	
1/20/2004	13:00:28	-16.998	-150.601	29.447	35.793	0.137	
1/20/2004	14:00:34	-16.944	-150.657	29.428	35.780	0.143	
1/20/2004	15:00:39	-16.901	-150.705	29.350	35.771	0.135	
1/20/2004	16:00:44	-16.856	-150.747	29.271	35.732	0.135	
1/20/2004	17:00:50	-16.797	-150.783	29.259	35.717	0.137	
1/20/2004	18:00:55	-16.717	-150.807	29.228	35.723	0.137	
1/20/2004	19:00:00	-16.642	-150.836	29.237	35.725	0.134	
1/20/2004	20:00:06	-16.558	-150.881	29.267	35.729	0.134	
1/20/2004	21:00:11	-16.559	-150.888	29.381	35.733	0.138	
1/20/2004	22:00:16	-16.559	-150.898	29.505	35.737	0.135	
1/20/2004	23:00:22	-16.576	-150.914	29.685	35.737	0.131	
1/21/2004	0:00:27	-16.562	-150.946	29.718	35.737	0.131	
1/21/2004	2:00:38	-16.492	-151.014	29.842	35.746	0.131	
1/21/2004	3:00:43	-16.505	-151.046	29.776	35.771	0.130	
1/21/2004	4:00:49	-16.569	-151.077	29.787	35.803	0.133	
1/21/2004	5:00:54	-16.636	-151.105	29.709	35.785	0.134	
1/21/2004	6:00:59	-16.682	-151.131	29.689	35.797	0.135	
1/21/2004	7:00:05	-16.696	-151.152	29.575	35.775	0.136	
1/21/2004	8:00:10	-16.707	-151.168	29.551	35.771	0.135	
1/21/2004	9:00:15	-16.729	-151.193	29.475	35.773	0.134	
1/21/2004	10:00:21	-16.741	-151.226	29.444	35.805	0.137	
1/21/2004	11:00:26	-16.771	-151.236	29.440	35.760	0.134	
1/21/2004	12:00:32	-16.794	-151.244	29.249	35.750	0.135	
1/21/2004	13:00:37	-16.775	-151.217	29.269	35.709	0.137	
1/21/2004	14:00:42	-16.779	-151.228	29.238	35.642	0.137	
1/21/2004	15:00:48	-16.780	-151.241	29.294	35.696	0.134	
1/21/2004	16:00:53	-16.803	-151.201	29.186	35.682	0.138	
1/21/2004	17:00:58	-16.863	-151.097	29.217	35.660	0.140	
1/21/2004	18:00:04	-16.906	-150.984	29.219	35.615	0.136	
1/21/2004	19:00:09	-16.935	-150.976	29.088	35.529	0.135	
1/21/2004	20:00:14	-16.896	-150.948	29.405	35.627	0.132	
1/21/2004	21:00:20	-16.895	-150.957	29.488	35.629	0.132	
1/21/2004	22:00:25	-16.893	-150.968	29.531	35.630	0.131	
1/21/2004	23:00:30	-16.905	-150.994	29.566	35.609	0.128	
1/22/2004	2:00:47	-16.938	-150.964	29.817	35.618	0.130	



Date	Time	Lat	Lon	T <sub>s</sub>	S <sub>s</sub>	Chl a	Depth
	(HHMMSS)	(DDMM.tt)	(DDDMM.tt)	Temp (° C)	Salinity (psu)	RawVal (raw)	(Meters)
1/22/2004	3:00:52	-17.003	-150.992	29.543	35.574	0.129	
1/22/2004	4:00:57	-17.065	-151.028	29.380	35.571	0.132	
1/22/2004	5:00:03	-17.107	-151.036	29.429	35.625	0.134	
1/22/2004	6:00:08	-17.078	-150.971	29.288	35.627	0.133	
1/22/2004	7:00:13	-17.051	-150.909	29.431	35.706	0.133	
1/22/2004	8:00:19	-17.021	-150.850	29.591	35.768	0.134	
1/22/2004	9:00:24	-16.995	-150.799	29.607	35.773	0.140	
1/22/2004	10:00:29	-16.960	-150.740	29.607	35.782	0.147	
1/22/2004	11:00:35	-16.969	-150.747	29.549	35.778	0.133	
1/22/2004	12:00:40	-16.940	-150.683	29.546	35.789	0.134	
1/22/2004	13:00:46	-16.906	-150.600	29.555	35.805	0.131	
1/22/2004	14:00:51	-16.881	-150.519	29.558	35.835	0.134	
1/22/2004	15:00:56	-16.861	-150.431	29.460	35.841	0.135	
1/22/2004	16:00:02	-16.869	-150.433	29.418	35.829	0.144	
1/22/2004	16:01:02	-16.870	-150.434	29.412	35.838	0.131	
1/22/2004	17:00:07	-16.880	-150.419	29.377	35.844	0.138	
1/22/2004	18:00:12	-16.852	-150.339	29.460	35.921	0.133	
1/22/2004	19:00:18	-16.835	-150.254	29.573	35.910	0.126	
1/22/2004	20:00:23	-16.813	-150.200	29.647	35.806	0.128	
1/22/2004	21:00:28	-16.806	-150.210	29.723	35.754	0.128	
1/22/2004	22:00:34	-16.800	-150.221	29.724	35.861	0.126	
1/22/2004	23:00:39	-16.818	-150.243	29.668	35.903	0.128	
1/23/2004	2:00:55	-16.905	-150.302	29.628	35.852	0.132	
1/23/2004	3:00:01	-16.887	-150.305	29.601	35.847	0.128	
1/23/2004	4:00:06	-16.920	-150.327	29.514	35.850	0.135	
1/23/2004	5:00:11	-16.940	-150.355	29.409	35.843	0.129	
1/23/2004	6:00:17	-16.984	-150.406	29.399	35.837	0.142	
1/23/2004	7:00:22	-17.042	-150.454	29.352	35.868	0.137	
1/23/2004	8:00:27	-17.110	-150.495	29.436	35.870	0.154	
1/23/2004	9:00:33	-17.086	-150.420	29.337	35.861	0.137	
1/23/2004	10:00:38	-17.129	-150.372	29.314	35.895	0.139	
1/23/2004	11:00:44	-17.246	-150.401	29.484	35.923	0.134	
1/23/2004	12:00:49	-17.361	-150.428	29.212	35.802	0.131	
1/23/2004	13:00:54	-17.481	-150.459	29.269	35.778	0.137	
1/23/2004	14:00:00	-17.506	-150.367	29.170	35.798	0.133	
1/23/2004	15:00:05	-17.500	-150.235	29.368	35.924	0.139	
1/23/2004	16:00:10	-17.477	-150.097	29.358	35.908	0.135	
1/23/2004	17:00:16	-17.453	-149.950	29.291	35.844	0.139	
1/23/2004	18:00:21	-17.507	-149.855	29.287	35.792	0.226	
1/23/2004	19:00:26	-17.508	-149.855	29.354	35.823	0.231	
1/23/2004	20:00:32	-17.508	-149.856	29.409	35.830	0.211	
1/23/2004	21:00:37	-17.508	-149.855	29.441	35.832	0.212	
1/23/2004	22:00:43	-17.508	-149.856	29.478	35.835	0.214	
1/23/2004	23:00:48	-17.508	-149.856	29.532	35.841	0.208	
<b>S190B</b>							
1/30/2004	21:00:47	-17.473	-149.868	29.158	35.854	0.180	667.5
1/30/2004	22:00:52	-17.419	-149.924	29.219	35.966	0.126	2369.5
1/30/2004	23:00:57	-17.372	-149.991	29.257	35.959	0.125	2950.2
1/31/2004	0:00:03	-17.322	-150.071	29.152	35.922	0.124	3236.4

Date	Time	Lat	Lon	T <sub>s</sub>	S <sub>s</sub>	Chl a	Depth
	(HHMMSS)	(DDMM.tt)	(DDDMM.tt)	Temp (° C)	Salinity (psu)	RawVal (raw)	(Meters)
1/31/2004	1:00:08	-17.326	-150.113	29.139	35.888	0.129	3351.0
1/31/2004	2:00:13	-17.360	-150.119	29.130	35.888	0.130	3401.4
1/31/2004	3:00:19	-17.358	-150.146	29.151	35.894	0.126	3423.2
1/31/2004	4:00:24	-17.355	-150.165	29.130	35.896	0.129	3490.5
1/31/2004	5:00:30	-17.360	-150.162	29.123	35.896	0.128	3493.3
1/31/2004	6:00:36	-17.294	-150.219	29.106	35.893	0.130	3914.4
1/31/2004	7:00:41	-17.217	-150.280	28.805	35.588	0.130	4868.3
1/31/2004	8:00:46	-17.138	-150.345	28.815	35.648	0.130	2311.4
1/31/2004	9:00:52	-17.075	-150.433	28.913	35.787	0.128	2283.1
1/31/2004	10:00:57	-16.997	-150.518	28.930	35.807	0.130	2263.2
1/31/2004	11:00:02	-16.921	-150.609	28.940	35.831	0.128	2152.8
1/31/2004	12:00:08	-16.814	-150.648	28.949	35.850	0.132	2259.3
1/31/2004	13:00:13	-16.724	-150.724	29.130	35.854	0.132	1501.5
1/31/2004	14:00:19	-16.653	-150.823	28.950	35.700	0.126	1742.8
1/31/2004	15:00:24	-16.572	-150.914	28.820	35.638	0.128	1501.5
1/31/2004	16:00:31	-16.608	-150.985	28.843	35.652	0.127	679.4
1/31/2004	17:00:37	-16.678	-151.053	28.977	35.678	0.147	1055.8
1/31/2004	18:00:42	-16.726	-151.051	28.688	35.035	0.243	34.5
1/31/2004	19:00:47	-16.729	-151.040	28.997	35.180	0.232	
1/31/2004	20:00:53	-16.729	-151.040	28.872	35.082	0.247	
1/31/2004	21:00:58	-16.729	-151.040	28.925	35.097	0.241	
1/31/2004	22:00:03	-16.729	-151.040	28.920	35.192	0.248	
1/31/2004	23:00:09	-16.729	-151.040	28.855	35.123	0.246	
2/1/2004	0:00:14	-16.729	-151.040	28.903	35.138	0.250	
2/1/2004	1:00:19	-16.729	-151.040	28.951	35.178	0.251	
2/1/2004	2:00:25	-16.729	-151.040	28.940	35.122	0.263	
2/1/2004	3:00:30	-16.730	-151.040	29.035	34.977	0.259	
2/1/2004	4:00:36	-16.729	-151.040	29.084	35.045	0.266	
2/1/2004	5:00:41	-16.729	-151.040	28.983	35.111	0.253	
2/1/2004	6:00:46	-16.729	-151.040	28.973	35.061	0.237	
2/1/2004	7:00:52	-16.729	-151.040	28.957	34.957	0.237	
2/1/2004	8:00:57	-16.729	-151.040	28.837	34.662	0.243	
2/1/2004	9:00:02	-16.729	-151.040	29.063	35.036	0.207	
2/1/2004	10:00:08	-16.729	-151.040	29.097	35.228	0.211	
2/1/2004	11:00:13	-16.729	-151.040	28.718	34.749	0.231	
2/1/2004	12:00:18	-16.729	-151.040	28.823	34.956	0.224	
2/1/2004	13:00:24	-16.729	-151.040	28.970	35.231	0.209	
2/1/2004	14:00:29	-16.729	-151.040	28.923	35.228	0.214	
2/1/2004	15:00:34	-16.729	-151.040	28.831	35.123	0.210	
2/1/2004	16:00:40	-16.729	-151.040	28.842	35.146	0.207	
2/1/2004	17:00:46	-16.729	-151.040	28.886	35.200	0.199	
2/1/2004	18:00:51	-16.703	-151.059	29.025	35.666	0.140	790.1
2/1/2004	19:00:57	-16.605	-151.006	28.939	35.685	0.130	2969.7
2/1/2004	20:00:06	-16.682	-150.954	29.139	35.803	0.123	1519.9
2/1/2004	21:00:16	-16.782	-150.895	29.143	35.779	0.122	1859.0
2/1/2004	22:00:26	-16.878	-150.834	29.185	35.821	0.120	1519.8
2/1/2004	23:00:36	-16.972	-150.780	29.258	35.875	0.119	1506.8
2/2/2004	0:00:48	-17.077	-150.735	29.152	35.845	0.119	2097.6
2/2/2004	1:00:06	-17.130	-150.710	29.095	35.834	0.122	2123.3
2/2/2004	2:00:57	-17.143	-150.724	29.039	35.811	0.123	2098.7

Date	Time (HHMMSS)	Lat (DDMM.tt)	Lon (DDDMM.tt)	T <sub>s</sub> Temp (° C)	S <sub>s</sub> Salinity (psu)	Chl a RawVal (raw)	Depth (Meters)
2/2/2004	3:00:00	-17.193	-150.700	29.054	35.766	0.195	2104.1
2/2/2004	4:00:12	-17.261	-150.666	29.002	35.775	0.125	1506.4
2/2/2004	5:00:23	-17.334	-150.637	28.966	35.777	0.122	2271.0
2/2/2004	6:00:32	-17.406	-150.605	28.952	35.845	0.148	2268.2
2/2/2004	7:00:40	-17.471	-150.566	28.979	35.876	0.144	2239.1
2/2/2004	8:00:53	-17.527	-150.527	28.947	35.912	0.139	2944.1
2/2/2004	9:00:10	-17.594	-150.489	28.971	35.947	0.161	2936.6
2/2/2004	10:00:26	-17.653	-150.456	29.041	35.929	0.130	1958.4
2/2/2004	11:00:38	-17.671	-150.421	29.007	35.893	0.127	2070.8
2/2/2004	12:00:59	-17.583	-150.385	28.937	35.901	0.127	2105.7
2/2/2004	13:00:13	-17.492	-150.349	28.915	35.836	0.128	2212.8
2/2/2004	14:00:31	-17.393	-150.308	29.038	35.867	0.127	2188.8
2/2/2004	15:00:51	-17.290	-150.265	29.000	35.884	0.126	1501.5
2/2/2004	16:00:18	-17.175	-150.239	29.072	35.957	0.128	3835.2
2/2/2004	17:00:41	-17.232	-150.171	29.082	35.941	0.125	3001.5
2/2/2004	18:00:35	-17.330	-150.086	29.082	35.925	0.127	4440.2
2/2/2004	19:00:44	-17.422	-150.009	29.116	35.930	0.123	2907.5
2/2/2004	20:00:18	-17.470	-149.923	29.057	35.881	0.129	1039.2
2/2/2004	21:00:29	-17.511	-149.854	29.328	35.407	0.210	
2/2/2004	22:00:36	-17.510	-149.853	29.726	35.767		
2/2/2004	23:00:41	-17.510	-149.854	30.428	35.657		
2/3/2004	0:00:47	-17.510	-149.854				
2/3/2004	1:00:52	-17.510	-149.854				
2/3/2004	2:00:57	-17.510	-149.853				
2/3/2004	3:00:03	-17.510	-149.854				
2/3/2004	4:00:08	-17.510	-149.853				
2/3/2004	5:00:13	-17.510	-149.854				
2/3/2004	6:00:19	-17.510	-149.854				
2/3/2004	7:00:24	-17.510	-149.854				
2/3/2004	8:00:29	-17.510	-149.854				
2/3/2004	9:00:35	-17.510	-149.854				
2/3/2004	10:00:40	-17.509	-149.854				
2/3/2004	11:00:46	-17.509	-149.854				
2/3/2004	12:00:51	-17.510	-149.854				
2/3/2004	13:00:56	-17.509	-149.854				
2/3/2004	14:00:02	-17.509	-149.854				
2/3/2004	15:00:07	-17.510	-149.854				
2/3/2004	16:00:12	-17.474	-149.866				
2/3/2004	17:00:18	-17.462	-149.754				
2/3/2004	18:00:23	-17.500	-149.626				
2/3/2004	19:00:28	-17.539	-149.569				