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**National Science Foundation**

**Academic Fleet Review Meeting  
September 2-3, 1998**

***A History  
of the  
UNOLS Fleet***

**University-National Oceanographic Laboratory System**



# UNOLS Fleet History

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**Fleet Timeline (1972 - present)**

**and**

**Ship Characteristics:**

Operator/Owner

Year Built/Converted/Mid-life

Length Overall

Science Accommodations





## The UNOLS Fleet (1972-present): Ship Characteristics

SHIP/CLASS	Operator	Owner	BUILT	CONV/ Mid-Life	LOA	Conv/ Mid-life LOA	ORIGINAL SCIENCE BUNKS	Conv/Mid-Life SCI. BUNKS
<b>GLOBAL/EXPEDITIONARY SHIPS</b>								
MELVILLE	SIO	NAVY	1969	1991	245	279	25	38
KNORR	WHOI	NAVY	1970	1989	245	279	25	34
T.G. THOMPSON	UWASH	NAVY	1991		274		36	
ATLANTIS	WHOI	Navy	1997		274		22	
R. REVELLE	SIO	NAVY	1996		274		37	
EWING	LDEO	NSF	1983	1990	239		32	
CHAIN	WHOI	NAVY	1944	1958	213		26	
ATLANTIS II	WHOI	WHOI	1963	1983	210		25	19
T. WASHINGTON	SIO	NAVY	1965		209		17	22 (1981)
THOMPSON (AGOR 9)	UWASH	NAVY	1965		209		20	
CONRAD	LDEO	NAVY	1962	1981	209		18	22
GILLISS	UMIAMI	UMIAMI	1962		209		19	
<b>INTERMEDIATE/REGIONAL SHIPS</b>								
MOANA WAVE	UHAWAII	NAVY	1973	1984	172	210	11	19
SEWARD JOHNSON	HBOI	HBOI	1985	1994	170	204	20	29
VEMA	LDEO	NAVY	1923	1953	202		17	
WECOMA	OSU	NSF	1976	1994	177	185	16	20
ENDEAVOR	URI	NSF	1977	1993	177	184	18	18
GYRE	TAMU	TAMU	1973	1980	174	182	11	23
AGASSIZ	SIO	SIO	1944	1961	180		13	
YAQUINA	OSU	OSU	1944	1964	180		17	
ALAMINOS	TAMU	TAMU	1945	1953	180		14	
TRIDENT	URI	URI	1944		179		13	
OCEANUS	WHOI	NSF	1976	1994	177		12	18
NEW HORIZON	SIO	SIO	1978	1996	170		13	19
ISELIN	UMIAMI	UMIAMI	1972	1985	170		13	16/24 (1992)
EDWIN LINK	HBOI	HBOI	1982	1988	168		20	
FRED H. MOORE	UTEXAS	TEXAS	1967		165		20	
KONA KEOKI	UHAWAII	CHARTER	1967		156		15	
CAPE FLORIDA	UMIAMI	NSF	1961		135		12	
POINT SUR*	MLML	NSF	1981		135		12	
CAPE HATTERAS	DUKE	NSF	1981		135		12	
ALPHA HELIX	SIO/UAK	UAK	1966	1984	133		12	15
R. SPROUL	SIO	SIO	1981	1985	125		12	
<b>LOCAL/NEAR-SHORE SHIPS</b>								
CAPE HENLOPEN	UDEL	UDEL	1976		120		12	
EASTWARD	DUKE	DUKE	1964	1964	118		15	
WEATHERBIRD II	BBSR	BBSR	1981	1993	115		10	12
INLAND SEAS	UMICH	UMICH	1943	1962	114		13	
SEA DIVER	HBOI	HBOI	1959	1992	113		12	
VELERO IV	USC	USC	1948		110		9	
WARFIELD	JHU	JHU	1967		106		10	
PELICAN	LUMCON	LUMCON	1965		105		15	
LONGHORN	UT	UT	1971	1986	80	105	10	12
OCONOSTOTA	SIO	NAVY	1944	1962	100		6	
PROTEUS	STANF	STANF	1946	1969	100		9	
GOSNOLD	WHOI	WHOI	1944	1961	99		8	
URRACA	STRI	STRI	1986	1994	96		10	
DOLPHIN	SIO	SIO	1968		96		7	
E.B. SCRIPPS	SIO	SIO	1965		95		8	
TERITU	UHAWAII	UHAWAII	1953	1964	90		6	
ACONA	UALASKA	NAVY	1961		85		9	
LAURENTIAN	UMICH	UMICH	1974		80		6	
CAYUSE	OSU	OSU	1968		80		8	
GERDE	UMIAMI	UMIAMI	1947		76		8	
BLUE FIN	SKID/UG	SKID/UG	1972	1975	72		8	
BARNES	UWASH	NSF	1966	1984	66		6	
ONAR	UWASH	NAVY	1954	1963	65		6	
HOH	UWASH	NAVY	1943	1962	65		6	
TUSIOPS	FSU	FSU	1953	1955	65		6	
MAURY	JHU	JHU	1950		65		4	
CALANUS	UMIAMI	UMIAMI	1971		64		6	
KIT JONES	SKID	NAVY	1939	1958	64		4	
MYSIS	UMICH	UMICH	1963		50		3	
GOLDEN ISLES	SKIO	SKIO	1970		47		4	

# Fleet Capabilities

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## **A comparative view of the ship capabilities available in the 1970's to capabilities offered by today's ships.**

The attached spreadsheets give a comparative inventory of science and navigational equipment aboard UNOLS ships over a twenty six year period. Sheet one provides three "Global" ships which include GILLISS, pre-stretched KNORR and the newest AGOR general purpose ship, REVELLE. For the Intermediate class, TRIDENT, KANA KEOKI and post-overhaul WECOMA provide the comparative improvements. Not only has there been a dramatic increase in the technology aboard these ships through the years but the number of scientists verse the number of crew persons has shown a marked improvement. The combination of these two advancements have resulted in more efficient use of the platforms and a quantitative and qualitative increase in the data stream available to the scientific community.





Global/Expeditionary Ships	1972-1980	1981-1989	1990-1998
Average Number of Ships	7	6	6
<b>Typical Ship of the Class</b>	<b>GILLISS</b>	<b>KNORR</b>	<b>REVELLE</b>
Length	209ft	245ft	274ft
Cruising Speed	11kts	10kts	13.5kts
Crew/Scientists ratio	1.16	1	0.59
<b>Navigation</b>			
LORAN	Y	Y	
TRANSIT Satellite		Y	
GPS			Y
GPS - Differential			Y
GPS P-CODE			Y
3-Axis GPS			Y
Electronic Charting			Y
Dynamic Positioning			Y
Dual axis speed log			Y
<b>Communications</b>			
H F Radio	Y	Y	Y
INMARSAT A		Y	Y
INMARSAT C			Y
INMARSAT M			
INMARSAT B			Y
SEANET			
M-SAT			
<b>Scientific Equipment</b>			
CTD		Y	Y
SEA SOAR/SCAN FISH			Y
Gravity meters			Y
Multi-Beam Sonar			Y
Chirp Sonar			Y
ADCP			Y
<b>Bottom Sampling</b>			
Coring		Y	Y
Coring 30 meter			Y
<b>Wire/Ropes/Cables</b>			
1/4"	Y		Y
1/2"	Y		
9/16"		Y	Y
.322 Conductor		Y	Y
.680 Conductor			Y
ROV Handling			Y
<b>Other</b>			
Hi spd computer network			Y
CD Rom Data Distribution			Y
Inkjet Hi Res. Color printer			Y
Laser printer			Y

Intermediate/Regional Ships	1972-1980	1981-1989	1990-1998
Average Number of Ships	9	12	13
<b>Typical Ship of the Class (150-200 ft)</b>	<b>TRIDENT</b>	<b>KANA KEOKI</b>	<b>WECOMA</b>
Length	179 ft	156 ft	185 ft
Cruising Speed	11kts	11 kts	12
Crew/Scientists ratio	1.58	0.68	0.67
<b>Navigation</b>			
LORAN	Y	Y	Y
TRANSIT Satellite	Y	Y	
GPS			Y
GPS - Differential			Y
GPS P-CODE			Y
3-Axis GPS			Y
Electronic Charting			Y
Dynamic Positioning			
Dual axis speed log			Y
<b>Communications</b>			
H F Radio	Y	Y	Y
INMARSAT A			Y
INMARSAT C			Y
INMARSAT M			Y
INMARSAT B			
SEANET			
M-SAT			
<b>Scientific Equipment</b>			
CTD	Y	Y	Y
SEA SOAR/SCAN FISH			Y
Gravity meters		Y	
Multi-Beam Sonar			
Chirp Sonar			Y
ADCP			Y
Bottom Sampling			
Coring	Y	Y	Y
Coring 30 meter			
Wire/Ropes/Cables			
1/4"			Y
1/2"	Y		Y
9/16"		Y	Y
0.219 Conductor	Y		Y
.322 Conductor		Y	Y
.680 Conductor			Y
ROV Handling			
Other			
Hi spd computer network			Y
CD Rom Data Distribution			Y
Inkjet Hi Res. Color printer			
Laser printer			Y

# UNOLS Fleet Utilization

## 1972 - 1999

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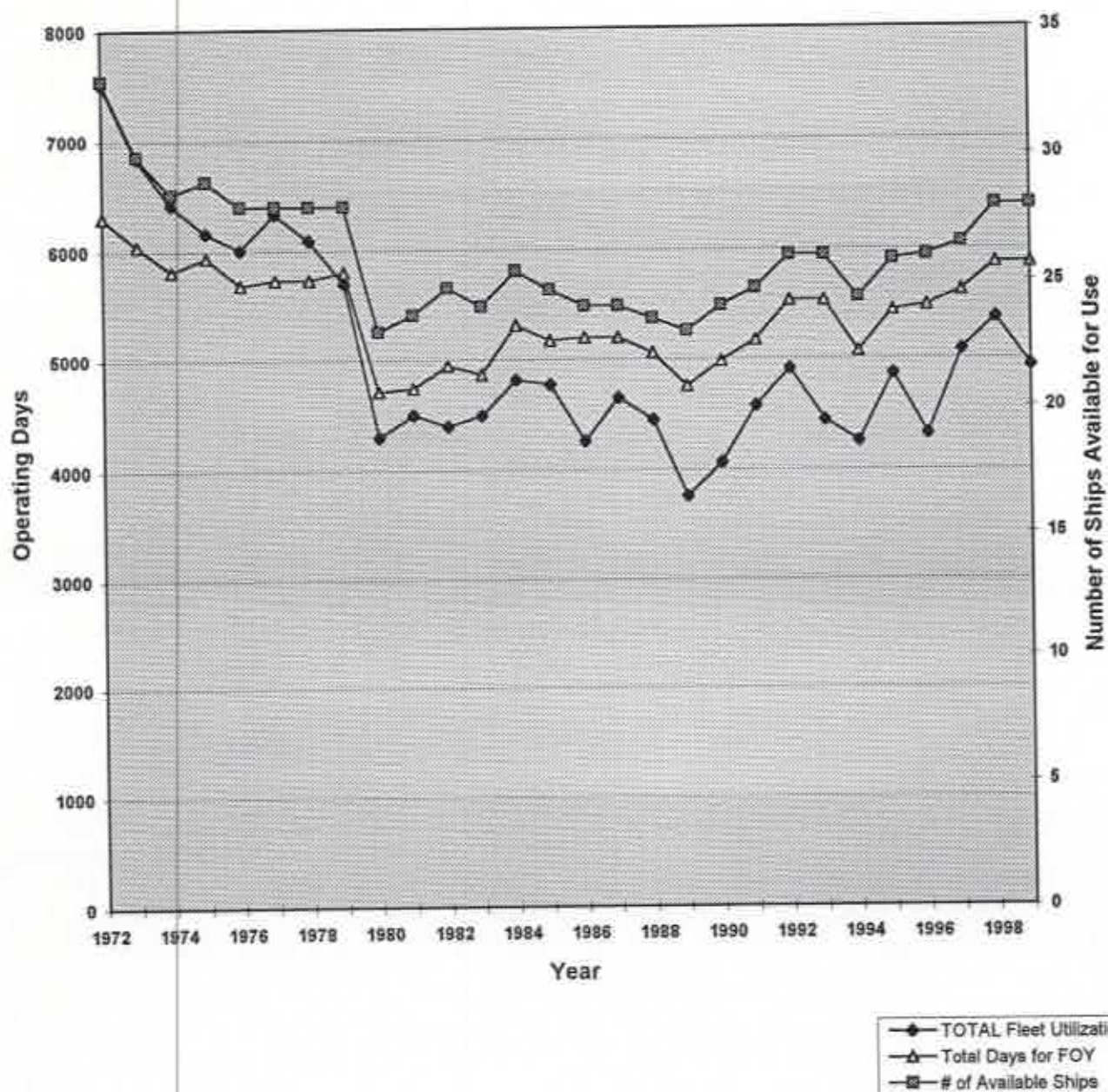
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The following charts show the total ship operating days by year for the fleet as well as the number of ships available for use each year. If a ship was laid up due to a shipyard period, it was not included in the total number of ships available. If a ship only operated a portion of a year, due to a yard period, only the portion of the year available for use was included in the total. Also shown in the following charts are the total days for a Full Operating Year (FOY) as defined by the Research Vessel Operators' Committee.

A table is attached as the last page of this section. It shows the percent utilization based on the FOY totals.



## UNOLS Fleet Utilization -Operating Days by Year

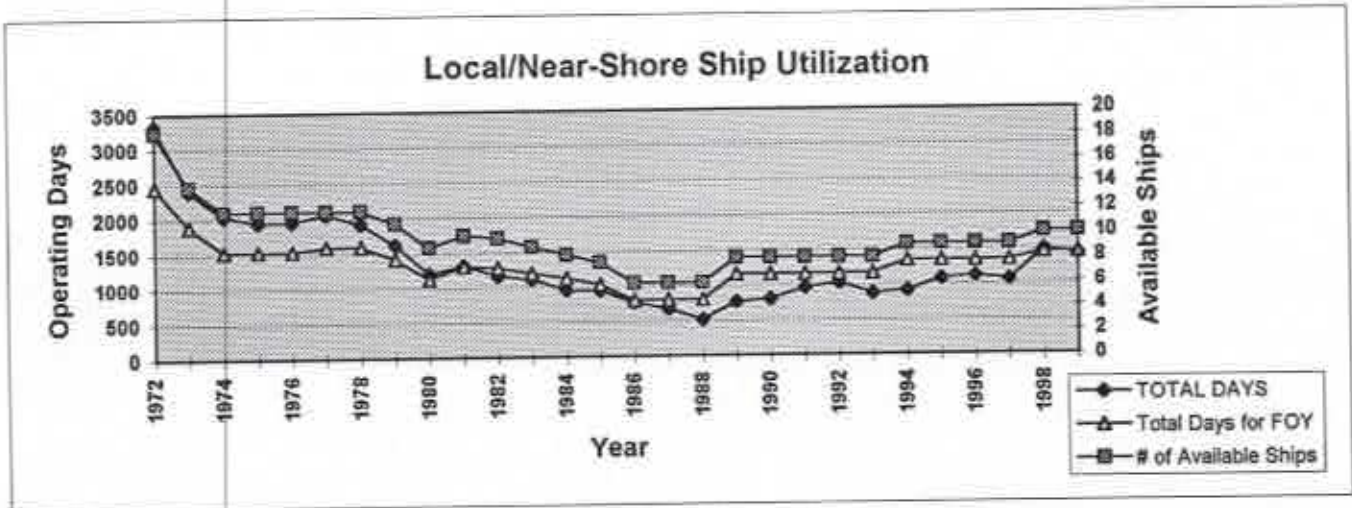
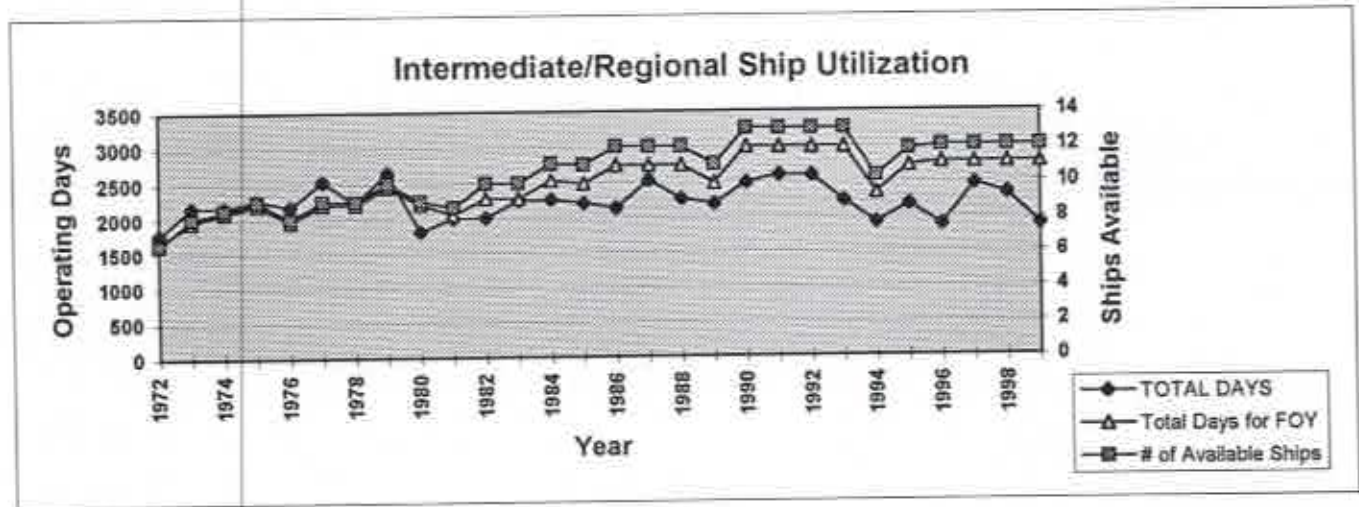
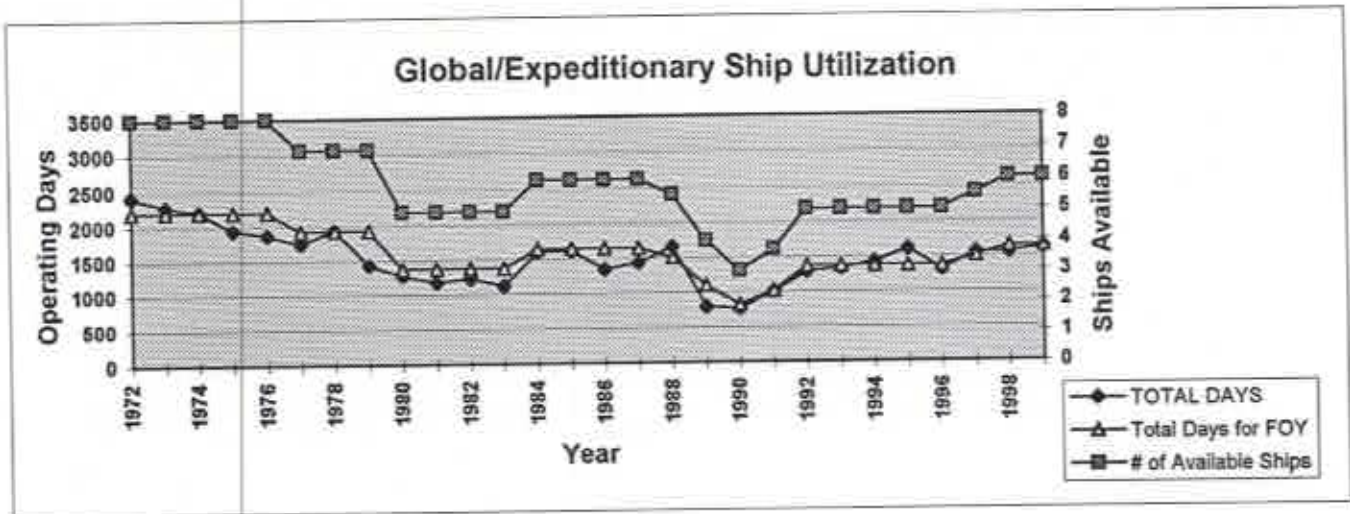


This chart shows the total Fleet utilization by year as well as the number of ships available for use. Also shown are the total days for a Full Operating Year (FOY) as defined by the Research Vessel Operators' Committee (RVOC).

RVOC Recommended Definition of a Full Operating Year (FOY):

Class	Length	FOY (days)
Class I&II	200-300 ft	275
Class III	150-200 ft	250
Class IV	100-150 ft	180
Class V	<100 ft	110

# Fleet Utilization by Class



**RVOC Recommended Definition of a Full Operating Year (FOY):**

Class	Length	FOY (days)
Class I&II	200-300 ft	275
Class III	150-200 ft	250
Class IV	100-150 ft	180
Class V	<100 ft	110

# FLEET UTILIZATION HISTORY: Operating Days by Year (1972-1999)

	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
TOTAL Fleet Utilization	7518	6844	6417	6162	6008	6335	6091	5701	4300	4501	4399	4494	4817	4769	4259	4649	4449	3760
# of Available Ships	33	30	28.5	29	28	28	28	28	23	23.7	24.8	24	25.4	24.7	24	24	23.5	23
Total Days for FOY	6305	6045	5810	5935	5685	5730	5730	5800	4710	4741	4948	4865	5313	5174	5195	5195	5058	4755
% Utilization	119	113	110	104	106	111	106	98.3	91.3	94.9	88.9	92.4	90.7	92.2	82	89.5	88	79.1
SHIP/CLASS	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999								
TOTALS	4066	4574	4912	4444	4256	4866	4319	5083	5374	4935								
# of Available Ships	24	24.7	26	26	24.3	25.8	26	26.5	28	28								
Total Days for FOY	4980	5173	5530	5530	5068	5443	5485	5623	5870	5870								
% Utilization	81.6	88.4	88.8	80.4	84	89.4	78.7	90.4	91.6	84.1								
RVOC Recommended Definition of a Full Operating Year (FOY):																		
Class	Length	FOY (days)																
Class I&II	200-300 ft.	275																
Class III	150-200 ft.	250																
Class IV	100-150 ft.	180																
Class V	<100 ft.	110																





# UNOLS

## Science Accommodations

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The following series of charts show the science accommodations available in comparison to the berths actually used over the years.

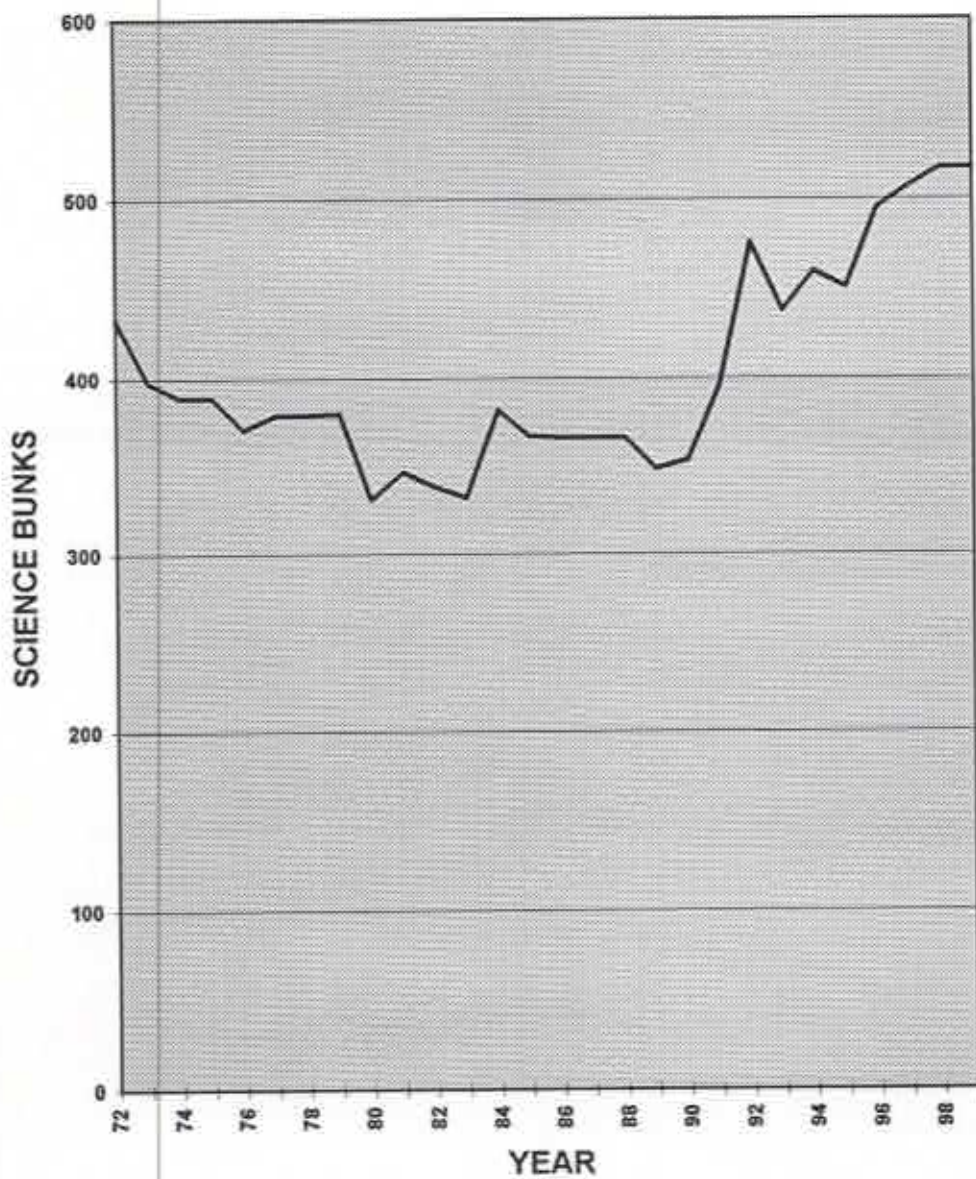
The first chart shows the science berths available by year for 1972 to 1998.

Next the bunk utilization is compared to the bunks available. The percent utilization is also provided. Utilization was calculated on three year intervals beginning in 1973. Science berth utilization included the entire science party; scientists, technicians, students, and observers. To calculate utilization the science party size was averaged by ship per year.

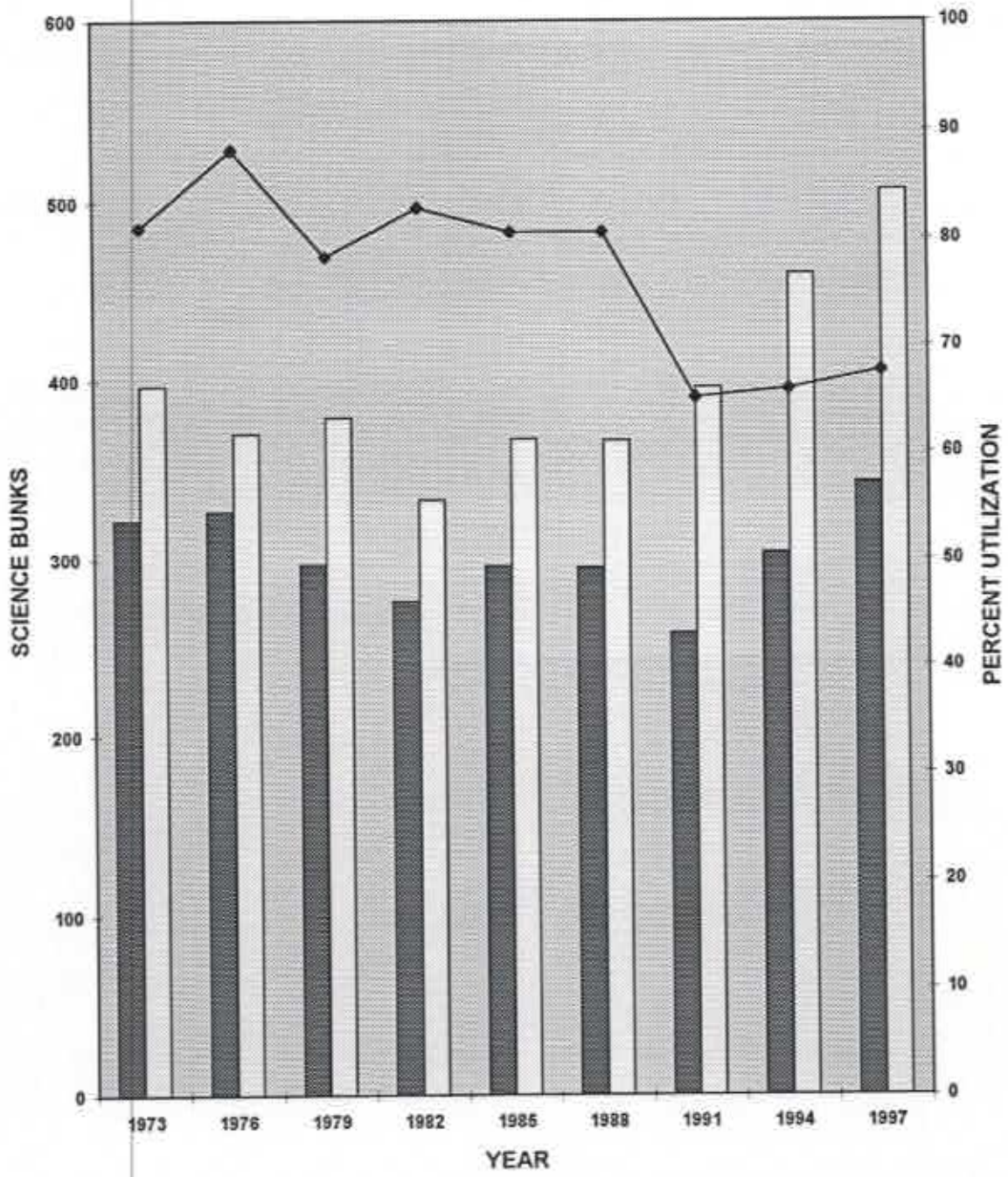
Lastly, the berth utilization comparisons are broken down by ship class.



# UNOLS SCIENCE BERTHS AVAILABLE (1972-1999)

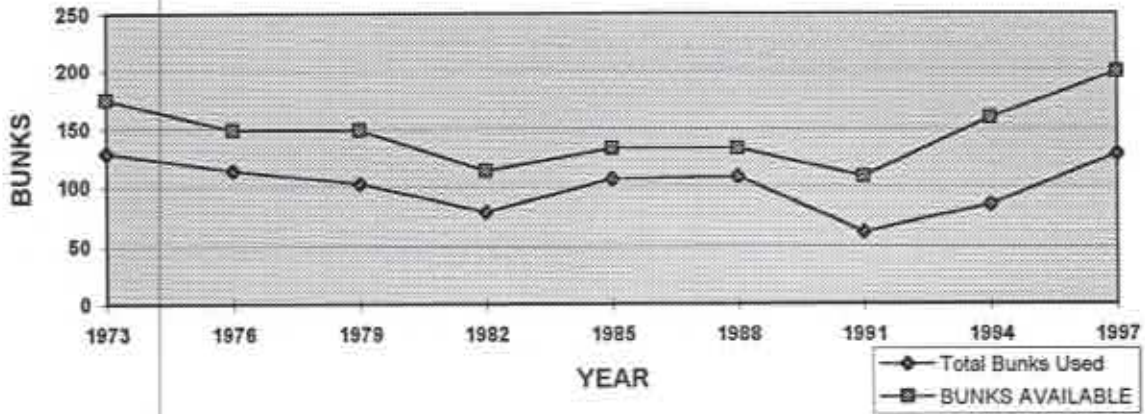


# UNOLS Science Berths Utilization

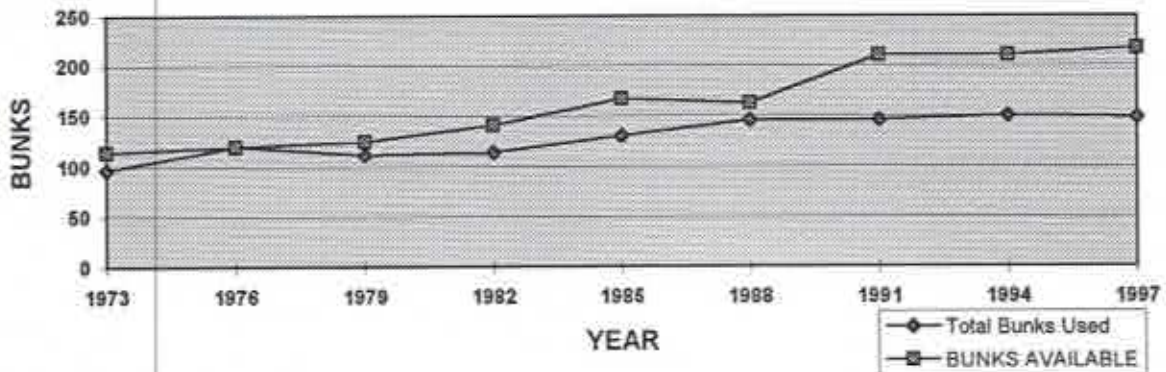


Legend:  
■ Total Bunks Used  
□ Total Bunk Available  
◆ % BERTH UTILIZATION

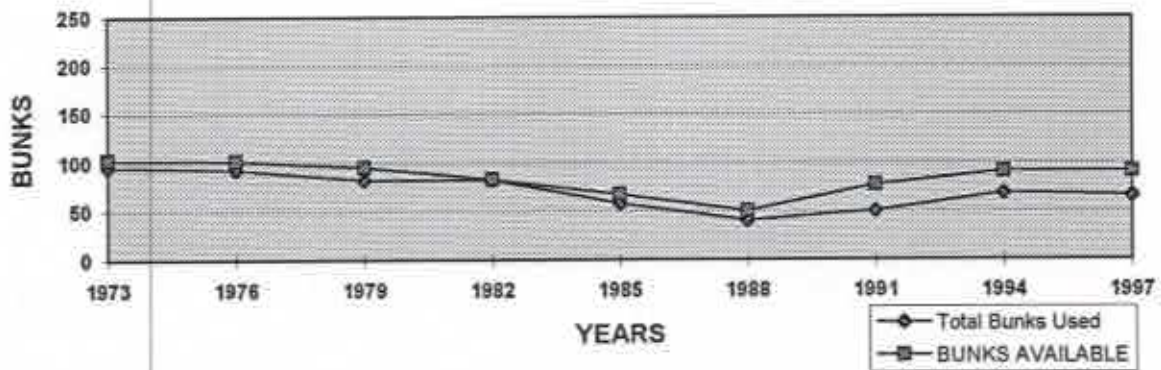
### Global/Expeditionary Ships - Berth Utilization



### Regional/Intermediate Ships - Berth Utilization



### Local/Near-Shore Ships - Berth Utilization





# Appendix

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This Appendix includes all spreadsheets used to generate the charts in the preceding sections. They include the following:

UNOLS Ship Utilization: Operating days by ship, by year

UNOLS Fleet - Available Science Berths (1972-1999)

UNOLS Science Berths - Average Utilization by Ship.





**UNOLS SHIP UTILIZATION: Operating Days by ship, by year (1972-1999)**

SHIP/CLASS	LOA	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
<b>GLOBAL/EXPEDITIONARY SHIPS</b>																			
MELVILLE	245/279	261	223	283	149	203	290	353	126	159	247	175	257	195	271	241	231	208	224
KNORR	245/279	294	292	250	266	304	281	320	208	244	235	258	279	208	185	161	126	303	0
T.G. THOMPSON	274																		
ATLANTIS	274																		
R. REVELLE	274																		
EWING	239																		
CHAIN	213	280	282	294	298														
ATLANTIS II	210	308	335	252	309	351	307	244	84	322	221	0	0	331	287	215	310	343	220
T. WASHINGTON	209	362	273	248	201	226	253	254	172	270	213	240	155	293	241	200	231	331	260
THOMPSON (AGOR 9)	209	270	300	260	240	212	204	249	284	261	264	269	158	263	272	247	259	128	0
CONRAD	209	365	331	365	278	321	259	361	269	23	0	284	268	309	359	287	281	351	94
GILLISS	209	274	240	259	201	253	150	157	284										
TOTAL DAYS		2414	2276	2211	1942	1870	1744	1938	1427	1279	1180	1226	1117	1599	1615	1351	1438	1664	798
# of Available Ships		8	8	8	8	8	7	7	7	5	5	5	5	6	6	6	6	5.5	4
Total Days for FOY		2200	2200	2200	2200	2200	1925	1925	1925	1375	1375	1375	1375	1650	1650	1650	1650	1513	1100
% Utilization		110	103	101	88.3	85	90.6	101	74.1	93	85.8	89.2	81.2	96.9	97.9	81.9	87.2	110	72.5
Notes:		Full Operating Year (FOY) for ships 200-300 feet = 275 days.																	
		1980-1981: CONRAD Mid-Life.																	
		1982-1983: ATLANTIS II Conversion.																	
		1983: THOMPSON (AGOR 9) - Operated for six months.																	
		1989: KNORR Mid-Life.																	

# UNOLS SHIP UTILIZATION

SHIP/CLASS	LOA	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
<b>GLOBAL/EXPEDITIONARY SHIPS</b>											
MELVILLE	245/279	0	0	170	306	303	297	297	308	229	243
KNORR	245/279	0	0	271	278	253	350	279	284	263	103
T.G. THOMPSON	274		81	265	287	257	333	246	214	277	276
ATLANTIS	274								185	272	353
R. REVELLE	274							80	288	299	351
EWING	239	201	301	301	221	309	310	315	273	215	299
CHAIN	213										
ATLANTIS II	210	275	292	179	247	306	320	93			
T. WASHINGTON	209	293	336	105							
THOMPSON (AGOR 9)	209										
CONRAD	209										
GILLISS	209										
TOTAL		769	1010	1291	1339	1428	1610	1310	1552	1555	1625
# of Available Ships		3	3.7	5	5	5	5	5	5.5	6	6
Total Days for FOY		825	1018	1375	1375	1375	1375	1375	1513	1650	1650
% Utilization		93.2	99.3	93.9	97.4	104	117	95.3	103	94.2	98.5
Notes:	Full Operating Year (FOY) for ships 200-300 feet = 275 days.										
	1990-1991: KNORR & MELVILLE Mid-Life.										
	1991: THOMPSON (AGOR 23) - Operated for eight months.										
	1992: MELVILLE Operated six months, WASHINGTON Operated six months.										
	1996: REVELLE Operated five months, ATLANTIS II operated six months.										
	1997: ATLANTIS operated six months.										
	1999: Numbers based on schedules posted as of 8/24 (much work is still pending funds).										

SHIP/CLASS	LOA	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
<b>INTERMEDIATE/REGIONAL SHIPS</b>																			
MOANA WAVE	172/210			196	346	295	365	365	365	0	0	0	0	0	301	261	333	300	295
SEWARD JOHNSON	170/204																		
VEMA	202	326	364	319	365	331	365	161	160	363	21								
WECOMA	177/185				112	256	220	256	276	236	236	236	254	214	213	0	239	231	217
ENDEAVOR	177/184				11	225	236	260	121	272	248	227	248	230	239	236	209	223	258
GYRE	174/182			103	221	278	274	285	311	240	287	236	249	261	259	311	132	133	163
AGASSIZ	180	268	208	208	138	166													
YAQUINA	180	263	253	242	187														
ALAMINOS	180	227	245																
TRIDENT	179	276	257	287	302														
OCEANUS	177				188	241	249	233	257	239	225	253	244	223	217	234	230	252	
NEW HORIZON	170						2	206	196	216	242	209	254	195	236	224	206	169	
ISELIN	170	131	226	253	186	243	251	222	284	39	226	0	225	234	4	177	179	217	222
EDWIN LINK	168													62	44	14	282	32	
FRED H. MOORE	165													154					
KONA KEOKI	156	282	285	286	202	252	248	242	280	181	262	192	286	154					
CAPE FLORIDA	135										101	203	180	219	218	20			
POINT SUR	135															161	192	141	163
CAPE HATTERAS	135											251	235	247	233	170	139	198	187
ALPHA HELIX	133	0	330	273	322	302	310	251	299	140	142	177	138	115	153	188	217	198	155
R. SPROUL	125													32	128	149	160	161	117
TOTAL DAYS		1773	2168	2167	2269	2178	2535	2233	2654	1813	2002	2010	2256	2266	2210	2140	2540	2270	2198
# of Available Ships		6.5	8	8.5	9	8	9	9	10	9	8.66	10	10	11.1	11	12	12	12	11
Total Days for FOY		1650	1955	2080	2205	1955	2205	2205	2455	2205	2056	2290	2290	2537	2495	2745	2745	2495	2495
% Utilization		1.07	1.11	1.04	1.03	1.11	1.15	1.01	1.08	0.82	0.97	0.88	0.99	0.89	0.89	0.78	0.93	0.83	0.88
NOTES:	Full Operating Year (FOY) for ships 200-300 feet = 275 days, 150-200 feet = 250 days, 100-150 feet = 180 days.																		
	1972: ISELIN operated six months, ALPHA HELIX not included in total number of ships.																		
	1974: GYRE operated six months.																		
	1975: WECOMA operated 1/2 year, ENDEAVOR not included in total # of ships, AGASSIZ operated 1/2 year.																		
	1978: NEW HORIZON not included in total # of ships.																		
	1980-1984: MOANA WAVE out of UNOLS service.																		
	1981: CAPE FLORIDA operated 7 months, VEMA operated 1 month.																		
	1984: SPROUL operated 4 months, KANA KEOKI operated 9 months.																		
	1985: ISELIN out of operation for mid-life.																		

SHIP/CLASS	LOA	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
<b>INTERMEDIATE/REGIONAL SHIPS</b>											
MOANA WAVE	172/210	283	269	279	249	215	195	144	202	169	136
SEWARD JOHNSON	170/204	176	226	214	144	88	271	304	290	281	189
VEMA	202										
WECOMA	177/185	239	202	270	220	84	145	198	199	226	180
ENDEAVOR	177/184	221	197	199	0	130	228	147	201	158	270
GYRE	174/182	216	222	130	153	149	122	219	184	131	55
AGASSIZ	180										
YAQUINA	180										
ALAMINOS	180										
TRIDENT	179										
OCEANUS	177	157	212	313	189	0	187	168	209	233	222
NEW HORIZON	170	233	207	175	240	241	240	174	259	221	191
ISELIN	170	279	239	201	222	140					
EDWIN LINK	168	107	195	145	139	254	158	186	214	174	79
FRED H. MOORE	165										
KONA KEOKI	156										
CAPE FLORIDA	135										
POINT SUR	135	177	155	177	174	173	164	118	188	193	193
CAPE HATTERAS	135	175	225	200	189	172	176	0	221	205	151
ALPHA HELIX	133	109	112	146	167	163	144	73	118	172	82
R. SPROUL	125	119	136	140	146	111	145	155	182	169	134
TOTAL		2491	2597	2589	2232	1920	2175	1886	2467	2332	1882
# of Available Ships		13	13	13	13	10.3	11.8	12	12	12	12
Total Days for FOY		2995	2995	2995	2995	2353	2728	2770	2770	2770	2770
% Utilization		0.83	0.87	0.86	0.75	0.82	0.8	0.68	0.89	0.84	0.68
NOTES:	Full Operating Year (FOY) for ships 200-300 feet = 275 days, 150-200 feet = 250 days, 100-150 feet = 180 days.										
	1993: ENDEAVOR out of service for mid-life.										
	1994: SEWARD JOHNSON conversion - operated 3 months.										
	1994: ENDEAVOR operated 6 mo, OCEANUS midlife- out of service, ISELIN operated 7 mo, WECOMA operated 7 mo.										
	1995: WECOMA operated 10 months.										
	1999: Numbers based on schedules posted as of 8/24 (much work is still pending funds).										

SHIP/CLASS	LOA	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	
LOCAL/NEAR-SHORE SHIPS																				
CAPE HENLOPEN	120						113	172	0	0	154	163	69	166	161	150	113	57	103	
EASTWARD	118	238	275	252	249	309	221	272	242	229	2									
WEATHERBIRD II	115																			
INLAND SEAS	114	164	106																	
SEA DIVER	113																			
VELERO IV	110	185	248	178	199	191	213	164	176	153	164	147	131	87	85					
WARFIELD	106	188	181	157	140	117	150	136	148	0	84	97	124	133	132	125	67	110	112	
LONGHORN	80/105					199	178	112	128	78	101	58	66	0	0	0	0	0	77	
PELICAN	105																		89	
OCONOSTOTA	100	138	159																	
PROTEUS	100	125																		
GOSNOLD	99	141																		
DOLPHIN	96			159	158	84														
URRACA	96																			
E.B. SCRIPPS	95	181	122	143	150	117	152	162	127	138	146	109	135	122						
TERITU	90	250	101																	
ACONA	85	150	194	175	170	192	186	193	148											
CAYUSE	80	191	163	198	169	125	214	129	70	140	158	136	127	87	111	4				
LAURENTIAN	80														24	70	65	58	57	
GERDE	76	108																		
BLUE FIN	72					127	144	138	189	134	126	136	160	128	130	138	111	73	57	
BARNES	66												4	101	153	138	143	80	109	
ONAR	65	220	192	151	184	177	183	154	157	142	141	132	185	40						
HOH	65	219	192	150	157	140	141	134	115	120	97	30								
TURSIUPS	65	130																		
MAURY	65	120																		
KIT JONES	64	200	153	296	109															
CALANUS	64	223	177	180	155	182	161	154	120	74	146	155	120	88.3	148	143	172	137	160	
MYSIS	50	160	137																	
GOLDEN ISLES	47			X	111															
TOTAL DAYS		3331	2400	2039	1951	1960	2056	1920	1620	1208	1319	1163	1121	952	944	768	671	515	764	
# of Available Ships		18.5	14	12	12	12	12	12	11	9	10	9.75	9	8.33	7.66	6	6	6	8	
Total Days for FOY		2455	1890	1530	1530	1530	1600	1600	1420	1130	1310	1283	1200	1126	1029	800	800	800	1160	
% Utilization		136	127	133	128	128	129	120	114	107	101	90.7	93.4	84.5	91.8	96	83.9	64.4	65.9	
NOTES:		Full Operating Year (FOY) for ships 100-150 feet = 180 days, <100 ft = 110 days.																		
		1972: GERDE operated 6 months.																		
		1974: GOLDEN ISLES included in KIT JONES total.																		
		1979-1980: CAPE HENLOPEN not included in total number of ships operating.																		
		1980: WARFIELD not included in total number of ships operating.																		
		1981: EASTWARD not included in total number of ships operating.																		
		1982: HOH operated 9 months.																		
		1983: BARNES not included in total number of ships operating.																		
		1984-1988: LONGHORN not included in total number of ships operating, 1986 mid-life extension.																		
		1984: ONAR operated 4 months.																		
		1985: VELERO operated 8 months.																		
		1986: CAYUSE not included in total number of ships operating.																		

SHIP/CLASS	LOA	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
LOCAL/NEAR-SHORE SHIPS											
CAPE HENLOPEN	120	59	158	170	159	172	198	185	195	202	186
EASTWARD	118										
WEATHERBIRD II	115		185	244	109	144	154	171	152	134	120
INLAND SEAS	114										
SEA DIVER	113				145	181	132	105	149	48	
VELERO IV	110										
WARFIELD	106	107									
LONGHORN	80/105	148	110	76	53	53	72	130	46	58	67
PELICAN	105	121	98	169	226	134	184	201	203	244	222
OCONOSTOTA	100										
PROTEUS	100										
GOSNOLD	99										
DOLPHIN	96										
URRACA	96									173	109
E.B. SCRIPPS	95										
TERITU	90										
ACONA	85										
CAYUSE	80										
LAURENTIAN	80	53	83	55	62	77	91	72	44	146	215
GERDE	76										
BLUE FIN	72	71	49	108	96	59	77	96	82	95	180
BARNES	66	154	157	100	62	70	77	86	126	119	115
ONAR	65										
HOH	65										
TURSIUPS											
MAURY											
KIT JONES	64										
CALANUS	64	93	127	110	106	54	47	50	111	167	166
MYSIS											
GOLDEN ISLES	47										
TOTAL		806	967	1032	873	908	1081	1123	1064	1487	1428
# of Available Ships		8	8	8	8	9	9	9	9	10	10
Total Days for FOY		1160	1160	1160	1160	1340	1340	1340	1340	1450	1450
% Utilization		69.5	83.4	89	75.3	67.8	80.7	83.8	79.4	103	98.5
NOTES:	Full Operating Year (FOY) for ships 100-150 feet = 180 days, <100 ft. = 110 days.										
	1999: Numbers based on schedules posted as of 8/24 (much work is still pending funds).										

SHIP/CLASS	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	
LOCAL/NEAR-SHORE SHIPS																													
CAPE HENLOPEN	120					12	12	0	0	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	
EASTWARD	118	15	15	15	15	15	15	15	15											10	10	10	12	12	12	12	12	12	
WEATHERBIRD II	115																												
INLAND SEAS	114	13	13																			12	12	12	12	12	12	12	
SEA DIVER	113																												
VELERO IV	110	9	9	9	9	9	9	9	9	9	9	9	9	9	9														
WARFIELD	106	10	10	10	10	10	10	10	0	10	10	10	10	10	10	10	10	10	10										
PELICAN	105																												
LONGHORN	80/105				10	10	10	10	10	10	10	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
OCONOSTOTA	100	6	6																										
PROTEUS	100	9																											
GOSNOLD	99	8																											
URRACA	96																											10	
DOLPHIN	96			7	7	7																							
E.B. SCRIPPS	95	8	8	8	8	8	8	8	8	8	8	8	8																
TERITU	90	6	6																										
ACONA	85	9	9	9	9	9	9	9	9																				
LAURENTIAN	80																											8	
CAYUSE	80	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
GERDE	76	8																											
BLUE FIN	72				8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
BARNES	66														6	6	6	6	6	6	6	6	6	6	6	6	6		
ONAR	65	6	6	6	6	6	6	6	6	6	6	6	6	6															
HOH	65	6	6	6	6	6	6	6	6	6	6	6	6	6															
TURSIUPS	65	6																											
MAURY	65	4																											
CALANUS	64	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	
KIT JONES	64	4	4	4	4																								
MYSIS	50	3	3																										
GOLDEN ISLES	47			4	4																								
TOTAL	144	109	92	92	102	107	107	107	95	76	83	77	73	67	50	50	50	50	77	77	77	77	77	77	91	91	101		
Fleet Totals	433	398	389	388	371	379	379	380	331	346	338	332	382	367	366	366	366	348	353	396	476	438	460	451	495	507	517	517	





## UNOLS SCIENCE BERTHS - Average Utilization by Ship

SHIPS	LOA	1973	1976	1979	1982	1985	1988	1991	1994	1997
<b>Global/Expeditionary Ships</b>										
MELVILLE	245/279	20.7	23.4	18.7	20.9	22.2	20.9	NIS	17.1	15.5
KNORR	245/279	20.9	19.1	16.6	21.4	17.6	16.5	NIS	15.4	19.1
ATLANTIS	274									23.4
R. REVELLE	274									22.6
T.G. THOMPSON	274							16.1	15.9	27.8 *
EWING	239							16.4	16.7	19.8
CHAIN	213	18.9								
ATLANTIS II	210	17.2	15.3	11	NIS	22.1	23.6	15.7	19.8	
T. WASHINGTON	209	15.2	18.8	14	16.6	14.5	16.3	13.5		
THOMPSON (AGOR 9)	209	14	16.3	14.6	11.9	14.9	18.4			
CONRAD	209	12.6	11.4	11.3	8.2	15.6	12.9			
GILLISS	209	9.5	9.6	16.6						
Total Bunks Used		129	113.9	102.8	79	106.9	108.6	61.7	84.9	128.2
BUNKS AVAILABLE		175	149	149	114	133	133	109	159	199
% BERTH UTILIZATION		74	76	69	69	80	82	57	53	64
<b>Intermediate/Regional Ships</b>										
MOANA WAVE	172/210		9 ***		NIS	15.8	16.7	13.1	13.5	15.1
SEWARD JOHNSON	170/204							12	10.8	12.8
VEMA	202	12.3	10.2	11						
WECOMA	177/185		11	11.9	12.5	14.3	11.8	9.9	11.6	11.1
ENDEAVOR	177/184		14.5	11.8	13.3	11.3	14.9	11.9	10.3	12.2
GYRE	174/182		15.1	16	17.4	9.5	14.6	16.1	16.1	13.9
AGASSIZ	180	10.8	11.1							
YAQUINA	180	12.1								
ALAMINOS	180	12.7								
TRIDENT	179	10.1								
OCEANUS	177		12.2	10.8	11.1	10.1	9.8	9.8	NIS	14.2
NEW HORIZON	170			10.6	13.5	12.7	12.9	9.7	10.3	12.9
ISELIN	170	9.7	10.5	12.6	0	0	18.4	14.8	21.2	
EDWIN LINK	168							7.4	10.9	11.6
FRED H. MOORE	165					17.3 ***				
KANA KEOKI	156	12.9	13.1	12.2	14.4					
CAPE FLORIDA	135				8.8	10.8				
POINT SUR	135						14.8	11.9	15.6	15.5
CAPE HATTERAS	135				14.3	15.4	11	8.6	9.8	10.2
ALPHA HELIX	133	15.8	12.8	14.9	9	4.8	11.3	9.1	11.6	9.6
R. SPROUL	125					8.5	9.7	11.3	8.3	9.5
Total Bunks Used		96.4	119.5	111.8	114.3	130.5	145.9	145.6	150	148.6
BUNKS AVAILABLE		114	120	125	141	167	163	210	210	217
% BERTH UTILIZATION		85	100	89	81	78	90	69	71	68

SHIP/CLASS	LOA	1973	1976	1979	1982	1985	1988	1991	1994	1997
<b>Local/Near-shore ships</b>										
CAPE HENLOPEN	120			0	11.8	9.4	10.3	8.3	7.1	9.9
EASTWARD	118	13.2	12.5	12.3						
WEATHERBIRD II	115							5.3	6.4	6.2
INLAND SEAS	114	11								
SEA DIVER	113								4.6	6.8
VELERO IV	110	7.9	9.9	9.8	8.8	10.4				
WARFIELD	106	11.2	7.9	8.5	9.5	6.6	6.5			
PELICAN	105							7.7	9.2	7.5
LONGHORN	80/105		8.7	9.7	11.2	0	0	7.4	12.2	8.4
OCONOSTOTA	100	5.3								
PROTEUS	100									
GOSNOLD	99									
URRACA	96									
DOLPHIN	96		6.9							
E.B. SCRIPPS	95	6	8.7	7.2	9.1					
TERITU	90	***								
ACONA	85	4.3	7.1	5.7						
CAYUSE	80	7.2	7.9	9.6	13.2	11.2				
LAURENTIAN	80					6.6	5.5	6.6	11.5	9.8
GERDE	76									
BLUE FIN	72		2.9	3.1	2.7	2.2	2.6	2.3	3.2	5.6
BARNES	66					6.4	8.9	5.4	5.3	4.8
ONAR	65	5	6.3	7.4	6.6					
HOH	65	5.9	6.3	3.7	4.3					
MAURY	65									
TURSIUPS	65									
CALANUS	64	9.3	7.8	5	5.3	5.5	6.7	7.4	8.8	7.2
KIT JONES	64	5.1								
MYSIS	50	4.7								
GOLDEN ISLES	47									
<b>Total Bunks Used</b>		<b>96.1</b>	<b>92.9</b>	<b>82</b>	<b>82.5</b>	<b>58.3</b>	<b>40.5</b>	<b>50.4</b>	<b>68.3</b>	<b>66.2</b>
<b>BUNKS AVAILABLE</b>		<b>103</b>	<b>102</b>	<b>95</b>	<b>83</b>	<b>67</b>	<b>50</b>	<b>77</b>	<b>91</b>	<b>91</b>
<b>% BERTH UTILIZATION</b>		<b>93</b>	<b>91</b>	<b>86</b>	<b>99</b>	<b>87</b>	<b>81</b>	<b>65</b>	<b>75</b>	<b>73</b>
<b>Total Bunks Used</b>		<b>322</b>	<b>326</b>	<b>297</b>	<b>276</b>	<b>296</b>	<b>295</b>	<b>258</b>	<b>303</b>	<b>343</b>
<b>Total Bunk Available</b>		<b>397</b>	<b>370</b>	<b>379</b>	<b>333</b>	<b>367</b>	<b>366</b>	<b>396</b>	<b>460</b>	<b>507</b>
<b>% BERTH UTILIZATION</b>		<b>81</b>	<b>88</b>	<b>78</b>	<b>83</b>	<b>81</b>	<b>81</b>	<b>65</b>	<b>66</b>	<b>68</b>
Notes:		* 1997 THOMPSON cruise reports not available, used 1996 reports.								
		*** Cruise reports not available, not included in these statistics.								
		NIS = Not in service								
		Utilization includes bunks used by the entire science party: Scientists, students, technicians, and observers.								