



This Administrative Report is issued as an informal document to ensure prompt dissemination of preliminary results, interim reports and special studies. We recommend that it not be abstracted or cited.

CONTENTS

		Page
1. INTR	ODUCTION AND METHODS	1
2. RESU	LTS AND DISCUSSION	5
3. ACKN	OWLEDGMENTS	6
4. REFE	RENCES CITED	7
	TABLES	
		Page
TABLE 1.	Harbor seal counts with the number of sites and occupied sites by county for the June 1989 census DN=Del Norte, H=Humbolt, MEN= Mendocino, SON=Sonoma, MAR=Marin, CC=Contra Costa, SF=San Francisco, ALA=Alameda, SM= San Mateo, FI=Farallon Islands, SC=Santa Cruz, SCL=Santa Clara, M=Monterey, SLO=San Luis Obisbo, SB=Santa Barbara, V=Ventura, SD=San Diego)	9
TABLE 2.	Summary of harbor seal counts for the years 1982-1989	10
TABLE 3.	Southern California Channel Island harbor seal counts by year (SCI=San Clemente Island, CAT=Santa Catalina Island, SBI=Santa Barbara Island, SNI=San Nicolas Island, ANA=Anacapa Island, SCR=Santa Cruz Island, SRI=Santa Rosa Island, SMI=San Miguel Island)	11
	NOAA CENTRAL LIBRARY	
	where the property of the prop	. 1
	[[1] 9 2010	

JUL 2 2019

National Oceanic & Atmospheric Administration US Dept of Commerce SH 11 . AZ 5662 no.90-10

APPENDICES

			Page
APPENDIX	I.	Census results for the 1988 harbor seal survey along the California coast. Date=date of count; Site=site number; Prob (source possibly effecting count): C=camera, D=disturbance, F=fog; Time=time of or count photograph; FA=count of adult seals from photograph; FP=count of pups from photograph; FT=total seals from photograph; GA=ground count of adult seals; GP=ground count of pups; GT=total seals from ground count; ET=higher number from FT or GT; Max=maximum count to date for a site	12
APPENDIX	2.	Harbor seal counts by site and census (82R=April 1982, 83R=April 1983, 82=May-June 1982, 83=June 1983, 84=June 1984, 85=May-June 1985, 86=June 1986, 87=June 1987, 88=June 1988, 89=June 1989). Rookery sites are underlined for those censuses conducted during pupping season. Sites are blank until the census when seals were first observed	29
APPENDIX	3.	Harbor seal hauling sites with site descriptions as available. (SITE= site number; LOCATION= name of site; COUNTY= county of site; LAT/LONG= exact location of site; SUBST= primary type of substrate [1= extended reef, 2= offshore rock, 3= onshore rock, 4= harbor or estuary, 5= ocean sandy beach, 6= river log, 7= floats, 8= night haul out, 9= ocean rocky beach]; MAX= maximum number counted at site; ?= some question as to location; blanks indicate data not available)	45
		data not available)	40

HARBOR SEAL, PHOCA VITULINA RICHARDSI, CENSUS IN CALIFORNIA, MAY-JUNE 1989

by

Doyle Hanan

INTRODUCTION AND METHODS

California Department of Fish and Game (CDFG) initiated a harbor seal, *Phoca vitulina richardsi*, census along the California coast in 1981. The census is part of a assessment program conducted cooperatively with NOAA/National Marine Fisheries Service Fisheries (NMFS). The census data are used as an index of abundance to detect changes in population abundance or distribution. The first census was incomplete, but allowed refinement of techniques used in subsequent censuses. Those techniques and the results of the 1982 to 1988 censuses are reported in Miller et al. (1983), and Hanan et al. (1985, 1986a, 1986b, 1987, 1988, and 1989). This report presents results of the 1989 census, which employed previous survey techniques as closely as field conditions permitted.

For the survey, we flew at an altitude of 600 feet in a Cessna 185¹ for the mainland and in a Partenavia P68 Observer for the Channel Islands. The Cessna is equipped with an optical glass photography port in the airplane floor behind the pilot and the

 $^{^{\}mbox{\scriptsize 1}}$ Use of brand names does not imply endorsement by CDFG or NMFS.

Partenavia is equipped with a large photogrammetric port in the floor behind the copilot seat. These ports enabled us to take nearly vertical pictures of the seals which contributes less counting bias to the survey than oblique pictures.

We photographed (weather permitting) sequentially from south to north, taking advantage of the northward progression by time and location of the low tide. Since the tides progress northward faster than the survey plane, we could only survey a section of the coast each day and started at the southern-most hauling site one hour before local low tide and surveyed northward until an hour and a half after local low tide. We surveyed some sites on consecutive days to assure adequate photographic coverage. A few sites were surveyed on the return south, because they could not be surveyed during our northward flight due to high winds or fog.

In contrast to the coastal sites, we surveyed the major bays and estuaries during the high tide window of one hour before to an hour and a half after local high tide. The Channel Islands were surveyed on two consecutive days between 1100 and 1530 hours.

The survey team consisted of a pilot, data recorder, and photographer. We photographed the seals with a motor-driven Hasselblad camera (model 500-ELM), 80 mm lens, pistol grip, and large capacity (70 frames) film magazine. We used either Kodak 64 or 200 ASA Ektachrome film and utilized a Soligor II spotmeter to

assess lighting conditions. A Nikon 35 mm camera with motor-drive and a 100 mm lens served as a backup camera system in case of Hasselblad malfunctions, but was not needed during the survey. The data recorder kept track of position, time, frames exposed, estimated number of seals in a flight book of coastal charts.

Besides the aerial survey, a group of observers counted seals from the shore (ground counts) at 48 hauling sites during the survey. These observers counted seals each half hour or, if numbers were large, as frequently as conditions permitted. They counted, using binoculars or spotting scopes, from one hour before low tide to one and one half hours after low tide. If the ground count for a site exceeded the aerial count, I used the ground count for the estimated mainland total (Appendix I). This counting technique may create a bias in the total estimate and is being investigated.

After the survey, we had the roles of film from the aerial photographs developed in fifteen foot lengths without cutting using the E-6 process. After identifying the sites, we cut the film into the strips of frames for each site. We used dissecting microscopes to identify the sites and count the seals on the rolls of developed film. For each hauling site, we counted the seals by marking a thin plastic sheet laid over the film. We counted all seals as adults except those easily identified as pups, which we recorded as pups. After identifying the sites and counting the seals, we transferred the data into a microcomputer database for

storage and analysis.

The database includes both aerial and ground count information stored by year (Appendix II). We used the database management program dBASE III Plus² to create and maintain the files as individual records for each hauling site along the California coast. The records contain descriptive information about each site as well as the seal counts (Appendix III).

 $^{^{\}rm 2}$ A trademark of Ashton-Tate, 10150 W. Jefferson Blvd., Culver City, CA 90230

RESULTS and DISCUSSION

We surveyed the mainland coast of California on June 12-16, 1989. The total count was 15,911 seals, occupying 260 of 709 hauling sites, including 14 new sites (not previously identified or occupied, Table 1). As with the 1988 census, there were more seals per occupied site than in the previous year and fewer sites were occupied than in the previous year (Table 2). Counties north of San Francisco Bay had a larger portion of the mainland total than did the counties south of San Francisco Bay. The percentage north of the San Francisco Bay is the lowest since CDFG started the survey in 1981 (Table 2).

We surveyed the southern California Channel Islands on May 18 and May 19, using the same techniques as for the mainland. The total count for all eight islands was 4,279 seals (Table 3), which is higher than the previous year (3,947 seals), but lower than the 1987 count (4,322 seals).

The combined mainland and island counts (assuming little movement between counting areas during the census) yield a 1989 total of 20,190 harbor seals in California (Table 2).

ACKNOWLEDGMENTS

We thank the pilots Richard Anthes of CDFG and Roy Everingham of EBBCO Industries, who flew this survey for us. We also thank the people who donated their time to do the ground counts: M. Lowry, L. Torres, M. Klope, G. Smith, C. Kuizenga, K. Barsky, N. Deal, C. Woodhouse, K. Bray, D. Centola, T. Beaton, B. Stephens, J. Blecha, J. DeYoung, S. Benech, D. Tryde, T. Toleman, M. McElligott, C. Pergler, R. Hardy, C. Pattison, L. Laurent, B. Hatfield, J. Hardwick, L. Osborn, D. Miller, A. Barbour, L. Fancher, D. Kopec, S. Allen, J. Kjamyr, J. Mortenson, E. Twohy, P. Warren, D. Hardy, S. Swartz, J. Gilbert, G. Kwiecien, J. Mello, L. Quirollo, R. Warner, P. Collier, and G. Wallace. I thank April Hudoff and Laura Torres for their participation in the site identifications, photographic counts, and data base entries. Jay Barlow, Richard Klingbeil, and Scott Schroeder contributed with editorial help.

REFERENCES CITED

- Hanan, D., J. Scholl, and S. Diamond. 1989. Harbor seal, Phoca
 vitulina richardsi, census in California, May June
 1988.NOAA/NMFS SWFC Admin. Rep. LJ-89-13, 49 pp.
- Hanan, D., J. Scholl, and S. Diamond. 1988. Harbor seal, Phoca
 vitulina richardsi, census in California, May June 1987.
 NOAA/NMFS SWR Admin. Rep. SWR-88-2, 49 pp.
- Hanan, D., J. Scholl, and S. Diamond. 1987. Harbor seal, Phoca
 vitulina richardsi, census in California, June 2-5, 30 and
 July 1, 1986. NOAA/NMFS SWR Admin. Rep. SWR-87-3, 41 pp.
 - Hanan, D., J. Scholl, and S. Diamond. 1986a. Harbor seal, Phoca
 vitulina richardsi, census in California, June 25-30, 1984.pp.
 2-7 in D.A. Hanan, California Department of Fish and Game,
 coastal marine mammal study, annual report for the period July
 1, 1983 June 30, 1984. NOAA/NMFS SWFC Admin. Rep. LJ-86-16C,
 55 pp.
- Hanan, D., J. Scholl, and S. Diamond. 1986b. Harbor seal, Phoca vitulina richardsi, census in California, May 28-31 and June 25-30, 1985 pp. 2-8 in D. A. Hanan, California Department of Fish and Game, coastal marine mammal study, annual report for the period July 1, 1984 June 30, 1985. NOAA/NMFS SWFC Admin. Rep. LJ-86-25C, 46 pp.

- Hanan, D., J. Scholl, M. Herder, and K. Waldron. 1985. Harbor seal, Phoca vitulina richardsi, censuses in California, April and June, 1983. pp. 2-9 in D. A. Hanan, California Department of Fish and Game coastal marine mammal study, annual report for the period July 1, 1982 - June 30, 1983. NOAA/NMFS SWFC Admin. Rep. LJ-85-10C, 76 pp.
- Miller, D., M. Herder, J. Scholl, and P. Law. 1983. Harbor seal Phoca vitulina, censuses in California, 1981 and 1982. pp. 2-43. in D. J. Miller, Coastal marine mammal study, annual report for the period of July 1, 1981 June 30, 1982. NOAA/NMFS SWFC Admin. Rep. LJ-83-21C, 130 pp.
- Stewart, B. S. 1982. Peak 1982 aerial censuses of harbor seal populations on the Southern California Channel Islands. Hubbs Sea World Research Inst. Tech Rep. 82-143, 7 pp.
- Stewart, B. S. and P. K. Yochem. 1984a. Aerial surveys of pinniped populations at the Channel Islands National Park and National Marine Sanctuary: 1983. NOAA/NMFS SWFC Admin. Rep. LJ-84-24C, 25 pp.
- Stewart, B. S. and P. K. Yochem. 1984b. Seasonal abundance of pinnipeds at San Nicolas Island, California, 1980-1982. Bull. So. Calif. Acad. Sci., 83:121-132.

TABLE 1. Harbor seal counts with the number of sites and occupied sites by county for the June 1989 census (DN=Del Norte, H=Humbolt, MEN=Mendocino, SON=Sonoma, MAR=Marin, CC=Contra Costa, SF=San Francisco, ALA=Alameda, SM=San Mateo, FI=Farallon Islands, SC=Santa Cruz, SCL=Santa Clara, M=Monterey, SLO=San Luis Obisbo, SB=Santa Barbara, V=Ventura, SD=San Diego).

County	Seals	% Total	# Sites	# Occupied	Seals/site
DN	789	5	14	4	197
H	1203	8	61	16	75
MEN	1795	11	100	44	41
SON	1424	9	110	43	33
MAR	3049	17	62	16	191
CC	55	<1	1	1	55
SF	38	<1	2	1	19
ALA	227	1	3	3	76
SM	1019	7	45	20	51
FI	42	<1	*	*	*
SC	649	4	14	8	81
SCL	59	<1	1	1	59
M	1792	12	134	40	45
SLO	2308	15	120	44	52
V	139	1	1	1	139
SB	1298	8	36	16	81
SD	25	<1	4	1	25
	15,911	100	709	260	61

^{*}Multiple sites included as one count

TABLE 2. Summary of harbor seal counts for the years 1982-1989.

Year	Total	Mainland # sites	% occupied	SoCal Island Total	California Total
1982	13,474	426	57	3,865	17,339
1983	10,757	482	38	3,472	14,229
1984	10,885	518	42	3,218	14,103
1985	12,552	581	47	2,280*	14,832
1986	13,913	648	50	1,801*	15,714
1987	15,316	681	47	4,322	19,638
1988	14,493	695	40	3,947	18,440
1989	15,911	709	37	4,279	20,190

^{*}Late June count-probably missed peak abundance

TABLE 3. Southern California Channel Island harbor seal counts by year (SCI=San Clemente Island, CAT=Santa Catalina Island, SBI=Santa Barbara Island, SNI=San Nicolas Island, ANA=Anacapa Island, SCR=Santa Cruz Island, SRI=Santa Rosa Island, SMI=San Miguel Island).

YEAR	SCI	CAT	SBI	SNI	ANA	SCR	SRI	SMI	TOT
1982 ¹	8	68	2	694 ²	226	769	1008	1090	3865
1983	31 ³	823	0^3	694 ³	163 ⁴	588 ⁴	910 ⁴	10044	3472
1984 ⁵	58	174	0	380	116	888	938	664	3218
1985 ⁶	67	117	31	139	207	515	585	619	2280
1986 ³	46	37	11	207	477	117	487	1123	2075
1987 ⁸	180	205	8	470	292	902	1114	1150	4321
1988 ⁹	54	262	35	550	75	635	1200	1136	3947
1989	245	372	12	434	293	922	1073	928	4279

¹ Stewart 1982

² Stewart and Yochem 1984A

³ Hanan et al. 1987

⁴ Stewart and Yochem 1984B

⁵ Hanan et al. 1986A

⁶ Hanan et al. 1986B

⁷ Only one site due to fog

⁸ Hanan et al. 1988

⁹ Hanan et al. 1989

APPENDIX I. Census results for the 1988 harbor seal survey along the California coast. Date=date of count; Site=site number; Prob (source of problem possibly affecting count): C=camera, D=disturbance, F=fog; Time=time of count or photograph; FA=adult seal count from photograph; FP=count of pups from photograph; FT=total seals from photograph; GA=ground count of adult seals; GP=ground count of pups; GT=total seals from ground count; ET=higher number from FT or GT; Max=maximum count to date for a site.

000.1 001.0 002.0 002.0 002.0 000.0 002.0 000.0
001.0
002.0
6/12/89 003.0
6/12/89 004.0 1230 0 0 135 0 0 139 139 139 6/14/89 005.0 1145 0 0 0 0 0 0 0 3 3 116 6/12/89 006.0 1215 0 0 0 53 0 0 66 66 70 007.0 0 0 0 0 0 0 0 0 0 0 0 53 00 008.0 0 0 0 0 0 0 0 0 0 0 0 11 6/12/89 009.0 1042 0 0 21 0 0 0 0 21 70 010.0 0 0 0 0 0 0 0 0 0 0 0 0 1 3 6/12/89 011.0 1100 0 0 0 0 0 0 0 0 0 1 3 6/12/89 011.1 1106 0 0 16 0 0 16 16 213 6/12/89 012.0 1108 0 0 0 0 0 0 0 0 0 0 1 29 38 013.0 0 0 0 0 0 0 0 0 0 0 1 29 38 013.1 0 0 0 0 0 0 0 0 0 0 0 0 15 6/12/89 014.1 1118 0 0 0 262 0 0 263 263 263 263 014.2 0 0 0 0 0 0 0 0 0 0 0 0 122 014.4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6/14/89 005.0 1145 0 0 0 0 0 0 3 3 116 6/12/89 006.0 1215 0 0 53 0 0 66 66 70 007.0 0 0 0 0 0 0 0 0 0 0 53 008.0 0 0 0 0 0 0 0 0 0 0 11 6/12/89 009.0 1042 0 0 21 0 0 0 21 70 010.0 0 0 0 0 0 0 0 0 0 0 225 010.1 0 0 0 0 0 0 0 0 0 0 1 3 6/12/89 010.8 1104 0 0 0 0 0 0 0 0 1 3 6/12/89 011.0 1100 0 0 202 0 0 377 377 554 6/12/89 011.1 1106 0 0 16 0 0 16 16 213 6/12/89 012.0 1108 0 0 29 0 0 1 29 38 013.0 0 0 0 0 0 0 0 0 0 15 6/12/89 014.1 1118 0 0 262 0 0 263 263 263 014.2 0 0 0 0 0 0 0 0 0 0 122 014.4 0 0 0 0 0 0 0 0 0 0 0 122 014.4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6/12/89 006.0 1215 0 0 53 0 0 66 66 70 007.0 0 0 0 0 0 0 0 0 0 53 008.0 0 0 0 0 0 0 0 0 0 0 0 11 6/12/89 009.0 1042 0 0 0 21 0 0 0 0 0 21 70 010.0 0 0 0 0 0 0 0 0 0 0 1 6/12/89 010.8 1104 0 0 0 0 0 0 0 0 0 1 3 6/12/89 011.0 1100 0 0 202 0 0 377 377 554 6/12/89 011.1 1106 0 0 16 0 0 16 16 213 6/12/89 012.0 1108 0 0 29 0 0 1 29 38 013.1 0 0 0 0 0 0 0 0 0 0 15 6/12/89 014.0 1118 0 0 0 29 0 0 1 29 38 6/12/89 014.1 1118 0 0 0 262 0 0 263 263 263 014.2 0 0 0 0 0 0 0 0 0 0 122 014.4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
007.0
008.0
6/12/89 009.0 1042 0 0 21 0 0 0 0 205 010.0 0 0 0 0 0 0 0 0 0 0 205 010.1 0 0 0 0 0 0 0 0 0 0 0 1 6/12/89 010.8 1104 0 0 0 0 0 0 0 0 1 3 6/12/89 011.0 1100 0 0 202 0 0 377 377 554 6/12/89 011.1 1106 0 0 16 0 0 16 16 213 6/12/89 012.0 1108 0 0 29 0 0 1 29 38 013.0 0 0 0 0 0 0 0 0 0 0 129 38 013.1 0 0 0 0 0 0 0 0 0 0 0 15 6/12/89 014.0 1118 0 0 0 9 0 0 0 0 0 0 15 6/12/89 014.1 1118 0 0 0 262 0 0 263 263 263 263 014.2 0 0 0 0 0 0 0 0 0 0 0 290 014.4 0 0 0 0 0 0 0 0 0 0 290 014.8 0 0 0 0 0 0 0 0 0 0 247 6/13/89 015.1 1300 0 0 0 0 0 0 0 0 0 0 0 0 0 247 6/12/89 016.0 1119 0 0 239 0 0 0 0 0 239 239
010.0
6/12/89 010.8 1104 0 0 0 0 0 0 0 1 3 6/12/89 011.0 1100 0 0 202 0 0 377 377 554 6/12/89 011.1 1106 0 0 16 0 0 16 16 213 6/12/89 012.0 1108 0 0 29 0 0 1 29 38 013.0 0 0 0 0 0 0 0 0 0 19 013.1 0 0 0 0 0 0 0 0 0 15 6/12/89 014.0 1118 0 0 9 0 0 0 9 13 6/12/89 014.1 1118 0 0 262 0 0 263 263 263 014.2 0 0 0 0 0 0 0 0 0 290 014.4 0 0 0 0 0 0 0 0 0 290 014.8 0 0 0 0 0 0 0 0 0 290 014.8 0 0 0 0 0 0 0 0 0 290 6/13/89 015.1 1300 0 0 0 0 0 0 0 0 247 6/13/89 015.1 1300 0 0 0 0 0 0 0 0 119 6/12/89 016.0 1119 0 0 239 0 0 0 239 239
6/12/89 011.0 1100 0 0 202 0 0 377 377 554 6/12/89 011.1 1106 0 0 16 0 0 16 16 213 6/12/89 012.0 1108 0 0 29 0 0 1 29 38 013.0 0 0 0 0 0 0 0 0 19 013.1 0 0 0 0 0 0 0 0 0 15 6/12/89 014.0 1118 0 0 9 0 0 0 9 13 6/12/89 014.1 1118 0 0 262 0 0 263 263 263 014.2 0 0 0 0 0 0 0 0 0 122 014.4 0 0 0 0 0 0 0 0 0 290 014.8 0 0 0 0 0 0 0 0 0 290 014.8 0 0 0 0 0 0 0 0 0 98 015.0 0 0 0 0 0 0 0 0 247 6/13/89 015.1 1300 0 0 0 0 0 0 0 0 119 6/12/89 016.0 1119 0 0 239 0 0 0 239 239
6/12/89 011.1 1106 0 0 16 0 0 16 16 213 6/12/89 012.0 1108 0 0 29 0 0 1 29 38 013.0 0 0 0 0 0 0 0 0 19 013.1 0 0 0 0 0 0 0 0 0 15 6/12/89 014.0 1118 0 0 9 0 0 0 9 13 6/12/89 014.1 1118 0 0 262 0 0 263 263 263 014.2 0 0 0 0 0 0 0 0 122 014.4 0 0 0 0 0 0 0 0 290 014.8 0 0 0 0 0 0 0 0 98 015.0 0 0 0 0 0 0 98 015.2 0 0 0 0 0 0 0 119 6/12/89 016.0 1119 0 0 239 0 0 0 239 239
6/12/89 012.0 1108 0 0 29 0 0 1 29 38 013.0 0 0 0 0 0 0 0 0 19 013.1 0 0 0 0 0 0 0 0 0 0 15 6/12/89 014.0 1118 0 0 0 262 0 0 263 263 263 263 014.2 0 0 0 0 0 0 0 0 0 122 014.4 0 0 0 0 0 0 0 0 0 0 0 290 014.8 0 015.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
013.0 0 0 0 0 0 0 0 0 19 013.1 0 0 0 0 0 0 0 0 0 15 6/12/89 014.0 1118 0 0 9 0 0 0 9 13 6/12/89 014.1 1118 0 0 262 0 0 263 263 263 014.2 0 0 0 0 0 0 0 0 0 122 014.4 0 0 0 0 0 0 0 0 0 290 014.8 0 0 0 0 0 0 0 0 0 98 015.0 0 0 0 0 0 0 0 0 98 6/13/89 015.1 1300 0 0 0 0 0 94 94 228 015.2 0 0 0 239 0 0 0 239 239
013.1 0 0 0 0 0 0 0 0 0 15 6/12/89 014.0 1118 0 0 9 0 0 0 9 13 6/12/89 014.1 1118 0 0 262 0 0 263 263 263 014.2 0 0 0 0 0 0 0 0 122 014.4 0 0 0 0 0 0 0 0 290 014.8 0 0 0 0 0 0 0 0 98 015.0 0 0 0 0 0 0 0 98 6/13/89 015.1 1300 0 0 0 0 0 94 94 228 015.2 0 0 0 239 0 0 239 239
6/12/89 014.0 1118 0 0 9 0 0 0 9 13 6/12/89 014.1 1118 0 0 262 0 0 263 263 263 014.2 0 0 0 0 0 0 0 0 122 014.4 0 0 0 0 0 0 0 0 290 014.8 0 0 0 0 0 0 0 0 98 015.0 0 0 0 0 0 0 0 98 6/13/89 015.1 1300 0 0 0 0 0 94 94 228 015.2 0 0 0 0 0 0 0 119 6/12/89 016.0 1119 0 0 239 0 0 0 239 239
6/12/89 014.1 1118 0 0 262 0 0 263 263 263 263 014.2 0 0 0 0 0 0 0 0 0 122 014.4 0 0 0 0 0 0 0 0 0 0 290 014.8 0 0 0 0 0 0 0 0 0 0 98 015.0 0 0 0 0 0 0 0 0 0 0 247 6/13/89 015.1 1300 0 0 0 0 0 0 0 0 0 0 119 6/12/89 016.0 1119 0 0 239 0 0 0 239 239
014.2 0 0 0 0 0 0 0 0 122 014.4 0 0 0 0 0 0 0 0 290 014.8 0 0 0 0 0 0 0 0 98 015.0 0 0 0 0 0 0 0 0 247 6/13/89 015.1 1300 0 0 0 0 0 94 94 228 015.2 0 0 0 0 0 0 0 0 119 6/12/89 016.0 1119 0 0 239 0 0 0 239 239
014.4 0 0 0 0 0 0 0 0 290 014.8 0 0 0 0 0 0 0 0 98 015.0 0 0 0 0 0 0 0 0 0 0 247 015.2 0 0 0 0 0 0 0 0 0 119 012/89 016.0 1119 0 0 239 0 0 0 239 239
014.8 0 0 0 0 0 0 0 0 98 015.0 0 0 0 0 0 0 0 247 6/13/89 015.1 1300 0 0 0 0 94 94 228 015.2 0 0 0 0 0 0 0 119 6/12/89 016.0 1119 0 0 239 0 0 0 239 239
015.0 0 0 0 0 0 0 0 247 6/13/89 015.1 1300 0 0 0 0 94 94 228 015.2 0 0 0 0 0 0 0 119 6/12/89 016.0 1119 0 0 239 0 0 0 239 239
6/13/89 015.1 1300 0 0 0 0 94 94 228 015.2 0 0 0 0 0 0 0 119 6/12/89 016.0 1119 0 0 239 0 0 0 239 239
015.2 0 0 0 0 0 0 0 119 6/12/89 016.0 1119 0 0 239 0 0 0 239 239
6/12/89 016.0 1119 0 0 239 0 0 0 239 239
017.0 0 0 0 0 0 0 57
017.1 0 0 0 0 0 0 18
018.0 0 0 0 0 0 0 127
6/12/89 019.0 1129 0 0 65 0 0 0 65 100
019.1 0 0 0 0 0 0 53
019.2 0 0 0 0 0 0 13
6/12/89 020.0 1130 0 0 34 0 0 0 34 43
6/12/89 021.0 1136 0 0 19 0 0 0 19 19
021.1 0 0 0 0 0 0 10
021.2 0 0 0 0 0 0 0 26

DATE	SITE	P TIME R O B	FA	FP	FT	GA	GP	GT	ET	MAX
6/12/89	021.3 021.5 022.0	1139	0	0	0	0	0	0	0	2 8
6/12/89		1149	0	0	52 10	0	0	0	52 10	67 13
6/12/89	023.1	1148	0	0	3	0	0	0	3	34
6/14/89	024.0	1330	0	0	0	0	0	0	0	58
0/14/09	026.0	1200	0	0	0	0	0	36 4	36 4	138 51
	026.1		0	0	0	0	0	0	o	22
	027.0 028.0		0	0	0	0	0	0	0	29
	029.0		0	0	0	0	0	0	0	20 2
	030.0		0	Ö	Ö	Ö	0	0	0	2
6/12/00	031.0	1200	0	0	0	0	0	0	0	67
6/13/89	031.1	1200	0	0	0	0	0	32	32 0	45 4
6/14/89	032.1	1400	Ō	0	Ō	Ö	Ö	93	93	93
	033.0 033.1		0	0	0	0	0	0	0	22
6/12/89	033.1	1157	0	0	0 56	0	0	0	0 56	16 56
6/14/89	034.0	1330	0	0	0	0	0	38	38	38
6/12/00	034.1	1015	0	0	0	0	0	0	0	38
6/12/89	035.0 035.1	1315	0	0	31	0	0	41	41 0	59 3
6/12/89	036.0	1045	O	0	0	o	0	19	19	42
6/14/89	037.0	1200	0	0	23	0	0	27	27	61
6/13/89 6/12/89	038.0	1400 1200	0	0	0 163	0	0	48 199	48 199	68 199
-,,	039.05	1200	o	0	0	o	o	0	0	15
	039.1		0	0	0	0	0	0	0	9
	040.0		0	0	0	0	0	0	0	126 1
6/12/89	041.0	1205	Ö	0	54	o	O	0	54	65
6/13/89	041.1	1400	0	0	19	0	0	116	116	116
6/12/89 6/12/89	041.2	1206 1206	0	0	44	0	0	0	44	73 36
-,,	042.1	1200	0	0	0	0	0	44	0	44
	043.0		0	0	0	0	0	0	0	21
	043.1		0	0	0	0	0	0	0	13
	045.0		0	0	0	0	0	0	0	24 22
6/13/89	046.0	1315	0	0	31	0	0	35	35	41
	046.1		0	0	0	0	0	0	0	1
	047.0		U	U	U	U	U	0	0	13

DATE	SITE	P R O B	TIME		FA	FP	FT	GA	GP	GT	ET	MAX
6/12/89	048.0 049.0		1217		0	0	0 45	0	0	0	0 45	22 95
	050.0 051.0 052.0				0 0 0	0 0 0	0	0	0	0 0	0 0	86 62 126
6/13/89 6/12/89	053.0 054.0		1200 1220		0	0	0 96	0	0	139	139 96	197 96
6/12/89	055.0		1221		0	Ö	130	0	0	0	130	130
6/12/89	055.1		1221		0	0	28	0	0	0	28	75
6/12/89	055.2 055.3		1221		0	0	20	0	0	0	20	20 1
	055.5				0	0	0	0	0	0	0	13
	056.0				0	0	0	0	0	0	0	50
6/12/89	056.1 056.2		1226		0	0	0 11	0	0	0	0 11	39 33
0/12/09	050.2		1220		0	0	0	0	0	0	0	46
	057.1				0	0	0	0	0	0	0	30
	057.2				0	0	0	0	0	0	0	14
6/12/89	058.0 058.1		1226		0	0	0 47	0	0	0	0 47	67 51
0/12/03	058.5		1220		0	0	0	0	0	0	0	18
	058.7				0	0	0	0	0	0	0	21
	058.9				0	0	0	0	0	0	0	43
6/12/89	059.0 060.0		1227		0	0	23	0	0	0	23	23 11
	061.0				0	0	0	0	0	0	0	23
	061.8				0	0	0	0	0	0	. 0	7
	062.0				0	0	0	0	0	0	0	17
	063.0 064.0				0	0	0	0	0	0	0	19 27
	064.5				0	0	0	0	0	0	0	2
	065.0				0	0	0	0	0	0	0	43
	065.1				0	0	0	0	0	0	0	1
6/12/89	065.2		1228		0	0	51 7	0	0	0	51 7	51 51
6/12/89	066.0 066.1		1231		0	0	ó	0	0	0	ó	45
	066.2				0	0	0	0	0	0	0	1
6/12/89	067.0		1233		0	0	65	0	0	0	65	65
	068.0				0	0	0	0	0	0	0	15 15
	068.1 068.15				0	0	0	0	0	0	0	21
6/12/89	068.2		1234		0	0	42	0	0	0	42	42
6/12/89	068.25		1234		0	0	43	0	0	0	43	43
6/12/89	068.3		1236		0	0	1	0	0	0	1	1

DATE	SITE	P TIME R O B	FA	FP	FT	GA	GP	GT	ET	MAX
6/12/89	069.0	1237	0	0	14	0	0	0	14	15
	069.1 070.0		0	0	0	0	0	0	0	15
	070.0		0	0	0	0	0	0	0	28 15
6/12/89	071.0	1238	o	0	102	0	0	0	102	102
,,	071.1		0	0	0	0	0	0	0	2
	072.0		0	0	0	0	0	0	0	68
	073.0		0	0	0	0	0	0	0	13
6 /2 4 /00	073.1	1.400	0	0	0	0	0	0	0	22
6/14/89	074.0 074.1	1429	0	0	56 0	0	0	63	63	68
6/12/89	075.0	1248	0	0	69	0	0	0	0 69	2 69
0, 12, 03	075.1	1210	0	0	0	0	0	0	0	2
6/12/89	076.0	1249	0	0	102	0	0	0	102	102
	076.1		0	0	0	0	0	0	0	40
6/12/89	077.0	1252	0	0	8	0	0	0	8	17
6/12/89	077.1	1252	0	0	23	0	0	0	23	23
6/12/89	078.0 079.0	1252	0	0	0 41	0	0	0	0	104 64
0/12/09	079.0	1232	0	0	0	0	0	0	41 0	4
	080.0		0	0	0	o	0	0	0	33
6/12/89	080.1	1253	0	0	11	0	0	0	11	16
	081.0		0	0	0	0	0	0	0	18
	081.1		0	0	0	0	0	0	0	8
6/12/00	081.2	1054	0	0	0	0	0	0	0	20
6/12/89	081.3 082.0	1254	0	0	21	0	0	0	21 0	21 70
	083.0		0	0	0	0	0	0	0	58
	084.0		o	0	Ö	0	0	0	0	14
6/12/89	085.0	1257	0	0	120	0	0	0	120	122
	086.0		0	0	0	0	0	0	0	68
6 /3 0 /00	086.8	1000	0	0	0	0	0	0	0	1
6/12/89	087.0 087.1	1300	0	0	131	0	0	0	131	138
	088.0		0	0	0	0	0	0	0	1 5
	089.0		0	0	0	0	0	0	0	20
6/12/89	090.0	1303	0	0	11	0	0	0	11	15
6/12/89	091.0	1304	0	0	13	0	0	0	13	13
	091.1		0	0	0	0	0	0	0	21
	092.0		0	0	0	0	0	0	0	12
6/12/89	093.0 093.1	1205	0	0	0	0	0	0	0	6
6/12/89	093.1	1305 1305	0	0	18 1	0	0	0	18 1	18 1
3/ 12/ 03	094.0	1303	0	0	0	0	0	0	0	2
			_			-	-	_	-	_

DATE	SITE	P R O B	TIME	FA	FP	FT	GA	GP	GT	ET	MAX
	094.1 094.2 094.3 094.4 094.5			0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0	0 0 0 0	10 5 1 6 1
6/12/89	096.0 096.1 096.2 096.3 096.4		1307	0 0 0 0	0 0 0 0	19 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	19 0 0 0	19 14 2 1 3
6/12/89 6/12/89	097.0 098.0 099.0 099.1 099.2 099.5 100.0 101.0		1307 1311	0 0 0 0 0 0	0 0 0 0 0 0 0	23 25 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0 0 0	23 25 0 0 0 0 0	23 59 5 7 6 3 9 25
6/12/89	102.0 102.1 103.0 103.8		1313	0 0 0	0 0 0	16 0 0	0 0 0	0 0 0	0 0 0	16 0 0	44 2 1 9
6/12/89	104.0 104.1 104.2 104.3	С	1314	0 0 0	0 0 0	11 0 0 0	0 0 0	0 0 0	0 0 0	11 0 0 0	11 3 1 1
6/12/89	104.5 105.0 105.1 106.0 106.1 107.0 107.1 108.0 109.0	C	1317	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0	11 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	11 0 0 0 0 0 0 0	11 6 5 1 1 34 5 15
6/12/89 6/12/89 6/12/89	110.0 111.0 112.0 113.0 114.0 114.1 114.2 114.3		1322	0 0 0 0 0 0	0 0 0 0 0 0	127 98 0 0 28 0 0	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0	127 98 0 0 28 0	208 98 43 37 71 3 8

DATE	SITE	P R O B	TIME		FA	FP	FT	GA	GP	GT	ET	MAX
	114.4 114.5				0	0	0	0	0	0	0	9
	115.0				0	0	0	0	0	0	0	46
	116.0 117.0				0	0	0	0	0	0	0	6 29
	118.0				0	0	0	0	0	0	0	13
	118.1				0	0	0	0	0	0	0	4
	118.5				0	0	0	0	0	0	0	3
4	119.0 119.1				0	0	0	0	0	0	0	9
	120.0				0	0	0	0	0	0	0	12
6/12/89	121.0		1330		O	0	1	0	0	0	1	3
	122.0				0	0	0	0	0	0	0	18
	123.0				0	0	0	0	0	0	0	4
	124.0 125.0				0	0	0	0	0	0	0	1
	126.0				0	0	0	0	0	0	0	13 11
6/12/89	126.5		1331		0	0	13	0	Ö	Ô	13	13
6/12/89	127.0	C	1332		0	0	102	0	0	0	102	118
6/12/00	128.0		1007		0	0	0	0	0	0	0	1
6/12/89 6/12/89	129.0 130.0		1337 1339		0	0	48 109	0	0	0	48 109	54 266
6/12/89	130.1		1340		0	0	30	0	0	0	30	30
	131.0				0	0	0	0	0	0	0	71
C / 2 C / 2 C	131.1				0	0	0	0	0	0	0	56
6/12/89	131.2 131.3		1341		0	0	14	0	0	0	14	14
	132.0				0	0	0	0	0	0	0	64 107
	132.1				Ó	O	0	o	0	0	Ö	8
6/12/89	133.0		1341		0	0	127	0	0	0	127	159
	134.0				0	0	0	0	0	0	0	12
	134.1 134.2				0	0	0	0	0	0	0	4 10
	134.5				0	0	0	0	0	0	0	10
	135.0				0	0	0	0	0	0	0	38
	136.0				0	0	0	0	0	0	0	10
	137.0				0	0	0	0	0	0	0	5
	137.1 138.0				0	0	0	0	0	0	0	2 26
	138.1				0	0	0	0	0	0	0	26
	139.0				0	0	0	0	0	0	0	14
	139.1				0	0	0	0	0	0	0	14
6/13/89	140.0		1152		0	0	6	0	0	0	6	19
	140.1				0	0	0	0	0	0	0	1

DATE	SITE	P R O B	TIME	FA	FP	FT	GA	GP	GT	ET	MAX
6/13/89	141.0		1152	0	0	78	0	0	0	78	78
6/13/89	141.1		1155	0	0	24	0	0	0	24	24
6/12/00	142.0		1157	0	0	0 8	0	0	0	0	31 8
6/13/89	143.0 143.5		1157	0	0	0	0	0	0	0	2
	144.0			0	O	0	0	0	0	0	28
6/13/89	144.5		1158	0	0	10	0	0	0	10	10
	145.0			0	0	0	0	0	0	0	35
6/13/89	146.0		1159	0	0	72 0	0	0	0	72 0	72 48
6/13/89	147.0 148.0		1203	0	0	70	0	0	0	70	70
0/13/03	149.0		1205	O	0	0	0	0	0	0	71
6/13/89	150.0		1203	0	0	97	0	0	0	97	97
6/13/89	151.0		1204	0	0	66	0	0	0	66	80
6/12/89	152.0		1200	0	0	43	0	0	70	70	85
6/13/89 6/13/89	153.0 154.0		1206 1207	0	0	14 67	0	0	0	14 67	93 74
0/13/89	154.1		1207	0	0	0	0	0	0	0	2
	155.0			0	0	0	0	0	0	0	65
	155.1			0	0	0	0	0	0	0	63
6/13/89	156.0		1207	0	0	48	0	0	0	48	61
6/12/00	156.1		1200	0	0	0 106	0	0	0	0 106	54 175
6/13/89	157.0 157.1		1208	0	0	0	0	0	0	0	1/3
	158.0			0	0	0	0	0	0	0	18
	159.0			0	0	0	0	0	0	0	9
6/13/89	160.0		1210	0	0	7	0	0	0	7	45
	160.05			0	0	0	0	0	0	0	3
6/13/89	160.1 161.0		1211	0	0	0 50	0	0	0	0 50	9 50
0/13/83	161.1		1211	0	0	0	0	0	0	0	32
	161.2			0	0	0	0	0	0	0	6
6/13/89	162.0		1211	0	0	53	0	0	0	53	149
	162.1			0	0	0	0	0	0	0	1
6/13/89	162.2		1212	0	0	0	0	0	0	9	9 7
6/13/89	163.0 164.0		1222	0	0	0 92	0	0	70	92	92
3/ 13/ 03	164.7		1222	0	0	0	0	0	0	0	41
6/13/89	165.0	D	1232	0	0	89	0	0	70	89	89
6/13/89	166.0		1500	0	0	132	0	0	176	176	176
6/13/89	167.0		1238	0	0	55	0	0	0	55	169
	167.8			0	0	0	0	0	0	0	1 29
6/13/89	168.0 169.0		1241	0	0	0 23	0	0	0	23	40
-/ -5/ 55				-	0	20	0	0	-		

DATE	SITE	P TIME R O B	FA	FP	FT	GA	GP	GT	ET	MAX
	170.0 170.1		0	0	0	0	0	0	0	1
	171.0		0	0	0	0	0	0	0	33
6/13/89	172.0	1245	0	0	145	0	0	0	145	145
6/13/89	173.0	1245	0	0	21	0	0	0	21	53
6/13/89	174.0 175.0	1430	0	0	65	0	0	139	139	139
6/13/89	175.5	1248	0	0	0	0	0	0	0	81
0/13/03	176.0	1240	0	0	0	0	0	0	0	1 31
6/13/89	177.0	1252	Ö	0	124	o	o	0	124	124
6/13/89	178.0	1254	0	0	30	O	0	o	30	116
, ,	179.0		0	0	0	0	0	Ō	0	59
6/13/89	180.0	1254	0	0	29	0	0	0	29	44
6/13/89	181.0	1255	0	0	11	0	0	0	11	17
6/13/89	182.0	1255	0	0	26	0	0	0	26	26
	182.1		0	0	0	0	0	0	0	3
	182.2		0	0	0	0	0	0	0	4
	182.7		0	0	0	0	0	0	0	1
	183.0 184.0		0	0	0	0	0	0	0	4
6/13/89	185.0	1258	0	0	0 43	0	0	0	0 43	1
0/ 13/ 03	186.0	1230	0	0	0	0	0	0	0	43 12
	186.1		0	0	0	0	0	0	0	1
	187.0		0	Ó	Ö	Ō	O	0	0	8
6/13/89	187.7	1259	0	0	1	0	0	0	1	1
6/13/89	188.0	1300	0	0	185	0	0	0	185	185
	189.0		0	0	0	0	0	0	0	11
6/13/89	190.0	1301	0	0	105	0	0	0	105	105
	191.0		0	0	0	0	0	0	0	21
	191.1 192.0		0	0	0	0	0	0	0	6
	193.0		0	0	0	0	0	0	0	34
	193.1		0	0	0	0	0	0	0	24
6/13/89	194.0	1302	0	0	42	0	0	0	0 42	5 54
-,,	194.1	1302	0	0	0	0	0	0	0	1
6/13/89	195.0	1308	Ö	0	144	0	0	0	144	144
	195.1		0	0	0	0	0	0	0	146
	196.0		0	0	0	0	0	0	0	47
	196.1		0	0	0	0	0	0	0	33
6/13/89	197.0	1317	0	0	109	0	0	0	109	122
	197.1		0	0	0	0	0	0	0	100
6/13/89	198.0	1319	0	0	24	0	0	0	24	125
6/13/89	198.1	1320	0	0	15	0	O	0	15	25
6/13/89	199.0	1318	0	0	15	0	0	0	15	131

DATE	SITE	P TI R O B	ME	FA	FP	FT	GA	GP	GT	ET	MAX
6/13/89	199.5	13	18	0	0	24	0	0	0	24	24
6/13/89	200.1 201.0 201.1	13	21	0 0 0	0	0 2 0	0 0 0	0 0 0	0 0 0	0 2 0	24 68 3
6/13/89	202.0	13	24	0	0	49	0	0	0	49	58 1
6/14/89	203.0	09	54 59	0	0	59 12	0	0	0	59 12	67 14 328
6/14/89 6/14/89 6/15/89	205.0 206.0 207.0	09	54 52 45	0 0 0	0	162 53 19	0 0 0	0 0	0 0 32	162 53 32	53 74
6/14/89 6/14/89	208.0	10	12 00	0	0	9 2	0	0	0 38	9 38	17 65
	210.0 210.8 211.0			0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	18 13 30
6/15/89	212.0 212.5		00	0	0 0 0	0 7 45	0 0 0	0 0 0	0 8 55	0 8 55	97 8 123
6/15/89 6/14/89	213.0 214.0 215.0		29	0 0 0	0	0 55	0	0	0	0 55	34 55
	215.1 216.0			0 0 0	0	0 0 0	0 0 0	0 0	0 0 0	0 0	1 5 1
6/14/89	216.1 217.0 217.1	12	37	0	0	182	0	0	0	182 0	182 65
6/14/89	218.0	12	39	0 0 0	0	193 0 0	0 0	0 0 0	0 0 0	193 0 0	193 24 25
	219.0 219.1 219.2			0	0	0	0	0	0	0	1
6/14/89 6/14/89	219.3 220.0 221.0		47 48	0 0 0	0 0 0	0 58 714	0 0 0	0 0	0 0 0	0 58 714	4 93 831
	222.0			0	0	0	0	0	0	0	11 3
6/14/89 6/14/89	224.0 225.0 226.0		55 59	0 0 0	0 0 0	484 382 0	0 0 0	0 0 0	0 0 0	484 382 0	509 649 66
6/16/89	226.1 226.2 226.3	13	00	0 0	0 0	35 0 0	0 0	0 0	0 0	35 0 0	35 72 12
	227.0			0	0	0	0	0	0	0	34

DATE	SITE	P R O B	TIME	FA	FP	FT	GA	GP	GT	ET	MAX
	228.0			0	0	0	0	0	0	0	29
	229.0			0	Ō	0	0	0	0	Ö	6
	230.0			0	0	0	0	0	0	0	124
	231.0			0	0	245	0	0	0	245	245
	232.0			0	0	0	0	0	0	0	90
	232.1 232.2			0	0	0	0	0	0	0	28 70
	232.3			o	0	0	0	0	0	0	17
	233.0			0	O	Ö	Ō	0	0	0	31
	234.0			0	0	0	0	0	0	0	13
	235.0			0	0	0	0	0	0	0	17
	236.0			0	0	0	0	0	0	0	19
	237.0 238.0			0	0	0	0	0	0	0	1
	239.0			0	0	0	0	0	0	0	20 46
	240.0			0	0	0	o	0	0	0	10
	240.1			0	0	0	0	0	0	0	3
	241.0			0	0	0	0	0	0	0	135
	242.0			0	0	0	0	0	0	0	2
6/16/00	242.1		1047	0	0	0	0	0	0	0	1
6/16/89 6/16/89	243.0 244.0		1247 1246	0	0	30 234	0	0	0	30 234	111 234
0, 10, 03	244.1		1240	0	0	0	0	0	0	0	1
6/16/89	245.0		1246/48	0	Ö	201	0	0	0	201	419
	245.1		•	0	0	0	0	0	0	0	1
	246.0			0	0	0	0	0	0	0	17
6/16/00	247.0		1046	0	0	0	0	0	0	0	5
6/16/89	247.1 248.0		1246	0	0	41 0	0	0	0	41	41
	248.1			0	0	0	0	0	0	0	431 72
	248.5			O	Ö	Ö	0	0	0	0	30
6/16/89	249.0		1242	0	0	14	0	0	0	14	236
6/16/89	249.1		1240/44	0	0	173	0	0	0	173	173
	249.5			0	0	0	0	0	0	0	22
6/16/89	250.0 251.0		1236	0	0	0 88	0	0	0	0 88	3 115
0/10/03	252.0		1230	0	0	0	0	0	0	0	12
	253.0			0	0	0	0	0	0	0	12
	254.0			0	0	0	0	0	0	0	9
6/11/89	255.0		1400	0	0	15	0	0	45	45	45
	255.1			0	0	0	0	0	0	0	16
C /2 C /2 =	256.0	_	1000	0	0	0	0	0	0	0	8
6/16/89	257.0	C	1229	0	0	60	0	0	0	60	60
	257.8			0	0	0	O	0	0	0	3

DATE	SITE	P R O B	TIME	FA	FP	FT	GA	GP	GT	ET	MAX
	258.0 259.0 259.1 260.0 260.1 261.0 261.1			0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	2 1 1 2 1 3
6/14/89 6/12/89 6/14/89	261.2 262.0 263.0 263.1 263.2		1331 1205 1335	0 0 0 0	0 0 0 0	0 268 16 0	0 0 0 0	0 0 0 0	0 318 0 0	0 318 16 0	18 318 31 21 15
6/14/89	264.0 264.1 265.0 265.1 266.0 267.0		1337	0 0 0 0 0	0 0 0 0 0	0 25 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0	0 25 0 0 0	26 26 10 5 8 5
6/14/89	268.0 268.1 269.0 270.0		1341	0 0 0	0 0 0	35 0 0 0	0 0 0	0 0 0	0 0 0	35 0 0	37 4 13 9
6/14/89	270.1 270.2		1341	0	0	4 0	0	0	0	4	13 1
6/14/89	271.0		1341	0	0	14	0	0	0	14	28
6/14/89	272.0		1341	0	0	9	0	0	0	9	14
6/11/00	272.1 273.0		1242	0	0	0	0	0	0	0	1
6/14/89	273.0		1343	0	0	44	0	0	0	4.4 0	70 1
6/14/89	274.0		1345	0	0	36	0	0	0	36	36
-,,	274.1		1313	O	O	0	Ö	0	0	0	17
6/14/89	275.0		1345	0	0	37	0	0	0	37	37
6/14/89	276.0		1347	0	0	39	0	0	0	39	39
6/14/89	276.1			0	0	0	0	0	0	0	29
	277.0 277.1			0	0	0	0	0	0	0	51
	277.1			0	0	0	0	0	0	0	3 6
	279.0			0	0	0	0	0	0	0	1
	280.0			0	0	0	0	0	0	0	9
6/14/89	281.0		1349	0	0	28	0	0	0	28	57
6/14/89	282.0		1350	0	0	16	0	0	0	16	50
6/14/89	282.1		1350	0	0	4	0	0	0	4	7
6/14/89	283.0		1351	0	0	2	0	0	0	2	10
	283.1			0	0	0	0	0	0	0	1

DATE	SITE	P TIME R O B	FA	FP	FT	GA	GP	GT	ET	MAX
6/14/89	283.2 284.0 284.1 284.2 284.3 285.0	1352	0 0 0 0 0	0 0 0 0 0	21 0 0 0 0	0 0 0 0 0	0 0 0 0	0 0 0 0 0 0	21 0 0 0 0	26 29 5 3 1 57
	285.1 285.2 285.4 286.0		0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	16 10 4 6
6/14/89	286.1	1353	0	0	9	0	0	0	9	9
6/14/89	286.5	1354	0	0	16	0	0	0	16	16
6/14/89	287.0 287.1	1354	0	0	62 0	0	0	0	62	67
	287.2		0	0	0	0	0	0	0	3 1
6/14/89	287.3	1356	0	o	2	0	0	0	2	2
-,,	288.0		Ö	Ō	0	Ö	0	0	0	10
6/14/89	289.0	1356	0	0	15	0	0	0	15	17
6/14/89	290.0	1358	0	0	17	0	0	0	17	34
6/14/89	291.0	1358	0	0	11	0	0	0	11	14
	291.1		0	0	0	0	0	0	0	1
	292.0		0	0	0	O	0	0	0	1
6/14/89	292.1	1400	0	0	12	0	0	0	12	12
	293.0		O	0	0	0	O	0	0	18
6/14/89	293.5	1400	0	0	43	0	0	0	43	43
6/14/89	294.0	1401	0	0	11	0	0	0	11	26
	294.1		0	0	0	0	0	0	0	5
6/14/89	295.0	1401	0	0	0	0	0	0	0	40
0/14/09	296.0 296.1	1401	0	0	43	0	0	0	43	115 2
6/14/89	297.0	1402	0	0	9	0	0	0	9	9
0/14/03	297.1	1402	0	0	0	0	0	0	0	35
6/14/89	298.0	1404	0	0	9	0	0	o	9	26
6/14/89	298.1	1405	o	0	37	0	0	0	37	48
-,,	298.2	1103	O	0	0	0	0	0	0	4
6/14/89	299.0	1406	0	0	21	o	0	Ö	21	36
, - ,	299.1		O	0	0	0	0	0	0	29
6/14/89	300.0	1407	0	0	15	0	0	0	15	15
, y, ,	300.1		0	0	0	0	0	0	0	1
	301.0		0	Ō	0	0	0	0	0	5
	301.1		0	0	0	0	0	0	0	23
6/14/89	302.0	1408	0	0	31	0	0	0	31	125
6/14/89	303.0	1408	0	0	3	0	0	0	3	17
6/14/89	304.0	1409	0	0	47	0	0	0	47	47

DATE	SITE	P R O B		FA	FP	FT	GA	GP	GT	ET	MAX
6/14/89	305.0 306.0		1410	0	0	14	0	0	0	14	53 1
6/14/89	307.0 308.0 309.0 310.0	С	1411	0 0 0	0 0 0	37 0 0 0	0 0 0	0 0 0	0 0 0	105 0 0	164 74 45 3
6/14/89	310.1 311.0		1412	0	0	0 20	0	0	0	0 20	1 20
6/14/89	312.0 312.1		1413	0	0	17 0	0	0	0	17 0	21 27
6/14/89	313.0 313.1		1414	0	0	14	0	0	0	14	79
6/14/89	314.0		1415	0	0	0	0	0	0	1	4
6/14/89	315.0 315.1 315.2		1416	0	0	48	0	0	0	48	70
6/14/89	315.2		1416	0	0	0 21	0	0	0	0 21	9 21
6/16/89	316.0		1421	O	o	27	0	0	Ō	27	35
	316.1			0	0	0	0	0	0	0	3
	317.0			0	0	0	0	0	0	0	13
6/16/89	317.1 318.0		1422	0	0	0 32	0	0	0	0 32	3 32
0, 20, 00	318.1		1.00	0	0	0	0	0	0	0	25
	319.0			0	0	0	0	0	0	0	7
C/1C/00	319.1		1 4 0 4	0	0	0	0	0	0	0	4
6/16/89 6/16/89	320.0 321.0		1424 1426	0	0	64 26	0	0	0	64 26	69 32
0, 10, 03	322.0		1420	o	o	0	0	0	0	0	0
	323.0			0	0	0	0	0	0	0	28
	324.0			0	0	0	0	0	0	0	53
	324.1 324.5			0	0	0	0	0	0	0	2
6/16/89	325.0		1428	0	0	34	o	0	0	34	34
6/16/89	325.1		1208	0	0	74	0	0	0	74	74
6/16/89	325.2		1205	0	0	10	0	0	0	10	15
6/16/89 6/16/89	325.7 326.0		1202 1200	0	0	14 53	0	0	0	14 53	14 145
5, 15, 65	327.0		1200	0	0	0	0	0	0	0	48
6/16/89	327.1 328.0		1155	0	0	0 14	0	0	0	0 14	57 49
6/16/89	329.0		1155	0	0	83	0	0	0	83	83
	329.1			0	0	0	0	0	0	0	2
6/16/00	329.5	C	1152	0	0	0	0	0	0	0	1
6/16/89	330.0	C	1153	0	0	16	0	0	0	16	42

DATE	SITE	P R O B	TIME		FA	FP	FT	GA	GP	GT	ET	MAX
C /2 C /00	331.0				0	0	0	0	0	0	0	1
6/16/89	331.1		1152		0	0	10	0	0	0	10	11
6/16/89	332.0 332.1		1149		0	0	65	0	0	0	65	176
6/16/89	332.1		1148		0	0	0 17	0	0	0	0 17	14
0/10/09	333.0		1140		0	0	0	0	0	0	0	17 60
6/16/89	334.0		1147		0	0	39	0	0	0	39	73
0, 10, 03	335.0		111/		o	0	0	0	0	0	0	36
	335.4				O	0	0	0	0	O	O	5
	335.2				0	0	0	0	0	0	0	1
6/16/89	335.8		1145		0	0	21	0	0	0	25	25
6/16/89	336.0	C	1143		0	0	23	0	0	0	23	23
	336.1				0	0	0	0	0	0	0	11
	336.2				0	0	0	0	0	0	0	10
C /2 C /2 C	336.05				0	0	0	0	0	0	0	1
6/16/89	337.0		1142		0	0	16	0	0	0	16	37
6/16/89	337.1 338.0		1120		0	0	0	0	0	0	0	2
0/10/89	338.1		1139		0	0	52 0	0	0	0	52 0	74 1
	338.2				0	0	0	0	0	0	0	13
6/14/89	339.0		1541		O	o	5	0	0	o	5	38
-,,	339.1		1011		O	O	0	0	0	0	0	17
6/14/89	340.0		1542		0	0	5	0	0	0	5	18
	340.05				0	0	0	0	0	0	0	1
	340.1				0	0	0	0	0	0	0	23
6/14/89	341.0		1547		0	0	89	0	0	0	89	98
6 /2 4 /00	342.0				0	0	0	0	0	0	0	32
6/14/89	342.1		1544		0	0	31	0	0	0	31	31
6/14/89	343.0 343.1		1544		0	0	18	0	0	0	18	34
6/14/89	344.0		1546		0	0	0	0	0	0	0	20
0/14/03	344.1		1340		0	0	3	0	0	0	0	22 15
	345.0				0	0	0	0	0	o	0	31
	345.05				0	Ó	0	0	0	0	0	13
	345.1				0	0	0	0	0	0	0	24
	345.2				0	0	0	0	0	0	0	25
	345.3				0	0	0	0	0	0	0	21
	346.0				0	0	0	0	0	0	O	41
c /2 + /0 =	347.0				0	0	0	0	0	0	0	21
6/14/89	348.0		1551		0	0	53	0	0	0	53	53
6/14/89	349.0		1552		0	0	37	0	0	0	37	51
	349.1 350.0				0	0	0	0	0	0	0	16
6/14/89	351.0		1554		0	0	0	0	0	0	0	27
0/ 14/ 09	331.0		1004		U	U	0	0	U	U	O	18

DATE	SITE	P TIME R O B	FA	FP	FT	GA	GP	GT	ET	MAX
6/15/89 6/14/89 6/14/89 6/14/89 6/14/89 6/14/89 6/14/89 6/14/89	352.0 352.1 352.2 353.0 354.0 355.0 355.1 355.5 356.0 356.1 357.0 358.0 359.0	1548 1556 1600 1601 1602 1605 1608	0 0 0 0 0 0 0 0		86 31 12 42 34 20 0 32 0 27 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		120 0 0 0 0 0 0 0 0 0 0	120 31 12 42 34 20 0 32 0 27 3 0	183 39 26 55 46 20 4 32 67 100 14 25 14
6/14/89	360.0 361.0 362.0 363.0	1617	0 0 0	0 0 0	0 0 0 387 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 387 0	58 186 239 839 13
6/14/89	364.0 365.0 366.0 366.1 367.0	1619	0 0 0 0	0 0 0 0	50 0 0	0 0 0	0 0 0	0 0 0	50 0 0	154 240 142 10
6/14/89	367.1 367.2 368.0 368.1 369.0 369.1 370.0 371.0 372.0 372.1	1625	0 0 0 0 0 0 0	0 0 0 0 0 0 0	26 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	26 0 0 0 0 0 0 0	26 23 43 33 13 1 3 25 3
	373.0 373.1 374.0 375.0 376.0 377.0 378.0 378.1 379.0 380.0 380.1		0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0	206 34 43 10 4 4 5 2 4 15 4

DATE	SITE	P R O B	TIME	FA	FP	FT	GA	GP	GT	ET	MAX
	380.2			0	0	0	0	0	0	0	2
	381.0			o	O	0	0	0	0	0	2 73
	381.1			0	0	0	0	0	0	0	441
	381.2			0	0	0	0	0	0	0	81
	381.3			0	0	0	0	0	0	0	15
6/12/89	382.0	C	1153	0	0	0	0	0	533	533	1060
6/16/89	383.0	C		0	0	0	0	0	0	305	830
6/16/89	384.0	C	1000	0	0	0	0	0	0	20	518
6/15/89	385.0		1022	0	0	93	0	0	0	93	170
	386.0 386.1			0	0	0	0	0	0	0	9
	387.0			0	0	0	0	0	0	0	1 17
6/14/89	388.0		1531	0	0	0	0	0	20	20	39
6/13/89	389.0		1342	Ö	0	0	o	0	17	17	31
6/15/89	390.0		1452	0	0	18	0	0	0	18	79
	390.1			0	0	0	0	0	0	0	14
6/14/89	391.0		1401	0	0	0	0	0	8	8	43
6/15/89	392.0		1453	0	0	14	0	0	0	17	19
6/13/89	393.0		1512	0	0	0	0	0	1	1	93
6/13/89	394.0		1342	0	0	0	0	0	29	29	29
6/13/89	395.0 395.1		1512	0	0	26	0	0	42	42	42
	396.0			0	0	0	0	0	0	0	1 23
	396.1			0	o	0	0	0	0	0	16
	397.0			0	0	0	Ō	O	0	0	12
	398.0			0	0	0	0	0	0	0	43
	398.1			0	0	0	0	0	0	0	6
6/15/89	399.0		1459	0	0	55	0	0	0	55	69
6/15/89	399.1		1500	0	0	25	0	0	0	25	25
	400.0			0	0	0	0	0	0	0	67 24
	402.0			0	0	0	0	0	0	0	15
	403.0			0	o	0	0	0	0	0	27
	404.0			0	0	0	0	0	0	0	79
6/15/89			1501	0	0	15	0	0	0	15	30
	405.05			0	0	0	0	0	0	0	3
	405.1			0	0	0	0	0	0	0	1
	406.0			0	0	0	0	0	0	0	55
6/15/00	407.0		1500	0	0	0	0	0	0	0	9
6/15/89	407.1		1509	0	0	5	0	0	0	5	13
	409.0			0	0	0	0	0	0	0	10
	410.0			0	0	0	0	0	0	0	341 48
	411.0			0	0	0	0	0	0	0	20
				0	0	0	U	0	O	J	20

DATE	SITE	P TIME R O B	FA	FP	FT	GA	GP	GT	ET	MAX
	412.0		0	0	0	0	0	0	0	56
	413.0		0	0	0	0	0	0	0	96
	413.1		0	0	0	0	0	0	0	1
6/15/89	414.0	1524	0	0	440	0	0	0	440	516
6/15/89	415.0	1525	0	0	8	0	0	0	8	100
	416.0		0	0	0	0	0	0	0	61
	417.0		0	0	0	0	0	0	0	3
6/15/89	418.0	1531	0	0	304	0	0	0	304	542
	419.0		0	0	0	0	0	0	0	3
6/15/89	420.0	1544	0	0	37	0	0	0	37	37
•	421.0		0	0	0	0	0	0	0	9
6/16/89	422.0		0	0	0	0	0	42	42	84

APPENDIX II. Harbor seal counts by site and census (82R=April 1982, 83R= April 1983, 82=May-June 1982, 83=June 1983, 84=June 1984, 85=May-June 1985, 86=June 1986, 87=June 1987, 88=June 1988, 89=June 1989); sites are underlined for those censuses conducted during pupping season. Sites are blank until the census when seals were first observed or for censuses when not surveyed.

	AR	821	R 83I	R 82	83	84	85	86	87	88	89
	TE					_					
	.1					7					12.0
	. 0	0	0	0	0	0	0	0	0	0	0
	.0	0	0	0	0	0	0	0	10	4	0
	.0	19	24	6	13	9	16	13	4	13	25
	.0	<u>72</u>	67	85	95	94	72	99	94	120	139
	.0	30	93	0	0	5	48	68	31	87	3
	. 0	26	13	12	0	22	0	3	41	70	66
	.0	31	23	53	0	0	52	35	15	14	0
	.0	0	0	0	0	0	0	0	11	0	0
	.0	0	0	0	0	0	19	4	38	18	21
	.0	<u>68</u>	0	0	205	29	0	62	8	0	0
	.1							1	0	0	0
	.8								3	0	1
	.0	242	223	412	554	375	388	385	303	203	377
	.1								56	213	16
	.0	3	4	38	0	18	30	18	12	0	29
	.0	19	0	9	0	0	0	1	0	0	0
13	.1		2		0	0	0	0	12	5	0
	.0	0	0	0	13	0	0	1	0	0	9
14	.1				31	0	13	0	6	0	263
14	. 2								122	0	0
	. 4							290	277	173	0
14	.8							70	68	98	0
15	.0	0	143	24	247	0	59	140	113	150	0
15	.1						228	0	72	75	94
15	. 2						119	0	0	0	0
16	.0	0	0	0	49	71	78	107	56	113	239
17	.0	0	23	41	0	0	0	0	0	37	0
17	.1									0	0
18	.0	17	0	18	0	0	0	0	0	0	0
19	.0	70	21	0	94	100	70	92	53	50	65
19	.1								4	7	0
19	. 2								13	0	0
20	.0	2	0	18	0	0	33	43	0	32	34
21	.0	0	0	0	4	0	6	3	0	0	19
21	.1				10	0	0	0	0	0	0
	. 2					26	0	0	0	0	0
	. 3					2	0	0	0	0	0
	. 5								8	0	0

SITE	82R	831	8 82	83	84	85	86	87	88	89
22.0	<u>60</u> 0	18 0	46	51	62	67 0	67 0	26	48	52 10
23.1		_		2	0	34	0	0	2	3
24.0	19	0	0	58	0	5	0	3	0	0
25.0	81	39	138	0	30	44	110	28	36 0	36 4
26.0	51	0	0	0	0	0	0	0	0	0
26.1 27.0	0	22	0 29	0	0	19	0	0	13	0
28.0	22	0	0	0	0	0	0	19	0	0
29.0	0	2	0	0	0	0	0	0	1	Ö
30.0	0	0	o	0	0	o	0	0	0	Ö
31.0	40	0	67	0	0	0	0	13	Ö	0
31.1	40	0	0,		Ü	12	6	0	45	38
32.0	0	0	1	0	0	0	0	0	0	0
32.1			_						52	93
33.0	13	14	0	0	0	0	0	7	22	0
33.1		16		0	0	0	0	0	0	0
33.2						28	17	17	6	56
34.0	11	3	0	0	20	0	10	0	17	38
34.1					38	0	0	0	0	0
35.0	20	14	58	20	2	29	26	19	59	41
35.1		3		0	0	0	0	0	0	0
36.0	0	0	22	13	15	18	32	0	42	19
37.0	<u>16</u>	0	60	0	61	15	34	48	60	27
38.0	9	0	0	0	0	0	0	0	68	48
39.0	29	0	132	66	124	55	146	118 15	182 0	199 0
39.05 39.1							9	2	0	0
40.0	0	0	0	0	0	0	0	0	0	0
40.1	O	O	U	U	U	1	0	0	0	0
41.0	23	5	57	25	21	0	41	45	18	54
41.1	23	_	3,	23	49	0	0	0	94	116
41.2					13		14	3	73	44
42.0	17	12	9	36	0	27	5	0	0	4
42.1				12	0	0	16	12	35	0
43.0	0	0	21	0	0	12	0	0	4	0
43.1		1		0	0	0	2	13	0	0
44.0	24	12	0	0	0	0	1	0	7	0
45.0	1	22	0	0	0	0	14	0	0	0
46.0	41	37	29	41	33	31	29	38	39	35
46.1		1		0	0	0	0	0	0	0
47.0	1	0	0	0	0	0	0	0	0	0
48.0	19	0	0	0	0	0	0	0	0	0
49.0	<u>15</u>	0	0	10	0	95	53	27	50	45
50.0	86	0	53	0	0	0	0	6	44	0
51.0	15	0	0	0	0	0	0	0	62	0

82R 83R 82 83 84 85 86 87 88 89

YEAR

YEAR SITE	82R	831	R 82	83	84	85	86	87	88	89
52.0 53.0 54.0 55.0 55.1 55.2 55.3	23 90 0 0	0 80 0 29	24 197 42 35	0 27 43 101	0 13 0 0 30	100 82 63 0 12	24 97 14 47 0 12	0 87 0 0 75 0	126 6 0 0 0 0	0 139 96 130 28 20
55.5 56.0 56.1 56.2 57.0	<u>30</u>	50 39 7 0	0	0 12 0 2	0 0 0	8 0 2 0	0 0 0	1 0 0 33 0	13 42 0 0	0 0 0 11 0
57.1 57.2 58.0 58.1	0	0	0	18 51	15 0	10 14 0 0	30 0 15 34	0 0 20 0	0 0 0	0 0 0 47
58.5 58.7 58.9 59.0 60.0	3 10	0 11	0	0	0	8	0	6 10 17 0	18 21 43 14 0	0 0 0 23 0
61.0 61.8 62.0 63.0 64.0	0 0 <u>8</u> <u>27</u>	0 0 0 11	17 19 0	0 0 0 9	12 0 0 0	0 0 0	0 0 0 11	0 0 0	18 7 0 0	0 0 0 0
64.5 65.0 65.1 65.2 66.0	32 17	8 1 14	42	43 0 51	0 0 28 15	0 0 2 0	21 0 0	0 0 51 4	2 0 0 0	0 0 0 51 7
66.1 66.2 67.0 68.0	8 0	10 1 0 0	0	8 0 0	0 0 0 0	9 0 3 0	45 0 6 0	39 0 0 0	43 1 0 0	0 0 65 0
68.15 68.1 68.2 68.25 68.3						15	0 13	12 0	11 21 0	0 0 42 43
69.0 69.1	9	0	15	0	0 15	0	4	5 5	4	14
70.0 70.1	18	10	11	0	0	0	28	10	0	0
71.0 71.1	23	0	8	87	28 2	56 0	74 0	27 0	101	102 0

YEAR SITE	82R	83F	8 82	83	84	85	86	87	88	89
72.0 73.0 73.1 74.0 74.1	68 8 0 39	0 13 5 33	23 0 0 50	0 0 0 48	0 0 0 33	21 0 1 45	20 0 0 55 2	0 0 0 49	0 0 0 61 0	0 0 0 63
75.0 75.1	17	7	0	23	20	3	11	32	0	69 0
76.0 76.1	71	48	0	91	25 40	58 0	82 24	51 6	75 0	102
77.0 77.1	5	0	0	17	0	0	0 4	0	0	23
78.0 79.0 79.1	<u>54</u> <u>45</u>	13 0	51 58	0 34	0 30	0	25 36 4	39 27 0	38 43 0	0 41 0
80.0	12	0	33	0	0	0 16	0	0 14	0	0 11
81.0	0	0	0	0	0	8 8 20	0 0 0	0 0 0	0 0 0	0 0 0
81.2 81.3 82.0	0	0	0	0	13	10	0	24	13	21
83.0 84.0	0	0	0	3	0	0 11	0 4	0 7	0 14	0
85.0 86.0	67 25	14 26	122 18	64 4	77 0	37 0	109 3	102 0	74 15 0	120 0 0
86.8 87.0 87.1	80	0	138	101	121	28 0	53 0	46 0	79 0	131
88.0 89.0	0	0	0	0	0	0	0	0	0	0
90.0	0	0	0	0	0	0	0	0	0	11
91.1 92.0 93.0	0 0 0	0	0 1	21 0 0	0	0	0 6 1	0 0 6	0 0	0 0 0
93.1			_		9	0	0	9	0	18
94.0 94.1 94.2 94.3 94.4	0	0	2	0	0	0 10 4 1	0 9 0 0 6	0 0 0 0	0 0 5 0	0 0 0 0
94.5 95.0 96.0 96.1	1	0	7 1	0	15 0 14	0 0 0	1 0 1 1	0 0 0	0 0 0 3	0 0 19 0

YEAR SITE	821	R 831	R 82	83	84	85	86	87	88	89
96.2 96.3 96.4						2 1 3	0 0 0	0 0 0	0 0 0	0 0 0
97.0	22	0	1	0	10	15	20	20	9	23
98.0	19	0	59	10	0	0	43	31	14	25
99.0	0	0	0	0	0	0	0	0	0	0
99.1						7	1	2	0	0
99.2						3	0	6	6	0
99.5								3	0	0
100.0	0	0	9	0	0	0	0	4	0	0
101.0	14	0	9	9	0	0	0	18	25	0
102.0	20	0	44	4	0	0	28	14	15	16
102.1							2	0	0	0
103.0	0	0	1	0	0	0	0	0	0	0
103.8									9	0
104.0	0	0	7	0	0	0	5	0	0	11
104.1							3	0	0	0
104.2							1	0	0	0
104.3							1	0	0	0
104.5										11
105.0	0	0	6	0	0	0	0	1	2	0
105.1							5	0	0	0
106.0	0	0	1	0	0	0	0	0	1	0
106.1							1	0	1	0
107.0	29	0	34	18	0	8	6	0	33	0
107.1							5	0	0	0
108.0	0	0	15	0	0	0	10	0	0	0
109.0	4	0	0	0	0	10	0	0	0	0
110.0	128	<u>150</u>	125	79	82	159	190	99	208	127
111.0	0	0	13	10	15	6	0	25	21	98
112.0	13	0	7	0	0	0	0	0	43	0
113.0	0	0	0	0	0	37	0	0	0	0
114.0	0	0	27	0	0	0	0	51	19	28
114.1		3		0	1	0	0	0	0	0
114.2		8		0	0	0	0	0	0	0
114.3							3	0	0	0
114.4							9	0	0	0
114.5	0	0	0	0	0	0	6	2	0	0
115.0	0	0	0	0	0	0	0	0	0	0
116.0	0	0	0	0	0	4	2	6	1	0
117.0	0	0	29	13	4	11	0	0	10	0
118.0	7	0	10	0	0	0	0	0	0	0
118.1							4	3	0	0
118.5	0	0	^	0	^	^	_	^	0	0
119.0	0	0	0	0	0	0	0	0	9	0
119.1						12	6	0	0	0

120.0	2	0	0	0	0	0	0	0	2	0	
121.0	2	0	3	0	0	0	0	1	0	1	
122.0	0	2	18	0	0	0	0	2	0	0	
123.0	0	0	1	0	0	0	0	0	0	0	
124.0	0	0	1	0	0	0	0	0	0	0	
125.0	13	0	7	5	0	0	4	5	2	0	
126.0	0	0	11	0	0	0	0	0	0	0	
126.5								2	0	13	
127.0	71	17	97	43	87	56	43	59	118	102	
128.0	0	0	0	0	0	0	0	0	0	0	
129.0	4	0	39	0	20	35	33	27	15	48	
130.0	266	106	190	159	64	110	119	140	153	109	
130.1							8	0	0	30	
131.0	29	18	0	0	0	0	0	71	33	0	
131.1		56		0	0	0	0	0	0	0	
131.2		3		0	0	1	0	0	0	14	
131.3	22	0	0	1 =	64	0	0	0	0	0	
132.0	32	0	0	15	0	0	0	107	33	0	
132.1 133.0	61	0	158	0	19	149	159	0	0 114	0 127	
134.0	6	0	138	0	0	12	6	0	0	0	
134.1	O	O	U	U	U	4	0	0	0	0	
134.2						10	0	1	0	0	
134.5						10	10	0	0	0	
135.0	38	0	12	0	0	0	0	0	0	0	
136.0	5	0	10	0	0	0	0	7	4	0	
137.0	5	0	0	0	0	0	0	0	1	0	
137.1				2	0	0	0	0	0	0	
138.0	0	0	26	14	20	24	16	16	0	0	
138.1							2	0	0	0	
139.0	0	0	14	12	0	0	0	7	0	0	
139.1							9	14	0	0	
140.0	0	0	10	0	0	0	3	5	9	6	
140.1		1		0	0	0	0	0	0	0	
141.0	22	0	71	24	23	0	10	44	20	78	
141.1		3		0	0	2	0	0	0	24	
142.0	<u>13</u>	0	22	0	3	0	6	7	0	0	
143.0	0	0	2	0	0	0	0	0	0	8	
143.5								2	0	0	
144.0	28	0	19	0	11	0	11	17	0	0	
144.5		_		_			_	1	0	10	
145.0	25	0	24	7	0	0	0	5	35	0	
146.0	0	0	0	17	18	0	37	50	0	72	
147.0	0	0	32	0	0	0	0	0	0	0	
148.0	10	0	25	0	12	33	22	62	6	70	
149.0	<u>36</u>	<u>51</u>	71	24	1	0	30	39	6	0	

YEAR 82R 83R 82 83 84 85 86 87 88 89

SITE

YEAR SITE	82R	83R	82	83	84	85	86	87	88	89
150.0	<u>51</u>	56	96	58	64	52	49	42	331	97
151.0	60	14	53	8	23	41	78	80	22	66
152.0	29	20	42	0	39	42	32	85	55	70
153.0	32	13	6	13	5	0	24	74	9	14
154.0	16	0	18	0	19	20	0	44	12	67
154.1					2	0	0	0	0	0
155.0	0	7	29	27	1	0	65	55	0	0
155.1						17	0	63	18	0
156.0	14	31	47	0	9	2	18	61	0	48
156.1	0	14	0	54	0	0	0	0	0	0
157.0	145	138	145	120	98	102	175	151	132	106
157.1							1	0	0	0
158.0	2	0	0	0	1	18	0	0	0	0
159.0	6	0	0	0	0	0	0	9	0	0
160.0	33	21	35	43	8	0	45	8	34	7
160.05	5						3	0	0	0
160.1		2		0	1	0	0	5	0	0
161.0	7	21	49	0	22	13	0	0	3	50
161.1						9	0	32	0	0
161.2						6	0	2	0	0
162.0	101	76	149	112	85	101	103	105	59	53
162.1		1		0	0	0	0	0	0	0
162.2										9
163.0	0	0	0	7	0	0	0	0	0	0

164.0

164.7

165.0

166.0

167.0

167.8

168.0

169.0

170.0

170.1

171.0

172.0

173.0

174.0

175.0

175.5

176.0

177.0

178.0

179.0

180.0

181.0

36 138

45 136

82 113

73 169

YEAR SITE	82R	831	R 82	83	84	85	86	87	88	89
182.0 182.1 182.2 182.7	0	0	3	0	0	0	2 1 4	0 0 3	0 0 3 1	26 0 0
183.0	0	4	1	0	0	0	0	0	0	0
184.0	0	1	1	0	0	0	0	1	1	0
185.0	0	1	3	0	19	12	10	23	22	43
186.0	12	0	9	0	0	0	2	0	0	0
186.1							1	0	0	0
187.0	4	2	0	0	1	8	0	0	0	0
187.7										1
188.0	<u>50</u>	39	70	95	109	57	106	106	111	185
189.0	0	0	0	0	0	0	0	3	0	0
190.0	43	0	23	53	71	0	42	61	69	105
191.0	0	0	0	0	0	0	0	12	0	0
191.1							6	5	2	0
192.0	9	29	10	20	0	0	11	7	5	0
193.0	0	24	0	0	0	0	0	9	5	0
193.1						5	0	0	0	0
194.0	20	33	45	29	6	41	54	38	1	42
194.1		0.0	2.4	4.0	10	0	1	0	0	0
195.0	0	26	34	40	12	0	2	0	0	144
195.1	0	20	7	0	0	0	0	0	146	0
196.0	0	0	7	0	21	33	29	47	0	0
196.1	57	11	104	84	38	19 122	15 121	33 72	50	109
197.0 197.1	57	80	104	0	0	100	0	0	59	0
197.1	22	36	118	0	125	0	90	3	0	24
198.1	23	30	110	O	125	O	25	0	0	15
199.0	0	25	0	45	0	0	0	131	27	15
199.5	O	25	U	43	O	O	O	131	21	24
200.0	23	0	7	58	0	0	0	0	0	0
200.1	23	O	,	50	0	24	0	0	0	0
201.0	30	34	0	5	0	0	19	38	68	2
201.1		٠.				3	0	0	0	0
202.0	0	11	31	35	11	23	58	45	23	49
202.1			-		0	0	0	0	0	0
203.0	0	0	0	0	1	67	0	0	0	59
204.0	0	13	0	1	0	0	11	0	0	12
205.0		154	197	125	311	76	147	328	122	162
206.0	0	0	0	7	0	0	24	5	41	53
207.0	0	8	60	17	40	39	41	74	31	32
208.0	0	0	7	0	0	0	0	0	0	9
209.0	0	8	Ó	58	47	53	63	30	65	38
210.0	0	0	0	0	0	0	0	0	18	0
210.8								13	0	0

211.0	0	0	0	0	0	0	0	0	0	0
212.0	0	0	0	0	0	0	0	0	0	0
212.5										8
213.0	40	71	85	85	64	99	86	123	105	55
214.0	0	0	8	3	0	0	0	1	0	0
215.0	12	5	10	3	20	13	24	24	13	55
215.1					1	0	0	0	0	0
216.0	0	0	1	0	5	0	4	0	0	0
216.1							1	0	0	0
217.0	36	61	88	103	143	54	69	153	113	182
217.1					2	0	0	0	0	0
218.0	115	101	112	118	7	185	183	85	72	193
218.1	_	24		0	0	0	0	0	0	0
219.0	5	19	4	19	8	0	9	11	0	0
219.1						1	1	0	0	0
219.2						1	0	0	0	0
219.3		0.0				4	0	0	0	0
220.0	93	32	88	30	47	49	19	70	66	58
221.0	646	634	615	583	831	505	589	717	762	714
222.0	11	0	0	0	0	0	9	0	0	0
223.0	0	0	0	0	0	3	0	0	0	0
224.0	0	0 400	509 516	86	508 172	200	300 309	204 649	61 276	484 382
225.0	543 10	0	0	214 66	0	453 0	0	0	0	0
226.1	10	U	U	21	0	0	0	0	0	35
226.2				72	0	0	0	0	0	0
226.3				12	0	0	0	0	0	0
227.0	0	0	34	0	0	0	0	0	0	0
228.0	29	0	0	0	0	0	0	3	0	Ö
229.0	0	0	0	0	0	0	0	0	0	0
230.0	7	0	1	0	0	124	0	2	0	0
231.0	38	73	101	0	0	0	22	101	155	245
232.0	3	64	64	0	66	0	90	0	0	0
232.1					11	0	0	28	0	0
232.2					3	0	70	0	0	0
232.3							1	17	0	0
233.0	24	0	31	0	3	0	0	2	0	0
234.0	13	0	0	0	0	0	0	0	1	0
235.0	17	0	0	0	0	0	0	0	0	0
236.0	19	11	1	0	0	0	0	0	1	O
237.0	0	0	0	O	0	0	0	0	0	0
238.0	12	0	4	0	0	20	11	1	2	0
239.0	0	0	1	0	0	24	0	20	46	0
240.0	0	0	0	0	0	0	0	0	0	0
240.1		3	1 (3.14.)	0	0	0	0	0	0	0
241.0	122	28	86	105	135	0	32	0	0	0

82R 83R 82 83 84 85 86 87 88 89

YEAR SITE

242.0	2	0	1	0	0	0	0	0	0	0
242.1		1		0	0	0	0	0	1	0
243.0	<u>53</u>	0	53	30	0	29	0	111	0	30
244.0	59	41	86	20	39	71	144	0	179	234
244.1					1	1	0	0	0	0
245.0	165	37	256	247	142	370	204	178	256	201
245.1							1	0	0	0
246.0	0	0	12	0	8	5	8	9	17	0
247.0	5	3	0	0	0	0	3	0	3	0
247.1									13	41
248.0	338	289	196	215	0	283	280	431	289	0
248.1					72	0	0	0	0	0
248.5							30	15	0	0
249.0	27	31	136	44	47	76	35	14	17	14
249.1						1	0	0	5	173
249.5							22	0	0	0
250.0	3	0	1	0	0	0	0	0	0	0
251.0	106	36	115	0	99	71	88	82	58	88
252.0	0	0	0	0	0	0	1	12	0	0
253.0	0	0	11	0	0	1	4	12	3	0
254.0	9	0	1	0	0	0	0	0	1	0
255.0	0	0	8	0	0	18	17	14	0	45
255.1					16	0	0	0	0	0
256.0	0	0	8	0	0	0	0	3	0	0
257.0	29	16	47	13	38	35	15	28	17	60
257.8									3	0
258.0	2	0	0	0	0	0	0	1	0	0
259.0	0	0	0	0	0	0	0	0	0	0
259.1							1	0	0	0
260.0	2	0	0	0	0	0	0	0	0	0
260.1							1	0	0	0
261.0	0	0	0	0	0	0	0	0	0	0
261.1		10	•	0	0	7	1	0	0	0
261.2		8		6	0	0	18	8	3	0
262.0	119	183	127	140	93	188	258	239	226	318
263.0	31	0	0	0	0	0	0	0	25	16
263.1	31	Ü	Ü	J	Ü	21	0	1	0	0
263.2						8	0	3	15	0
264.0	2	0	0	0	26	0	0	12	0	0
264.1	2	O	O	O	20	Ü	12	24	26	25
265.0	0	0	0	0	1	0	0	0	0	0
265.1	U	U	O	U	1	5	4	4	0	0
266.0	2	0	8	0	0	0	0	0	0	0
267.0	5	0	0	0	3	0	0	0	0	0
268.0	8	16			5	14	15	33	37	
268.1	0	10	0	0			0	0		35
208.1				2	0	4	U	U	0	0

YEAR SITE	82R	83R	82	83	84	85	86	87	88	89
0111										
260 0	10	•		•	•	•				_
269.0	12	0	13	0	0	0	0	0	0	0
270.0	0	0 3	0	0	0	1	0	0	0	0
270.1 270.2		1		0	0	0	1	0	0	4
	20	0	0	0		0		0	0	0
271.0 272.0	28 1	0	8	6	10 14	21	14	18 0	11 0	14
272.1	1	U	12	0	1	0	0	0	0	9
273.0	70	34	49	24	6	4	10	23	0	44
273.1	70	34	43	24	O	4	1	0	0	0
274.0	22	22	18	0	3	0	4	33	25	36
274.1	22	1	10	0	3	17	0	0	0	0
275.0	0	0	20	17	10	0	12	12	3	37
276.0	3	0	0	0	0	21	0	0	6	39
276.1	3	O	0	J	Ü	21	29	24	16	0
277.0	27	0	51	0	15	36	37	20	0	0
277.1	2,	3	J 1	0	0	0	1	0	O	0
278.0	0	0	0	0	0	0	0	0	Ö	0
279.0	O	0	1	0	Ō	0	0	0	0	0
280.0	9	3	0	0	0	0	0	0	0	0
281.0	0	0	21	Ō	15	57	32	20	24	28
282.0	11	31	0	50	48	0	0	11	21	16
282.1						3	2	3	7	4
283.0	10	0	0	0	0	0	0	0	0	2
283.1					1	0	1	0	1	0
283.2						10	12	12	26	21
284.0	24	14	29	0	0	14	5	9	12	0
284.1				5	0	0	0	0	0	0
284.2					3	0	0	0	0	0
284.3					1	0	0	O	0	0
285.0	0	0	0	O	0	0	0	0	0	0
285.1					16	0	0	0	0	0
285.2					10	2	0	0	0	0
285.4							4	0	0	0
286.0	0	0	0	0	0	0	0	0	0	0
286.1							_		2	9
286.5							3	0	0	16
287.0	4	24	64	39	67	46	49	51	54	62
287.1		3		0	0	0	0	0	3	0
287.2							1	0	0	0
287.3			•				1.0	2	0	2
288.0	0	0	2	0	0	0	10	2	0	0
289.0	10	2	9	0	0	0	0	0	4	15
290.0	31	34	0	27	0	26	0	34	22	17
291.0	0	0	1	0	9	3	7	0	14	11
291.1		0	_	0	1	0	0	0	0	0
292.0	1	0	0	0	0	0	0	1	1	0

SIIL										
202 1								2	0	10
292.1	10	0	0	0	0	0	0	2	0	12
293.0	18	0	0	0	0	0	0	0 7	0 9	43
293.5	0	21	4	0	0	26	14	15	0	11
294.0	U	21	4	U	8 5	0	0	15	0	0
294.1	0	0	40	0	0	20	0	0	0	0
295.0 296.0		30	52	34	79	44	69	115	77	43
296.1	35	30	52	34	19	44	2	0	0	0
297.0	0	0	2	0	0	0	0	1	2	9
297.1	U	3	4	2	35	0	0	1	0	0
298.0	26	1	0	0	0	0	21	26	4	9
298.1	20	23	U	14	0	13	48	48	33	37
298.2		23		14	0	4	0	0	0	0
299.0	10	9	25	0	36	21	0	22	0	21
299.1	10	9	25	U	29	2	0	0	1	0
300.0	0	0	1	0	0	0	0	2	0	15
300.1	O	O	_	O	O	O	1	0	0	0
301.0	1	0	0	0	0	0	0	3	5	0
301.1		O	U	O	U	O	23	0	0	0
302.0	87	55	125	74	67	70	62	59	56	31
303.0	10	17	4	2	13	0	6	6	4	3
304.0	26	18	39	0	0	18	17	30	23	47
305.0	29	6	45	0	0	53	41	8	5	14
306.0	0	0	1	0	0	0	0	0	0	0
307.0	131	73	109	46	51	164	71	159	75	105
308.0	0	0	0	0	72	0	74	0	0	0
309.0	18	37	0	44	45	0	43	0	25	0
310.0	3	0	0	0	0	0	0	0	0	0
310.1						1	0	0	0	0
311.0	8	10	0	0	6	0	18	1	0	20
312.0	6	5	0	0	7	0	17	10	21	17
312.1					27	0	0	0	0	0
313.0	27	17	0	15	0	54	27	79	22	14
313.1							9	0	0	0
314.0	4	0	0	0	0	0	0	0	0	1
315.0	39	31	0	25	33	48	41	55	70	48
315.1						4	0	0	0	0
315.2								9	0	0
315.6										21
316.0	27	2	0	0	0	35	28	16	0	27
316.1		1		0	0	0	0	3	0	0
317.0	13	0	0	0	0	0	0	0	5	0
317.1						3	0	0	0	0
318.0	6	14	15	15	19	19	16	22	28	32
318.1							25	O	0	0
319.0	5	2	0	0	0	0	0	7	0	0

82R 83R 82 83 84 85 86 87 88 89

YEAR SITE

YEAR SITE	82R	83F	8 82	83	84	85	86	87	88	89
319.1					-	4	0	0	0	0
320.0	42	40	57	49	69	0	56	36	0	64
321.0	0	4	4	0	0	14	15	23	32	26
322.0	0	0	0	0	0	0	0	0	0	0
323.0	25	0	17	0	0	28	0	23	1	0
324.0	36	53	0	0	14	15	0	7	17	0
324.1					2	0	0	0	0	0
324.5									9	0
325.0	0	0	0	27	2	0	25	4	6	34
325.1							35	35	32	74
325.2								15	0	10
325.7										14
326.0	63	48	84	46	86	74	145	74	95	53
327.0	33	48	0	28	0	0	22	1	20	0
327.1		_				24	0	57	37	0
328.0	20	0	0	27	49	33	16	23	0	14
329.0	2	0	0	0	1	0	46	57	27	83
329.1							2	0	0	0
329.5	0.5				_				1	0
330.0	25	16	32	21	0	37	32	42	23	16
331.0	0	0	0	0	1	0	0	0	0	0
331.1	2.2	0.0	100					11	9	10
332.0	33	83	176	89	76	54	94	103	76	65
332.1							_	14	0	0
332.5	2.5	0	2.2	0	60	4.0	7	0	0	17
333.0	35	0	33	0	60	43	35	50	27	0
334.0	19	0	45	33	36	19	73	11	0	39
335.0 335.1	0	36	4	0	0	0 5	0	0	0	0
335.2						5	U	0	0	0
335.8								1	U	25
336.0	12	6	12	12	19	3	6	9	10	23
336.05	12	O	12	12	19	3	0	11		0
336.1		10		0	0	0	0	9	0	0
336.2		10		O	U	1	0	0	0	0
337.0	33	13	0	25	24	37	19	32	35	
337.1	55	2	U	0	0	0	0	0	0	16 0
338.0	9	43	48	52	48	25	37	26	74	52
338.1		43	40	52	40	1	0	0	0	0
338.2							U	13	6	0
339.0	28	11	38	22	7	0	0	0	0	5
339.1	20		30	22	,	17	12	0	0	0
340.0	0	0	0	8	18	0	13	7	14	5
340.05	0	O	U	O	10	U	1	Ó	0	0
340.03					14	1	23	16	0	0
341.0	36	66	49	50	69	73	98	71		89
241.0	50	00	43	50	09	13	20	/ 1	41	09

342.0	29	23	32	0	0	0	0	0	0	0
342.1				7	0	25	0	23	24	31
343.0	11	31	27	0	2	24	24	34	9	18
343.1						20	0	0	0	0
344.0	17	19	18	15	20	22	19	11	13	3
344.1								3	0	0
345.0	0	0	31	0	0	0	0	0	0	0
345.09	5						13	0	0	0
345.1							24	5	0	0
345.2								12	25	0
345.3								21	0	0
346.0	0	41	0	26	18	0	0	0	0	0
347.0	0	21	0	13	0	0	0	0	17	0
348.0	0	27	0	31	28	33	0	33	43	53
349.0	44	28	51	26	24	20	16	24	36	37
349.1						7	16	0	0	0
350.0	0	20	27	18	9	25	4	5	0	0
351.0	2	0	0	0	0	0	0	0	18	6
352.0	85	123	183	105	107	120	138	106	151	120
352.1		1		0	0	0	29	0	39	31
352.2						20	24	14	26	12
353.0	23	11	55	22	0	39	17	0	0	42
354.0	0	34	30	44	29	30	46	46	46	34
355.0	0	0	9	4	2	4	0	1	0	20
355.1						4	0	0	0	0
355.5										32
356.0	46	0	67	0	0	0	0	0	0	0
356.1					100	40	92	25	0	27
357.0	0	0	0	0	0	14	0	6	11	3
358.0	25	0	13	0	0	0	0	0	0	0
359.0	5	0	0	0	0	14	4	1	0	0
359.1						1	0	0	0	0
360.0	58	0	0	0	0	0	44	0	0	0
361.0	97	186	0	0	0	0	0	0	0	0
362.0	21	78	7	0	0	0	0	239	0	0
363.0	354	279	583	333	784	460	401	510	627	387
364.0	0	12	13	0	1	0	0	0	13	0
365.0	0	0	52	0	0	0	0	24	154	50
366.0	0	240	16	0	0	40	0	11	4	0
366.1				86	0	1	142	0	0	0
367.0	0	0	10	0	0	1	0	0	0	0
367.1							21	0	7	26
367.2								23	8	0
368.0	43	14	0	0	0	1	0	O	0	0
368.1						33	0	13	22	0
369.0	11	8	0	0	1	13	0	0	0	0

82R 83R 82 83 84 85 86 87 88

89

YEAR

SITE

369.1						1	0	0	0	0
370.0	0	0	0	0	0	3	0	0	0	0
371.0	25	19	14	0	0	0	9	11	9	0
372.0	3	0	0	0	0	0	0	0	0	0
372.1								9	16	0
373.0	101	104	172	117	138	159	133	206	146	0
373.1		34		0	0	26	0	0	26	0
374.0	29	0	76	0	0	32	23	0	43	0
375.0	10	0	1	4	0	0	0	0	0	0
376.0	1	0	0	0	0	0	4	0	0	0
377.0	4	0	0	0	0	0	0	0	0	0
378.0	5	1	0	0	0	2	0	0	0	0
378.1		2		0	0	0	0	0	0	0
379.0	1	2	0	0	3	0	0	4	0	0
380.0	15	0	0	0	0	0	0	0	0	0
380.1						4	0	0	0	0
380.2							2	0	0	0
381.0	32	39	46	46	16	42	0	55	73	0
381.1		<u> 282</u>		0	410	441	0	0	0	0
381.2					81	0	0	0	0	0
381.3	225	100	400	400	0	15	0	0	0	0
382.0	325	192	483	423	0	0	354	452	1060	533
383.0 384.0	329	492	170	457	464	426	281 15	830	316	305
385.0	518	1	269 131	7	12	5	76	14 144	22	20
386.0	146 0	117 0	131	96 0	55 9	148	0	0	88 0	93
386.1	U	U	U	U	9	1	0	0	0	0
387.0	0	0	0	0	0	0	0	0	0	0
388.0	0	0	0	0	0	0	0	0	0	20
389.0	0	0	0	0	0	0	0	0	0	17
390.0	0	0	21	48	57	24	55	14	35	18
390.1					,	14	0	0	0	0
391.0	0	0	0	0	0	0	0	0	0	8
392.0	0	0	0	0	0	0	10	13	0	17
393.0	20	0	0	21	0	40	22	0	18	1
394.0	0	22	0	0	0	7	3	0	0	29
395.0	18	10	0	32	21	23	20	36	37	42
395.1							1	0	0	0
396.0	0	0	0	0	4	11	8	4	0	0
396.1						16	0	0	0	0
397.0	0	0	2	12	8	7	9	0	0	0
398.1							0	O	0	0
398.0	0	2	0	0	0	43	6	0	0	0
399.0	10	9	15	46	49	67	24	0	0	55
399.1										25
400.0	0	58	0	0	0	0	53	38	0	0

82R 83R 82 83 84 85 86 87 88

89

YEAR SITE

YEAR	82F	83R	82	83	84	85	86	87	88	89
SITE										
401.0	0	0	0	0	3	6	1	0	0	0
402.0	0	0	0	0	0	0	0	2	0	0
403.0	0	0	0	0	0	3	0	0	0	0
404.0	0	0	0	79	28	13	3	14	0	0
405.0	56	8	0	7	9	14	13	0	0	15
405.05	5								3	0
405.1							1	0	0	0
406.0	0	0	0	0	0	0	0	0	0	0
407.0	0	0	0	0	0	0	0	0	0	0
407.1							13	9	0	5
408.0	0	0	0	0	0	0	1	0	0	0
409.0	0	0	0	0	0	20	61	209	42	0
410.0	0	0	48	0	10	28	30	0	0	0
411.0	0	0	0	0	0	0	0	0	0	0
412.0	0	0	35	0	0	0	6	0	0	0
413.0	66	24	52	33	5	96	72	0	48	0
413.1		1		0	0	0	0	0	0	0
414.0	263	215	0	363	328	379	516	386	186	440
415.0	63	0	0	0	0	0	2	5	33	8
416.0	0	0	0	0	0	8	0	0	0	0
417.0	0	0	0	0	0	0	1	0	0	0
418.0	208	109	129	542	139	328	266	278	176	304
419.0	0		0	0	0	1	0	0	0	0
420.0	0		0	0	9	10	23	0	20	37
421.0	0	0	0	0	0	0	0	0	0	0
422.0	51	69	54	56	41	32	42	25	40	42

APPENDIX III. Harbor seal hauling sites with site descriptions as available. (SITE= site number; LOCATION= name of site; COUNTY= county of site; LAT/LONG= exact location of site; SUBST= primary type of substrate [1= extended reef, 2= offshore rock, 3= onshore rock, 4= harbor or estuary, 5= ocean sandy beach, 6= river log, 7= floats, 8= night haul out, 9= ocean rocky beach]; MAX= maximum number counted at site; ?= some question as to location; blanks indicate data not available).

SITE	LOCATION	COU NTY	LAT	LONG	S U	MAX
					B S T	
000.1	?km N. Pt. Loma	SD	32 .	117 .	2	7
001.0	1.2km S. Pt. La Jolla	SD	3250.56	11716.90	1	O
002.0	.6km S.Pt.LaJolla-Childrens Cv	SD	3250.87	11716.68	1	10
003.0	0.5km S. Pt. La Jolla	SD	3250.90	11716.62	2	25
004.0	Mugu Lagoon	V	3406.11	11904.17	4	139
005.0	.1km E.Std. Oil P. Carpinteria	SB	3423.11	11930.33	5	116
006.0	.3km W.Std. Oil P. Carpinteria			11930.47		70
007.0	Carpinteria St. Beach	SB		11931.09		53
0.800	Sand Pt.	SB	3423.60	11932.30	2	11
009.0	Moore Mesa 2km E. Goleta River			11947.82		70
010.0	1.2km W. Ellwood Oil Pier	SB	3426.38	11956.24		205
010.1	N. Ellwood	SB	3427.38	12028.03	2	1
010.8	Gov't Pt.	SB	3427.	12028.	1	3
011.0	0.8km E. Pt. Conception	SB		12027.50	5	554
011.1	Lighthouse	SB		12027.76		213
012.0	N. Pt. Conception	SB		12028.01		38
013.0	N. Pt. Conception	SB	3429.	12028.	1	19
013.1	1km S. Sudden	SB		12034.79	2	15
014.0	Sudden	SB	3432.	12034.	3	13
014.1	Sudden/Rocky Pt.	SB		12036.37	5	263
014.2	S of Rocky Point	SB		12037.32	1	122
014.4	1.2km S. Rocky Pt.	SB	3433.47		5	290
014.8	0.75km S. Rocky Pt.	SB		12037.49		98
015.0	1.0 Km S. Rocky Pt.	SB			3	247
015.1	0.5 km S. of Rocky Pt.	SB	3433.68	12037.59	3	228
015.2	0.3km S Rocky Pt.	SB	3433.	12037.	1	119
016.0	1.0 Km S. Rocky Pt.	SB	3433.81	12037.72	3	239
017.0	S. Pt. Arguello	SB	3434.	12038.	1	57
017.1	S. Pt Arguello	SB	34	120	3	18
018.0	S. Purisima Pt.	SB	3444.	12037.	3	127
019.0	S. Purisima Pt.	SB	3444.63	12037.24	1	100
019.1	S. Purisima Pt.	SB	3444.77			53
019.2	S. of Purisima Pt.	SB	3445.13	12037.67	2	13

		NTY		20110	U B S T	
020.0	Purisima Pt.	SB	3445.35	12038.20	1	43
021.0	Pt. Sal Area	SB		12036.82		19
021.1	Pt. Sal Area	SB	3554.	12040.	3	10
021.2	Pt Sal Area	SB	3554.	12040.	3	26
021.3	Pt. Sal Area	SB	3554.	120 .	1	2
021.5	Pt. Sal Area	SB		12039.85		8
022.0	N. Pt. Sal	SB		12040.01		67
023.0	Mussel Pt.	SB		12040.04		13
023.0	?km N. Pismo Beach Pier			12038.90		34
024.0	1.7 km N. Pismo Beach P.			12039.83		58
025.0	Shell Beach (O.R. N. Br. Is.)			12039.86		138
026.0	0.1kmN. of site #25-0.R.at lt.		3509.15		1	51
026.1	E. Mallagh Landing		3110.	12042.	ī	22
027.0	Pirates Cove (Mallagh Landing)			12042.86		29
028.0	Fossil Pt.			12042.45		20
029.0	0.8km S. Pecho Rock		3510.	12049.	1	2
030.0	Pecho Rock			12048.95	2	2
031.0	Deer Canyon (Outside S)			12048.37		67
031.1	Vic. Deer Canyon			12046.06		45
032.0	Deer Canyon (Inside Cove)	SLO	3511.29	12048.74	1	4
032.1	Red Tail Reef	SLO	3511.	1204 .	1	93
033.0	0.9km N. Deer Canyon	SLO	3511.15	12047.97	1	22
033.1	0.95km N. Deer Canyon	SLO	3511.55	12049.27	3	16
033.2	? km N. Deer Canyon	SLO	3511.41	12049.89	1	56
034.0	1.0km N. Deer Canyon	SLO	3511.56	12049.28	3	38
034.1	.1?km N. Deer Canyon	SLO	3511.	12049.	2	38
035.0	1.2km N. Deer Canyon	SLO	3511.58	12049.26	2	59
035.1	1.3km N. Deer Canyon	SLO	3511.68	12049.50	1	3
036.0	1.5km N. Deer Canyon			12049.60		42
037.0	2.0km N. Deer Canyon			12049.87		61
038.0				12049.99		68
039.0	2.4km N. D.CGreen Peak Cove					199
039.05	N of China Shack			12050.37	1	15
039.1	N. China Shack	SLO	3512.09	12050.42	1	9
040.0	0.4km S. Diablo Cyn Har.	SLO	3512.	12052.	2	126
040.1	? Km N. Diablo Nuclear Fac.	SLO	3512.	12052.	2	1
041.0	0.6km N. Lion Rock	SLO	3513.44	12052.56	2	65
041.1	?km N. Lion RockBarn Road		3513.	12052.34	5	116
041.2	?km N. Lion Rock				1	73
042.0	1.8km N. Lion Rock (opp.Res.)				1	36
042.1	?km N. Lion Rock			12053.05		44
043.0	2.3km N. Lion Rock			12053.04		21
043.1	1.0km N. Pt. Buchon	SLO	3515.00	12053.58	5	13

SITE LOCATION

COU LAT LONG S MAX

		NTY			U B S T	
044.0	a alm a Talan anala	ar o	2516	10050	•	2.4
	0.8km S. Islay Creek		3516.	12053. 12053.82	2	24
045.0 046.0	0.5km S. Hazard Cyn. Morro Bay (Inside Harbor)			12053.82		22 41
046.1	? Km N. Whale Rock			12050.59		1
047.0	0.2km W. Cayucos Pier			12051.10		13
047.0	1.0km W. Cayucos Pier			12054.59		22
049.0	1.3km W. Cayucos Pier			12055.25		95
050.0	0.1km W. Black Rock			12055.50		86
051.0	0.9km E. Cayucos Pt.			12055.80		62
052.0	0.2km E. Cayucos Pt.				1	126
053.0	Cayucos Pt.			12056.37		197
054.0	0.2km W. Cayucos Pt.			12056.47		96
055.0	0.4km W. Cayucos Pt.			12056.66		130
055.1	? km W. Cayucos Pt.	SLO	3526.73	12056.36	1	75
055.2	W. of Cayucos Point	SLO	3526.76	12056.22	1	20
055.3	S of Cayucos Point	SLO	3526.	12056.	2	1
055.5	S of Cayucos Point	SLO	3526.80	12056.40	2	13
056.0	2.1km NW Cayucos Pt.	SLO	3527.76	12057.66	1	50
056.1	?km NW Cayucos Pt.	SLO	3527.	12057.	1	39
056.2	?km NW Cayucos Pt.			12056.76		33
057.0	0.4km SE Villa Creek		3527.	12058.	1	46
057.1	? km W. Villa Cr.		3527.	12100.	1	30
057.2	? Km W. Villa Cr.		3527.	12100.	3	14
058.0	Point Estero		3527.	12100.	1	67
058.1	Pt. Estero area		3527.	12100.	1	51
058.5	S. China Shack			12100.60		18
058.7	S of China Shack			12100.89		21
058.9	S of China Shack			12100.89		43
059.0	0.4km S. China Shack			12101.03		23
060.0	0.3km S. China Shack 0.1km S. China Shack			12101.39 12101.56		11 23
061.0 061.8	China Shack		3529.21	12101.30	3	7
062.0	0.1km N. China Shack			12101.44	1	17
063.0	0.4km N. China Shack			12101.58	ī	19
064.0	0.5km N. China Shack			12101.65	1	27
064.5	0.6 km N. China Shack	SLO		121 .	2	2
065.0	0.7km N. China Shack		3529.18	12101.71	1	43
065.1	? km n. China Shack		3529.	12103	1	1
065.2	? km N. China Shack		3529.42	12101.66	2	51
066.0	1.9km S. Radar Station		3530.33	12103.05	1	51
066.1	?km S. Radar Station		3530.50	12103.00	3	45
066.2	?km S. Radar Station		3530.	12103.	3	1
067.0	0.4km S. Radar Station		3530.89	12103.82	2	65

SITE	LOCATION	COU NTY	LAT	LONG	S U B S T	MAX
068.15 068.2 068.25 068.3 069.0 069.1 070.0 070.1 071.0 071.1 072.0 073.0	1.2km N. Radar Station Vicinity White Rk. Vicinity White Rock Vicinity White Park 1.5 Miles N White Rock S. of Vicinity White Pt Castle Inn, Cambria-Opp.C. Rock ? 0.9km N. San Simeon Cr. ?km N. San Simeon Cr. 1.3km N. San Simeon Cr. N. San Simeon Cr. 1.3km N. San Simeon Cr. 1.8km N. San Simeon Cr. 1.8km N. San Simeon Cr. Pico Creek Cove 6km E. San Simeon Pier W San Simeon Pt 1.3km W. San Simeon Pt. ?W Adobe Creek 2.4km W. Adobe Creek ?km W. Adobe Creek 1.8km W. Adobe Creek 2.0km W. Adobe Creek 2.0km W. Adobe Creek 2.7km E Piedras Blancas Lthouse ?km E. Piedras Blancas 2.3km E Piedra Blancas Lthouse ?km E. Piedras Blancas 2.3km E Piedras Blancas Pt. Piedras Blancas	\$10 \$10 \$10 \$10 \$10 \$10 \$10 \$10 \$10 \$10	3531. 3531. 3531. 3531. 3534.67 3535.67 3536.05 3536.11 3536.14 3536.18 3536.22 3536.29 3537.04 3538.47 3538.47 3538.47 3538.40 3539.15 3539.15 3539.20 3539.30 3539.15 3539.24 3539.65 3539.30 3539.75 3539.75 3539.75 3539.76	12106.80 12107.86 12108.58 12108.07 12108.11 12108.43 12108.58 12109.01 12110.75 12111.71 12113.22 12113.22 12113.79 12114.45 12114.19 12114.91 12115. 12115.48 12115.48 12115.48 12115.12116.81 12116.81 12116.62 12116.56 12112.40 12118.27 12118.82	2 1 1 1 2 1 1 1 2 1 1 1 1 2 1 1 1 2 1 1 1 1 1 2 1 1 1 1 1 2 1 1 1 1 1 2 1 1 1 1 1 2 1 1 1 1 1 2 1	15 15 15 21 42 43 15 15 28 15 28 15 26 26 26 27 27 23 10 40 40 40 40 40 40 40 40 40 40 40 40 40
090.0	1.0km S. Salmon Creek	М	3548.	12121.	2	15

SIIL	LOCATION	NTY	IMI	LONG	U	MAA
					В	
					S	
					T	
091.0	1.6km S. Salmon Creek	M	3548.30	12121.28	1	13
091.1	Salmon Creek area	M	3548.	12121.	2	21
092.0	0.3km S. Salmon Creek	M		12121.59		12
093.0	0.5km N. Salmon Creek	M		12121.86		6
	?km S. Redwood Gulch	M		12122.77		18
093.3	2.5 mi. S. Redwood Gulch	M		12123.39		1
094.0	Redwood Gulch	M		12123.74		2
094.1	Vicinity Redwood Gulch	M	3550.	12123.	2	10
094.2	Vicinity Redwood Gulch	M		12123.60		5
094.3	?km SE Alder Creek	M	3551.	12124.	2	1
094.4	S of Alder Creek	M	3551.	12124.	2	6
094.5	S of Alder Creek	M	3551.		2	1
	0.3km S. Alder Creek	M		12124.86		15
096.0	0.8km N. Alder Creek	M		12125.01		19
096.1	?km N. Alder Creek	M		12125.70		14
096.2	?km N. Alder Creek	M	3551.	12125.	2	2
096.3	?km N. Alder Creek	M	3551.	12125.	2	1
096.4		M	3551.	12125. 12125.88	2	3 23
097.0 098.0	1.3km N. Alder Creek	M		12127.04		59
099.0	Bird Rock (Gorda Rock) 0.6km S. Cape San Martin	M M		12127.04		5
099.1	Vicinity Cape San Martin	M		12121.06		7
099.2	Vicinity Cape San Martin	M		12127.25		6
099.5	N of White Bridge	M		12027.91		3
100.0	1.5km S. Plaskett Rock	M		12128.04		9
101.0	0.7km S. Prewitt Creek	M		12128.29		25
	0.4km S. Prewitt Creek	M		12128.29		44
	S. Prewitt Creek	M	3556.	12128.	2	2
	0.7km N. Prewitt Creek	M		12128.64	2	1
103.8	?km S. Wild Cattle Creek	M	3557.	12129.	2	9
104.0	0.1km S. Wild Cattle Cr.	M	3557.43	12129.02	2	11
104.1	S Wild Cattle Cr	M	3557.	12129.	2	3
104.2	E of Wild Cattle Cir	M	3558.	12130	2	1
104.3	N of Wild Cattle Cr	M	3559.	1213 .	2	1
104.5	1.5 mi S. Rockland Landing	M		12130.84		11
105.0	1.0km E. Lopez Point	M		12132.88		6
105.1	E of Lopez Point	M	3600.	12132.	2	5
106.0	0.1km E. Lopez Point	M		12133.96		1
106.1	?S Lopez Point	M	3601.	1213 .	2	1
107.0	0.1km W. Lopez Point	M		12134.03	1	34
107.1	W Lopez Point	M	3601.	12134.	2	5
108.0	0.7km S. Vicente Creek	M		12134.84		15
109.0	Vicente Creek	M	3602.68	12135.10	2	10

SITE	LOCATION	COU NTY	LAT	LONG	S U B S T	MAX
117.0 118.0 118.1	.6km N. Big Creek 1.0km S. Dolan Rock 0.6km S. Dolan Rock Dolan Rock 0.2km N. Rat Creek Rat Creek Area ?km N. Rat Creek N Rat Creek S of Lime Creek Lime Creek 0.3km S. Lime Creek 0.4km S. Anderson Canyon N. Anderson Canyon 0.1km S. McWay Rocks S. McWay Rocks	M M M M M M M M M M	3604.66 3604.75 3605. 3605.61 3605. 3605. 3605. 3606. 3607.10 3608.72 3609. 3609.80	12136.35 12136.62 12136.87 12137. 12137. 12137. 12137. 12137. 12137. 12137. 12137. 12138. 12137.94 12139.87 12140.	2 2 2 2 2 2 2 2 2 2 2 2 2	208 98 43 37 71 3 8 3 9 6 46 29 13
118.5 119.0 119.1 120.0	S of Seaview Shoals McWay Rocks Vicinity Mcway Rks. 0.3km N. McWay Rocks	M M M M	3609.80 3609.	12040.87 12140.67 12140. 12140.77	2 2 1 2	3 9 12 2
121.0 122.0 123.0 124.0	1.2km S. Partington 0.6km S. Partington Creek 0.8km S. Torre Canyon La Fler Canyon	M M M M	3609.91 3610.11 3611.24	12141.20 12141.56 12142.46	2	3 18 4 1
125.0 126.0 126.5	0.1km N. La Fler Canyon 0.8km N. La Fler Canyon Grimes Point	M M M	3611.82 3612. 3612.16	12143.64 12144. 12144.41	2 3 2	13 11 13
127.0 128.0 129.0 130.0	2.7km S. Pfeiffer Point Cooper Point 2.4km N. Cooper Point 1.7km N. Big Sur River	M M M M	3614. 3615.75 3617.15	12150. 12150.72 12152.56	1 2 2 1	118 1 54 266
130.1 131.0 131.1 131.2	Pt. Sur Lighthouse 1.6km S. Pt. Sur Lthouse 1.0km S. Pt. Sur Lthouse 1.0km S. Pt. Sur Lthouse	M M M M		12153.78 12153.24 12153. 12153.	1 2 1 2	30 71 56 14
131.3 132.0 132.1 133.0	<pre>?km S. Pt. Sur Lighthouse 1.2km S. Pt. Big Sur Lthouse S. Big Sur Lighthouse 1.1km S. Pt. Big Sur Lthouse</pre>	M M M M	3618.	12153. 12153.51 12153. 12153.35	2 1 1 2	64 107 8 159
134.0 134.1 134.2	<pre>? km S. Hurricane Pt. ? km S Hurricane Pt. ? km S Hurricane Pt.</pre>	M M M	3621.10 3621. 3621.	12154.09 12154. 12154.47	1 2 2	12 4 10
134.5 135.0	S of Hurricane Point Castle Rk. (Bixby Ldg.)	M M	3621. 3622.44	12154. 12154.35	3 5	10 38

SITE	LOCATION	NTY	LAT	LONG	S U B S T	MAX
141.1 142.0 143.0 143.5 144.0 144.5 145.0 146.0 147.0 150.0 151.0 153.0 154.1 155.0 154.1 155.1 156.1 157.1 158.0 159.0 160.0	0.5km N. Palo Colorado Canyon 0.8km S. Soberanes Point Soberanes Pt. Area Soberanes Point 0.9km S. Malpaso Creek S. Malpaso Creek S. Malpaso Creek Yankee Point Cove Yankee Point Yankee Point Yankee Point Bird Island (Pelican Point) 0.3km N. Bird Island Devil's Cauldron Headland Cove Granite Point Whalers Cove The Pit, Whalers Cove Moss Cove (Pt. Lobos Reserve) Arrowhead Point (Outside) Arrowhead Point (Inside) Pescadero Rocks .5kmN.Pescadero PtStwtr.Cove Cypress Pt. Parking Lot South 0.1km S. Cypress Point Cypress Point 0.1km N. Cypress Point Cypress Point 0.1km N. Cypress Point Near Fan Shell Beach Seal Rock N of Seal Rock 1.3km N. Seal Rock (Ocean Av.) 0.2km S. Point Joe Asilomar (Arena Av.) S Asilomar Arena Av Asilomar (Arena Ave) .5km W Lovers Pt. (Pacific Av.) ?km SE Lovers Pt. ?km SE Lovers Pt.		3626.59 3626.59 3627. 3628.37 3628.66 3629.29 3628.66 3629.39 3630.56 3630.40 3631.08 3631.21 3631.20 3631.42 3631.35 3632.48 3631.34 3633.70 3633.92 3634.58 3634.75 3634.82 3634.83 3635.57 3635.57 3635.57 3637.60 3637.60 3637.69	12154.70 12155.43 121 12155.43 12155. 12156.25 12156.32 12156.32 12156.32 12156.63 12156.63 12156.92 12156.97 12156.04 12156.04 12156.04 12156.04 12156.74 12156.62 12156.74 12156.62 12156.97 12158.60 12158.60 12158.60 12158.60 12158.60 12158.62 12158.60 12157.76 12157.90 12157.90 12157.76 12156.47 12156.47 12156.47 12156.47 12156.47 12156.47 12156.47 12156.47 12156.47 12156.47 12156.47 12156.47 12156.47 12156.47 12156.47 12156.47	212223213322221112222131221112122	10 5 2 6 2 2 1 4 1 9 1 8 2 2 1 3 7 2 8 1 5 3 2 8 1 5 3 2 8 1 5 3 4 5 3 9 0 2 6 6 6 1 7 1 8 9 5 3 6 6 6 1 7 1 8 9 5 7 1 8 9 5 7 1 8 9 5 7 1 8 9 5 7 1 8 9 5 7 1 8 9 5 7 1 8 9 5 7 1 8 9 5 7 1 8 9 5 7 1 8 9 5 7 1 8 9 5 7 1 8 9 1
162.0 162.1	Hopkins Marine Station Cannery Row Rock	M M	3637.28	12154.14 12154.	2	149

162.2	Aquarium	M			2	9
163.0	Monterey Harbor (2km S Brwtr.)	M		12153.60		7
164.0	Elkhorn Slough(1.6km E. Hwy 1)	M		12146.11		92
164.7	Cement Ship N. Rio Del Mar	M		12154.80		41
165.0	Soquel Pt.	SC		12158.60		89
166.0	2.0km N. Terrance Pt.	SC		12205.30		176
167.0	Table Rock	SC		12208.10		169
167.8	N. Yellow Bank Creek	SC		12210.50	2	1
168.0	1.2km N. Yellow Bank Creek	SC	3659.	12210.	2	29
169.0	Davenport Cement Plant.5km N.P			12212.26		40
170.0	El Jarro Pt.	SC		12213.70		1
170.1	N El Jarro Pt.	SC		12213.35		1
171.0	N. Scott Creek	SC		12214.21	1	33
172.0	2.6km S. Greyhound Rock	SC		12215.21		145
173.0	1.7km S. Greyhound Rock	SC	3703.93	12215.27	1	53
174.0	1.3km S. Greyhound Rock	SC			3	139
175.0	1.0km N. Greyhound Rock	SC	3704.97	12216.42	2	81
175.5	? km. N Greyhound Rock	SC	37	122	1	1
176.0	Ano Nuevo Pt.	SM			1	31
177.0	Ano Nuevo Isl.	SM		12220.58		124
178.0	0.7km N. Ano Nuevo Pt.	SM		12220.12		116
179.0	1.1km N. Ano Nuevo Pt.	SM		12220.29		59
180.0	1.3km N. Ano Nuevo Pt.	SM		12220.58		44
181.0	1.8km S. Franklin Pt.	SM		12220.85		17
182.0	Franklin Pt.	sm	3708.93	12221.77	2	26
182.1	Vicinity Franklin Pt.	SM	3708.	12221.	1	3
182.2	N. Vicinity Franklin Pt.	SM	3709.93	12221.77	2	4
182.7	N. Franklin Pt.	SM	3710.20	12222.00	1	1
183.0	3.4km N. Franklin Pt.	SM		12222.45		4
184.0	1.4km S. Pigeon Pt.	SM	3710.71	12223.16	2	1
185.0	0.4km S. Pigeon Pt.	SM		12223.31		43
186.0	1.4km N. Pigeon Pt.	SM	3711.60	12224.01		12
186.1	N. Pigeon Pt.	SM	3711.	12224.	2	1
187.0	1.7km N. Pigeon Pt.	SM	3711.67	12224.16	2	8
187.7	.75 mile N Bolsa Point	SM	3711.71	12224.30	2	1
188.0	N. Bolsa Pt	SM	3712.71	12224.43	1	185
189.0	0.5km N. Bean Hollow	SM	3713.81	12224.83	2	11
190.0	0.8km N. Bean Hollow	SM	3713.96	12224.91	1	105
191.0	1.0km N. Bean Hollow	SM	3714.11	12225.00	2	21
191.1	Pescadero Pt.	SM	3714.47	12225.14	1	6
192.0	0.2km N. Pescadero Pt.	SM	3714.74	12225.16	2	34
	0.3km N. Pescadero Pt.	SM	3714.87	12225.13	2	24
193.1	?km N Pescadero Pt.	SM	3714.	12225.	1	5

0112		NTY	u/o	20110	U B	
					S	
					T	
104.0	Dutana Creak Mouth	CM	2716 02	12224 02	2	E 4
194.0 194.1	Butano Creek Mouth ?km N. Martins Beach	SM SM	3716.02	12224.82	2	54 1
195.0	Eel Rock	SM		12225.66		144
195.1	N. Eel Rock	SM		12225.90		146
196.0	Miramontes Pt.	SM		12226.66		47
196.1	6km N. Miramontes Pt.	SM	3726.95		2	33
197.0	Sail Rock, Pillar Pt.	SM		12229.98		122
197.1	Sail Rock, Pillar Pt.	SM		12230.15		100
198.0	1.0km N. Pillar Pt.	SM		12230.22		125
198.1	N. Pillar Pt.	SM	3730.	12230.	2	25
	1.5km N. Pillar Pt.	SM		12230.27		131
199.5	0.5 mi S. Seal Cove	SM	3730.	12230.	2	24
200.0	Moss Beach (Seal Cove)	SM		12230.83		58
200.1	?km S. Seal Cove	SM	3730.	12230.	2	24
201.0	Moss Beach (N. Seal Cove)	SM		12230.94	2	68
201.1	?km S. Pt. San Pedro	SM	3735.	12231.	2	3
202.0	San Pedro Rock (South Side)	SM	3735.69	12231.22	3	58
202.1	Mussel Rock	SM	3739.00	12230.00	2	1
203.0	Gaudalupe Slough	SCL	3726.70	12202.14	4	67
204.0	Calaveras Pt.	ALA	3728.02	12202.99	4	14
205.0	Mowry Slough	ALA	3729.32	12201.98	4	328
206.0	Plummer Creek	ALA	3730.48	12205.2	4	53
207.0	Greco Island	sm		12210.78		74
208.0	Corkscrew Slough	SM		12212.88		17
209.0	Yerba Buena Island	SF		12221.71		65
210.0	0.4km W. Blunt Pt., Angel Isl.			12226.69		18
210.8	Lighthouse Blunt Pt Rock	SF		12025.16		13
211.0	Sausalito Small Craft Harbor			12229.69		30
212.0	Strawberry Spit			12229.89		97
212.5	3 km. N. California Point			12230.02		8
213.0	Castro Rocks			12224.99		123
214.0	Tubbs Island			12226.69		34
215.0	Pt. Bonito (.6km N. on inside)			12231.47		55
215.1	Pt. Bonita		3749.33		2	1
216.0	0.4km N. Tennessee Cove			12233.30	2	5 1
216.1	Muir Beach		375 .	1223 .	1	
217.0	Bolinas Lagoon		3754.82		4	182
217.1 218.0	Bolinas Lagoon			12241.81 12241.88		65
218.0	Duxbury Reef		3753.29	12241.88	1	193 24
219.0	West end Duxberry Reef Bolinas Pt.			12241.		25
	Vicinity Bolinas Pt.			12243.31		1
	Vicinity Bolinas Pt.		3754.74	12243.75	1	1
217.2	violately bollings re.	11111	3134.	ILLAJ.	_	_

SITE LOCATION

COU LAT LONG S MAX

BST

SITE	LOCATION	COU	LAT	LONG	S	MAX
		NTY			U	
					В	
					S	
					\mathbf{T}	
249.0	Hog Island (E. Spit)	MAR	3811.83	12256.38	4	236
	S.E. Hog Island			12256.20		173
	? km N. Dillon Beach			12259.20		22
	Pinnacle Rock Area			12301.		3
	Bodega Rock			12302.82		
252.0	New Bodega Head			12303.16		
	Mussel Pt.			12304.63		12
	Arched Rock S. Carmet			12304.40		9
	.7km S Duncans PtPocked Rock					
	Duncans Pt.			12305.		16
	0.3km E. Duncans Pt. (Cove)	SON	3823.56	12305.61	2	8
	Wrights Beach Furlong Gulch	SON	3824.11	12306.16	2	60
	Furlong Gulch Area			12306.20 12206.87		3
	0.9km N. Shell Beach			12306.84		
	N. of Shell Beach	SON	3825.20	12306.84	2	1
260.0		SON	3825.39	12306.90	2	2
260.1		SON	3825	12306.	2	1
261.0				12306.83		3
	Russian River			12306.		10
261.2				12305.80		18
262.0	Russian River Spits			12307.64		318
263.0	1.3km N. Russian River	SON	3827.34	12308.51	2	31
	?km N. Russian River			12208.37		21
	?km N. Russian River			12308.37		15
	1.6km N. Russian River			12208.88		26
	1.6 km N Russian River			12308.50		26
	2.0km N. Russian River			12308.90		
265.1	?km N. Russian River		3828.39		2	5
266.0	1.6km N. Russian Gulch			12310.18	2	8
267.0	1.7km N. Russian Gulch			12310.26		5
268.0 268.1	1.9km N. Russian Gulch ?km N. Russian Gulch				1	37
269.0	0.3km S. Meyer Gulch		3828.	12310. 12310.87	2	13
270.0	1.8km S.Fort Ross Reef			12310.87	2	13 9
270.1	?km S. Fort Ross Reef		3929.75	12312.46	2	13
270.2	?km S. Fort Ross Reef		3929.	12312.	2	1
271.0	0.3km S. Fort Ross Gulch			12313.59		28
272 0	Fort Deer Deer	5014	2020.10	12010.00	2	20

SON 3830.06 12313.92 2

SON 3830. 12313. 2

SON 3830.23 12313.85 2

SON 3830. 12313. 2

SON 3830.68 12314.63 2

14

1

70

1

36

272.0

272.1

273.0

273.1

Fort Ross Reef

274.0 Fort Ross Cove

?km N. Fort Ross Reef

N. of Fort Ross Reef

0.2km N. Fort Ross Reef

SITE	LOCATION	COU	LAT	LONG	S U B S T	MAX
277.1 278.0 279.0 280.0 281.0 282.1 283.0 283.1 283.2 284.0 284.1 284.2 284.3 285.0 285.1 285.2 286.0 287.1 287.2 287.3 287.2 287.3 289.0 291.0 291.1 292.0	N. Side Fort Ross Cove Northwest Cape (0.1km S.) Northwest Cape 0.3km N. Northwest Cape 0.3km N. Northwest Cape 0.9km N. Northwest Cape 0.9km S. Windermere Pt. 1.0km N. Windermere Pt. 1.0km N. Timber Cove Gr. 0.9km N. Timber Cove Gr. 0.9km N. Timber Cove Gr. South End Stillwater Cove Stillwater Cove (inside) ?km N. Stillwater Cove Gerstle Cove Salt Pt. Salt Pt. Area Salt Point Area 0.3km N. Salt Pt62 mi N Salt Point N. of Salt Point 0.3km S. Chinese Gulch ?km S. Chinese Gulch ?km S. Chinese Gulch Pisk Mill Cove .7kmN. Cannon Gulch-Fisk Mill 0.7km S. Horseshoe Pt. 0.7km N. Horseshoe Cove Horseshoe Cove Area 0.5km S. Rocky Pt.	SON	3830.72 3831.87 3831.12 3831.42 3831.55 3831.84 3832.15 3832.78 3832.80 3833.50 3833.50 3833.90 3833.90 3833.90 3833.90 3833.90 3833.90 3833.90 3833.90 3833.90 3833.90	12316.91 12317.96 12317.90 12319.00 12319.98 12319. 12 . 12 . 12320. 12321. 12321. 12321. 12322. 12322. 12322. 12323. 15	232112232222222222323232222123	17 37 39 51 36 19 57 50 70 10 22 53 15 71 60 16 73 14 14 11 11 12
292.1 293.0 293.5 294.0	Sandy Point Sandy Pt. Sandy Point 0.7km S. Stewarts Pt.	SON SON	3898.60 3838.98	12323.98 12323.80 12324.15	2	12 18 43 26
294.1 295.0 296.0	Stewarts Pt. Area 0.2km S. Stewarts Pt. Stewarts Pt. Island	SON		12424. 12324.39 12324.50	3	5 40 115

5111	DOCATION	NTY		LONG	U B S T	TIAX
297.0 297.1 298.0 298.1 298.2 299.0 299.1 300.0 301.1 302.0 303.0 304.0 305.0 306.0 307.0 308.0 309.0 310.1 311.0 312.0 312.1	Stewarts Point Island 0.6km N. Stewarts Pt. Stewart's Pt. Area 1.0km S. Black Pt. Black Pt. Area ?km S.E. Black Pt. 0.4km N. Black Pt. Black Pt. Area 2.8km N. Black Pt. N of Black Point 3.8km N. Black Pt. Diamond Rock 5.2km N. Black Pt. 6.0km N. Black Pt. 6.0km N. Black Pt. 6.7km N. Black Pt. 7.1km N. Black Pt. 7.3km N. Black Pt. 7.3km N. Black Pt. 7.3km N. Black Pt. 7.5km N. Del Mar Pt. Pkm S. Del Mar Pt. Pkm S. Del Mar Pt. Del Mar Pt. Area	SON SON SON SON SON SON SON SON SON SON	3839.58 3839.38 3840.34 3840.56 3840.87 3841.60 3842.06 3842.48 3842.48 3842.48 3842.92 3843.27 3843.27 3843.30 3843.46 3843.58 3843.46 3843.71 3843.71 3843.71 3844.25 3844.39 3844.39 3844.39	12326.05 12327.08 12327.16 12327.16 12327.63 12328.21 12328.27 12328.64 12328.92 12329.22 12329.02 12329.09 12329.90	2 2 1 2 3 1 2 2 2 2 2 2 2 2 2 2 2 1 2 3 1 1 1	2 9 35 26 48 4 36 29 15 23 125 17 47 5 1 164 45 3 1 20 1 27 79
313.1 314.0	Gualala Pt. N of Gualala Point Robinson Reef Bourns Rock	SON MEN	3845. 3846.04		2	79 9 4 70
315.1 315.2 315.6 316.0 316.1 317.0	<pre>?km N. Bourns Rk. Bourns Landing Collins Landing Fish Rocks Onshore Near Fish Rocks Havens Neck3km N.Inside Cove</pre>	MEN MEN MEN MEN MEN MEN	3836. 3846.74 3833.76 3847.86 3848.34 3848.62	12333.21 12346.92 12335.44 12336.36 12335.87	1 2 5 2 2	4 9 21 35 3 13
317.1 318.0 318.1 319.0 319.1 320.0 321.0 322.0	Vicinity Havens Neck 1.2km N. Havens Neck Scholl Rock 0.6km S. Steen's Landing ?km N. Steens Landing Morrison Gulch Iverson's Landing (S. side) Iverson's Landing (N. side)	MEN MEN MEN MEN MEN MEN	3849. 3849.43 3849. 3850.38 3850.60	12336. 12336.43 12336. 12336.74 12336. 12337.99 12338.51 12338.66	3 3 2	3 32 25 7 4 69 32 0

323.0	Saunders Reef Area (inside)			12339.80		28
324.0	0.8km N. Galloway Creek	MEN	3853.18	12341.14	1	53
324.1	1.2 Km S. Arena Cove		3854.	12342.	2	2
324.5				12340.90		9
	0.8km S. Arena Cove			12342.40		34
	?km. S. Pt. Arena			12342.40		74
	Sea Lion Rocks			12344.09		15
325.7	0.25 S Point Arena			12344.65		14
	Pt. Arena			12343.73		145
327.0	0.4km N. Mallo Pass Cr.			12341.41		48
327.1	?km N. Mallo Pass Cr.			12341.77		57
328.0	0.9km N. Mallo Pass Cr.	MEN	3902.32	12341.97	2	
329.0	1.0km N. Mallo Pass Cr.			12342.60		
329.1	Bridgeport Landing			12341.75		
329.5	N. Bridgeport Landing			12342.20		
	0.6km S. S. Elk Cr.			12342.84		
331.0	Elk Creek			12342.	2	1
331.1	Big Rock			12342.99		
332.0	Cuffey's Pt.			12344.49		
332.1	N. Cuffey's Pt.			12344.43		
332.5	Taylor Rock	MEN	3909.60	12344.35	2	17
333.0	Devil's Basin			12344.87		
334.0	0.3km S. Saddle Pt.	MEN	3910.39	12345.17	2	73
335.0	0.2km S. Saddle Pt.	MEN	3910.53	12345.06	2	36
335.4	Vic. Arch of the Navarro	MEN	3911.	12346.	2	5
335.2	N of Saddle Point	MEN	3910.84	12345.36	3	1
335.8	0.5 Mi N. Navarro Point	MEN	4110.09	12311.45	2	25
336.0	0.4km S. Salmon Pt.	MEN	3911.64	12346.23	2	23
336.1	Albion Head	MEN	3914.	12346.	2	
	Albion Head	MEN	3914.	12346.	2	10
336.05	3km N. Whitesboro Cove	MEN	3914.		3	
	1.8km N. Albion Head	MEN	3914.65	12347.02	2	37
337.1	?km N. Albion Head		3914.		2	2
	0.2km N. Stillwell Pt.	MEN	3915.12	12347.22	2	74
338.1	Buckhorn Cove	MEN	3915.	12347.	2	1
	Van Damme Beach	MEN	3915.80	12347.80	2	13
339.0	Van Damme S. B.			12347.66		38
339.1	Van Damme S.B.	MEN	3916.	12347.	2	17
340.0	0.7km N. Van Damme S.B.		3916.28	12348.01	3	18
	N. Van Damme Beach	MEN	3916.	12348.	2	1
340.1	N of Van Damme Beach		3916.	12348.	2	23
341.0	1.5km N. Van Damme S.B.		3917.27		2	98
342.0	Near Goat Isl. Mendocino City		3918.34		2	32

		1111			В	
					S	
					T	
					1	
342.1	Goat Island Area	MEN	3918 40	12348.90	2	31
	0.6km N. Goat Island			12348.59		34
	?km N. Goat IS.		3918.	12348.	2	20
	1.2km N. Russian Gulch			12349.12		22
	Pt. Cabrillo Light Station		3920.20		2	15
345.0				12349.69		31
	1.2Km N. Russian Gulch			12349.70		13
345.1	Casper Anchorage			12349.76		24
345.2	Caspar Anchorage			12349.80		25
345.3	Caspar Point		3921.	12349	3	21
346.0	Casper Anchorage Area		3921.	12349.	2	41
347.0	S. Mitchell Cr.			12349.40		21
	Soldier Pt. Area		3926.	12349.	2	53
	.7kmN.Soldier Pt.Ft.Bragg Area					51
	?km N. Pudding Cr.			12348.64		16
350.0	1.8km N. Pudding Cr.			12348.56		27
351.0	0.8km S. Laguna Pt.			12348.60		18
352.0	Laguna Pt.			12348.55		183
352.1	N Laguna Point			12347.94		39
352.2	?km N. Ten Mile River Bluff			12346.35		26
353.0	0.3km N. Kibesillah Rock			12346.93		55
354.0	Bruhel Pt.			12347.36		46
355.0	Bell Pt.			12347.25		20
	?km N. Bell Pt.		3937.	12347.	2	4
355.5	3.2 km N. Abalone Point			12347.89		32
356.0	Cape Vizcaino			12349.81		67
356.1	Cape Vizcaino Area			12349.95		100
357.0	0.4km N. Cottoneva Cr.			12350.11		14
	Williams Pt.		3945.	12450.	1	25
	0.3km N. Soldier Frank Pt.			12450.54	2	14
359.1	?km N. Sea Lion Rk.		3945.	12450.	2	1
360.0	0.5km S. Anderson Gulch			12453.45		58
361.0	0.3km S. Anderson Gulch			12453.21		186
362.0	0.3km N. Anderson Gulch			12453.44		239
363.0	Northpoint Cove			12453.79		839
364.0	0.6km N. Mistake Pt.			12454.41	5	13
365.0	Jackass Creek Area			12455.74	5	154
366.0	Seal Rock 1.5km S. Bear Harbor			12455.96	2	240
366.1	Seal Rock Area	MEN		124	5	142
367.0	Pt. No Pass		3958.	12459.	2	10
367.1	Point Delgaela			12404.52		26
	Point Delgada	Н		12404.54		23
368.0	1.4km N. Pt. Delgada	Н		12404.45		43
					_	

U

NTY

SITE	LOCATION	NTY	LAT	LONG	U B S T	MAX
368.1	?km. S.E. Miller Flat	Н	4006.50	12402.45	2	33
369.0	5.0km N. Big Flat Creek	H		12413.41		13
369.1	Reynolds Rk.	H	40	124	2	1
370.0	Sea Lion Gulch	H	4014.11	12420.46	2	3
371.0	1.7km S. Punta Gorda	H	4014.20	12420.60	2	25
372.0	1.3km S. Punta Gorda	H	4014.	12421.	2	3
372.1	Mattloe Beach	H		12422.44		16
373.0	Hair Seal Rock	H	4019.47	12421.32	2	206
	?km N. HAIR SEAL ROCK	H		12421.40		34
374.0	1.6km N. Hair Seal Rock	H	4019.89	12421.39	2	43
375.0	2.2km N. Hair Seal Rock	H	4020.18	12421.74	1	10
376.0	2.7km N. Hair Seal Rock	H	4020.	12421.74		4
377.0	1.7km S. Sugarloaf Rock	H	4025.	12424.	2	4
378.0	0.4km S. Sugarloaf Rock	H		12424.56		5
378.1	?km S. Sugarloaf Rock	H	4026.	12424.	1	2
379.0	0.2km S. Sugarloaf Rock	H		12424.66		4
380.0	0.3km S. Sugarloaf Rock	H		12424.69		15
380.1	Vicinity Cape Mendocino	H	4026.	12424.	2	4
380.2	N Cape Mendocino	H		12424.98		2
381.0	False Cape	H		12423.59		73
381.1	Cockrobin Island	H	4030.	12418.	5	441
381.2	?km S. Cockrobin Island	H	40 .	124 .	5	81
381.3	?km. N. False Cape	Н	4030.	12423.	2	15
382.0	Eel River Spit	H		12418.99		1060
383.0	S. Humboldt Bay	Н	40 .	124 .	4	830
384.0	Daby Island	Н		12408.97		518
385.0	N. Humboldt Bay	H		12406.50		170
386.0	Luffenholtz Cove	H		12407.20		9
386.1	Vicinity Tepona Pt.	H	4102.	12407.	2	1
387.0	Cap Rock	H	4102.65	12407.51		17
388.0	Tower Rock	H		12407.80		39
389.0	Seal Rock Shoals	H		12407.96		31
390.0	Jamieson Shoal	H		12408.14		79
390.1	Vicinity Trinidad Head	H	4103.	12408.	2	14
391.0	Dome Rock	H		12408.43	2	43
392.0	Lighthouse Shoals	H		12408.63		19
393.0	Marine Lab Shoals	H		12409.45		93
394.0	Flatiron Shoals	H		12409.61		29
395.0	Myer's Cove	H	4104.29	12409.46		42
395.1	N. Meyer's Cove	H	4105 25	12400 22	2	1
396.0	Bench Cove	H		12409.32	1	23
396.1	Vicinity Bench Cove	H	4105.	12409.	1	16
397.0	Seal Rock	H	4105.90	12409.56	2	12

COU LAT

LONG

S MAX

LOCATION

SITE

SITE	LOCATION	NTY	LAT	LONG	S U B	MAX
					S T	
398.0	Seagull Rock	Н	4107.45	12409.72	2	43
398.1	Vicinity Seagull Rock	H			2	6
399.0	Midway Rock	H	4107.48	12409.72		69
399.1	Midway Rock at Patrick's Pt.	Н		12310.20		25
400.0	Close Rock	H		12409.56		67
401.0	Flat Top Rock	H		12409.84		24
402.0	Little Gibralter	H	4107.58	12409.72	2	15
403.0	Spearhead	H	4107.63	12409.88	1	27
404.0	Palmers Pt.	H	4107.75	12409.84	1	79
405.0	Cannonball Beach	H	4107.88	12409.80	1	30
	Abalone Point	H	4107.50	12410.30	2	3
405.1		H			2	1
406.0	Sharp Pt.	H		12406.48		55
407.0	Redwood Creek Spits	H		12405.34		9
407.1	Mussel Point	H		12405.85		13
408.0	Major Creek	H		12405.01		10
409.0	Klamath R. Spits	DN		12404.75		341
410.0	N. Klamath Rock	DN		12405.41		48
411.0	Saddle Rocks	DN		12405.76		20
412.0	Klamath Cove	DN		12405.86		56
413.0	Two Rocks	DN		12406.09		96
413.1	Midway Point	DN	4140.	1240	2	1
414.0	Scat Beach	DN		12408.22		516
415.0	Millers Point	DN		12408.45		100
416.0	Mates Point	DN		12408.41		61
417.0	Battery Point	DN		12412.34		3
418.0	Castle Rock	DN		12414.55		542
419.0	Pt. St. George	DN		12415.53		3
420.0	Mouth of Smith River	DN		12411.82	4	37
421.0	NW Seal Rock	DN	41 .	124 .	2	9
422.0	Farallon Islands	FIS	3742.	123 .	2	84