

OCEAN TEMPERATURES RECORDED IN  
TRIDENT BASIN, KODIAK, ALASKA  
FROM 1970 TO 1994

By

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and

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During the 25 year history of taking ocean temperatures in Trident Basin which are presented in this report, 60 people assisted in the deployment or retrieval of thermographs and their data by: tendering boats, recording field notes and water temperatures, helping scuba divers get out of water, or by scuba diving (divers noted by \*). At times the field conditions were difficult, hampered by winds, freezing rains, snow, darkness and the always cool ocean waters which were experienced by divers. Their efforts are hereby acknowledged and thanked. ADF&G personnel included: S.F. Blau\*, S. Byersdorfer, C. Forrest, K. Delaney\*, T. Dinnocenzo, W. Donaldson\*, T. Emerson, L. Greer, S. Harris, T. Hayden, D. Henley\*, D. Hicks\*, L. Horning, C.L. Hurd, D. Jackson, M. Jones, R. Kaiser, S. Kyle\*, W. McLinn\*, J. Muir, D. Nekeferoff\*, L. Nicholson\*, R. Peterson, G.C. Powell\*, D. Schmidt\*, L. Schwarz, B. Shafford, E. Smith, T. Staak, J. Vollmer\*, I. Warner, and L. White. People from the following agencies helped: M. Hayes, National Marine Fisheries Service, S. Jewett\*, University of Alaska, and B. Dew\* and E. Munk\*, National Marine Fisheries Service. Volunteers included: P. Bruening, P. Cahill, M. Gnagy, L. Gonzales, D. Loring\*, Lt. McLean\*, S. McNeil\*, C. Naughton, M. Powell, T. Powell, V. Pherson\*, J. Quinlan\*, L. Robichand\*, B. Schaeffer\*, E. Smith, J. Stella\*, Lt. Stuckey\* and B. Weaver\*.

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## INTRODUCTION

"Besides bringing about physical changes in a water mass, temperature affects the metabolism and reproductive cycles of marine animals. Crab migrations may be due in part to adjustments to changing temperature conditions" (Stevens 1955). Guy C. Powell, Alaska Department of Fish and Game (ADF&G) king crab research biologist (1958-1984) recorded ocean temperatures in the Kodiak Archipelago in conjunction with various king crab research projects beginning in 1960. In March 1970, Powell placed six pens on the bottom of Trident Basin to study the ability of male red king crabs to mate repeatedly (Powell, Shafford, and Jones 1973; Powell, James, and Hurd 1974) and continued that study until June of 1971. Bottom temperatures were taken frequently using thermometers and thermographs during this study. The taking of temperatures by ADF&G crab research biologists continues at this same location, 57°46'42" N latitude and 152°23'40" W longitude (Figure 1).

Trident Basin or Near Island Basin are local names given to the body of North Pacific Ocean water located east of the City of Kodiak, on the northeastern portion of Kodiak Island, Alaska (Figure 1). The name "Trident" reflects the fact that this small ocean basin is surrounded by three islands: Near, Holiday, and Crooked.

The purpose of this report is to present the ocean temperature data gathered in Trident Basin at the same site for the 25 year period, 1970-1994, and to make available this data to interested persons and agencies; particularly those involved with fisheries and oceanography.

## METHODS

The temperature recording site in Trident Basin is located 10.7 m (35 ft) below mean lower low water (MLLW) or tidal datum (0.0 m or ft sea level) (Figure 1). In 1970 and 1971 this site was marked by the undersea pens which housed red king crabs for mating experiments and thereafter by a clump of broken porcelain pieces from a white water closet. The site is a level stretch of muddy-sand bottom (Powell, James, and Hurd 1974) which is covered predominately by the kelp *Agarum cribrosum*. The site was not marked with a surface buoy from 1970 through most of 1986. The approximate location above the site on the ocean's surface was located by triangulation with landmarks on adjacent islands. Starting in December 1986, a surface buoy was placed near the site with a line and underwater buoys leading to the site. All deployments and retrievals of thermographs were accomplished by scuba divers. Transportation to and from the site was made in various skiffs and ADF&G vessels.

Eleven different thermographs were used to record temperatures in Trident Basin during the 25

year reporting period (Table 1). Nine of these were Peabody Ryan<sup>1</sup> (PR) thermographs whose sensors were made of a hi-expansion liquid filled system and the temperatures were continuously recorded on a pressure sensitive strip chart; from 15 to 180 days. The remaining two thermographs were Ryan TempMentors<sup>1</sup> (RTM) whose sensors were made of a 10K ohm thermistor with temperature data recorded on an 8-bit microprocessor, recording up to 132 days, if temperatures were taken every 1/2 hour, and up to 265 days, if temperatures were taken every hour. Bottom temperatures were also recorded by scuba divers using handheld mercury thermometers as a standard to compare with thermograph readings. Mercury thermometers were used during most thermograph deployments and retrievals, with some opportunistic readings. The liquid crystal display temperature on the RTM's were also recorded by divers before thermographs were retrieved. Dive field notes were kept on each dive and both the handheld thermometer and RTM's temperatures were recorded and then filed in the Kodiak ADF&G crab research office.

Most deployments of PR thermographs consisted of two machines and their usage stopped with the acquisition of the RTMs in 1986. Only the first four deployments (6/86-7/87) of the RTMs were paired, with temperatures being recorded at 1/2 hour intervals. The remaining RTM deployments had temperatures recorded at one hour intervals. Both types of thermographs were sent to the manufacturer for periodic recalibration and repairs.

Strip charts used in the PR thermographs were removed from the machines and the starting and ending times and each intervening day were labeled on the chart. The temperature at noon of each day, as indicated by the line left on the chart from the stylus, was estimated to the nearest 0.1°F or 0.1°C depending on the model and chart used (Table 1). Temperatures were written on both the strip chart and a table of dates for each deployment period. The temperatures of the two RTM thermographs when dually deployed (6/86 - 7/87) were combined and summarized by hourly and daily averages. The daily average temperatures were closest to the hourly readings at noon or 1 p.m. in the 383 days compared. No data was entered when the PR thermographs had obvious problems, i.e. charts getting hung-up on the chart advancing sprockets or if the chart advanced too slowly given the known number of days it was deployed. The data from each machine was then entered into a computer database. All the bottom temperature readings from the handheld thermometers were also entered.

Initially, all entered handheld thermometer and PR thermograph temperature data, by individual machine, were graphed by calendar year (1970-86). The handheld thermometer readings were used as a benchmark to compare with the PR thermographs because they were more accurate (Table 1). When the PR deployment records deviated by  $\pm 1.1$  °C ( $\pm 2.0$ °F) or greater from the handheld thermometers, the records were eliminated from the data file.

Temperature readings from the RTM's were downloaded directly onto the hard drive of a personal computer. The deployment and retrieval times were taken from diving notes. Several

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<sup>1</sup>Reference to trade name does not imply endorsement by ADF&G.

readings had to be eliminated when the thermographs were first placed in the water since it generally took the sensor 1-2 hours to adjust to the ocean's ambient temperature. Likewise, temperature readings were excluded after the time of retrieval.

There were 13 paired observations between handheld thermometer readings and RTM's liquid crystal displays. Both pairs of temperatures were taken underwater just prior to the time of retrieval. The average absolute temperature difference between the RTM machines and that of the handheld thermometer was  $<0.1^{\circ}\text{C}$  (Table 2). From 6/86-7/87 the RTM thermographs were deployed and retrieved together and temperatures were recorded at 1/2 hour intervals. A comparison of their daily average temperatures throughout that time period revealed that temperatures were always within  $0.2^{\circ}\text{C}$ , hence it was decided to average all 48 hour readings/day to come up with a daily average. From 7/87 through 1994 the RTMs were deployed separately and the recording interval was increased to one per hour or 24 readings per day. The recorded temperatures were averaged into a daily average for entered onto a spreadsheet for graphing purposes.

## RESULTS

The 1970-1994 Trident Basin edited temperature data was placed into tables by calendar year and graphed. For the PR thermographs, the tables were completed for each machine used (Tables 3-42) but were graphed together whenever two or more thermographs were used in a calendar year (Figures 2-10). The daily averages of one or both RTM thermographs were calculated and are displayed in Tables 43-51 and in Figures 11 and 12.

All data was lost during the 10/10/90 through 6/13/91 deployment of RTM 900235 due to water leakage into the thermograph because it was not sealed properly. It may be possible to estimate those temperatures by comparing ocean temperatures taken with RTMs during the same time periods by National Marine Fisheries Service (NMFS). NMFS RTMs were placed in similar depths (9 m and 13 m) in Womens Bay, Kodiak Island which is approximately 2.3 nm SW from Trident Basin. Inquires regarding the Womens Bay temperature data may be made to the Director, NMFS, Northwest and Alaska Fisheries Center, P.O. Box 1638, Kodiak, Alaska 99615.

A 3.5" diskette with an ASCII file that contains all the temperature data recorded chronologically by thermograph is available upon request.

## LITERATURE CITED

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- Powell, G.C., K.E. James, and C.L. Hurd. 1974. Ability of male king crab, *Paralithodes camtschatica*, to mate repeatedly, Kodiak, Alaska, 1973. Fishery Bulletin 72(1):171-179.
- Stevens, H.R. 1955. Progress report on king crab research. Pages 87-93 in 1955 Annual Report, Alaska Department of Fisheries, Juneau.

Table 1. Specifications and model types of thermographs and thermometers used by the Alaska Department of Fish and Game, to record temperatures in Trident Basin, Kodiak, Alaska from 1970-1994.

Type of Instrument	Model	Temperature Range & Scale	Accuracy Temp. & Time	Recorded By or On	Max. Days Recording
<b>Mercury Thermometer:</b>					
ASTM <sup>a</sup> Handheld		18 - 89 °F	±0.2 °F	Diver	-
<b>Thermographs:</b>					
PR <sup>b</sup> 0998 PR 8660 PR 15346	F-45	20 - 80 °F	±1.2 °F ±30 min./day	Chart	45
PR 20239 PR 20240	F-15	-5 - 20 °C	±1.2 °C ±30 min./day	Chart	15
PR 61845 PR 61846	J-90	-5 - 20 °C	±0.6 °C ±3 min./day	Chart	90
PR 60918 PR 60919	J-180	-5 - 20 °C	±0.6 °C ±3 min./day	Chart	180
900235, 900262	RTM <sup>c</sup>	-32 - 70 °C	±0.5 °C <sup>d</sup>	Computer board	132-265 days @ 1/2 or 1hr intervals

<sup>a</sup> American Society for Testing Materials.

<sup>b</sup> Peabody Ryan thermograph.

<sup>c</sup> Ryan TempMentor. These thermographs recorded temperatures to 0.1 °C.

<sup>d</sup> Sensory unit accuracy ±0.2 °C, computer board accuracy ±0.3 °C; system or unit accuracy of RTM units is ±0.5 °C.

Table 2. Comparison of temperatures recorded at the same time on different devices by scuba divers from the Alaska Department of Fish and Game at the thermograph site, 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska.

Date	ASTM <sup>a</sup> Handheld Thermometer Temperature °C	RTM <sup>b</sup> 900235 Temperature °C	Absolute Temperature Difference °C
9/11/86	9.3	9.2	0.1
12/12/86	4.9	4.9	0.0
3/17/87	4.4	4.4	0.0
7/14/87	8.3	8.4	0.1
1/25/88	3.7	3.9	0.2
2/8/90	1.3	1.2	0.1
10/8/92	8.4	8.4	0.0
2/24/94	3.0	3.0	0.0
<u>RTM 900262</u>			
9/11/86	9.3	9.5	0.2
12/12/86	4.9	4.9	0.0
3/17/87	4.4	4.3	0.1
7/14/87	8.3	8.2	0.1
11/9/94	5.3	5.3	0.0

<sup>a</sup> American Society for Testing Materials, thermometer range 18-89°F.

<sup>b</sup> Ryan Tempmentor thermograph.



Table 3. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1970 using Peabody Ryan thermograph 8660.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1				3.89	4.56	6.61	8.72					
2				3.78	4.67	6.61	8.83					
3				3.67	4.61	6.67	8.89					
4				3.50	4.67	6.67	8.94					
5				3.33	4.61	6.67	9.00					
6				3.11	4.56	6.72	9.00					
7				3.11	4.56	6.67	9.06					
8				3.17	4.78	6.67	9.33					
9				3.22	5.11	6.72	9.44					
10				3.17	5.33	6.78	9.44					
11				3.22	5.39	7.28	9.56					
12				3.17	5.44	7.39	9.56					
13				3.33	5.33	7.50	9.61					
14			3.22	3.44		7.56	9.28					
15			3.22	3.44	5.78	7.44	9.33					
16			3.28	4.00	5.67		9.33					
17			3.28	3.94	5.67		9.44					
18			3.22	4.17	5.67	8.00	9.44					
19			3.28	4.22	5.78	7.78	9.50					
20			3.33	4.22	5.72	7.78	9.50					
21			3.28	4.28	5.67	7.78	9.56					
22			3.33	4.28	5.83	7.83	9.56					
23			3.33	4.11	5.89	7.89	9.67					
24			3.33	4.00	5.94	7.89	9.72					
25			3.33	4.06	6.00	7.94	9.78					
26			3.39	4.17	6.11	8.00	9.89					
27			3.33	4.28	6.28	8.11						
28			3.39	4.50	6.33	8.33						
29			3.50	4.56	6.39	8.44						
30			3.67	4.50	6.44	8.78						
31			3.78		6.56							
Average			3.36	3.79	5.51	7.45	9.36					
Minimum			3.22	3.11	4.56	6.61	8.72					
Maximum			3.78	4.56	6.56	8.78	9.89					
Range			0.56	1.44	2.00	2.17	1.17					
Standard Deviation			0.15	0.48	0.64	0.66	0.31					
Days sampled:	132											

Table 4. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1970 using Peabody Ryan thermograph 15346.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1				4.44	4.89	6.00		9.78				
2				4.44	4.94	6.06		9.94				
3				4.39	5.00	6.11		9.89				
4				4.11	5.00	6.11		9.89				
5				3.89	5.06	6.11		9.78				
6				3.50	5.06	6.22		9.67				
7				3.56	5.00	6.33		9.50				
8				3.50	5.00	6.33						
9				3.56		6.56						
10				3.44		6.61						
11				3.56	5.44	6.67						
12				3.56	5.11	6.89						
13				3.67	5.39	6.72						
14				3.89	5.00	6.72	8.83					
15				4.00	5.28	6.72	8.44					
16				4.06	5.39	6.67	8.33					
17				4.33	5.44	6.72	8.89					
18				4.33	5.50	6.94	8.72					
19				4.44	5.50	6.67	8.78					
20				4.44	5.50	6.67	8.83					
21				4.44	5.50	6.61	8.78					
22				4.44	5.50	6.67	8.78					
23				4.44	5.56	6.67	8.83					
24				4.44	5.56		8.89					
25				4.39	5.56		8.89					
26			4.11	4.44	5.56		8.89					
27			4.22	4.44	5.67		9.00					
28			4.39	4.50	5.67		9.06					
29			4.22	4.89	5.67		9.44					
30			4.33	4.94	5.78		9.50					
31			4.44		5.89		9.61					
Average			4.29	4.15	5.36	6.51	8.92	9.78				
Minimum			4.11	3.44	4.89	6.00	8.33	9.50				
Maximum			4.44	4.94	5.89	6.94	9.61	9.94				
Range			0.33	1.50	1.00	0.94	1.28	0.44				
Standard Deviation			0.12	0.44	0.29	0.28	0.33	0.15				
Days sampled:	113											

Table 5. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1971 using Peabody Ryan thermograph 8660.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1		0.00	0.56	1.44	2.72	4.11		8.44			4.61	1.00
2		- 0.33	0.06	1.44	2.67	4.11		8.72			4.39	0.67
3		- 0.44	- 0.22	1.33	2.72	4.11		9.33			4.11	0.67
4		- 0.39	- 0.50	1.39	2.72	4.22	5.11	9.56			4.17	0.67
5		0.06	- 1.00	1.44	2.78	4.22	5.44	9.44			4.11	0.94
6		0.22	- 1.17	1.44	2.89	4.33	5.89	9.56			4.00	1.11
7		0.44	- 1.39	1.44	2.67	4.39	6.39	9.72			4.06	1.17
8		0.56	- 1.22	1.33		4.39	6.61	9.56			4.00	0.72
9		0.89	- 1.11	1.33		4.44	7.00				3.67	0.83
10		1.00	- 1.06	1.33		4.44	7.33			6.11	3.50	1.11
11		1.17	- 0.78	1.56		4.44	7.67			6.44	3.61	0.83
12		1.33	- 1.06	1.61	2.78	4.44	7.72			6.50	2.22	0.67
13		1.28	- 1.06	1.67	2.78		7.78			6.33	2.22	1.06
14		1.33	- 0.78	1.44	2.78		7.78			5.94	2.22	0.78
15		1.39	- 1.00	1.56	2.94		7.78			5.94	2.28	
16		1.33	- 0.22	1.50	3.06		7.78			5.94	2.39	
17		1.28	- 0.44	1.50	3.17		7.78			6.00	2.33	
18		1.22	- 0.17	1.44	3.22		7.78			5.94	2.33	
19		1.17	0.11	1.56	3.33		8.06			5.78	2.56	
20		1.17	0.39	1.83	3.39		8.00			5.67	2.67	
21		1.17	0.56	1.78	3.50		8.00			5.56	2.67	
22		1.11	0.67	1.89	3.44		7.78			5.56	2.33	
23	0.06	0.83	0.72	2.17	3.56		7.78			5.33	2.22	
24	- 0.28	- 0.28	0.78	2.22	3.67		7.78			5.00	2.22	
25	- 0.28	- 0.28	0.83	2.22	3.78		7.78			4.78	2.22	
26	- 0.17	- 0.11	0.83	2.22	4.00		7.89			4.72	2.06	
27	- 0.11	0.00	0.83	2.28	3.94		7.89			4.67	1.94	
28	0.00	0.33	0.78	2.33	3.94		8.00			4.67	1.56	
29	0.06			2.44	3.89		8.22			4.67	1.11	
30	0.00			2.44	4.00		8.33			4.89	1.11	
31	0.22		1.39		4.06		8.44			4.67		
Average	- 0.06	0.62	- 0.16	1.72	3.27	4.30	7.49	9.29		5.51	2.83	0.87
Minimum	- 0.28	- 0.44	- 1.39	1.33	2.67	4.11	5.11	8.44		4.67	1.11	0.67
Maximum	0.22	1.39	1.39	2.44	4.06	4.44	8.44	9.72		6.50	4.61	1.17
Range	0.50	1.83	2.78	1.11	1.39	0.33	3.33	1.28	0.00	1.83	3.50	0.50
Standard Deviation	0.17	0.66	0.83	0.38	0.50	0.14	0.84	0.46		0.64	1.00	0.19
Days sampled:	237											

Table 6. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1971 using Peabody Ryan thermograph 15346.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1				0.83	2.17	3.50	4.89	7.33		6.72		2.22
2				0.83	2.17	3.50	4.83	7.39		6.72		2.22
3				0.56	2.17	3.50	5.00	7.78		6.67		2.22
4			- 0.11	0.61	2.17	3.56	5.17	7.78		6.67		2.22
5			- 0.50	0.72	2.17	3.56	5.33	7.94		6.67		2.33
6			- 0.67	0.83		3.72	5.56	8.33		6.67		2.67
7			- 0.78	0.89	2.17	3.78	5.72	8.56		6.61		2.89
8			- 0.61	0.83	2.11	3.89	6.00	8.33	7.78	6.67		2.50
9			- 0.56	0.61	2.17	3.89	6.11		7.72	6.67		2.44
10			- 0.17	0.83	2.17	4.06	6.50		7.72	6.67		2.39
11			- 0.06	1.00	2.22	4.11	6.67		7.67	6.50		2.39
12			- 0.22	1.06	2.22	4.17	6.78		7.67	6.56	4.28	2.33
13			- 0.22	1.11	2.22	4.22	6.83		7.67	6.17	3.78	2.33
14			- 0.17	0.94	2.28	4.33	6.83		7.61	6.11	3.72	2.33
15			- 0.50	1.11	2.44	4.44	6.83		7.56	6.11	3.89	
16			0.17	1.11	2.56	4.39	6.83		7.39	6.11	4.00	
17			0.00	1.11	2.67	4.44	6.78		7.22	6.11	3.94	
18			0.22	1.11	2.72	4.50	6.89		7.00	6.11	4.06	
19			0.56	1.11	2.89	4.44	7.28		6.94	6.00	4.28	
20			0.94	1.11	3.06		7.17		6.89	5.94	4.33	
21			1.11	1.06	3.17		7.00		6.78	5.67	4.33	
22			1.17	1.11	3.11		6.89		6.67	5.61	3.94	
23			1.17	1.28	3.22		6.89		6.67		3.72	
24			1.17	1.50	3.22		6.89		6.67		3.78	
25			1.17	1.61	3.33	4.67	6.94		6.67		3.56	
26			1.17	1.67	3.44	4.89	6.89		6.67		3.33	
27				1.94	3.44	4.67	6.83		6.78		3.22	
28			0.50	2.06	3.39	4.61	6.94		6.72		3.11	
29			0.39	2.06	3.44	4.61	7.22		6.72		2.56	
30			0.56	2.11	3.44	4.72	7.22		6.78		2.44	
31			0.56		3.44		7.33					
Average			0.23	1.16	2.71	4.17	6.49	7.93	7.13	6.35	3.70	2.39
Minimum			- 0.78	0.56	2.11	3.50	4.83	7.33	6.67	5.61	2.44	2.22
Maximum			1.17	2.11	3.44	4.89	7.33	8.56	7.78	6.72	4.33	2.89
Range			1.94	1.56	1.33	1.39	2.50	1.22	1.11	1.11	1.89	0.67
Standard Deviation			0.66	0.44	0.54	0.44	0.77	0.45	0.45	0.36	0.55	0.19
Days sampled:	229											

Table 7. Ocean temperatures (°C) 10.7 m (35 ft) below mean low water in Trident Basin, Kodiak, Alaska in 1971 using Peabody Ryan thermograph 20239.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1												
2												
3												
4												
5												
6												
7												
8									9.00			
9									9.00			
10									8.90			
11									8.80			
12									8.80			
13									8.70			
14									8.60			
15									8.60			
16									8.50			
17									8.40			
18									8.20			
19									8.10			
20									8.00			
21									7.90			
22									7.80			
23									7.70			
24												
25												
26												
27												
28												
29												
30												
31												
Average									8.44			
Minimum									7.70			
Maximum									9.00			
Range									1.30			
Standard Deviation									0.43			
Days sampled:	16											

Table 8. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1972 using Peabody Ryan thermograph 8660.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1										7.22		
2										6.72		
3										6.56		
4										6.61		
5										6.61		
6										6.67		
7										6.61		
8										6.50		
9										6.50		
10										6.44		
11										6.50		
12										6.44		
13										6.50		
14										6.50		
15										6.56		
16										6.61		
17										6.61		
18										6.56		
19										6.44		
20										6.39		
21										6.22		
22												
23												
24												
25												
26												
27												
28												
29									7.78			
30									7.50			
31												
Average									7.64	6.56		
Minimum									7.50	6.22		
Maximum									7.78	7.22		
Range									0.28	1.00		
Standard Deviation									0.20	0.19		
Days sampled:	23											

Table 9. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1972 using Peabody Ryan thermograph 15346.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1				- 0.67			5.17			6.67	5.39	2.89
2				- 0.61			5.28			6.28	5.17	2.78
3				- 0.56			5.39			5.89	5.00	2.78
4				- 0.56			5.39			5.89	4.83	2.83
5				- 0.56			5.39			5.94	4.72	2.83
6				- 0.83			5.61			5.89	4.72	2.78
7				- 1.00			5.83			5.89	4.72	2.78
8				- 0.94			6.11			5.83	4.72	2.89
9				- 0.83			6.39			5.78	4.67	3.00
10				- 0.56			6.56			5.83	4.72	3.11
11				- 0.39			6.44			5.83	4.56	3.17
12				- 0.33			6.44			5.83		3.11
13				- 0.28			6.50			5.89		2.72
14				- 0.28			6.39			5.89		2.33
15				- 0.28		4.44	6.50			5.94		1.67
16				- 0.17		4.44	6.50			6.00		1.72
17				0.06		4.56	6.44			6.06		1.50
18				0.11		4.50	6.44			6.11		1.61
19				0.00		4.50	6.44			6.11		1.67
20				0.06		4.44	6.50			6.00		1.61
21				0.00		4.50	6.56			5.89	3.56	1.50
22				- 0.11		4.50	6.67			5.78	3.67	1.61
23				0.00		4.56	7.00			5.72	3.56	2.11
24				0.06		4.61	7.11			5.61	3.50	2.28
25				0.17		4.67	7.94			5.56	3.33	2.22
26				0.28		4.78	8.06			5.50	3.17	2.22
27						4.94	8.11			5.44	3.22	
28						4.94	8.28			5.44	3.00	
29						5.06	8.22		7.22	5.50	3.06	
30						5.22			6.78	5.44	2.78	
31			- 0.56							5.44		
Average			- 0.56	- 0.32		4.67	6.54		7.00	5.83	4.10	2.37
Minimum			- 0.56	- 1.00		4.44	5.17		6.78	5.44	2.78	1.50
Maximum			- 0.56	0.28		5.22	8.28		7.22	6.67	5.39	3.17
Range			0.00	1.28		0.78	3.11		0.44	1.22	2.61	1.67
Standard Deviation				0.37		0.25	0.89		0.31	0.27	0.84	0.59
Days sampled:	152											

Table 10. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1972 using Peabody Ryan thermograph 20239.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1				- 0.30								
2				- 0.30								
3				- 0.20								
4				- 0.20								
5				- 0.50								
6				- 0.60								
7				- 0.70								
8				- 0.50								
9				- 0.20								
10				- 0.20								
11				- 0.10								
12				0.00								
13				- 0.10								
14				0.00								
15				0.00								
16				0.00								
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29												
30												
31			- 0.40									
Average			- 0.40	- 0.24								
Minimum			- 0.40	- 0.70								
Maximum			- 0.40	0.00								
Range			0.00	0.70								
Standard Deviation				0.22								
Days sampled:	17											



Table 11. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1972 using Peabody Ryan thermograph 20240.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1												3.20
2												3.60
3												3.30
4												3.60
5												3.50
6												3.70
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21											4.50	
22											4.40	
23											4.30	
24											4.20	
25											3.70	
26											3.70	
27											3.80	
28											3.40	
29											3.40	
30											3.50	
31												
Average											3.89	3.48
Minimum											3.40	3.20
Maximum											4.50	3.70
Range											1.10	0.50
Standard Deviation											0.42	0.19
Days sampled:	16											

Table 12. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1973 using Peabody Ryan thermograph 8660.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1			1.33	2.22		4.83	7.11	8.50			5.39	3.22
2			1.28	2.22		4.67	6.94	8.56			5.44	3.33
3			1.22	2.22		4.67	7.11	8.56			5.39	3.28
4			1.17	2.22		4.89	7.17	8.56			5.39	3.22
5			1.22	2.33		5.00	7.22				5.56	3.22
6			1.17	2.22		5.00	7.28				5.56	3.17
7			1.56	2.28		5.33	7.56				5.56	3.11
8		1.11	1.67	2.33		5.50	7.67				5.50	3.06
9		1.11	1.89	2.56		5.56	7.78				5.39	3.06
10		1.11	2.00	2.56		5.61	7.94				5.33	3.11
11		1.11	2.06	2.67		5.72	8.00				5.00	3.22
12		1.22	2.06	2.56	3.89	5.78	7.78				4.56	3.33
13		1.11	2.11	2.61	3.89	6.22	8.00				4.44	3.33
14		1.00	2.06	2.61	4.22	6.17	8.00				4.39	3.33
15		1.06	1.67	2.89	4.28	6.11	8.11				4.33	
16		1.11	1.22	2.78	4.33	6.28	8.11				4.28	
17		1.00		3.00	4.33	6.11	8.06				3.94	
18		1.11		3.17	4.33	6.11	8.11				3.89	
19		1.11	0.56	3.17	4.39		8.00				3.89	
20		1.11	0.67	3.17	4.39		8.11				3.78	
21		1.17	0.89	3.22	4.44		8.22				3.83	
22		1.33	1.00	3.28	4.44	6.61	8.33				4.00	
23		1.39	1.11	3.33	4.44	6.67	8.39				3.94	
24		1.56	1.17	3.39	4.56	6.67	8.56				4.06	
25		1.56	1.22	3.39	4.67	6.67	8.61				4.00	
26		1.56	1.56	3.44	4.67	6.67	8.67				4.00	
27		1.44	1.67	3.44	4.72	6.67	8.72				3.67	
28		1.44	1.78	3.44	4.89	6.78	8.61				3.22	
29			2.00	3.44	5.11	6.94	8.61				3.11	
30			2.06	3.56	5.00	6.94	8.44				3.17	
31			2.22		5.17		8.50					
Average		1.22	1.50	2.86	4.51	5.93	7.99	8.55			4.47	3.21
Minimum		1.00	0.56	2.22	3.89	4.67	6.94	8.50			3.11	3.06
Maximum		1.56	2.22	3.56	5.17	6.94	8.72	8.56			5.56	3.33
Range		0.56	1.67	1.33	1.28	2.28	1.78	0.06			2.44	0.28
Standard Deviation		0.19	0.46	0.48	0.35	0.74	0.52	0.03			0.80	0.10
Days sampled:	206											

Table 13. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1973 using Peabody Ryan thermograph 15346.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1						5.67			9.78			3.61
2						5.56			9.83			3.67
3						5.61			9.83		5.67	3.61
4						5.72			9.83		5.61	3.61
5						5.94			9.83		5.78	3.61
6						6.00			9.83		5.72	3.61
7						6.11			9.83		5.72	3.50
8					4.61	6.22			9.83		5.72	3.44
9					4.56	6.33			9.83		5.56	3.50
10					4.61	6.61			9.83		5.56	3.33
11					4.67	6.56			9.78		5.44	3.33
12					4.56				9.78		5.00	
13					4.72				9.67		5.06	
14					5.00			8.72	9.44		4.89	
15					5.11			8.33	9.39		4.72	
16					5.11			8.44	9.00		4.72	
17					5.17			8.50	8.94		4.50	
18					5.22			8.56	8.89		4.44	
19					5.33			8.61	8.72		4.44	
20					5.33			8.78	8.67		4.44	
21					5.33			9.17	8.61		4.33	
22					5.33			8.94	8.56		4.44	
23					5.39			9.17	8.56		4.44	
24					5.50			9.39	8.50		4.44	
25					5.56			9.56	8.50		4.33	
26					5.56			9.44			4.44	
27					5.56			9.56			4.17	
28					5.67			9.67			3.61	
29					5.67			9.72			3.56	
30					5.67			9.78			3.56	
31					5.78			9.78				
Average					5.21	6.03		9.12	9.33		4.80	3.53
Minimum					4.56	5.56		8.33	8.50		3.56	3.33
Maximum					5.78	6.61		9.78	9.83		5.78	3.67
Range					1.22	1.06		1.44	1.33		2.22	0.33
Standard Deviation					0.40	0.37		0.51	0.55		0.69	0.12
Days sampled:	117											

Table 14. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1974 using Peabody Ryan thermograph 0998.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1										7.94	7.00	5.11
2										7.39	6.94	5.11
3										7.28	6.83	5.00
4										7.33	6.67	4.94
5										7.44	6.67	4.94
6										7.39	6.56	4.94
7										7.39	6.50	5.00
8										7.39	6.39	5.06
9										7.39	6.33	5.00
10										7.67	5.83	5.00
11										7.61	5.89	4.39
12										7.44	5.89	4.78
13										7.50	5.89	4.67
14										7.50	5.89	4.67
15										7.44	5.61	4.56
16										7.44	5.56	
17										7.61	5.56	
18										7.56	5.50	
19										7.44	5.22	
20										7.11	5.00	
21									9.17	6.89	5.00	
22									9.06	6.78	5.06	
23									9.00	6.78	4.56	
24									8.94		4.50	
25									8.89		4.56	
26									8.72		4.50	
27									8.72		4.56	
28									8.56		4.94	
29									8.33		5.00	
30									8.39		5.00	
31												
Average									8.78	7.38	5.65	4.88
Minimum									8.33	6.78	4.50	4.39
Maximum									9.17	7.94	7.00	5.11
Range									0.83	1.17	2.50	0.72
Standard Deviation									0.28	0.27	0.80	0.22
Days sampled:	78											

Table 15. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1974 using Peabody Ryan thermograph 8660.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1		1.11	1.11		2.78							
2		1.17	1.11		2.89							
3		1.17	1.22		2.89							
4		1.11	0.83		2.78							
5		1.33	0.22		2.89							
6		1.56	0.56		2.94							
7		1.67	0.50	1.61	3.17							
8		2.06	0.39	1.61	3.22							
9		2.00	0.44	1.56	3.28							
10		2.11	0.50	1.50	3.39							
11		2.22		1.67	3.44							
12		2.17		1.67	3.61							
13		2.06		1.67	3.78							
14		1.67		1.78	3.89							
15		1.17		2.00	3.89							
16		0.67		2.00	3.94							
17		0.61		2.11								
18		1.00		2.11								
19		1.06		2.11								
20		0.94		2.17								
21		0.44		2.11								
22		0.28		2.22								
23		0.28		2.22								
24		0.72		2.28								
25		1.00		2.28								
26	2.28	1.11		2.39								
27	2.22	1.17		2.50								
28	1.56	1.17		2.44								
29	1.11			2.56								
30	1.11			2.56								
31	1.17											
Average	1.58	1.25	0.69	2.05	3.30							
Minimum	1.11	0.28	0.22	1.50	2.78							
Maximum	2.28	2.22	1.22	2.56	3.94							
Range	1.17	1.94	1.00	1.06	1.17							
Standard Deviation	0.55	0.57	0.35	0.34	0.42							
Days sampled:	84											

Table 16. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1974 using Peabody Ryan thermograph 15346.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1							7.22	9.78				
2							7.56	9.78				
3				1.72			7.72	9.78				
4				1.83			7.72	9.94				
5				1.89			7.72	9.94				
6				1.89			7.72					
7				1.83			7.72					
8				1.67			7.72					
9				1.67			7.78					
10				1.67			7.83					
11				1.83			7.78					
12				1.89			7.78					
13				1.94			7.94					
14				2.00			8.06					
15				2.00			8.11					
16				2.00			8.22					
17				2.00			8.61					
18				2.00			8.89					
19				2.06			9.11					
20				2.17			8.89					
21				2.17			8.78					
22				2.17			8.78					
23				2.17		7.22	8.78					
24				2.17		6.89	8.78					
25				2.17		7.00	8.89					
26				2.17		6.94	8.89					
27				2.17		7.00	9.11					
28				2.50		7.00	9.44					
29				2.50		7.00	9.89					
30				2.67		7.11	9.94					
31							9.94					
Average				2.03		7.02	8.43	9.84				
Minimum				1.67		6.89	7.22	9.78				
Maximum				2.67		7.22	9.94	9.94				
Range				1.00		0.33	2.72	0.17				
Standard Deviation				0.25		0.10	0.76	0.09				
Days sampled:	72											

Table 17. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1975 using Peabody Ryan thermograph 0998.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1		2.06	2.22	2.28	3.33	4.44	6.67	8.78	8.50	8.22		
2		2.06	2.22	2.17	3.39	4.50	6.67		8.61	8.22		
3		2.06	2.22	2.17	3.50	4.56	6.72		8.61	8.06		
4		1.67	2.22	2.22	3.67	4.67	6.78		8.67	8.00		
5		1.50	2.22	2.22	3.78	4.78	6.89		8.89	7.94		
6		1.67	2.22	2.39	3.78	4.72	6.94		8.78	7.72		
7		1.61	2.22	2.33	4.00	4.72	7.22		8.56	7.67		
8		1.72	2.22	2.56	4.11	4.89	7.22		8.61	7.61		
9		1.83	2.22	2.67	4.11	5.28	7.17		8.61	7.44		
10		1.72	2.11		4.06	5.22	7.67		8.67			
11		1.50	2.17		4.11	5.39	7.67		8.72			
12		1.44	2.17		4.33	5.33	7.78		8.72			
13		1.22	2.22		4.39	5.17	7.72		8.67			
14		1.11	2.22		4.39	5.17	7.72		8.67			
15		1.06	2.28		4.39	5.17	7.72		8.72			
16		0.94	2.28		4.33	5.28	7.78		8.78			
17		1.11	2.33		4.39	5.28	7.72		8.72			
18		1.06	2.33		4.44	5.44	7.72		8.83			
19		0.50	2.11	3.17	4.44	5.44	7.78		8.78			
20		0.72	2.11	3.17	4.56	5.56	7.78		8.61			
21		0.39	1.89	3.17	4.89	5.67	7.78		8.67			
22			1.61	3.22	4.72	6.11	7.83		8.33			
23			0.94	3.33	4.44	6.06	8.11		8.17			
24			1.00	3.39	4.44	6.11	8.22		8.22			
25			1.11	3.28	4.33	6.33	8.28		8.22			
26		1.61	1.28	3.33	4.39	6.50	8.22		8.11			
27	2.50	1.61	1.61	3.28	4.44	6.56	8.44		8.11			
28	2.44	2.06	2.06	3.33	4.44	6.67	8.50		8.17			
29	2.44		2.11	3.39	4.44	6.67	8.67	8.33	8.11			
30	2.28		2.22	3.33	4.44	6.67	8.72	8.33	8.17			
31	2.22		2.28		4.44		8.78	8.33				
Average	2.38	1.43	2.01	2.88	4.22	5.48	7.71	8.44	8.53	7.88		
Minimum	2.22	0.39	0.94	2.17	3.33	4.44	6.67	8.33	8.11	7.44		
Maximum	2.50	2.06	2.33	3.39	4.89	6.67	8.78	8.78	8.89	8.22		
Range	0.28	1.67	1.39	1.22	1.56	2.22	2.11	0.44	0.78	0.78		
Standard Deviation	0.12	0.48	0.40	0.50	0.38	0.70	0.62	0.22	0.25	0.28		
Days sampled:	216											

Table 18. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1975 using Peabody Ryan thermograph 15346.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1		2.50			3.17	4.56	6.94	9.28	8.89	8.67		
2		2.44			3.17	4.72	6.94		8.89	8.67		
3		2.39			3.22	4.89	6.94		8.94	8.33		
4		2.22			3.28	5.00	7.11		9.00	8.33		
5		2.17			3.33	5.17	7.17		9.17	8.22		
6	1.11	2.17			3.33	5.22	7.22		9.06	7.94		
7	2.00	2.22			3.44	5.39	7.44		8.94	8.00		
8	1.67	2.17			3.61	5.50	7.50		9.00	8.06		
9	2.44	2.17			3.61	5.56	7.78		8.94	7.89		
10	2.39	2.17		2.44	3.78	5.56	8.06		9.06	8.06		
11	2.33	2.11		2.72	3.89	5.56	8.06		9.11			
12	1.89	2.00		2.89	3.94	5.56	8.00		9.06			
13	1.39	1.67		3.06	4.28	5.56	8.06		9.11			
14	1.17			3.06	4.33	5.56	8.17		9.17			
15	1.67			3.11	4.33	5.56	8.06		9.17			
16	2.33			3.33	4.39	5.56	8.06		9.22			
17	2.22			3.33	4.39	5.61	8.00		9.22			
18	2.33			3.33	4.44	5.72	8.06		9.28			
19	2.78			2.78	4.44	5.78	8.17		9.06			
20	3.06			2.50	4.61	6.11	8.33		9.17			
21	2.94			2.78	4.67	6.28	8.56		8.94			
22	2.78			2.78	4.44	6.61	8.61		8.83			
23	3.22			2.78	4.78	6.67	8.72		8.78			
24	3.22			3.06	4.72	6.67	8.72		8.78			
25	3.06			3.17	4.44	6.78	8.78		8.78			
26	3.06			3.06	4.50	6.89	8.83		8.72			
27	3.11			3.06	4.50	6.94	8.83		8.72			
28	3.11			3.06	4.44	7.00	8.89		8.72			
29	3.11			3.11	4.44	7.11	8.94	8.89	8.78			
30	2.67			3.17	4.44	7.00	8.94	8.83	8.67			
31	2.50				4.50		9.11	8.89				
Average	2.44	2.18		2.98	4.09	5.87	8.10	8.97	8.97	8.22		
Minimum	1.11	1.67		2.44	3.17	4.56	6.94	8.83	8.67	7.89		
Maximum	3.22	2.50		3.33	4.78	7.11	9.11	9.28	9.28	8.67		
Range	2.11	0.83		0.89	1.61	2.56	2.17	0.44	0.61	0.78		
Standard Deviation	0.65	0.21		0.25	0.53	0.74	0.67	0.21	0.18	0.28		
Days sampled:	196											



Table 19. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1976 using Peabody Ryan thermograph 0998.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1		2.44		1.22	3.17	5.00						
2		2.33		1.33	3.11	5.22						
3		2.44		1.56	3.17	5.28						
4		2.50		1.78	3.11	5.50						
5		2.50		1.89	3.11	5.44						
6		2.78		2.06	3.22	5.39						5.00
7		2.72		2.11	3.28							4.78
8		2.17		2.06	3.22							4.56
9		1.39		2.00	3.39							4.50
10		1.78		2.11	3.33							4.44
11		1.72	1.89	2.22	3.28							4.44
12	1.61	1.89	1.89	2.22	3.33							4.39
13	1.72	2.06	1.67	2.22	3.33							4.44
14	1.72		1.56	2.22	3.33							4.33
15	1.67		1.44	2.17	3.33							4.39
16	1.67		1.39	2.17	3.72							4.22
17	2.06		1.22	2.17	3.78							4.28
18	2.17		1.11	2.17	3.89							4.33
19	2.11		1.11	2.22	4.00							4.39
20	2.33		1.11	2.50	4.06							4.39
21	2.39		1.11	2.72	4.00							4.39
22	2.33		1.11	2.78	4.33							4.33
23	2.11		1.22	2.89	4.44							4.33
24	2.17		1.44	2.56	4.44							4.39
25	2.22		1.56	2.50	4.44							4.44
26	2.33		1.56	2.44	4.56							4.44
27	2.50		1.56	2.50	4.67							4.39
28	2.39		1.33	2.50	4.67							4.44
29	2.22		1.28	2.67	4.89							4.50
30	2.33		1.11	3.00	4.89							4.44
31	2.44		1.11		5.11							4.28
Average	2.12	2.21	1.37	2.23	3.83	5.31						4.43
Minimum	1.61	1.39	1.11	1.22	3.11	5.00						4.22
Maximum	2.50	2.78	1.89	3.00	5.11	5.50						5.00
Range	0.89	1.39	0.78	1.78	2.00	0.50						0.78
Standard Deviation	0.29	0.42	0.25	0.41	0.65	0.18						0.16
Days sampled:	147											

Table 20. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1976 using Peabody Ryan thermograph 15346.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1					3.61	5.83						
2					3.61	5.83						
3					3.56	6.11						
4					3.50							
5					3.56							
6					3.61							5.56
7					3.67							5.33
8					3.89							5.00
9					4.33							4.94
10					4.22							4.89
11					4.28							4.78
12					4.33							4.72
13					4.33							4.78
14					4.39							4.56
15					4.44							4.67
16					4.56							4.44
17					4.50							4.44
18					4.72							4.44
19					4.67							4.56
20					4.72							4.56
21					4.72							4.61
22				3.28	5.00							4.61
23				3.33	5.28							4.50
24				3.28	5.28							4.56
25				3.33	5.50							4.72
26				3.28	5.50							4.72
27				3.33	5.56							4.72
28				3.33	5.56							4.72
29				3.39	5.56							4.67
30				3.56	5.61							4.72
31					5.67							4.56
Average				3.35	4.57	5.92						4.72
Minimum				3.28	3.50	5.83						4.44
Maximum				3.56	5.67	6.11						5.56
Range				0.28	2.17	0.28						1.11
Standard Deviation				0.09	0.73	0.16						0.26
Days sampled:	69											

Table 21. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1977 using Peabody Ryan thermograph 0998.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	4.22		4.44	3.78	4.61		8.00		8.78	8.61	6.78	
2	4.28		4.39	3.89	4.56		8.33		8.78	8.61	6.67	
3	4.28		4.33	4.11	4.56		8.33		8.83	8.61	6.61	
4	4.33		4.39	4.06	4.56		8.39		8.83	8.56	6.50	
5	4.33		3.67	4.11	4.67	6.50	8.44		8.94	8.67	6.33	
6	4.39		3.78	4.17	4.89	6.28	8.50		9.11	8.61	6.33	
7	4.39	4.11	3.78	4.17	4.78	6.28	8.56		9.22	8.56	6.00	
8	4.39	4.00	3.78	4.11	4.78	6.17	8.61		9.22	8.28	5.67	
9	4.44	4.06	3.78		4.72	6.11	8.67		9.28	8.06	5.67	
10	4.44	4.17	3.67		4.72	6.28	8.78		9.44		5.61	
11	4.44	4.17	3.33		4.78	6.28	8.83		9.72		5.61	
12	4.44	4.17	3.22		4.78	6.44	8.89		9.44		5.56	
13	4.44	4.22	3.28		4.89	6.50	8.89		9.50		5.50	
14	4.50	4.28	3.33		5.22	6.56	8.89		9.56		5.44	
15	4.44	4.28	3.33		5.44	6.67	8.94		9.61		4.89	
16	4.44	4.28	3.44	3.17	5.50	6.83	9.11		9.56		4.39	
17	4.44	4.33	3.56	3.17	5.44	6.78	9.22		9.61		4.39	
18		4.33	3.67	3.28	5.56	6.78	9.44		9.61	7.22	4.44	
19		4.39	3.67	3.33	5.50	6.83			9.61	7.28	4.44	
20		4.39	3.89	3.33	5.50	6.78			9.67	7.28	4.56	
21		4.28	4.00	3.50	5.50	6.89			9.67	7.33	4.56	
22		4.28	4.22	3.78	5.50	6.83			9.61	7.39	4.56	
23		4.28	4.11	4.11	5.56	7.11			9.33	7.61	4.50	
24		4.22	4.00	4.17	5.50	7.22			9.22	7.61	4.50	
25		4.22	4.00	4.28	5.44	7.33			9.22	7.22	4.56	
26		4.17	3.89	4.28	5.50	7.67			9.11	7.22	4.67	
27		4.22	3.39	4.33	5.56	7.78		8.89	9.22	7.22	4.67	
28			3.44	4.39		7.83		8.78	9.11	7.00	4.61	
29			3.44	4.44		8.00		8.83	9.06	6.94	4.61	
30			3.78	4.50		7.89		8.83	8.67	6.89	4.56	
31			3.89					8.83		6.83		
Average	4.39	4.23	3.77	3.93	5.11	6.87	8.71	8.83	9.28	7.72	5.24	
Minimum	4.22	4.00	3.22	3.17	4.56	6.11	8.00	8.78	8.67	6.83	4.39	
Maximum	4.50	4.39	4.44	4.50	5.56	8.00	9.44	8.89	9.72	8.67	6.78	
Range	0.28	0.39	1.22	1.33	1.00	1.89	1.44	0.11	1.06	1.83	2.39	
Standard Deviation	0.08	0.10	0.35	0.43	0.40	0.57	0.36	0.04	0.31	0.68	0.82	
Days sampled:	251											

Table 22. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1977 using Peabody Ryan thermograph 15346.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	4.44		4.39	4.39				10.17	9.22	9.17	6.89	
2	4.61		4.33	4.39				10.11	9.22	9.11	6.67	
3	4.56		4.22	4.44				10.11	9.39	9.06	6.61	
4	4.56		4.33	4.44				10.22	9.44	9.06	6.44	
5	4.56		3.89	4.44				10.06	9.61	9.11	6.39	
6	4.61		3.89	4.44				10.28	9.72	9.06	6.22	
7	4.67	4.50	4.33	4.39			8.33	10.56	9.89	8.83	6.06	
8	4.67	4.44	4.33	4.44			8.33	10.61	9.83	8.72	5.72	
9	4.78	4.39	4.33	4.44			8.33	10.56	9.94	8.72	5.78	
10	4.83	4.44	4.28				8.44	10.61	9.94		5.83	
11	4.83	4.44	3.61				8.72	10.67	10.06		5.67	
12	4.89	4.39	3.56				8.89	10.72	10.00		5.56	
13	4.94	4.44	3.61				8.94	10.78	10.00		5.50	
14	5.00	4.44	3.67				9.00	10.83	10.06		5.44	
15	4.94	4.50	3.61				9.00	10.50	10.00		5.00	
16	5.00	4.50	3.89				9.17	10.11	10.00		4.39	
17	5.00	4.61	4.11				9.44	10.06	10.06	7.22	4.28	
18		4.67	4.28				9.72	10.22	10.06	7.22	4.33	
19		4.72	4.33				9.94	10.56	10.00	7.22	4.33	
20		4.72	4.39				9.94		10.06	7.22	4.39	
21		4.78	4.44				9.94		10.06	7.22	4.50	
22		4.72	4.44				10.06		10.00	7.33	4.50	
23		4.67	4.39				10.06		9.94	7.61	4.50	
24		4.56	4.44				10.06		9.94	7.61	4.44	
25		4.50	4.39				10.17		9.94	7.22	4.44	
26		4.61	4.39				10.33	9.11	9.94	7.22	4.50	
27		4.50	4.33				10.28	9.17	9.94	7.28	4.50	
28			3.89				10.44	9.06	9.94	7.17	4.44	
29			4.00				10.39	9.11	9.56	7.00	4.44	
30			4.17				10.11	9.22	9.11	7.00	4.44	
31			4.33				10.06	9.17		6.94		
Average	4.76	4.55	4.15	4.42			9.52	10.10	9.83	7.89	5.21	
Minimum	4.44	4.39	3.56	4.39			8.33	9.06	9.11	6.94	4.28	
Maximum	5.00	4.78	4.44	4.44			10.44	10.83	10.06	9.17	6.89	
Range	0.56	0.39	0.89	0.06			2.11	1.78	0.94	2.22	2.61	
Standard Deviation	0.19	0.12	0.29	0.03			0.73	0.60	0.28	0.88	0.88	
Days sampled:	212											

Table 23. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1978 using Peabody Ryan thermograph 0998.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1		3.39	3.33	3.22		5.39	7.00				5.83	4.44
2		3.44		3.28	4.39	5.39	7.22				5.67	4.50
3		3.50		3.28	4.39	5.39	7.33				5.50	4.39
4		3.39			4.44	5.56	7.28				5.44	
5		3.39			4.44	5.56	7.56				5.44	
6		3.33			4.44	5.56	7.56				5.39	
7		3.17			4.44	5.61	7.61				5.00	
8		2.22			4.44	5.67	7.44				4.89	
9		2.44	3.33		4.39	5.83	7.50				4.72	
10		2.56	3.00		4.50	5.72	7.33				4.72	
11		2.78	2.89		4.44	5.78	7.44				4.67	
12		2.78	2.78		4.44	5.89	7.50				4.67	
13		2.94	2.78		4.39	5.83	7.50				4.78	
14		2.94	2.89		4.44	5.89	7.56				4.72	
15		3.06	3.00		4.50	5.67	7.72				4.67	
16		3.00	2.94		4.83	5.78	7.67				4.61	
17		3.00	2.78		4.83	5.78	7.72				4.50	
18		3.22	2.94		4.89	5.83	7.78				4.44	
19	3.50	3.28	3.00		4.83	5.78	7.78				4.44	
20	3.44	3.28	3.06		4.78	5.78	7.72				4.44	
21	3.44	3.28	3.00		5.00	5.89	7.67				4.39	
22	3.33	3.28	3.11		5.22	6.22	7.56				4.44	
23	3.33	3.22	3.11		5.50	6.56	7.50				4.44	
24	3.33	3.22	3.06		5.39	6.50					4.44	
25	3.33	3.17	3.00		5.44	6.67				6.39	4.44	
26	3.33	3.33	3.06		5.50	6.67				6.39	4.44	
27	3.33	3.33	2.89		5.44	6.78				6.11	4.44	
28	3.33	3.33	3.00		5.44	6.78				6.06	4.44	
29	3.28		3.06		5.44	7.00				6.00	4.44	
30	3.28		3.17		5.44	6.89				6.00	4.44	
31	3.33		3.28		5.44					5.89		
Average	3.35	3.12	3.02	3.26	4.85	5.99	7.52			6.12	4.76	4.44
Minimum	3.28	2.22	2.78	3.22	4.39	5.39	7.00			5.89	4.39	4.39
Maximum	3.50	3.50	3.33	3.28	5.50	7.00	7.78			6.39	5.83	4.50
Range	0.22	1.28	0.56	0.06	1.11	1.61	0.78			0.50	1.44	0.11
Standard Deviation	0.07	0.32	0.15	0.03	0.45	0.49	0.19			0.20	0.43	0.06
Days sampled:	191											

Table 24. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1978 using Peabody Ryan thermograph 15346.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1		3.67	3.33	3.89		5.83					6.50	5.56
2		3.83		3.89	4.44	5.83					6.39	5.56
3		3.83		4.00	4.44	5.78					6.00	5.44
4		3.78		3.89	4.44	5.83					6.11	5.33
5		3.67		3.89	4.50	6.00					6.50	5.50
6		3.61		3.89	4.50	6.00					6.39	5.50
7		3.33		4.00	4.44	5.83					5.83	5.56
8		2.50		3.89	4.50	5.83					5.72	
9		2.78	3.33	4.11	4.44						5.61	
10		3.00	3.39	4.17	4.56						5.56	
11		3.06	3.39	4.28	4.72						5.56	
12		3.06	3.33	4.28	4.67						5.67	
13		3.17	3.33	4.33	4.67						5.78	
14		3.11	3.33	4.39	4.67						5.83	
15		3.17	3.44	4.44	4.67						5.50	
16		3.17	3.50	4.50	4.78						5.39	
17		3.22	3.56	4.44	5.17						5.44	
18		3.33	3.56	4.44	5.28						5.44	
19	3.61	3.33	3.50	4.44	5.39						5.28	
20	3.67	3.33	3.56	4.50	5.44						5.33	
21	3.67	3.39	3.50	4.67	5.44						5.44	
22	3.56	3.33	3.56	4.61	5.50						5.56	
23	3.39	3.28	3.50		5.56						5.50	
24	3.44	3.22	3.39		5.83						5.44	
25	3.44	3.28	3.33		5.72					6.89	5.44	
26	3.44	3.33	3.39		5.67					6.94	5.39	
27	3.56	3.33	3.33		5.83					6.72	5.44	
28	3.61	3.33	3.56		5.72					6.67	5.56	
29	3.67		3.67		5.61					6.67	5.56	
30	3.67		3.89		5.83					6.67	5.61	
31	3.67		3.78		5.83					6.56		
Average	3.57	3.30	3.48	4.22	5.08	5.87				6.73	5.69	5.49
Minimum	3.39	2.50	3.33	3.89	4.44	5.78				6.56	5.28	5.33
Maximum	3.67	3.83	3.89	4.67	5.83	6.00				6.94	6.50	5.56
Range	0.28	1.33	0.56	0.78	1.39	0.22				0.39	1.22	0.22
Standard Deviation	0.10	0.30	0.15	0.27	0.55	0.08				0.14	0.35	0.08
Days sampled:	169											

Table 25. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1979 using Peabody Ryan thermograph 0998.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1		3.22	1.67	2.83	4.44		6.44	8.22		8.11		
2		3.22	1.78	2.89	4.44		6.50	8.22		8.17		
3		3.22	1.72	2.94	4.44		6.89	8.33		8.17		4.56
4		3.22	1.72	3.17			7.00	9.00		8.11		4.61
5		2.89		3.22			7.11	8.89		8.17		4.56
6		2.44		3.28			7.50	8.67		8.06		4.50
7		2.22		3.28			7.67	8.89		7.78		4.50
8		2.00		3.28			7.78	8.78		7.72		4.44
9		1.94		3.28			7.78	8.78		7.72		4.22
10		1.78		3.28			7.72	8.83		7.72		4.22
11		1.50		3.33			7.67	8.78		7.67		3.28
12		1.28		3.33			7.72	8.67		7.67		3.22
13		1.39		3.33			7.78			7.67		3.33
14		1.44		3.44			7.78			7.61		3.28
15		1.28		3.44			7.83			7.56		3.33
16		1.22		3.56			7.78			7.56		4.39
17		1.11		3.61			7.83			7.56		4.50
18		1.22		3.61			7.89			7.44		4.44
19	3.22	1.56		3.50			8.11			7.22		4.33
20	3.22	1.61	2.78	3.61			8.11			7.11		3.89
21	3.22	1.61	2.78	3.67			8.33		9.44	6.89		3.39
22	3.28	1.56	2.72	3.89			8.56		9.28	6.89		3.33
23	3.33	1.50	2.72	4.11			8.56		9.00	6.72		3.33
24	3.33	1.56	2.78	4.33			8.33		8.72	6.61		3.33
25	3.39	1.50	2.83	4.39			8.22		8.72	6.50		3.33
26	3.22	1.44	2.83	4.39			8.11		8.67	6.44		3.28
27	3.22	1.61	2.78	4.44			8.06		8.56	6.33		3.28
28	3.17	1.78	2.78	4.44			8.06		8.11	6.28		3.22
29	3.17		2.78	4.44			8.11		8.11	6.17		2.89
30	3.17		2.78	4.44		6.44	8.22		8.11	6.11		2.67
31	3.22		2.83				8.22			6.11		2.44
Average	3.24	1.87	2.52	3.63	4.44	6.44	7.80	8.67	8.67	7.29		3.73
Minimum	3.17	1.11	1.67	2.83	4.44	6.44	6.44	8.22	8.11	6.11		2.44
Maximum	3.39	3.22	2.83	4.44	4.44	6.44	8.56	9.00	9.44	8.17		4.61
Range	0.22	2.11	1.17	1.61	0.00	0.00	2.11	0.78	1.33	2.06		2.17
Standard Deviation	0.07	0.68	0.48	0.51	0.00		0.53	0.27	0.48	0.69		0.66
Days sampled:	204											

Table 26. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1979 using Peabody Ryan thermograph 15346.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1		4.44	2.94	3.67	5.00		7.89	9.72		8.00	6.11	
2		4.44	3.11	3.67	5.17		8.33	9.78		8.06	6.11	
3		4.44	3.06	3.72	5.00		8.78	10.00		8.33	6.11	4.44
4		4.22	2.78	3.83			8.72	10.00		8.00		4.39
5		3.78		3.83			8.67	10.06		7.94		4.50
6		3.44		3.94			8.89	10.28		7.72		4.44
7		3.17		4.17			9.11	10.28		7.56		4.44
8		3.06		4.22			9.17	10.17		7.50		4.33
9		2.67		4.28			9.17	10.17		7.56		3.89
10		2.67		4.33			9.17	10.11		7.61		3.89
11		2.56		4.33			9.17	10.06		7.61		3.33
12		2.61		4.39			9.17	10.00		7.56		3.22
13		2.78		4.39			9.17			7.50		3.33
14		2.50		4.44			9.17			7.50		3.28
15		2.22		4.44			9.17			7.44		3.33
16		2.22		4.44			9.11			7.50		4.44
17		2.33		4.44			9.17			7.44		4.44
18		2.72		4.44			9.44			7.28		4.39
19	4.28	2.78		4.44			9.50			7.11		4.17
20	4.22	2.61	3.33	4.50			9.78			6.89		3.61
21	4.28	2.50	3.22	4.56			10.00		9.17	6.72		3.33
22	4.39	2.50	3.28	4.78			9.89		9.44	6.67		3.33
23	4.33	2.67	3.33	5.00			9.78		9.00	6.61		3.33
24	4.33	2.50	3.33	5.28			9.94		8.61	6.44		3.33
25	4.28	2.44	3.33	5.00			9.78		8.56	6.39		3.22
26	4.00	2.50	3.39	5.28			9.78		8.50	6.39		3.11
27	4.17	2.78	3.33	5.33			9.78		8.33	6.39		3.17
28	4.39	2.61	3.44	5.28			9.83		8.00	6.39		3.11
29	4.39		3.61	5.28		7.78	9.78		7.94	6.39		2.56
30	4.44		3.67	5.28		7.83	9.78		8.00	6.11		2.50
31	4.44		3.56				9.72			6.11		2.33
Average	4.30	2.93	3.29	4.50	5.06	7.81	9.32	10.05	8.56	7.18	6.11	3.63
Minimum	4.00	2.22	2.78	3.67	5.00	7.78	7.89	9.72	7.94	6.11	6.11	2.33
Maximum	4.44	4.44	3.67	5.33	5.17	7.83	10.00	10.28	9.44	8.33	6.11	4.50
Range	0.44	2.22	0.89	1.67	0.17	0.06	2.11	0.56	1.50	2.22	0.00	2.17
Standard Deviation	0.12	0.69	0.24	0.52	0.10	0.04	0.51	0.17	0.52	0.65	0.00	0.66
Days sampled:	208											



Table 27. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1980 using Peabody Ryan thermograph 0998.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	2.33	3.33	3.78									
2	2.22	3.33	3.78									
3	2.22	3.33	3.83									
4	2.22	3.17	3.83									
5	2.22	3.22										
6	2.28	3.28										
7	2.33	3.17										
8	2.39	3.22										
9	2.44	3.22										
10	2.44	3.28										
11	2.50	3.33										
12	2.22	3.33										
13	1.78	3.33										
14		3.33										
15		3.56										
16		3.72										
17		3.72										
18		3.78										
19		3.78										
20		3.89										
21		3.94										
22		3.89										
23	3.17	3.78										
24	3.22	3.89										
25	3.22	3.89										
26	3.22	3.83										
27	3.28	3.83										
28	3.33	3.89										
29	3.39	3.72										
30	3.44											
31	3.39											
Average	2.69	3.55	3.81									
Minimum	1.78	3.17	3.78									
Maximum	3.44	3.94	3.83									
Range	1.67	0.78	0.06									
Standard Deviation	0.53	0.28	0.03									
Days sampled:	55											

Table 28. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1980 using Peabody Ryan thermograph 15346.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	2.22						8.33					
2	2.17					6.78	8.56					
3	2.22					6.61	8.61					
4	2.17					6.67	8.61					
5	2.22					6.78	8.72					
6	2.28					6.78	8.78					
7	2.33					6.89	8.67					
8	2.33					6.89	8.78					
9	2.50					6.94	8.89					
10	2.50					7.44	8.89					
11	2.44					7.28	9.06					
12	2.11					7.00	8.89					
13	1.67					7.00	8.78					
14	1.11					7.00	8.67					
15						7.17						
16						7.44						
17						7.17						
18						7.28						
19						7.56						
20						8.00						
21						7.72						
22						7.67						
23						7.78						
24						7.83						
25						7.89						
26						7.89						
27						7.94						
28						8.11						
29						8.22						
30						8.33						
31												
Average	2.16					7.38	8.73					
Minimum	1.11					6.61	8.33					
Maximum	2.50					8.33	9.06					
Range	1.39					1.72	0.72					
Standard Deviation	0.37					0.51	0.18					
Days sampled:	57											

Table 29. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1981 using Peabody Ryan thermograph 61845.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1					6.80	7.80	9.60					
2					6.80	7.80	9.80					
3					6.80	7.90	9.90					
4					6.80	7.90	10.00					
5					6.80	7.80	10.20					
6					6.90	7.80	10.50					
7					6.90	7.80	10.50					
8					6.90	7.80	10.50					
9					6.90	7.90	10.60					
10					7.00	7.90	11.00					
11					7.00	8.00	10.60					
12					7.00	8.00	10.80					
13					7.00	8.30	11.00					
14					7.00	8.50						
15					7.00	8.60						
16					7.00	8.80						
17				5.90	7.00	8.80						
18				6.00	7.10	8.80						
19				6.00	7.20	8.80						
20				6.00	7.10	8.80						
21				6.00	7.10	8.90						
22				6.10	7.20	9.00						
23				6.10	7.20	9.00						
24				6.10	7.30	9.00						
25				6.20	7.30	9.00						
26				6.20	7.40	9.10						
27				6.40	7.50	9.30						
28				6.50	7.70	9.40						
29				6.70	7.80	9.50						
30				6.70	7.90	9.50						
31					7.80							
Average				6.21	7.14	8.52	10.38					
Minimum				5.90	6.80	7.80	9.60					
Maximum				6.70	7.90	9.50	11.00					
Range				0.80	1.10	1.70	1.40					
Standard Deviation				0.26	0.32	0.60	0.45					
Days sampled:	88											

Table 30. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1981 using Peabody Ryan thermograph 61846.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1					7.00	7.90	9.80					
2					6.90	7.90	9.80					
3					6.90	7.90	10.00					
4					7.00	7.90	10.10					
5					6.90	7.90	10.40					
6					6.90	7.90	10.50					
7					6.90	7.90	10.90					
8					6.90	7.90	10.80					
9					7.00	8.00	10.80					
10					7.10	8.00	11.20					
11					7.00	8.10	10.90					
12					7.00	8.10	10.80					
13					7.00	8.50	10.80					
14					7.00	8.80	10.80					
15					7.00	8.90	11.00					
16					7.20	9.00	10.50					
17				6.00	7.20	9.00	10.50					
18				6.00	7.30	9.00	10.50					
19				6.00	7.50	9.00	10.50					
20				6.00	7.40	9.00						
21				6.00	7.50	9.00						
22				6.20	7.40	9.20						
23				6.20	7.50	9.10						
24				6.30	7.60	9.20						
25				6.40	7.60	9.20						
26				6.50	7.70	9.20						
27				6.50	7.80	9.40						
28				6.70	7.90	9.40						
29				6.80	7.90	9.50						
30				6.90	7.90	9.70						
31					7.90							
Average				6.32	7.28	8.65	10.56					
Minimum				6.00	6.90	7.90	9.80					
Maximum				6.90	7.90	9.70	11.20					
Range				0.90	1.00	1.80	1.40					
Standard Deviation				0.32	0.36	0.62	0.40					
Days sampled:	94											

Table 31. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1982 using Peabody Ryan thermograph 61845.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1							7.00	8.50	9.90			
2							7.00	8.80	9.80			
3							7.00	9.00	9.50			
4							7.00	9.10	9.50			
5							7.00	9.20	9.40			
6							7.00	9.20				
7							7.00	9.30				
8						6.40	7.10	9.20				
9						6.30	7.30	9.30				
10						6.20	7.50	9.60				
11						6.30	7.50	9.60				
12						6.30	7.50	9.70				
13						6.30	7.70	9.90				
14						6.20	7.80	10.10				
15						6.30	7.80	10.20				
16						6.30	7.80	10.20				
17						6.50	7.80	10.20				
18						6.50	7.80	10.50				
19						6.80	7.90	10.50				
20						6.90	8.10	10.50				
21						6.90	8.40	10.40				
22						6.90	8.30	10.40				
23						7.00	8.40	10.20				
24						7.00	8.00	10.20				
25						7.00	8.10	10.00				
26						7.00	8.10	9.90				
27						7.00	8.00	9.90				
28						7.00	8.00	10.00				
29						7.00	8.20	10.00				
30						7.00	8.30	10.00				
31							8.30	10.00				
Average						6.66	7.70	9.79	9.62			
Minimum						6.20	7.00	8.50	9.40			
Maximum						7.00	8.40	10.50	9.90			
Range						0.80	1.40	2.00	0.50			
Standard Deviation						0.33	0.49	0.54	0.22			
Days sampled:	90											

Table 32. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1983 using Peabody Ryan thermograph 8660.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1						2.22						
2						2.22						
3						2.22						
4						2.22						
5					3.22	2.22						
6					2.67	2.22						
7					2.33	2.39						
8					2.22	2.78						
9					2.22	2.83						
10					2.22	3.00						
11					2.22	3.22						
12					2.22	3.33						
13					2.22	3.33						
14					2.22	3.33						
15					2.11	3.39						
16					2.11	3.33						
17					2.11	3.33			11.11			
18					2.06				11.11			
19					2.06				11.11			
20					2.06							
21					2.06							
22					2.06							
23					2.11							
24					2.11							
25					2.17							
26					2.22							
27					2.22							
28					2.22							
29					2.22							
30					2.22							
31					2.22							
Average					2.23	2.80			11.11			
Minimum					2.06	2.22			11.11			
Maximum					3.22	3.39			11.11			
Range					1.17	1.17			0.00			
Standard Deviation					0.23	0.51			0.00			
Days sampled:	47											

Table 33. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1983 using Peabody Ryan thermograph 61845.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1							7.90	9.80	11.40	8.80	6.00	5.30
2							7.90	10.00	11.40	8.80	6.00	5.40
3							7.90	10.30	11.50	8.50	6.10	5.40
4							7.90	10.70	11.40	8.00	6.00	5.40
5							8.00	10.70	11.00	8.10	5.80	5.40
6							8.30	11.00	11.00	8.10	5.50	5.30
7							8.30	11.20	11.00	8.00	5.70	5.30
8							8.50	11.10	11.00	7.90	5.80	5.10
9							8.50	10.90	11.00	7.90	5.90	5.10
10							8.40	10.80	11.00	7.90	5.90	
11							8.30	10.80	11.00	8.00	5.80	
12							8.20	10.80	11.00	7.90	5.90	4.70
13							8.20	10.80	11.00	7.90	5.80	4.70
14							8.30	10.80	10.90	7.90	5.80	4.30
15							8.50	10.80	10.70	7.90	6.00	4.30
16							8.60	10.70	10.50	7.50	6.00	4.30
17						7.40	8.50	10.80		7.50	5.80	4.40
18						7.50	8.60	10.90		7.50	5.40	4.30
19						7.60	8.90	11.00		7.50	5.40	4.30
20						7.70	9.20	11.00		7.50	5.50	4.40
21						7.70	9.30	11.00		7.50	5.50	4.40
22						7.90	9.30	11.00		7.00	5.50	4.30
23						7.80	9.50	11.00		7.00	5.50	4.30
24						7.90	9.80	11.00		6.90	5.30	4.30
25						7.80	9.60	11.00		6.60	5.20	4.40
26						7.90	9.50	11.00		6.40	5.10	4.30
27						7.90	9.40	11.00		6.40	5.10	4.30
28						8.00	9.40	11.00		6.40	5.20	4.30
29						7.80	9.40	11.10		6.30	5.20	4.30
30						7.90	9.50	11.10	9.00	6.10	5.20	4.30
31							9.50	11.30		6.10		4.30
Average						7.77	8.75	10.85	10.93	7.48	5.63	4.65
Minimum						7.40	7.90	9.80	9.00	6.10	5.10	4.30
Maximum						8.00	9.80	11.30	11.50	8.80	6.10	5.40
Range						0.60	1.90	1.50	2.50	2.70	1.00	1.10
Standard Deviation						0.17	0.62	0.32	0.56	0.77	0.32	0.46
Days sampled:	183											

Table 34. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1983 using Peabody Ryan thermograph 61846.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1			4.90	5.30	6.40		8.80	10.70	12.00			
2			4.90	5.30	6.40		8.80	10.90	12.00			
3			4.90	5.40	6.50		8.80	11.00	12.00			
4			4.90	5.40	6.50		8.80	11.50	12.00			
5			4.90	5.60			9.00	11.30	11.80			
6			4.80	5.60			9.30	11.70	11.70			
7			4.90	5.60			9.30	11.90	11.60			
8			4.80	5.70			9.30	12.00	11.60			
9			4.90	5.70			9.30	11.50	11.70			
10		4.00	4.90	5.70			9.30	11.50	11.70			
11		4.10	4.90	5.70			9.30	11.40	11.60			
12		4.10	4.90	5.90			9.10	11.40				5.80
13		4.00	5.00	5.90			9.10	11.50				5.80
14		4.00	5.00	5.90			9.20	11.50				5.60
15		4.10	5.10	5.90			9.30	11.60				5.60
16		4.20	5.10	5.90			9.40	11.70				5.70
17		4.50	5.20	5.90		8.80	9.40	11.80				5.70
18		4.40	5.20	5.90		8.70	9.50	11.60				5.80
19		4.50	5.20	5.90		8.70	9.70	11.80				5.90
20		4.70	5.30	6.00		8.80	10.00	11.90				6.00
21		4.80	5.30	6.00		8.80	10.10	11.90				6.00
22		4.80	5.20	6.00		8.90	10.10	11.90				6.00
23		4.80	5.20	6.00		8.90	10.20	11.90				5.90
24		4.80	5.20	6.00		8.90	10.30	12.00				5.80
25		4.80	5.40	6.10		8.90	10.40	11.90				5.80
26		4.80	5.30	6.20		8.90	10.40	11.80				5.80
27		4.80	5.20	6.30		8.90	10.40	11.80				5.80
28		4.80	5.30	6.30		8.90	10.40	11.80				5.80
29			5.30	6.40		8.90	10.30	11.90				5.80
30			5.30	6.40		8.90	10.30	11.90				5.80
31			5.30				10.50	12.00				5.90
Average		4.47	5.09	5.86	6.45	8.85	9.62	11.65	11.79			5.82
Minimum		4.00	4.80	5.30	6.40	8.70	8.80	10.70	11.60			5.60
Maximum		4.80	5.40	6.40	6.50	8.90	10.50	12.00	12.00			6.00
Range		0.80	0.60	1.10	0.10	0.20	1.70	1.30	0.40			0.40
Standard Deviation		0.34	0.19	0.30	0.06	0.08	0.58	0.33	0.18			0.11
Days sampled:	191											



Table 35. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1984 using Peabody Ryan thermograph 61845.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	4.50	3.80	3.00		5.70	7.50	9.00	10.50				
2	4.70	3.80	3.00		5.70	7.80	9.00	10.20				
3	4.50	3.90	2.90		5.80	7.80	9.00	10.20				
4	4.20	3.70	3.00		5.90	7.90	9.20					
5	4.00	3.50	3.10		6.00	7.90	9.20					
6	4.00	3.40	3.10		6.00	7.70	9.50					
7	4.00	3.10	3.10		5.90	7.80	9.90					
8	4.00	3.00	3.10		6.00	7.80	10.10					
9	4.40	2.90	3.20		6.10	7.90	10.10					
10	4.50	2.50	3.20		6.00	8.00	10.30					
11	4.20	2.50			6.20	8.00	10.40					
12	4.20	2.50			6.40	8.00	10.50					5.50
13	4.40	2.60			6.70	8.00	10.40					5.30
14	4.30	2.70			6.80	8.00	10.40					4.90
15	4.40	2.70			6.70	8.00	10.10					4.80
16	4.50	2.90			6.60	8.00	10.00					4.90
17	4.60	3.00			6.50	8.00	10.00					5.00
18	4.50	3.00			6.30	7.90	10.00					5.00
19	4.30	2.90			6.40	7.90	10.00					5.20
20	4.30	2.00			6.60	8.00	10.10					5.20
21	4.40	2.40			6.70	7.90	10.10					5.10
22	4.30	2.50			6.50	8.00	10.20					5.10
23	4.00	2.50			6.50	8.20	10.40					5.20
24	3.90	2.40			6.40	8.50	10.30					5.10
25	3.70	2.70			6.50	8.90	10.30					5.10
26	4.00	3.10			6.70	8.90	10.40					5.00
27	3.80	3.00			6.80	8.90	10.30					5.00
28	3.50	3.00			6.90	9.00	10.50					5.00
29	3.70	3.00			7.00	9.00	10.50					5.00
30	3.50				7.00	9.00	10.50					5.00
31	3.60				7.10		10.50					5.00
Average	4.16	2.93	3.07		6.40	8.14	10.04	10.30				5.07
Minimum	3.50	2.00	2.90		5.70	7.50	9.00	10.20				4.80
Maximum	4.70	3.90	3.20		7.10	9.00	10.50	10.50				5.50
Range	1.20	1.90	0.30		1.40	1.50	1.50	0.30				0.70
Standard Deviation	0.33	0.47	0.09		0.40	0.44	0.48	0.17				0.16
Days sampled:	185											

Table 36. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1984 using Peabody Ryan thermograph 61846.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	6.00	5.30	4.50		6.30	8.10						
2	6.00	5.20	4.40		6.40	8.20						
3	6.00	5.10	4.30		6.50	8.40						
4	5.80	5.10	4.50		6.50	8.60						
5	5.50	5.00	4.70		6.40	8.70						
6	5.40	4.90	4.70		6.50	8.70						
7	5.40	4.80	4.70		6.70	8.80						
8	5.40	4.60	4.80		6.70	8.80						
9	5.60	4.30	4.80		6.80	8.80						
10	5.60	4.20	4.80		7.00	8.80						
11	5.50	4.10	4.80		7.10	8.90						
12	5.60	4.30	4.80		7.30	8.80						
13	5.60	4.30	4.70		7.50	8.80	10.50					
14	5.70	4.20			7.60	8.70	10.30					
15	5.80	4.20			7.50	8.70	10.20					
16	5.90	4.30			7.40	8.70	10.40					
17	6.00	4.40			7.20	8.60	10.70					
18	5.90	4.50			7.30	8.70						
19	5.80	4.30			7.20	8.90						
20	5.80	4.60			7.20	8.90						
21	5.80	4.90			7.20	8.80						
22	5.70	5.00			7.20	8.70						
23	5.40	5.00			7.20							
24	5.40	5.00			7.20							
25	5.20	5.30			7.30							
26	5.30	4.70			7.30							
27	5.20	4.50			7.40							
28	5.00	4.50			7.30							
29	5.10	4.50			7.60							
30	5.00				7.80							
31	5.10				7.90							
Average	5.56	4.66	4.65		7.11	8.69	10.42					
Minimum	5.00	4.10	4.30		6.30	8.10	10.20					
Maximum	6.00	5.30	4.80		7.90	8.90	10.70					
Range	1.00	1.20	0.50		1.60	0.80	0.50					
Standard Deviation	0.31	0.37	0.17		0.43	0.21	0.19					
Days sampled:	131											

Table 37. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1985 using Peabody Ryan thermograph 60918.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1				3.00	3.80	5.20	7.00	8.10				
2				2.90	3.90	5.30	7.00	8.20				
3				2.90	4.00	5.30	6.90	8.20				
4				3.00	4.00	5.30	6.90	8.20				
5				3.00	4.10	5.20	7.00					
6				3.10	4.10	5.20	7.00					
7				3.00	4.10	5.20	7.00					
8				3.00	4.10	5.20	7.10					
9				3.00	4.00	5.20	7.20					
10				3.00	4.10	5.30	7.30					
11				3.00	4.20	5.50	7.40					
12			3.40	3.00	4.20	5.60	7.80					
13			3.30	2.80	4.20	5.80	7.80					
14			3.20	2.80	4.20	5.90	7.90					
15			3.10	2.90	4.20	5.90	8.00					
16			2.90	3.00	4.20	6.00	8.10					
17			3.00	3.00	4.60	6.00	8.00					
18			3.00	2.90	4.60	6.10	7.90					
19			2.90	2.90	4.50	6.20	7.80					
20			2.90	3.00	4.50	6.20	7.80					
21			3.00	3.00	4.80	6.30	7.80					
22			3.10	3.20	4.90	6.20	7.90					
23			3.20	3.30	5.00	6.40	7.90					
24			3.20	3.40	5.00	6.30	7.80					
25			3.20	3.40	5.00	6.30	7.70					
26			3.20	3.50	5.00	6.30	7.90					
27			3.20	3.50	5.10	6.30	7.90					
28			3.20	3.60	5.10	6.50	7.90					
29			3.20	3.70	5.10	6.80	8.00					
30			3.20	3.60	5.30	7.00	8.00					
31			3.20		5.40		8.10					
Average			3.13	3.11	4.49	5.87	7.61	8.18				
Minimum			2.90	2.80	3.80	5.20	6.90	8.10				
Maximum			3.40	3.70	5.40	7.00	8.10	8.20				
Range			0.50	0.90	1.60	1.80	1.20	0.10				
Standard Deviation			0.14	0.26	0.47	0.54	0.42	0.05				
Days sampled:	146											

Table 38. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1985 using Peabody Ryan thermograph 60919.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1				2.30	3.10	5.00	6.50	8.00	8.90			
2				2.10	3.20	5.00	6.50	8.00	9.00			
3				2.10	3.40	4.90	6.40	8.00	8.90			
4				2.20	3.40	4.90	6.50	7.90	8.90			
5				2.30	3.50	4.90	6.50	8.00	9.00			
6				2.40	3.60	4.90	6.60	7.90	9.00			
7				2.40	3.70	4.90	6.80	7.90	9.00			
8				2.40	3.80	4.90	6.90	7.90	9.10			
9				2.30	3.70	5.00	7.00	7.90	9.00			
10				2.30	3.80	5.00	7.00	7.90	9.00			
11				2.30	3.90	5.10	7.10	8.00	9.00			
12			2.90	2.20	3.80	5.10	7.20	8.10	9.00			
13			2.80	2.00	3.80	5.30	7.40	8.00	9.10			
14			2.80	2.10	3.90	5.50	7.60	7.90	9.20			
15			2.70	2.10	3.80	5.50	7.70	7.90				
16			2.30	2.30	3.80	5.60	7.50	7.90				
17			2.50	2.40	4.00	5.80	7.50	7.90				
18			2.30	2.10	4.00	5.90	7.30	8.00				
19			2.20	2.20	4.00	6.00	7.20	8.00				
20			2.20	2.30	4.00	6.00	7.20	8.00				
21			2.40	2.30	4.10	5.90	7.20	8.00				
22			2.50	2.60	4.20	6.00	7.20	8.10				
23			2.60	2.80	4.40	6.00	7.20	8.20				
24			2.60	2.80	4.50	6.00	7.20	8.20				
25			2.60	2.80	4.50	6.00	7.40	8.40				
26			2.70	2.80	4.60	5.90	7.50	8.60				
27			2.80	2.90	4.70	6.00	7.60	8.80				
28			2.80	3.00	4.60	6.20	7.70	8.80				
29			2.80	3.00	4.70	6.30	7.80	8.80				
30			2.80	3.00	5.00	6.50	7.90	8.90				
31			2.80		5.00		8.00	9.00				
Average			2.61	2.43	4.02	5.53	7.20	8.16	9.01			
Minimum			2.20	2.00	3.10	4.90	6.40	7.90	8.90			
Maximum			2.90	3.00	5.00	6.50	8.00	9.00	9.20			
Range			0.70	1.00	1.90	1.60	1.60	1.10	0.30			
Standard Deviation			0.22	0.31	0.50	0.52	0.45	0.35	0.08			
Days sampled: 187												

Table 39. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1985 using Peabody Ryan thermograph 61845.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	5.00	5.10	3.80									
2	5.00	5.10	3.80									
3	5.10	5.10	3.50									
4	5.10	5.10	3.50									
5	5.00	5.00	3.70									
6	5.10	5.00	3.80									
7	5.10	4.90	3.40									
8	5.10	4.80	3.50									
9	5.10	4.60	3.80									
10	5.10	4.70	3.80									
11	5.20	4.30	3.90									
12	5.20	4.00	3.80									
13	5.10	3.90										
14	5.10	3.80										
15	5.10	3.40										
16	5.10	3.20										
17	5.10	3.00										
18	5.10	3.00										
19	5.10	3.00										
20	5.10	3.10										
21	5.10	3.20										
22	5.10	3.30										
23	5.10	3.60										
24	5.10	3.60										
25	5.00	3.80										
26	5.00	3.80										
27	5.00	3.90										
28	5.00	3.70										
29	5.00											
30	5.10											
31	5.00											
Average	5.08	4.04	3.69									
Minimum	5.00	3.00	3.40									
Maximum	5.20	5.10	3.90									
Range	0.20	2.10	0.50									
Standard Deviation	0.06	0.76	0.17									
Days sampled:	71											

Table 40. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1985 using Peabody Ryan thermograph 61846.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1				3.30	4.10	5.80						
2				3.20	4.20	5.80						
3				3.20	4.20	5.80						
4				3.20	4.30	5.90						
5				3.40	4.40	5.60						
6				3.50	4.50	5.50						
7				3.30	4.60	5.50						
8				3.40	4.60	5.60						
9				3.30	4.70	5.80						
10				3.30	4.60	5.90						
11				3.30	4.50	6.00						
12				3.30	4.60	6.00						
13			3.80	3.20	4.60	6.00						
14			3.80	3.00	4.60	5.80						
15			3.80	3.20	4.70	5.90						
16			3.80	3.20	4.60							
17			3.20	3.20	4.70							
18			3.40	3.20	5.00							
19			3.20	3.10	5.00							
20			3.20	3.30	4.90							
21			3.30	3.30	5.00							
22			3.30	3.40	5.00							
23			3.60	3.60	5.10							
24			3.60	3.80	5.20							
25			3.60	4.00	5.20							
26			3.60	4.00	5.30							
27			3.70	4.00	5.30							
28			3.70	4.00	5.30							
29			3.70	4.00	5.40							
30			3.80	4.00	5.50							
31			3.80		5.90							
Average			3.57	3.44	4.83	5.79						
Minimum			3.20	3.00	4.10	5.50						
Maximum			3.80	4.00	5.90	6.00						
Range			0.60	1.00	1.80	0.50						
Standard Deviation			0.23	0.32	0.43	0.17						
Days sampled:	95											

Table 41. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1986 using Peabody Ryan thermograph 8660.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1						6.61						
2						6.61						
3					5.28	6.61						
4					5.00	6.61						
5					5.00	6.61						
6					5.11	6.61						
7					5.00	6.61						
8					5.11	6.61						
9					5.11	6.61						
10					5.00	6.56						
11					4.94							
12					4.89							
13					5.00							
14					5.11							
15					5.17							
16					5.22							
17					5.28							
18					5.50							
19					5.56							
20					5.61							
21					5.67							
22					5.78							
23					5.72							
24					6.00							
25					6.22							
26					6.50							
27					6.50							
28					6.56							
29					6.67							
30					6.56							
31					6.56							
Average					5.57	6.61						
Minimum					4.89	6.56						
Maximum					6.67	6.61						
Range					1.78	0.06						
Standard Deviation					0.61	0.02						
Days sampled:	39											

Table 42. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1986 using Peabody Ryan thermograph 15346.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1						5.72						
2					4.44	5.78						
3					4.44	5.67						
4					4.44	5.67						
5					4.44	5.83						
6					4.44	5.78						
7					4.44	5.78						
8					4.44	5.78						
9					4.44							
10					4.44							
11					4.44							
12					4.44							
13					4.44							
14					4.44							
15					4.44							
16					4.44							
17					4.44							
18					4.50							
19					4.67							
20					5.00							
21					5.22							
22					5.33							
23					5.50							
24					5.56							
25					5.56							
26					5.67							
27					5.67							
28					5.61							
29					5.78							
30					5.89							
31					5.78							
Average					4.89	5.75						
Minimum					4.44	5.67						
Maximum					5.89	5.83						
Range					1.44	0.17						
Standard Deviation					0.56	0.06						
Days sampled:	38											



Table 43. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1986 using Ryan TempMentor thermographs 900235 and 900262.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1							6.79	8.99	9.73	8.77	7.49	4.36
2							6.75	9.17	9.69	8.78	7.53	4.50
3							6.80	9.24	9.69	8.74	7.52	4.56
4							6.84	9.27	9.67	8.67	7.46	4.60
5							6.94	9.32	9.58	8.62	7.36	4.67
6							6.93	9.37	9.59	8.52	7.23	4.67
7							7.02	9.30	9.52	8.51	7.18	4.68
8							7.02	9.27	9.53	8.51	7.17	4.97
9							6.98	9.23	9.34	8.52	7.20	4.94
10						5.93	6.99	9.24	9.24	8.69	7.20	4.97
11						5.95	7.05	9.25	9.26	8.68	7.15	4.94
12						6.15	7.16	9.24		8.68	7.12	4.89
13						6.32	7.25	9.22		8.68	7.10	
14						6.31	7.44	9.26		8.67	7.07	
15						6.21	7.57	9.44		8.56	6.97	
16						6.31	7.94	9.65	9.76	8.43	6.87	
17						6.42	8.04	9.88	9.72	8.32	6.70	
18						6.51	8.37	9.95	9.57	8.21	6.47	
19						6.63	8.43	9.94	9.51	8.11	6.20	4.95
20						6.77	8.58	10.01	9.64	8.05	5.90	4.96
21						6.96	8.53	10.01	9.52	8.03	5.63	4.89
22						6.93	8.53	9.95	9.48	8.04	5.44	4.81
23						6.85	8.49	9.84	9.02	8.00	5.18	4.80
24						6.69	8.20	9.88	8.80	7.92	4.99	4.80
25						6.60	8.23	9.90	8.71	7.90	4.73	4.63
26						6.57	8.17	9.83	8.60	7.78	4.40	4.53
27						6.51	8.17	9.78	8.53	7.76	4.25	4.67
28						6.66	8.28	9.74	8.61	7.61	4.30	4.70
29						6.63	8.57	9.66	8.67	7.58	4.41	4.66
30						6.69	8.65	9.74	8.77	7.49	4.13	4.60
31							8.74	9.76		7.41		4.68
Average						6.50	7.72	9.56	9.30	8.27	6.28	4.74
Minimum						5.93	6.75	8.99	8.53	7.41	4.13	4.36
Maximum						6.96	8.74	10.01	9.76	8.78	7.53	4.97
Range						1.03	2.00	1.02	1.23	1.37	3.39	0.61
Standard Deviation						0.29	0.72	0.32	0.42	0.43	1.19	0.17
Days sampled:	195											

Table 44. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1987 using Ryan TempMentor thermographs 900235 and 900262.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	4.75	4.17	3.50	4.61	5.51	7.01	7.50	11.00	11.31	9.10	6.70	4.79
2	4.67	4.13	3.52	4.63	5.50	7.02	7.56	11.18	11.37	9.00	6.69	4.15
3	4.44	4.06	3.53	4.61	5.55	7.18	7.73	11.43	11.72	8.92	6.69	3.92
4	4.48	4.22	3.42	4.67	5.58	7.34	7.78	11.41	11.50	8.91	6.72	3.83
5	4.60	4.30	3.29	4.70	5.62	7.37	7.78	11.50	11.17	8.82	6.78	4.15
6	4.59	4.21	3.20	4.75	5.66	7.38	7.87	11.04	11.10	8.77	6.59	4.19
7	4.43	4.15	3.45	4.73	5.79	7.43	7.90	10.65	11.05	8.70	6.49	4.05
8	4.54	4.17	3.61	4.76	5.91	7.52	8.08	10.66	10.66	8.73	6.42	4.39
9	4.44	4.22	3.65	4.78	5.99	7.70	8.15	10.82	10.45	8.65	6.28	4.25
10	3.89	4.29	4.00	4.80	6.06	7.63	8.38	10.94	10.32	8.57	6.33	3.88
11	3.64	4.26	4.16	4.83	6.15	7.37	8.47	11.05	10.31	8.52	6.40	3.67
12	3.54	4.26	4.23	4.84	6.17	7.41	8.46	10.91	10.27	8.48	6.22	3.47
13	3.43	4.32	4.25	4.79	6.17	7.51	8.42	10.90	10.02	8.37	5.74	3.27
14	3.41	4.33	4.28	4.74	6.19	7.52	8.24	11.01	9.83	8.30	5.20	2.85
15	3.48	4.36	4.24	4.74	6.28	7.63		11.06	9.82	8.18	5.17	2.79
16	3.67	4.34	4.30	4.47	6.39	7.68		11.04	9.84	8.08	5.04	3.04
17	3.72	4.33	4.38	4.40	6.51	7.74		11.15	9.83	7.95	5.09	2.92
18	4.01	4.34	4.37	4.45	6.43	7.64		11.28	9.83	7.99	5.40	3.03
19	4.09	4.33	4.42	4.48	6.43	7.67		11.43	9.82	8.05	5.47	3.29
20	3.90	4.36	4.45	4.59	6.56	7.69		11.46	9.85	7.91	5.45	3.38
21	4.15	4.25	4.35	4.73	6.50	7.66		11.57	9.86	7.89	5.49	3.17
22	4.24	4.28	4.41	4.77	6.43	7.78		11.65	9.80	7.84	5.47	3.22
23	4.27	4.31	4.41	4.78	6.41	7.87		11.63	9.78	7.75	5.43	3.47
24	4.33	4.30	4.39	4.88	6.38	7.92	9.69	11.60	9.75	7.74	5.30	3.66
25	4.36	3.96	4.43	4.96	6.68	7.87	9.97	11.59	9.57	7.56	5.39	3.57
26	4.34	3.55	4.43	4.98	6.54	7.83	10.10	11.67	9.50	7.53	5.47	3.64
27	4.30	3.60	4.46	5.06	6.57	7.80	10.23	11.65	9.34	7.33	5.44	3.66
28	4.30	3.63	4.47	5.17	6.62	7.69	10.30	11.52	9.25	7.05	5.46	3.67
29	4.20		4.47	5.23	6.64	7.66	10.44	11.46	9.21	6.92	5.27	3.67
30	4.20		4.47	5.39	6.80	7.59	10.73	11.39	9.15	6.75	5.05	3.73
31	4.17		4.53		7.01		10.82	11.23		6.69		3.77
Average	4.15	4.18	4.10	4.78	6.23	7.57	8.85	11.25	10.18	8.10	5.82	3.63
Minimum	3.41	3.55	3.20	4.40	5.50	7.01	7.50	10.65	9.15	6.69	5.04	2.79
Maximum	4.75	4.36	4.53	5.39	7.01	7.92	10.82	11.67	11.72	9.10	6.78	4.79
Range	1.34	0.81	1.34	0.99	1.51	0.91	3.33	1.02	2.57	2.41	1.75	2.00
Standard Deviation	0.38	0.23	0.43	0.23	0.42	0.23	1.17	0.31	0.73	0.68	0.61	0.48
Days sampled: 356												

Table 45. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1988 using Ryan TempMentor thermographs 900235 and 900262.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	3.67	3.91	3.97	4.29	5.00	7.30	8.92	10.85	10.37	8.99		4.31
2	3.66	4.09	4.10	4.31	5.13	7.44	8.86	10.82	10.35	9.10		3.93
3	3.75	4.22	3.94	4.30	5.18	7.49	8.90	10.58	10.47	9.14	7.24	4.15
4	3.85	4.31	3.85	4.27	5.26	7.55	8.91	10.57	10.49	9.14	6.99	3.89
5	4.08	4.30	4.04	4.22	5.33	7.65	9.00	10.57	10.37	9.14	6.80	3.61
6	4.25	4.35	4.13	4.23	5.32	7.59	8.96	10.62	10.35	8.96	6.78	3.44
7	4.21	4.29	4.09	4.29	5.33	7.58	8.96	10.75	10.29	8.90	6.82	3.85
8	4.35	4.22	4.04	4.25	5.45	7.71	8.99	10.98	10.14	8.92	6.86	4.62
9	4.35	4.19	3.97	4.17	5.49	7.75	9.19	11.05	10.09	8.87	6.91	4.51
10	4.40	4.26	3.80	4.17	5.47	7.83	9.29	11.19	10.13	8.86	6.89	4.40
11	4.37	4.32	3.72	4.17	5.53	7.84	9.45	11.23	10.15	8.82	6.81	4.57
12	4.20	4.37	3.75	4.16	5.55	7.81	9.38	11.08	9.81	8.76	6.60	4.13
13	4.36	4.39	3.81	4.24	5.61	7.83	9.45	10.87	9.60	8.62	6.11	3.78
14	4.21	4.36	3.91	4.29	5.64	7.87	9.43	10.95	9.50	8.42	6.14	3.97
15	4.15	4.31	4.04	4.28	5.68	7.86	9.45	11.04	9.50	8.14	6.19	4.19
16	4.34	4.23	4.20	4.31	5.79	7.89	9.43	11.23	9.48	8.11	6.01	4.30
17	4.33	4.18	4.23	4.35	5.93	7.86	9.41	11.02	9.48	8.13	6.03	4.40
18	4.27	4.03	4.25	4.40	5.97	7.95	9.48	11.02	9.45		5.87	4.20
19	4.25	4.13	4.31	4.55	6.17	8.07	9.49	10.86	9.52		5.81	4.28
20	4.21	3.93	4.40	4.62	6.23	8.28	9.60	10.86	9.49		5.80	4.38
21	4.27	3.54	4.44	4.75	6.43	8.48	9.73	10.79	9.20		5.69	4.45
22	4.28	3.58	4.46	4.77	6.50	8.60	9.79	10.80	9.06		5.23	4.28
23	4.25	3.73	4.40	4.85	6.54	8.74	9.91	10.89	8.98		4.90	4.12
24	4.18	3.70	4.30	4.85	6.48	8.89	10.07	11.10	8.90		4.87	4.12
25	3.89	3.84	4.25	4.83	6.59	8.99	10.25	11.09	8.91		4.97	4.15
26	3.83	3.88	4.23	4.75	6.77	8.95	10.42	11.16	8.92		5.03	4.28
27	3.77	3.91	4.10	4.85	7.04	9.00	10.56	11.01	8.91		4.88	4.37
28	3.58	3.91	3.93	4.91	7.10	9.01	10.51	10.88	8.89		4.81	4.31
29	3.67	3.89	3.95	4.95	7.13	9.08	10.52	10.73	8.75		4.90	4.36
30	3.71		4.12	5.01	7.22	9.04	10.65	10.54	8.83		4.59	4.26
31	3.84		4.19		7.31		10.80	10.45				4.20
Average	4.08	4.08	4.09	4.48	6.01	8.13	9.61	10.89	9.61	8.77	5.95	4.19
Minimum	3.58	3.54	3.72	4.17	5.00	7.30	8.86	10.45	8.75	8.11	4.59	3.44
Maximum	4.40	4.39	4.46	5.01	7.31	9.08	10.80	11.23	10.49	9.14	7.24	4.62
Range	0.82	0.85	0.75	0.84	2.31	1.79	1.93	0.79	1.74	1.03	2.65	1.17
Standard Deviation	0.27	0.25	0.21	0.29	0.70	0.58	0.60	0.22	0.59	0.36	0.84	0.27
Days sampled:	350											

Table 46. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1989 using Ryan TempMentor thermographs 900235 and 900262.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	4.09	0.95	2.17	2.87	4.18		7.66	9.89	9.81	8.98	6.42	4.35
2	4.46	0.94	2.15	2.93	4.27		7.86	9.80	9.75	8.95	6.44	4.53
3	4.25	1.23	1.60	3.03	4.45		8.11	9.69	9.59	8.90	6.43	4.52
4	4.04	1.33	1.61	3.02	4.60		8.24	9.91	9.45	8.89	6.40	4.49
5	3.97	1.23	1.41	2.98	4.70		8.15	9.99	9.47	8.79	6.30	4.51
6	4.04	1.26	1.39	3.07	4.72		8.25	10.03	9.52	8.63	5.87	4.52
7	3.94	1.40	1.43	3.16	4.72	6.21	8.07	10.09	9.52	8.57	5.59	4.57
8	3.87	1.48	1.50	3.28	4.86	6.22	7.81	10.11	9.53	8.50	5.13	4.57
9	3.97	1.68	1.66	3.25	4.99	6.32	7.68	10.08	9.49	8.41	4.70	4.57
10	3.84	1.81	1.70	3.24	5.04	6.48	7.61	10.14	9.40	8.41	4.45	4.55
11	3.81	1.86	1.79	3.26	4.99	6.49	7.67	10.05	9.26	8.32	4.50	4.59
12	3.45	1.89	1.84	3.35	5.17	6.44	7.96	9.85	9.16	8.14	4.47	4.68
13	3.11	1.83	1.90	3.40	5.10	6.44	8.13	9.81	9.00	7.95	4.35	4.76
14	3.04	1.93	1.99	3.49	5.08	6.57	8.33	10.00	9.00	7.89	4.33	4.75
15	2.51	2.00	2.19	3.62	5.19	6.62	8.38	10.15	9.01	7.89	4.35	4.81
16	2.36	2.17	2.30	3.59	5.20	6.68	8.62	10.18	9.11	7.71	4.42	4.77
17	2.08	2.17	2.38	3.60	5.18	6.83	8.81	10.25	9.08	7.44	4.36	4.83
18	1.86	2.15	2.40	3.65	5.28	7.03	9.04	10.24	9.14	7.07	4.32	4.76
19	1.83	2.05	2.39	3.67	5.38	7.10	9.19	10.23	9.25	6.97	4.25	4.74
20	1.67	2.14	2.40	3.61	5.50	7.11	9.31	10.07	9.30	6.78	3.97	4.67
21	1.50	2.15	2.42	3.67	5.66	7.24	9.41	10.23	9.21	6.55	4.10	4.60
22	2.22	2.18	2.49	3.77	5.72	7.15	9.55	10.27	9.23	6.36	4.28	4.62
23	2.44	2.15	2.57	3.82	5.61	7.14	9.48	10.21	9.23	6.36	4.24	4.63
24	2.57	2.20	2.63	3.80	5.62	7.08	9.64	10.13	9.23	6.30	4.17	4.55
25	2.42	2.35	2.72	3.92	5.75	6.86	9.67	10.33	9.23	6.07	4.20	4.45
26	2.17	2.39	2.79	3.88	5.76	6.90	9.73	10.21	9.22	5.93	4.21	4.10
27	1.74	2.35	2.89	3.83	5.80	7.13	9.93	10.07	9.20	6.04	4.10	4.00
28	1.30	2.22	2.95	3.84	5.80	7.19	9.94	10.04	9.18	6.20	4.04	4.03
29	0.67		2.89	3.86	5.77	7.35	10.07	9.98	9.16	6.28	4.20	3.95
30	0.62		2.85	4.14	5.74	7.45	9.91	9.89	9.05	6.39	4.25	4.01
31	1.02		2.80				9.82	9.79		6.41		3.59
Average	2.74	1.84	2.20	3.49	5.19	6.83	8.78	10.06	9.29	7.49	4.76	4.49
Minimum	0.62	0.95	1.39	2.87	4.18	6.21	7.61	9.69	9.00	5.93	3.97	3.59
Maximum	4.46	2.39	2.95	4.14	5.80	7.45	10.07	10.33	9.81	8.98	6.44	4.83
Range	3.84	1.44	1.56	1.27	1.62	1.23	2.46	0.64	0.81	3.05	2.47	1.25
Standard Deviation	1.15	0.44	0.50	0.35	0.48	0.37	0.84	0.16	0.21	1.08	0.85	0.30
Days sampled:	358											

Table 47. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1990 using Ryan TempMentor thermographs 900235 and 900262.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	3.52		1.70	3.04	4.92	6.35	7.95	8.75	9.98	9.42		
2	3.57		1.75	3.16	4.92	6.41	8.32	8.87	10.18	9.17		
3	3.68		1.83	3.14	4.95	6.45	8.22	8.84	10.29	8.96		
4	3.72		1.92	3.14	4.95	6.58	8.34	8.69	10.38	8.88		
5	3.79		1.98	3.11	4.97	6.71	8.43	8.90	10.61	8.86		
6	3.78		1.69	3.15	5.21	6.90	8.33	8.96	11.14	8.81		
7	3.58		1.29	3.22	5.32	7.07	8.29	9.05	11.23	8.69		
8	3.10	1.35	1.40	3.23	5.40	7.32	8.24	9.19	11.31	8.29		
9	2.70	1.10	1.52	3.29	5.35	7.42	8.39	9.25	11.30	8.16		
10	2.85	0.57	1.48	3.39	5.38	7.40	8.37	9.23	11.19			
11	3.03	0.32	1.60	3.51	5.41	7.43	8.40	9.35	11.12			
12	2.99	0.61	1.75	3.69	5.51	7.28	8.41	9.33	11.21			
13	2.95	0.84	1.87	3.71	5.53	7.31	8.45	9.22	11.23			
14	3.01	0.50	1.92	3.75	5.64	7.24	8.54	9.19	10.90			
15	3.10	0.49	1.80	3.80	5.69	7.03	8.70	9.39	10.61			
16	3.11	0.76	1.92	3.85	5.70	6.92	8.74	9.49	10.71			
17	3.24	1.03	2.08	3.96	5.78	6.91	8.90	9.50	10.65			
18	3.33	0.76	2.12	3.98	5.85	6.90	8.99	9.21	10.42			
19	3.38	0.69	2.38	4.10	5.95	7.02	9.22	9.24	10.45			
20	3.40	1.16	2.40	4.16	5.92	7.00	9.41	9.23	10.40			
21	3.35	1.18	2.40	4.25	5.88	7.10	9.45	9.26	10.20			
22	3.45	1.09	2.45	4.25	5.93	7.13	9.52	9.38	9.92			
23	3.36	1.54	2.54	4.25	6.00	7.19	9.40	9.29	9.82			
24	3.24	1.73	2.58	4.28	6.05	7.30	9.26	9.23	9.73			
25	3.27	1.84	2.61	4.42	6.09	7.49	8.90	9.33	9.59			
26	3.20	1.83	2.71	4.57	6.17	7.44	8.80	9.34	9.70			
27	3.16	1.65	2.78	4.72	6.20	7.51	8.77	9.39	9.70			
28	3.00	1.62	2.89	4.86	6.28	7.75	8.85	9.56	9.71			
29	2.94		2.94	4.91	6.32	7.81	8.78	9.71	9.64			
30	2.93		2.97	4.97	6.30	8.06	8.71	9.88	9.49			
31	2.92		2.98		6.25		8.65	9.91				
Average	3.25	1.08	2.14	3.86	5.67	7.15	8.70	9.26	10.43	8.80		
Minimum	2.70	0.32	1.29	3.04	4.92	6.35	7.95	8.69	9.49	8.16		
Maximum	3.79	1.84	2.98	4.97	6.32	8.06	9.52	9.91	11.31	9.42		
Range	1.09	1.52	1.69	1.93	1.40	1.72	1.57	1.22	1.82	1.26		
Standard Deviation	0.29	0.48	0.51	0.60	0.45	0.41	0.41	0.29	0.60	0.39		
Days sampled:	275											

Table 48. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1991 using Ryan TempMentor thermographs 900235 and 900262.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1							7.13	9.18	9.35	8.35	7.10	5.22
2							7.13	9.15	9.62	8.32	7.13	5.35
3							7.17	9.23	9.75	8.34	7.18	5.36
4							7.30	9.31	9.85	8.25	7.18	5.34
5							7.30	9.41	9.91	8.22	7.18	5.38
6							7.43	9.63	9.99	8.14	7.18	5.03
7							7.53	9.79	9.99	8.08	7.19	4.88
8							7.53	9.95	9.98	7.99	7.19	4.68
9							7.74	9.92	9.95	7.86	7.19	4.52
10							7.85	9.86	9.84	7.82	7.15	4.57
11							7.91	9.75	9.76	7.62	7.13	4.45
12							8.02	9.62	9.70	7.53	7.04	4.40
13							8.03	9.45	9.67	7.50	6.92	4.29
14						6.72	7.98	9.37	9.72	7.42	6.81	4.34
15						6.75	8.00	9.28	9.67	7.11	6.91	4.29
16						6.87	7.95	9.23	9.70	7.12	6.89	4.32
17						6.92	7.87	9.20	9.70	7.07	6.79	4.23
18						6.95	7.89	9.22	9.54	7.11	6.71	4.01
19						6.98	7.95	9.25	9.42	7.19	6.34	3.88
20						6.99	8.00	9.27	9.20	7.14	5.94	3.95
21						6.97	8.16	9.33	9.20	7.01	5.57	3.88
22						6.95	8.58	9.45	9.11	7.03	5.43	3.82
23						7.01	8.83	9.42	9.20	7.01	5.24	3.84
24						6.96	8.91	9.53	9.03	7.03	5.40	3.95
25						6.99	9.00	9.46	8.69	7.00	5.38	3.90
26						6.97	9.18	9.31	8.51	6.99	5.30	3.70
27						6.90	9.20	9.22	8.47	6.89	5.19	3.65
28						6.91	9.27	9.20	8.39	6.82	5.23	3.44
29						7.00	9.23	9.21	8.37	6.93	5.26	3.77
30						7.11	9.14	9.24	8.36	7.01	5.37	3.83
31							9.18	9.31		7.02		3.90
Average						6.94	8.14	9.41	9.39	7.45	6.42	4.33
Minimum						6.72	7.13	9.15	8.37	6.82	5.19	3.44
Maximum						7.11	9.27	9.95	9.99	8.35	7.19	5.38
Range						0.39	2.14	0.80	1.62	1.53	2.00	1.94
Standard Deviation						0.09	0.71	0.23	0.54	0.52	0.82	0.58
Days sampled: 201												

Table 49. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1992 using Ryan TempMentor thermographs 900235 and 900262.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	3.93	3.63	2.22	3.72	5.54	7.00	8.06	9.85	9.24	8.54	6.84	5.59
2	3.86	3.36	1.96	3.81	5.60	7.16	8.15	9.79	9.24	8.58	6.74	5.69
3	3.74	3.04	2.15	3.72	5.66	7.22	8.27	9.80	9.23	8.60	6.70	5.74
4	3.40	2.98		3.70	5.71	7.35	8.41	9.71	9.37	8.53	6.45	5.43
5	3.35	3.12		3.72	5.75	7.36	8.71	9.63	9.38	8.51	6.44	5.28
6	3.46	3.22		3.80	5.70	7.30	8.75	9.62	9.45	8.53	6.40	5.43
7	3.55	3.20		3.93	5.71	7.23	8.85	9.74	9.50	8.39	6.22	5.42
8	3.82	3.21		4.05	5.80	7.35	8.91	9.85	9.63	8.28	6.38	5.15
9	4.06	3.22		4.19	5.84	7.47	9.01	9.90	9.70	8.13	6.50	4.80
10	4.05	3.23		4.28	5.84	7.61	9.02	10.00	9.67	7.96	6.29	4.47
11	3.87	3.20	3.11	4.27	5.83	7.66	9.12	10.16	9.58	7.82	6.20	4.27
12	3.89	3.27	3.23	4.14	6.08	7.80	9.13	9.99	9.65	7.82	6.15	4.39
13	4.02	3.22	3.31	4.03	6.11	7.96	9.25	9.80	9.80	7.83	6.02	4.31
14	4.03	3.20	3.39	3.98	6.20	8.01	9.29	9.82	9.81	7.87	5.74	3.79
15	4.05	3.11	3.48	4.13	6.31	7.91	9.32	9.88	9.80	7.82	5.70	3.41
16	3.96	2.67	3.52	4.28	6.26	7.77	9.31	9.86	9.70	7.68	5.85	3.34
17	3.93	2.56	3.55	4.32	6.30	7.85	9.36	9.66	9.72	7.66	5.97	3.55
18	4.06	2.82	3.48	4.38	6.35	7.82	9.40	9.56	9.74	7.55	5.81	3.68
19	4.08	2.92	3.43	4.35	6.45	7.83	9.48	9.53	9.64	7.41	5.78	3.55
20	4.10	2.93	3.47	4.37	6.59	7.79	9.60	9.62	9.42	7.25	5.65	3.60
21	4.09	2.84	3.50	4.51	6.59	7.76	9.65	9.56	9.26	7.14	5.62	3.69
22	4.10	2.89	3.49	4.63	6.71	7.73	9.78	9.44	9.23	7.21	5.63	3.65
23	4.10	2.85	3.60	4.70	6.73	7.80	9.93	9.45	9.10	7.21	5.75	3.75
24	4.07	2.70	3.60	4.82	6.84	7.93	9.77	9.44	8.99	7.25	5.75	3.86
25	4.08	2.67	3.66	4.89	6.82	8.10	9.90	9.35	8.91	7.22	5.79	3.77
26	4.05	2.97	3.65	4.98	6.79	8.14	9.96	9.24	8.84	7.23	5.86	3.69
27	3.93	3.07	3.63	5.06	6.80	8.15	10.03	9.22	8.82	7.28	5.72	3.59
28	3.91	2.95	3.65	5.27	6.80	8.05	10.12	9.20	8.77	7.32	5.62	3.66
29	3.83	2.76	3.66	5.34	6.81	8.05	10.04	9.26	8.52	7.35	5.64	3.59
30	3.82		3.60	5.53	6.86	7.95	9.95	9.34	8.52	7.28	5.77	3.54
31	3.72		3.61		6.92		9.90	9.28		7.13		3.54
Average	3.90	3.03	3.33	4.36	6.27	7.70	9.30	9.63	9.34	7.75	6.03	4.23
Minimum	3.35	2.56	1.96	3.70	5.54	7.00	8.06	9.20	8.52	7.14	5.62	3.34
Maximum	4.10	3.63	3.66	5.53	6.92	8.14	10.12	10.16	9.81	8.60	6.84	5.74
Range	0.75	1.07	1.70	1.83	1.38	1.13	2.06	0.96	1.29	1.46	1.22	2.40
Standard Deviation	0.21	0.24	0.49	0.52	0.47	0.32	0.59	0.26	0.38	0.52	0.38	0.81
Days sampled:	359											

Table 50. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1993 using Ryan TempMentor thermographs 900235 and 900262.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	3.67	1.47	2.95	3.69	4.97	6.99	8.35	11.44	10.38	9.21	7.19	5.38
2	3.49	1.13	2.95	3.70	4.93	7.15	8.46	11.46	10.05	9.05	7.01	5.32
3	3.20	1.08	2.90	3.70	4.93	7.32	8.42	11.38	9.85	8.92	6.86	5.08
4	3.16	1.42	2.90	3.82	4.95	7.42	8.34	11.25	9.85	8.82	6.87	5.11
5	3.18	1.26	2.98	3.95	4.95	7.40	8.26	11.23	9.87	8.84	7.06	5.22
6	3.21	1.14	3.00	4.03	4.96	7.39	8.32	11.14	9.99	8.90	7.01	5.03
7	3.33	1.15	2.97	4.11	5.02	7.30	8.37	11.15	9.80	8.90	7.08	5.02
8	3.43	1.29	2.99	4.16	5.08	7.30	8.51	11.12	9.68	8.90	7.01	4.92
9	3.40	1.55	2.99	4.20	5.15	7.23	8.76	11.23	9.66	8.92	6.94	4.90
10	3.26	1.90	3.05	4.27	5.27	7.16	8.92	11.45	9.56	8.91	6.93	4.88
11	3.25	2.01	3.16	4.28	5.30	7.17	9.05	11.40	9.57	8.87	6.78	4.84
12	3.22	2.10	3.21	4.30	5.35	7.24	9.19	11.60	9.69	8.88	6.66	4.86
13	3.28	2.27	3.23	4.39	5.38	7.32	9.78	11.81	9.70	8.82	6.68	4.87
14	3.35	2.42	3.25	4.35	5.38	7.44	10.16	12.02	9.75	8.67	6.49	4.80
15	3.26	2.53	3.32	4.39	5.44	7.70	10.51	11.40	9.83	8.59	6.12	4.70
16	3.28	2.59	3.37	4.38	5.48	7.85	10.80	10.77	9.89	8.51	6.00	4.71
17	3.25	2.66	3.37	4.40	5.53	8.11	10.90	10.76	9.52	8.36	6.01	4.70
18	3.23	2.67	3.38	4.43	5.53	8.19	10.86	11.00	9.43	8.24	6.02	4.77
19	3.12	2.74	3.40	4.48	5.60	8.29	10.85	10.93	9.42	8.17	5.73	4.61
20	2.79	2.83	3.38	4.49	5.75	8.31	10.97	10.73	9.43	8.10	5.35	4.57
21	2.08	2.88	3.32	4.53	5.87	8.40	10.96	10.53	9.36	8.05	5.34	4.64
22	1.85	2.78	3.40	4.55	5.95	8.27	11.03	10.48	9.25	7.85	5.32	4.73
23	1.90	2.80	3.29	4.57	5.98	8.19	10.95	10.51	9.19	7.78	5.31	4.78
24	2.17	2.82	3.21	4.63	6.27	8.15	10.80	10.60	9.20	7.62	5.43	4.86
25	2.44	2.80	3.23	4.74	6.32	8.25	10.69	10.53	9.20	7.63	5.51	4.88
26	2.49	2.88	3.30	4.88	6.22	8.30	10.57	10.61	9.20	7.55	5.45	4.82
27	2.70	2.92	3.33	4.90	6.28	8.27	10.54	10.66	9.20	7.50	5.44	4.88
28	2.68	2.95	3.37	4.98	6.26	8.29	10.76	10.72	9.19	7.40	5.33	5.00
29	2.55		3.40	5.07	6.32	8.34	10.74	10.70	9.13	7.34	5.32	5.24
30	2.40		3.46	5.02	6.55	8.30	11.00	10.67	9.18	7.34	5.36	5.28
31	2.14		3.65		6.80		11.32	10.48		7.26		5.29
Average	2.93	2.18	3.22	4.38	5.61	7.77	9.91	11.02	9.57	8.32	6.19	4.93
Minimum	1.85	1.08	2.90	3.69	4.93	6.99	8.26	10.48	9.13	7.26	5.31	4.57
Maximum	3.67	2.95	3.65	5.07	6.80	8.40	11.32	12.02	10.38	9.21	7.19	5.38
Range	1.82	1.87	0.75	1.38	1.87	1.41	3.06	1.55	1.25	1.95	1.88	0.80
Standard Deviation	0.52	0.69	0.20	0.38	0.55	0.49	1.12	0.43	0.32	0.63	0.72	0.22
Days sampled:	365											



Table 51. Ocean temperatures (°C) 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska in 1994 using Ryan TempMentor thermographs 900235 and 900262.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	5.30	4.72	3.23	3.65	4.70	6.52	8.09	9.64	10.61	9.08	6.07	2.89
2	5.30	4.78	3.13	3.71	4.76	6.56	8.29	9.75	10.68	9.07	6.22	3.14
3	5.30	4.81	2.75	3.76	4.73	6.68	8.27	9.79	10.69	9.08	5.99	3.20
4	5.30	4.83	2.16	3.90	4.82	6.82	8.37	9.95	10.55	8.91	5.81	3.18
5	5.28	4.86	1.96	3.99	4.94	6.93	8.56	9.87	10.52	8.72	5.72	2.59
6	4.98	4.83	2.72	4.14	4.95	6.88	8.70	9.70	10.49	8.52	5.76	2.55
7	4.68	4.81	2.89	4.24	4.99	6.98	8.84	9.60	10.48	8.39	5.59	2.48
8	4.43	4.76	3.17	4.31	4.99	7.07	9.07	9.43	10.50	8.15	5.28	2.48
9	4.16	4.53	3.22	4.36	5.02	6.97	9.23	9.68	10.53	7.92	5.23	2.74
10	4.06	4.43	3.19	4.33	5.10	6.90	9.18	9.80	10.54	7.94	5.25	2.80
11	4.12	4.49	3.31	4.34	5.13	6.80	9.17	9.41	10.50	7.99	4.92	2.86
12	4.18	4.07	3.43	4.34	5.20	6.75	9.17	9.36	10.50	8.01	4.75	3.07
13	4.27	3.59	3.48	4.35	5.28	6.77	9.09	9.44	10.50	8.02	4.57	3.14
14	4.40	3.30	3.54	4.30	5.29	6.92	8.98	9.57	10.50	7.94	4.38	3.22
15	4.53	3.18	3.50	4.20	5.34	7.07	8.92	9.79	10.50	7.88	4.42	3.26
16	4.61	3.17	3.26	4.17	5.37	7.13	8.94	10.07	10.48	7.61	4.46	3.21
17	4.63	3.26	2.97	4.25	5.41	7.28	8.99	10.32	10.46	7.37	4.64	3.18
18	4.61	3.19	2.65	4.32	5.55	7.51	9.01	10.48	10.34	7.28	4.43	3.26
19	4.62	2.98	2.69	4.28	5.60	7.85	8.99	10.55	10.15	7.38	4.25	3.19
20	4.65	3.05	2.34	4.34	5.59	8.01	9.05	10.66	10.10	7.35	4.42	3.10
21	4.68	2.96	1.95	4.40	5.74	8.12	9.13	10.75	10.04	6.99	3.88	3.08
22	4.65	2.80	2.15	4.53	5.78	8.05	9.18	10.64	9.80	6.82	3.37	3.09
23	4.61	2.75	2.35	4.63	5.74	8.03	9.08	10.52	9.55	6.89	3.17	2.91
24	4.53	2.98	2.40	4.65	5.72	7.91	8.98	10.54	9.27	7.04	2.59	2.79
25	4.37	2.98	2.39	4.64	5.70	7.74	8.95	10.68	9.21	6.99	2.77	2.79
26	4.46	3.03	2.60	4.60	5.79	7.65	8.93	10.91	9.19	6.94	3.26	2.65
27	4.58	3.20	2.70	4.58	5.93	7.63	8.99	10.83	9.20	6.65	3.34	2.58
28	4.51	3.17	2.79	4.68	5.99	7.82	9.11	10.66	9.16	6.51	3.30	2.75
29	4.61		3.07	4.72	6.13	7.90	9.23	10.50	9.09	6.35	3.17	2.94
30	4.63		3.28	4.70	6.25	8.01	9.35	10.51	9.09	6.03	2.90	3.13
31	4.70		3.45		6.29		9.51	10.51		6.00		3.21
Average	4.64	3.77	2.86	4.31	5.41	7.31	8.95	10.13	10.11	7.61	4.46	2.95
Minimum	4.06	2.75	1.96	3.65	4.70	6.52	8.09	9.36	9.09	6.00	2.59	2.48
Maximum	5.30	4.86	3.54	4.72	6.29	8.12	9.51	10.91	10.68	9.08	6.22	3.26
Range	1.24	2.10	1.58	1.07	1.59	1.60	1.42	1.55	1.59	3.08	3.63	0.78
Standard Deviation	0.35	0.81	0.48	0.29	0.46	0.53	0.32	0.50	0.58	0.89	1.09	0.25
Days sampled:	365											

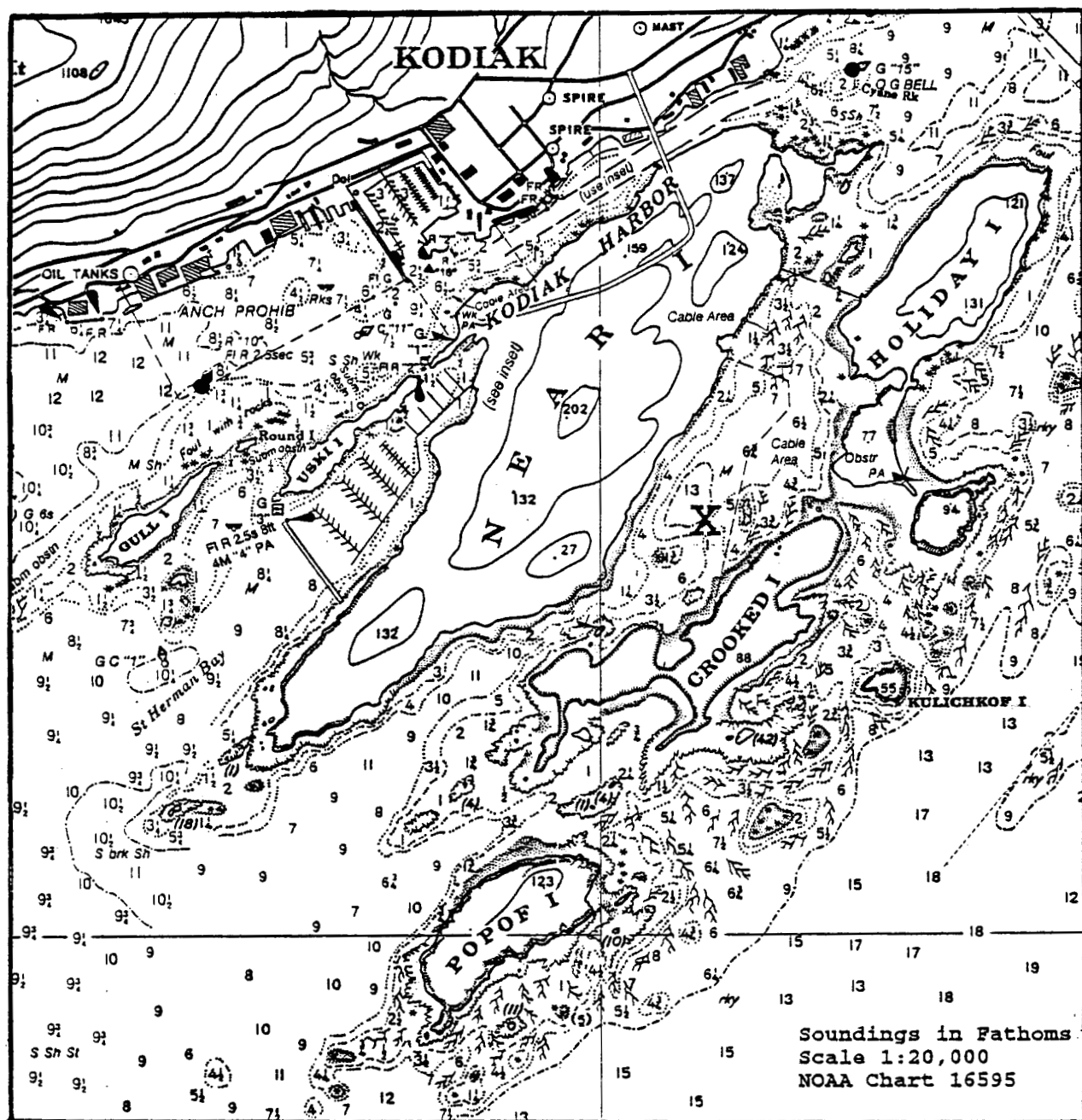


Figure 1. Location (X) where temperatures were recorded 11 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska during 1970-94 by crab research biologists from the Alaska Department of Fish and Game.

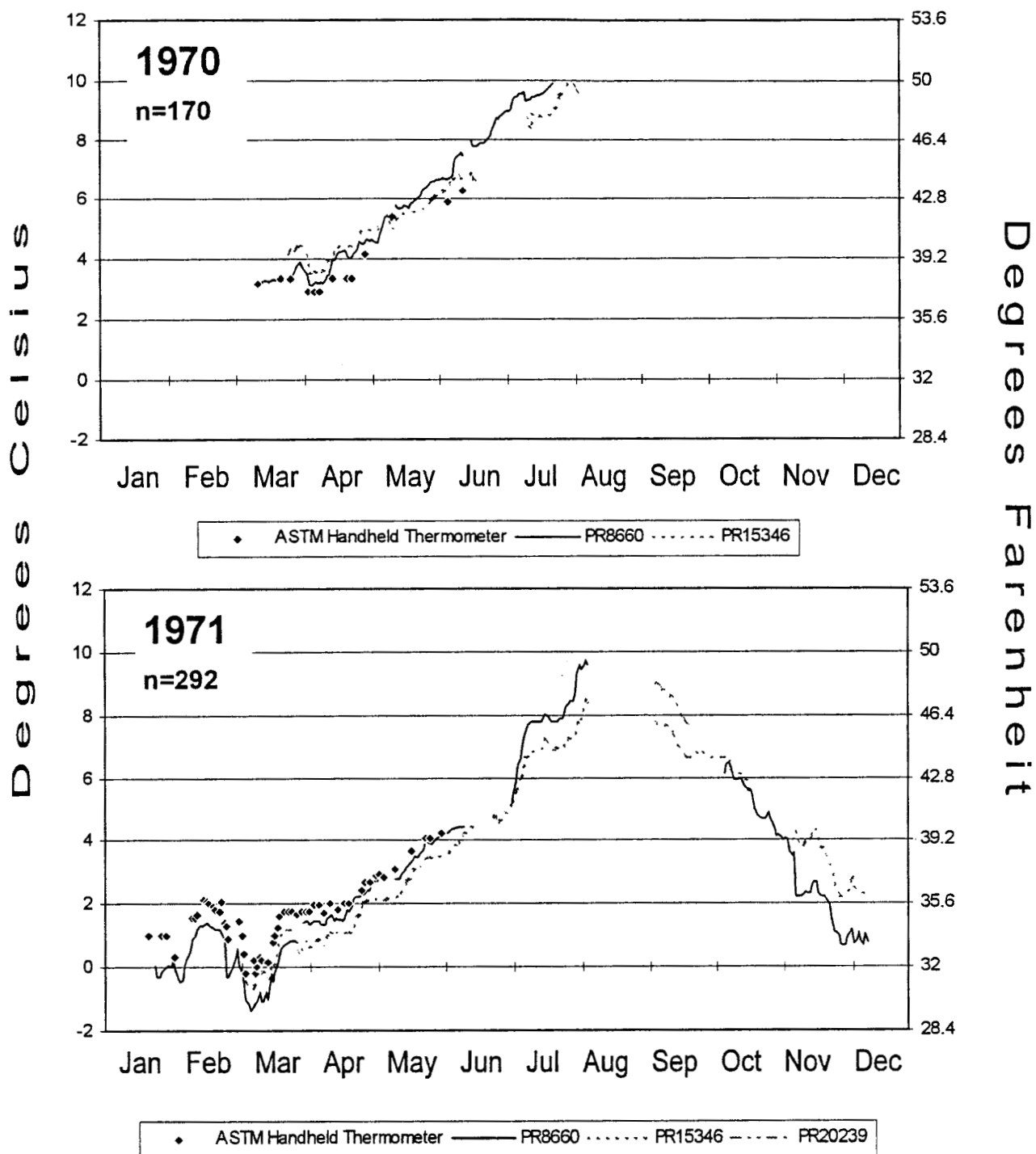


Figure 2. Ocean temperatures recorded 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska during 1970 and 1971 using ASTM handheld thermometers and Peabody Ryan (PR) thermographs 8660, 15346 and 20239. The n values are the number of days temperatures were recorded in a given year.

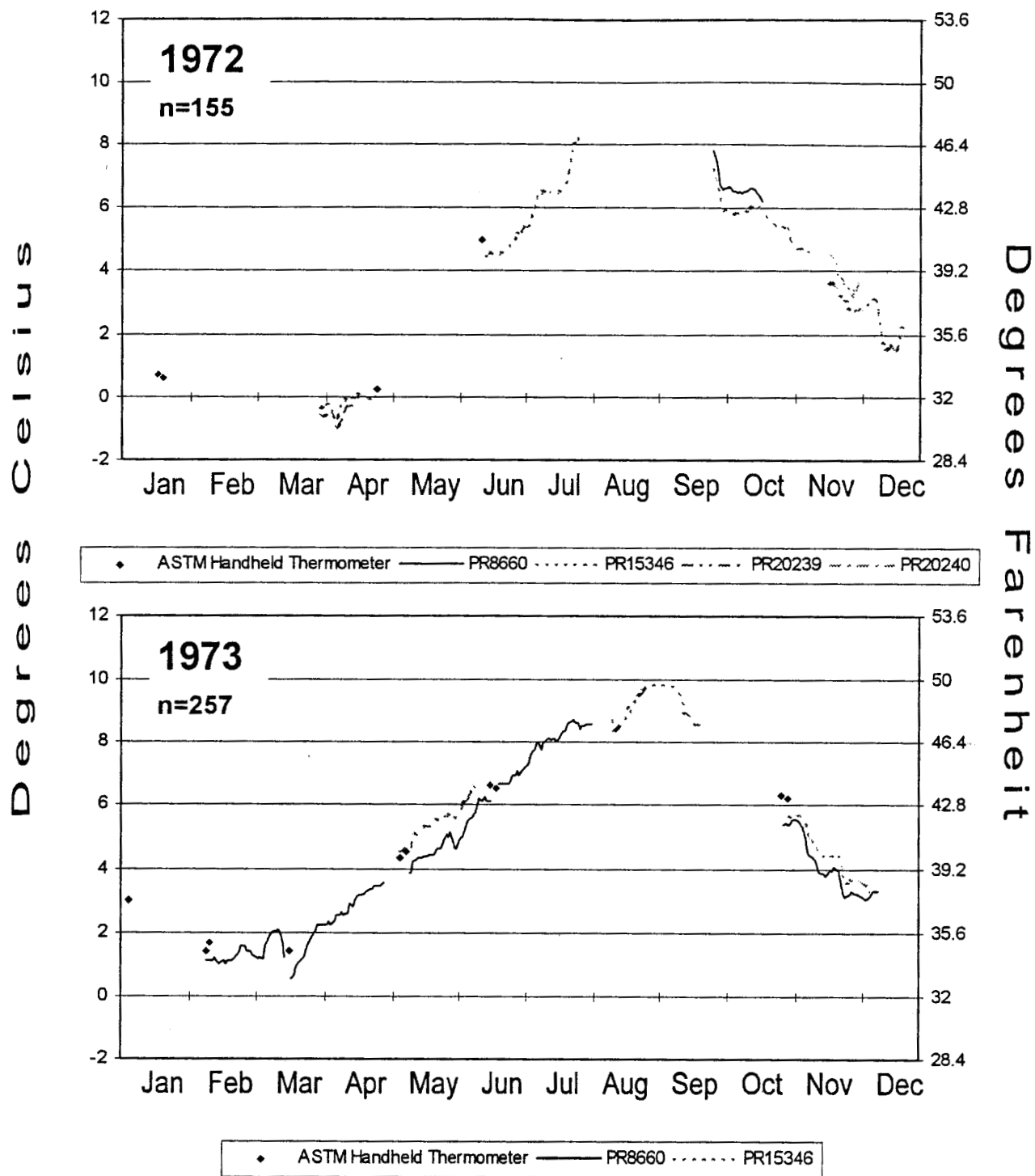


Figure 3. Ocean temperatures recorded 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska during 1972 and 1973 using ASTM handheld thermometers and Peabody Ryan (PR) thermographs 8660, 15346, 20239 and 20240. The n values are the number of days temperatures were recorded in a given year.

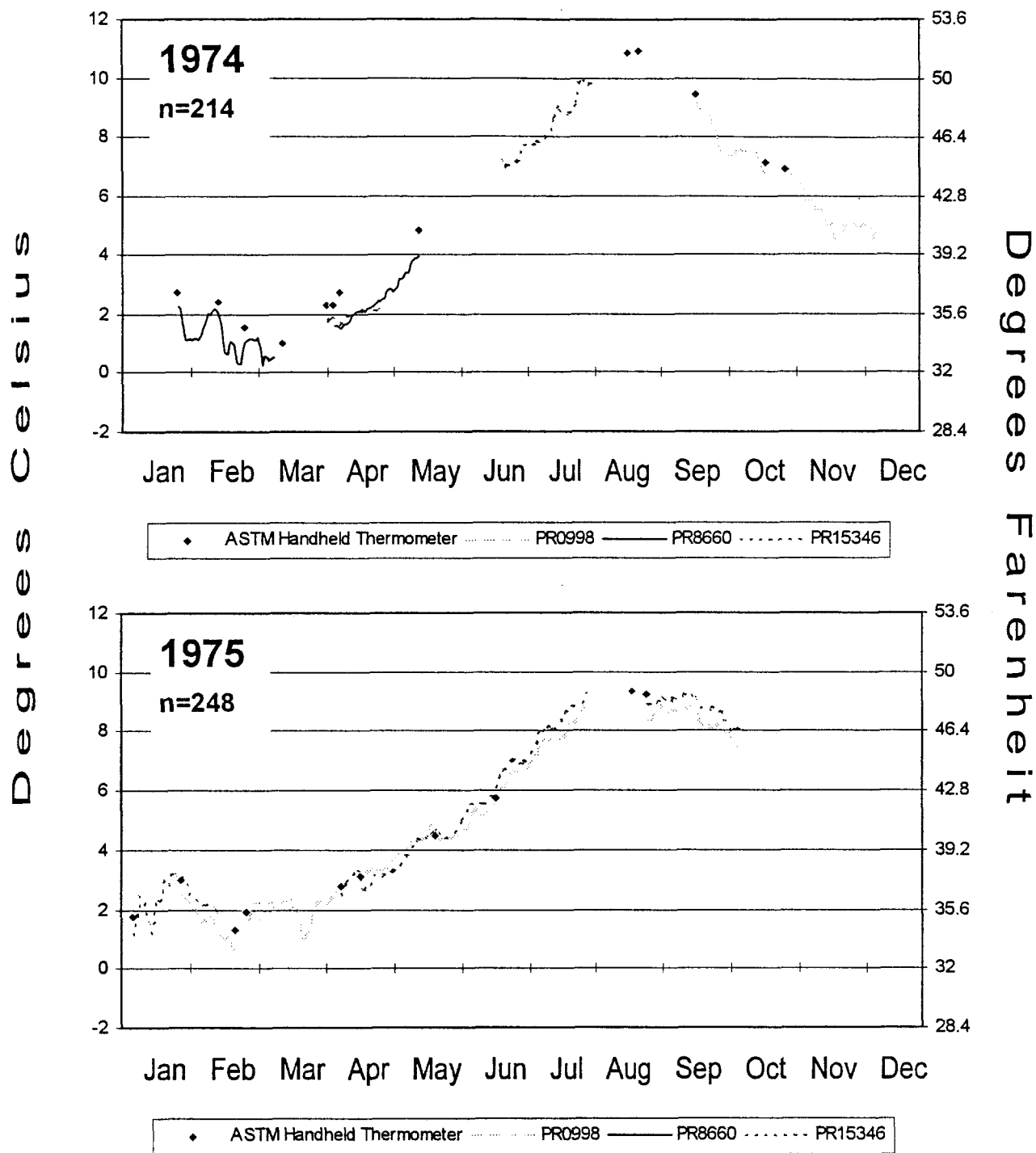


Figure 4. Ocean temperatures recorded 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska during 1974 and 1975 using ASTM handheld thermometers and Peabody Ryan (PR) thermographs 0998, 8660, and 15346. The n values are the number of days temperatures were recorded in a given year.

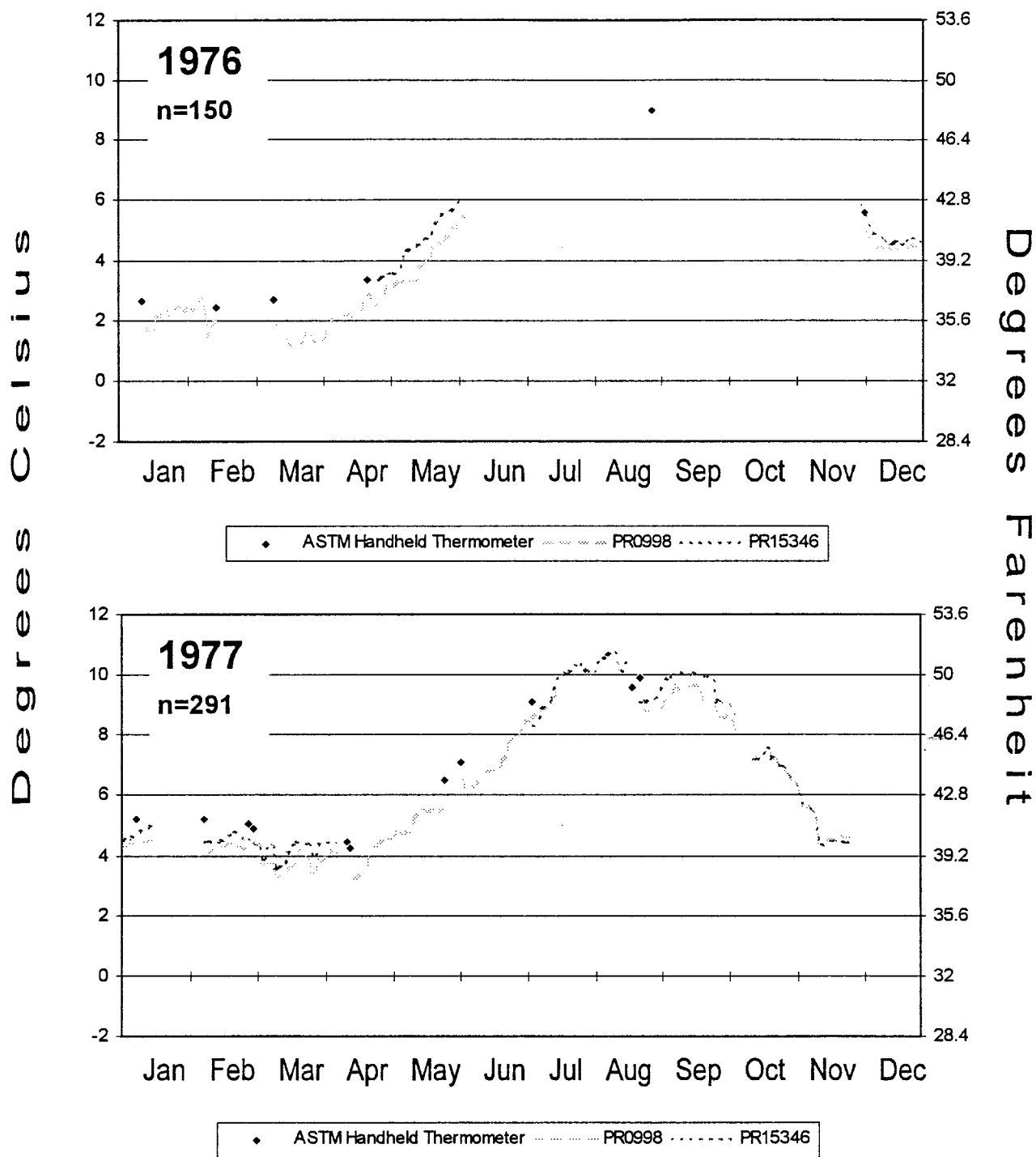


Figure 5. Ocean temperatures recorded 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska during 1976 and 1977 using ASTM handheld thermometers and Peabody Ryan (PR) thermographs 0998, 8660, and 15346. The n values are the number of days temperatures were recorded in a given year.

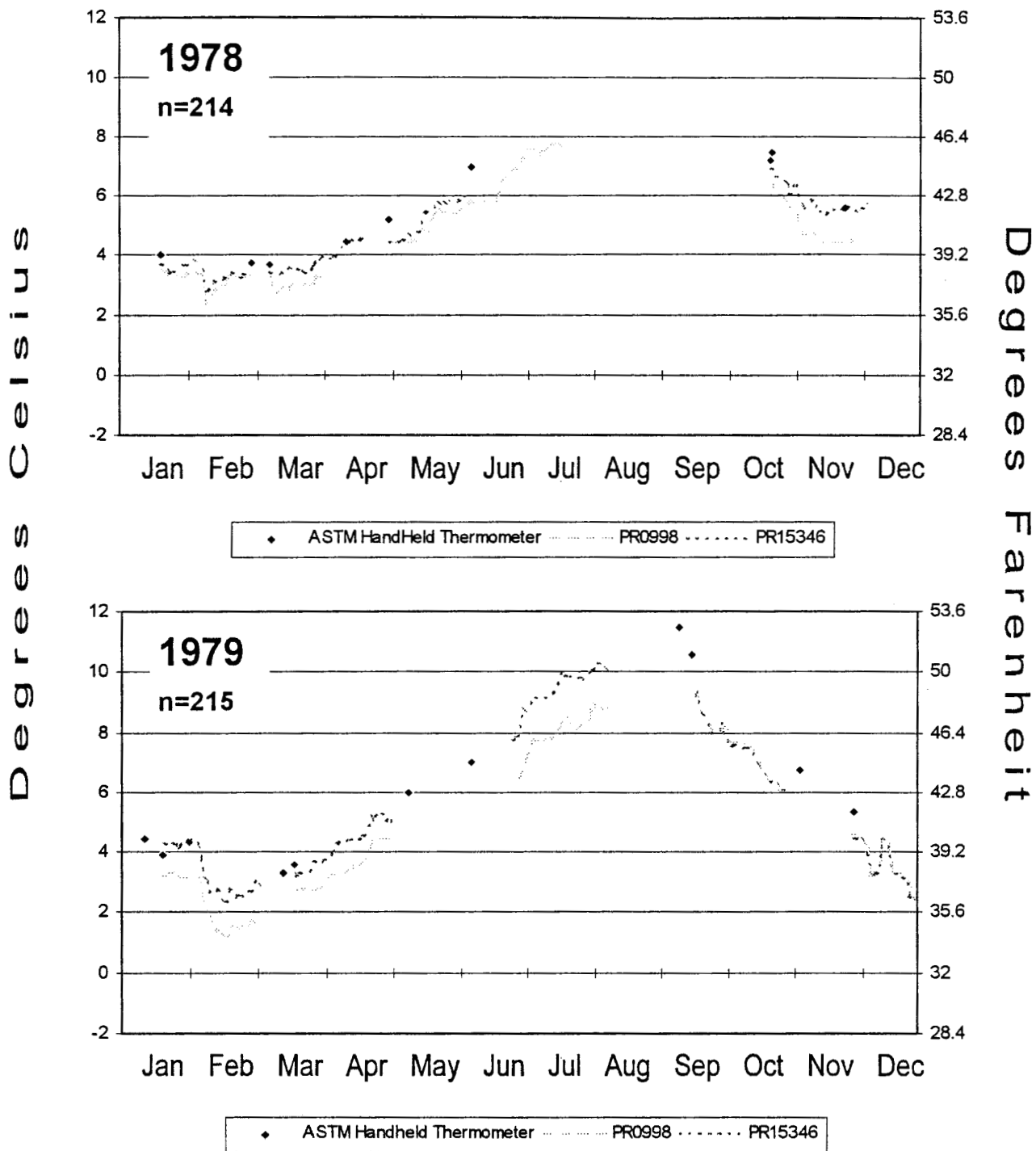


Figure 6. Ocean temperatures recorded 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska during 1978 and 1979 using ASTM handheld thermometers and Peabody Ryan (PR) thermographs 0998 and 15346. The n values are the number of days temperatures were recorded in a given year.

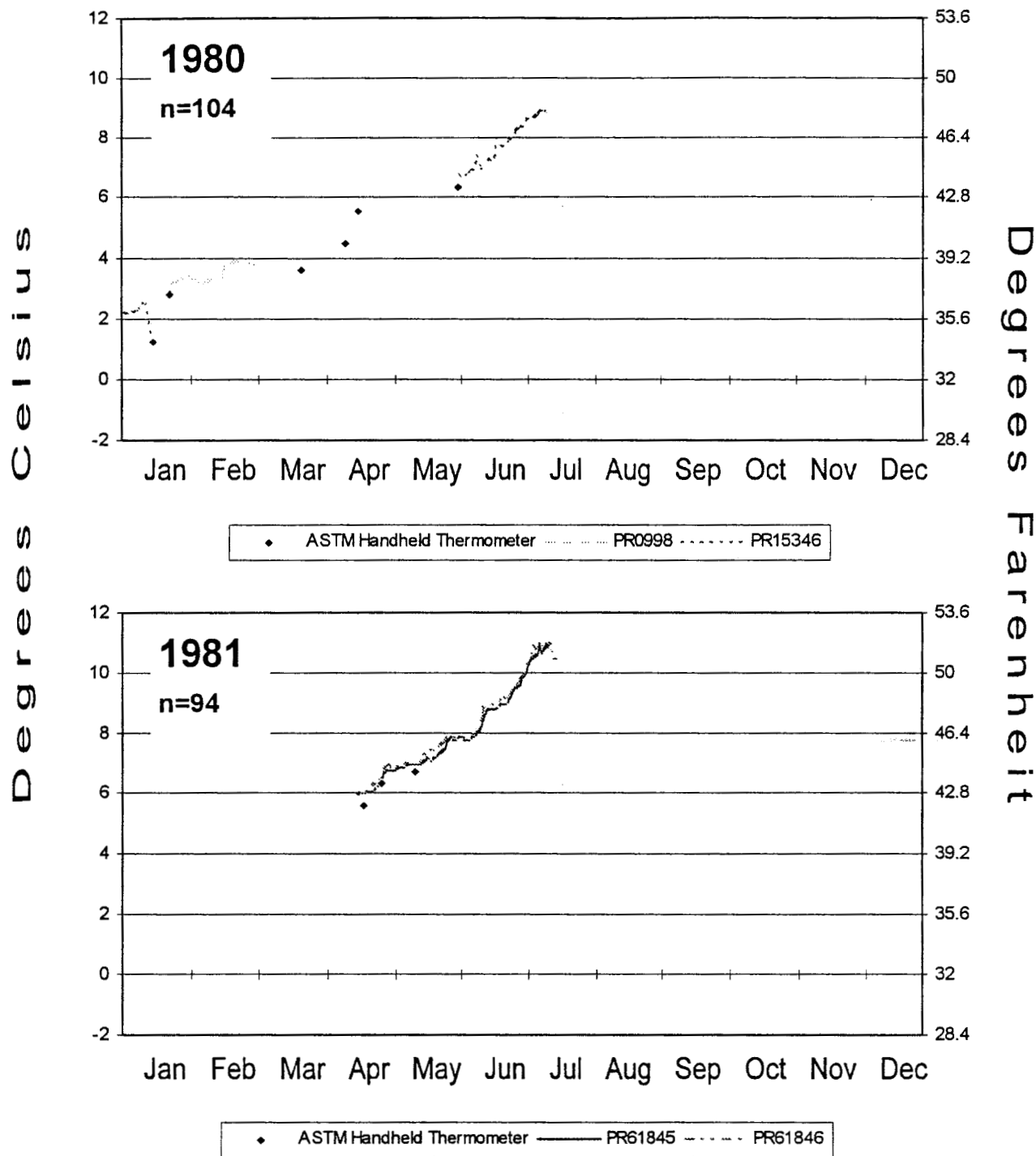


Figure 7. Ocean temperatures recorded 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska during 1980 and 1981 using ASTM handheld thermometers and Peabody Ryan (PR) thermographs 0998, 15346, 61845, and 61846. The n values are the number of days temperatures were recorded in a given year.



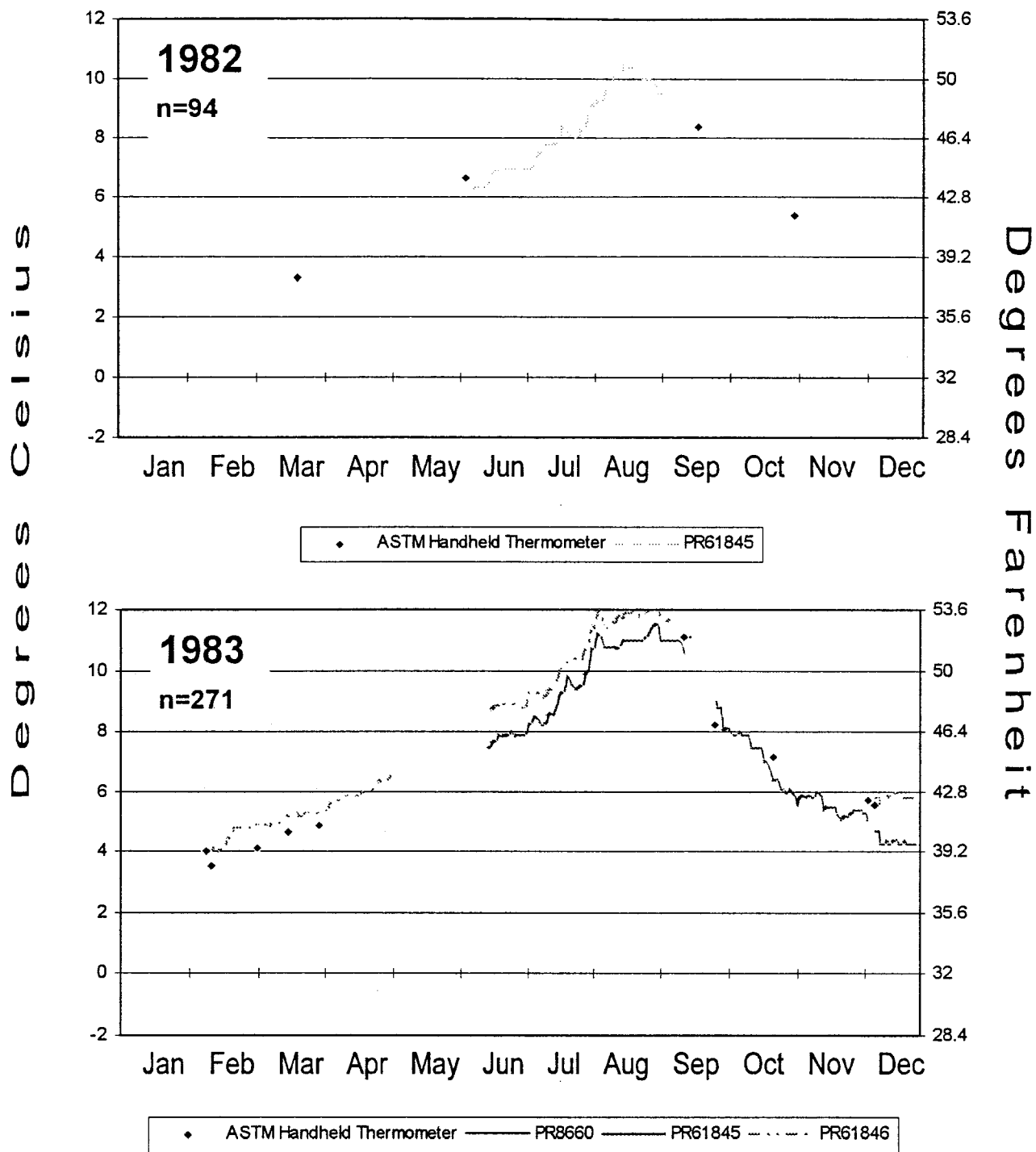


Figure 8. Ocean temperatures recorded 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska during 1982 and 1983 using ASTM handheld thermometers and Peabody Ryan (PR) thermographs 8660, 61845, and 61846. The n values are the number of days temperatures were recorded in a given year.

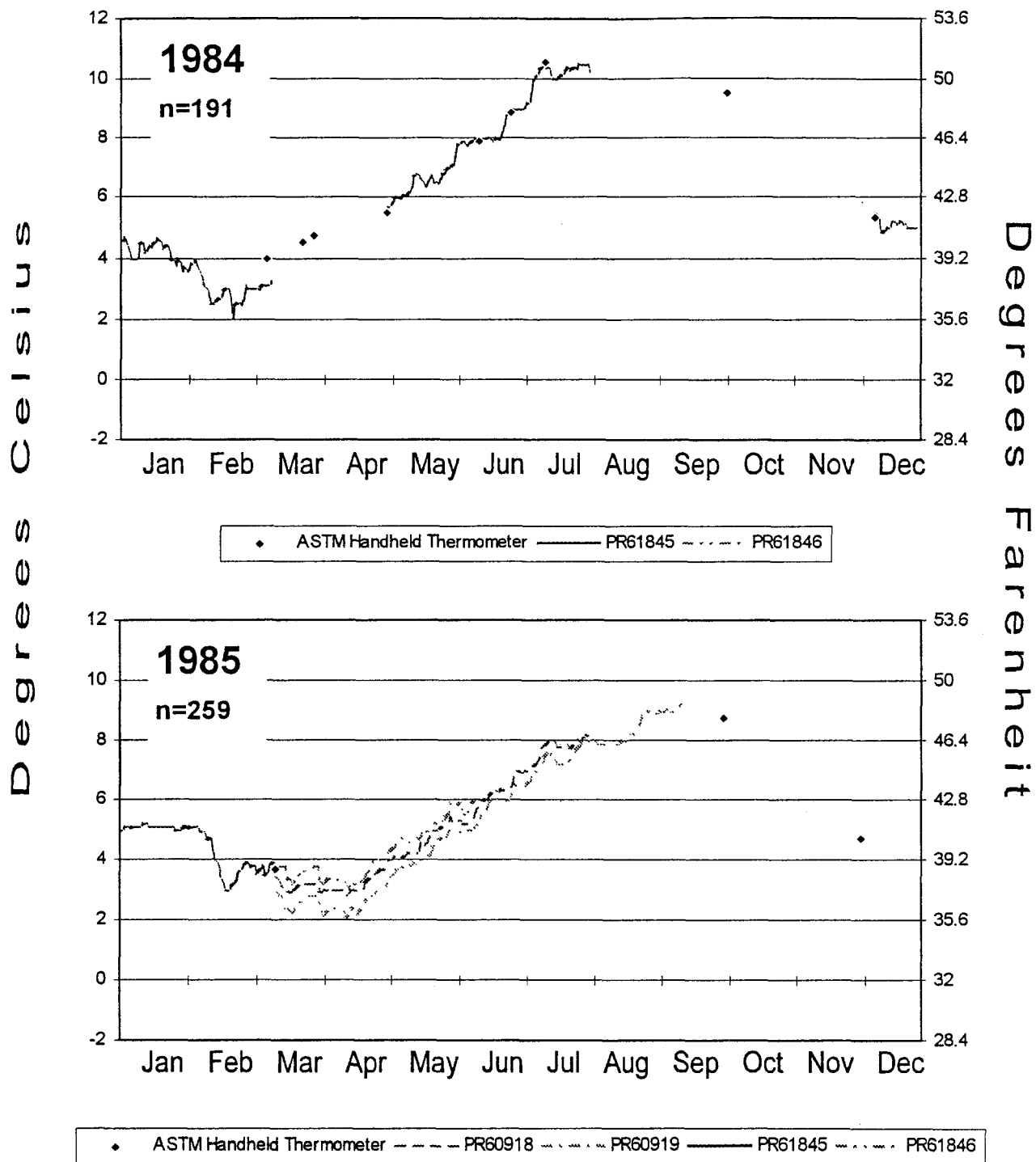


Figure 9. Ocean temperatures recorded 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska during 1984 and 1985 using ASTM handheld thermometers and Peabody Ryan (PR) thermographs 60918, 60919, 61845, and 61846. The n values are the number of days temperatures were recorded in a given year.

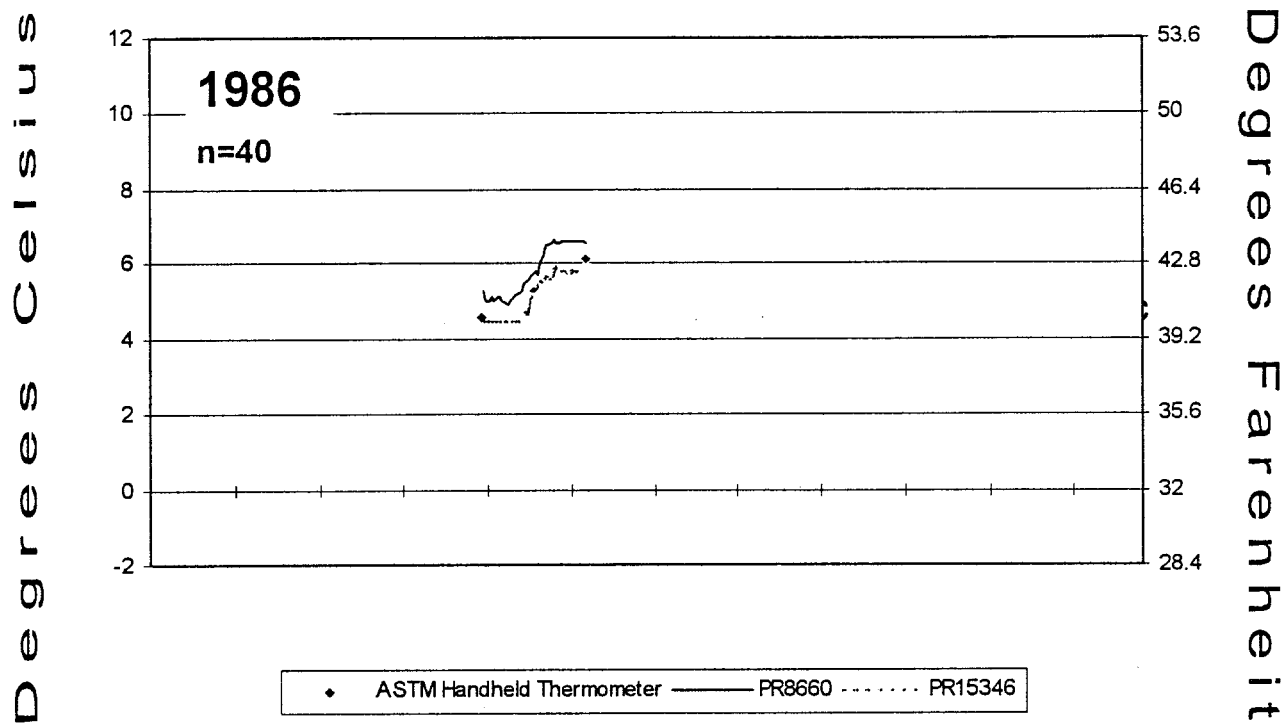


Figure 10. Ocean temperatures recorded 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska during the first half of 1986 using ASTM handheld thermometers and Peabody Ryan (PR) thermographs 8660 and 15346. The n value is the number of days temperatures were recorded in the first half of 1986.

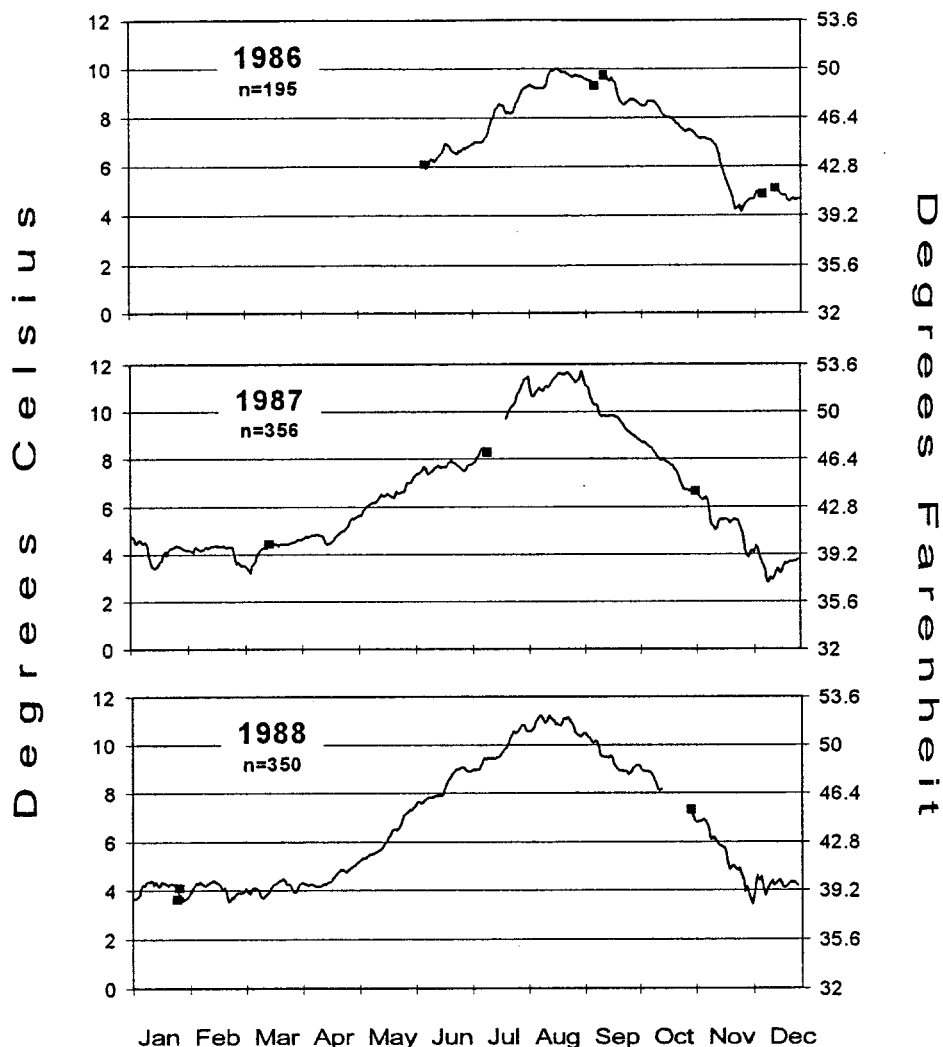


Figure 11. Ocean temperatures recorded 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska during the second half of 1986 and all of 1987 and 1988 using ASTM handheld thermometers (■) and average daily temperatures from Ryan TempMentor thermographs 900235 and 900262. The n values are the number of days temperatures were recorded in the second half of 1986 and in all of 1987 and 1988.

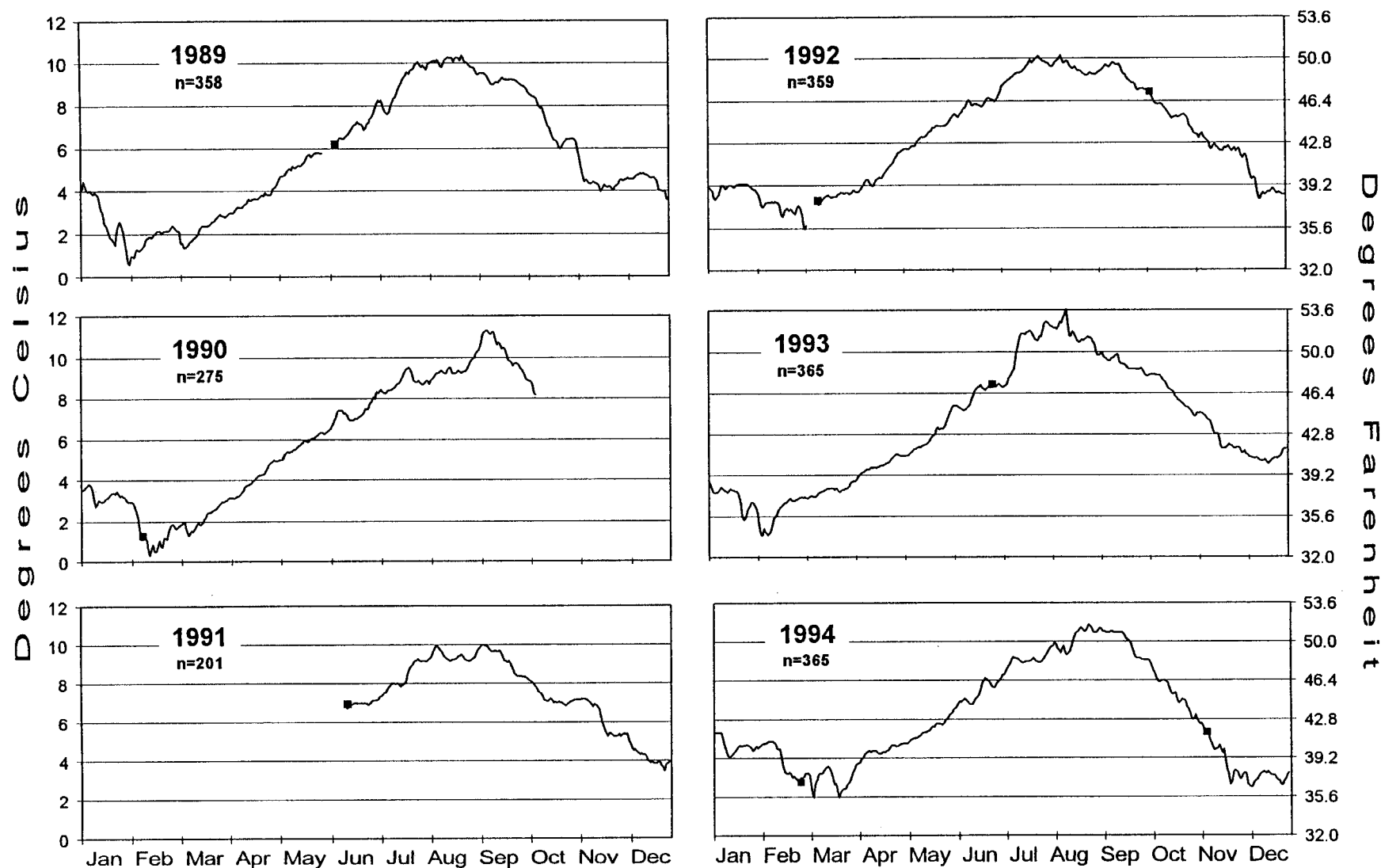


Figure 12. Ocean temperatures recorded 10.7 m (35 ft) below mean lower low water in Trident Basin, Kodiak, Alaska during 1989-94 using ASTM handheld thermometers (■) and average daily temperatures from Ryan TempMentor thermographs 900235 and 900262. The n values are the number of days temperatures were recorded in each respective year.

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