NOAA Technical Memorandum NMFS

MARCH 1983

REPORT OF EASTERN TROPICAL PACIFIC RESEARCH VESSEL MARINE MAMMAL SURVEY, MAY 15 - AUGUST 3, 1982

Rennie S. Holt

NOAA-TM-NMFS-SWFC-29

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southwest Fisheries Center

NOAA Technical Memorandum NMFS

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U.S. DEPARTMENT OF COMMERCE
Malcolm Baldrige, Secretary
National Oceanic and Atmospheric Administration
John V. Byrne, Administrator
National Marine Fisheries Service
William G. Gordon, Assistant Administrator for Fisheries

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The National Marine Fisheries Service (NMFS) has been given the responsibility to determine the status of the dolphin stocks that are taken incidentally by the Eastern Tropical Pacific (ETP) yellowfin tuna purse seine fishery (Richey 1976[1]). Estimates of ETP dolphin population abundance, which are needed to complete the assessment, have been made using census survey data collected by observers aboard airplanes, tuna vessels and research vessels (Smith 1975[2], Holt and Powers 1982). The NMFS conducted a marine mammal survey aboard the National Oceanic and Atmospheric Administration (NOAA) research ship David Starr Jordan during May-August, 1982 to obtain information on density of dolphin stocks in the ETP. This report describes the experimental procedures and the data obtained in the survey.

OBJECTIVES

The primary objective of the survey was to investigate density gradients of dolphin populations in areas of the ETP tuna fishery especially along 10°N latitudinal. Other objectives were to

(1) develop and test technology to improve accuracy of sighting angles and distances of marine mammals from a ship,

(2) examine the variability of dolphin school size estimates and species identifications among observers,

(3) examine the efficiency of observer performance during various watch lengths,

(4) investigate stock specific vocalization patterns of cetaceans and the suitability of acoustic technology for making population size

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[1]Richey, C. R. 1976. Memorandum of opinion. CA NO. 74-1465 and CA NO. 75-0227. U.S. District Court, District of Columbia, May 11, 1976.

[2]Smith, T. D. 1975. Estimates of sizes of two populations of porpoise (Stenella) in the Eastern Tropical Pacific Ocean. Southwest Fisheries Center Admin. Rep. No. LJ-75-67, 88 pp.

estimates, and

(5) study school structure, behavior, species differences, trophic interactions, and relation of environmental variables on the distribution of dolphins along the 10°N latitudinal line.

MATERIALS AND METHODS

Study Area and Itinerary

The R/V David Starr Jordan traversed predetermined tracklines in the ETP from May 14 through August 3, 1982 with port calls in Manzanillo, Mexico and Honolulu, Hawaii (Figure 1). The itinerary of the ship, included three segments:

Departed	San Diego, CA	May 14, 1982
Arrived	Manzanillo, MX	June 4, 1982
Departed	Manzanillo, MX	June 7, 1982
Arrived	Honolulu, HI	July 7, 1982
Departed	Honolulu, HI	July 11, 1982
Arrived	San Diego, CA	August 3, 1982

SCIENTIFIC PERSONNEL

Participating scientists in the different segments of the cruise were:

	Segments
Rennie Holt, Chief Scientist, NMFS	I and II
Steve Reilly, Cruise Leader, NMFS	III
Gary Friedrichsen, NMFS	I - III
Steve Grieser, NMFS	"
Richard Lindsay, NMFS	"
Robert Pitman, NMFS	"
Scott Sinclair, NMFS	"
Thomas Tumosa, NMFS	"
Dimitry Abramenkof, NMFS	III
Thomas Polacheck, NMFS	II
Robert Hopkins, Louis Adamo, Inc.	"
Jeanette Thomas, HSWRI	"
Shelton Fisher, HSWRI	"
Lisa Ferm, HSWRI	"
Valyeri Mineev, U.S.S.R.	III

	Segments
Nikoli Doroshenko, U.S.S.R.	III

Equipment

The David Starr Jordan was used to conduct the survey. The vessel, commissioned in 1965, is 52 m long and can maintain an efficient cruise speed of 18.5 km/hr. Binoculars, used for locating animals, were mounted on the upper deck approximately 10.7 m above the sea.

Several pieces of equipment were utilized to gather data. The geographic position of the vessel was recorded periodically and at the time of a sighting using the ships' Satellite Navigation System (SAT NAV). Marine mammals were detected using port and starboard pedestal mounted 25x Fugi binoculars and a variety of hand-held 10-15X binoculars. Surface temperature and salinity, fluorescence (chlorophyll), and temperature depth profiles were obtained using a thermosalinograph, fluorometer, and expendable bathythermograph (XBTs), respectively.

The bearings of marine mammals from the ship were calculated using the Computer Assisted Sighting Technology (C.A.S.T.) system. The C.A.S.T. system, employing an on-board CAMAC computer, assimilated data from several instruments to determine the sighting angles from which radial and perpendicular distances were calculated. Data received by the CAMAC computer included the ship's course, from the gyroscope, the electronically encoded train angles of the 25X binoculars and a measurement of the relative motion of the ship from a heave-roll-pitch sensor. Estimates of the bearing and radial distance of a school from the ship also were recorded by the observers using a 360^{0} graduated washer attached to the base of the 25X binoculars and graduated reticles enclosed in the right eye piece of the binoculars.

Passive acoustic listening devices were towed behind the ship to detect cetacean vocalizations. Thomas et al. (1982[3]) provides a preliminary description of this equipment.

Four 35 mm Cannon cameras were used to photograph animals. A variety of telephoto lens, including 75-210 mm zoom, 300 and 400 mm lens, were used. Animals were also recorded on 1.27 cm video tape using a Beta I Sony recorder and a Panasonic camera equipped with telephoto lens.

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[3]Thomas, J. A., S. R. Fisher, and L. M. Ferm. 1982. Preliminary results on marine mammal detection using a towed acoustic array in the eastern tropical Pacific. Hubbs Sea World Research Institute Tech. Rep. No. 82-144, 13 pp.

Duty Stations

Three duty stations were used during the survey, with observers rotating through each station.

(1) Left Binoculars - The port-side observer used 25X binoculars, mounted on the port side of the ship to scan the ocean for marine mammal sighting cues. His major area of responsibility was from the midpoint of the trackline, to abeam the port side of the vessel, and outward to the horizon or to the extent possible with prevailing environmental conditions.

(2) Right binoculars - The starboard observer used 25X binoculars, mounted on the starboard side of the ship to search from the midpoint of the trackline to abeam the right side of the ship and outward to the horizon or to the extent possible with prevailing environmental conditions.

(3) Recorder - The recorder's duties were to transcribe transect effort data (Figure 2) at regular intervals, to make notes of information pertaining to each sighting (Figure 3) and, when possible, to search the trackline adjacent the ship for schools not detected by the observers on the 25X glasses.

Observer Teams and Rotation

Two teams of three observers each alternately occupied the three duty stations. One team (observers 1, 3 and 6) consisted of observers with experience collecting data on ETP dolphins from tuna purse seine vessels only while members of the other team (observers 2, 4 and 5) had similar experience but aboard research vessels. The length of time a team continuously occupied the duty positions, i.e., watch length, varied with 1, 2- and 3-hour shifts. Watch length shifts were rotated every two days and the teams alternated on duty at the beginning of the day. Each team spent approximately equal time on duty and each team member spent approximately equal time occupying each duty station.

Data Collection Procedures

A typical day's searching activity began at sunrise, approximately 0630 hours local time and ended at sunset, approximately 1830 hours local time. The searching procedure was initiated when the duty stations were occupied and a transect record (Figure 2) maintained. The ship traversed a predetermined trackline at a constant speed of approximately 18.5 km/hr. The ship maintained its speed and course between sunset and sunrise to provide wider spatial distribution of searching effort. Members of a team rotated among the duty stations and teams rotated on and off duty without interrupting searching effort.

When an observer detected a sighting cue (dolphins, birds, etc.) he began tracking the cue by initiating a switch on the binoculars. With the ship still on course and with the cue in the binocular's field of view the C.A.S.T. system recorded, on magnetic tape, successive bearings of the cue to the ship. When the target was not in the field of view the switch was deactivated untill the target was again sighted. After a maximum of five minutes or until the target could not be observed, the tracking procedure was terminated. If marine mammals were observed and if desired, the vessel deviated from the trackline and approached the animals. The searching mode was resumed when the vessel returned to course and speed and the observers resumed searching for other sighting cues.

During the course of each marine mammal sighting the recorder initiated procedures to ensure collection of data necessary to complete Research Vessel Effort and Sighting Forms (Figures 2 and 3). Definition of each data element is given by Ralston (1983[4]). Criteria for assigning sun position and sea state conditions are given in Figure 5 and Table 1, respectively. Observers recorded bearing and range for schools from the Jordan using the 360^{0} washer and reticle increments. The reticle measurements were converted to km using

$$a = 0.01066 \tan (\arctan (1174.931) - 0.0823\ r)$$

where a equals radial distance in km and r denotes the number of reticles below the topmost reticle (Smith, 1982).

Each observer, who had a sufficient view of the school, independently recorded animal behavior information, an estimate of school size, and a determination of species identification and composition on the Continuation Form (Figure 4). This resulted in one up to six species identifications and estimates of percent composition for each school sighted. For example, one observer may have indicated a school was 100% unidentified spotted dolphins (species code 2) while a second observer may have identified the school as 100% offshore spotted dolphins (species code 90). The school would be listed in the data summary tables as 50% unidentified spotted and 50% offshore spotted dolphins. Species identifications were validated when possible by photographing the school at close range using 35 mm cameras or video tape.

At the end of each day, the Chief Scientist transcribed each observer's independently derived estimates of school size, species identification and school composition onto the sighting forms. The observers were instructed not to confer with each other concerning these data during or after the sighting.

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[4]Ralston, F. MS. Usage procedures and coding notes for "Research Vessel" sighting and effort records. Southwest Fisheries Center, La Jolla, CA.

Data to study the relationship between environmental features and marine mammal distributions were collected. A thermosalinograph continuously recorded surface water temperature and salinity. It was annotated with the current geographic position at 0600, 1200, 1800 and 2400 hours local time. XBT data were collected at the same time. Flourimeter readings were recorded daily every 3 hours beginning 0600 hours until 2400 hours.

Data to investigate detection of cetaceans using a towed array of hydrophones were collected between June 11 and July 8, 1982. Procedures used to operate the towed array are described by Thomas et al. (1982[3]). The data, collected in cooperation with scientists of Hubbs Sea World Research Institute, compared abilities of the array and the observers to detect cetaceans under different sighting conditions.

The precision and variability of the C.A.S.T. system were investigated between July 3 and 7, 1983. Data collected to compare the C.A.S.T. system with estimates recorded from the washers and reticles affixed to the binoculars, with observer's direct visual estimates and with the ship's radar. The ship's rescue boat, equipped with a radar reflector, and a radar reflective buoy were used as sighting targets. The direction of travel of the boat was varied to simulate movement of a cetacean. The ship alternated approaching each target while observers recorded data from each method.

RESULTS

During 89 sea days, 11,184 km were searched and 342 marine mammal sightings were recorded. Dolphins occurred in 216 sightings. Data collected on each series of effort for each day are presented in Table 2. Data recorded for each marine mammal sighting classified by species code groups are given in Table 3. Geographic positions of all sightings classified by species codes are shown in Figures 6-39. Included in the 342 sightings were 103 schools with two or more species (mixed schools) or schools which were identified to different code groups. They are presented in each species code list and are represented more than once in Figures 6-39 and in Tables 3 and 4 (i.e., total schools in Table 4 equal 515). The individual observer estimates of school size are presented, classified by species code groups, in Table 5.

The cruise successfully collected data to address each of the research objectives. Detailed analysis of the data are under way. Preliminary results of analysis of the acoustic data are reported by Thomas et al. (1983[5]).

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[5]Thomas, J. A., S. R. Fisher, L. M. Ferm, and R. S. Holt. 1983. Acoustic detection of cetaceans using a towed array of hydrophones. Hubbs Sea World Research Institute, San Diego, CA. MS.

LITERATURE CITED

Bowditch, N. 1966. American practical navigator. U.S. Govt. Print. Off., Washington, D.C., 1524 pp.

Holt, R. S. and J. E. Powers. 1982. Abundance estimation of dolphin stocks involved in the eastern tropical Pacific yellowfin tuna fishery determined from aerial and ship surveys to 1979. NOAA-TM-NMFS-SWFC-23, 95 pp.

Smith, T. D. 1982. Testing methods of estimating range and bearing to cetaceans aboard the R/V D. S. Jordan. NOAA-TM-NMFS-SWFC-20, 20 pp.

Table 1. Sea state conditions measured by the Beaufort scale (from Bowditch, 1966).

Wind force (Beaufort)	Knots	Descriptive	Sea Conditions	Probable wave height in ft.
0	0- 1	Calm	Sea smooth and mirror-like	-
1	1- 3	Light air	Scale-like ripples without foam crests	1/4
2	4- 6	Light breeze	Small short wavelets; crests have a glassy appearance and do not break	1/2
3	7-10	Gentle breeze	Large wavelets; some crests begin to break; foam of glassy appearance. Occasional white foam crests	2
4	11-16	Moderate breeze	Small waves, becoming longer; fairly frequent white foam crests	4
5	17-21	Fresh breeze	Moderate waves, taking a more pronounced long form; many white foam crests; there may be some spray	6
6	22-27	Strong breeze	Large waves begin to form; white foam crests are more extensive everywhere; there may be some spray	10

Table 2. Daily searching effort recorded in the Eastern Tropical Pacific during May 14 through August 2, 1982.

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	OBSERVER CODES RIGHT	OBSERVER CODES REC.	SUN POSITION HORZ.	SUN POSITION VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	POSITION LONGITUDE	KM IN LEG
01	01	820514	18.52	04	01	05	01	01	4	167	28 59 N	117 03 W	16.05
01	02	820514	18.52	01	04	05	02	01	4	167			12.35
01	03	820514	18.52	05	04	01	02	01	5	167			7.10
01	04	820514	18.52	05	01	04	03	01	5	167			9.26
01	05	820514	18.52	04	01	05	03	02	5	167			15.43
01	06	820514	18.52	02	06	03	03	02	5	167	28 27 N	116 58 W	14.51
01	07	820514	18.52	02	03	06	03	02	5	167			5.25
01	08	820514	18.52	06	03	02	03	02	5	167			9.57
01	09	820514	18.52	06	02	03	03	02	5	167			7.72
01	10	820514	18.52	03	02	06	04	03	5	167			8.95
01	11	820514	18.52	03	06	02	04	03	5	167			4.94
01	01	820515	18.52	03	06	02	09	03	4	158	26 11 N	116 25 W	8.64
01	02	820515	18.52	03	02	06	09	03	4	158			6.48
01	03	820515	18.52	06	02	03	09	03	4	158			8.64
01	04	820515	18.52	06	03	02	09	02	4	158			1.23
01	05	820515	18.52	04	01	05	09	02	4	158			4.94
01	06	820515	18.52	06	03	02	09	02	4	158			6.79
01	07	820515	18.52	02	03	06	09	02	5	158			6.48
01	08	820515	18.52	02	06	03	09	02	5	158			5.86
01	09	820515	18.52	03	06	02	10	02	5	158			4.32
01	10	820515	18.52	05	04	01	10	01	4	149	25 43 N	116 12 W	11.42
01	11	820515	18.52	04	01	05			4	149			7.10
01	12	820515	18.52	04	01	05			3	149			3.70
01	13	820515	18.52	01	05	04			4	149			11.42
01	14	820515	18.52	05	04	01			4	149			7.41
01	15	820515	18.52	04	01	05			4	149			8.95
01	16	820515	18.52	06	03	02	12	12	4	149			11.11
01	17	820515	18.52	06	02	03	12	12	4	149			8.64
01	18	820515	18.52	03	02	06	12	12	4	149			9.57
01	19	820515	18.52	03	06	02	12	12	4	149			8.33
01	20	820515	18.52	02	06	03	01	01	4	149	24 59 N	115 47 W	5.25
02	01	820515	18.52	03	02	06	01	01	4	140	24 55 N	115 45 W	8.33

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
03	01	820515	18.52	04	01	05	03	01	4	140			9.26
03	02	820515	18.52	01	05	04	04	01	4	140			9.88
03	03	820515	18.52	02	06	03	04	01	4	140			8.64
03	04	820515	18.52	05	04	01	05	02	4	140	24 39 N	115 33 W	13.27
03	05	820515	18.52	01	04	05	05	02	4	140			6.79
03	06	820515	18.52	02	06	03	05	02	4	140			12.35
03	07	820515	18.52	03	06	02	05	02	3	140			9.26
03	08	820515	18.52	03	02	06	05	03	3	140			4.63
03	09	820515	18.52	03	02	06	05	03	3	140	24 19 N	115 13 W	0.31
01	01	820516	18.52	04	05	01	10	03	3	140	22 54 N	114 05 W	7.10
01	02	820516	18.52	01	04	05	10	03	3	140			17.29
01	03	820516	18.52	03	06	02	10	03	3	140			7.10
01	04	820516	18.52	03	02	06	10	02	3	140			4.63
01	05	820516	18.52	06	02	03	10	02	3	140			8.64
01	06	820516	18.52	04	01	05	10	02	3	140	22 34 N	113 45 W	9.57
01	07	820516	18.52	01	05	04	10	02	4	140			8.33
01	08	820516	18.52	02	03	06	10	01	4	140			5.86
01	09	820516	18.52	02	06	03	11	01	4	140			5.86
01	10	820516	18.52	03	06	02	11	01	4	140			6.48
01	11	820516	18.52	01	05	04	11	01	4	140			6.17
01	12	820516	18.52	01	04	05	12	12	4	140			9.26
01	13	820516	18.52	04	05	01	12	12	4	140			4.01
01	14	820516	18.52	03	06	02	12	12	4	140	22 09 N	113 27 W	7.72
01	15	820516	18.52	03	02	06	12	12	4	140			5.25
01	16	820516	18.52	06	02	03	12	12	4	140			5.86
01	17	820516	18.52	04	01	05	12	12	4	140			7.72
01	18	820516	18.52	05	04	01	01	12	3	140			4.94
01	19	820516	18.52	05	01	04	02	12	3	140			4.63
01	20	820516	18.52	02	03	06	02	12	3	140			6.17
01	21	820516	18.52	02	06	03	02	01	3	140			5.86
01	22	820516	18.52	03	06	02	02	01	3	140			6.48
01	23	820516	18.52	04	01	05	02	01	3	140			9.88
01	24	820516	18.52	01	05	04	04	01	3	140			4.01
01	25	820516	18.52	05	04	01	04	01	3	140	21 39 N	113 02 W	4.63
01	26	820516	19.45	03	06	02	04	01	3	140			6.48
01	27	820516	19.45	02	06	03	04	01	3	140			6.48

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
01	28	820516	19.45	02	03	06	04	01	3	140			6.48
01	29	820516	19.45	04	05	01	05	02	3	140			4.86
01	30	820516	19.45	04	05	01	05	02	3	140	21 23 N	112 52 W	1.62
01	31	820516	19.45	01	05	04	05	02	3	140			3.24
01	32	820516	19.45	01	04	05	05	02	3	140			9.72
01	33	820516	20.37	06	02	03	05	02	2	140	21 15 N	112 47 W	11.20
01	34	820516	20.37	03	02	06	05	02	2	140			6.45
01	35	820516	20.37	03	06	02	05	02	2	140			2.72
01	36	820516	20.37	04	05	01	05	03	2	140			7.47
01	37	820516	20.37	04	05	01	05	03	2	140	21 04 N	112 38 W	0.34
01	01	820517	18.52	03	06	02	10	03	3	140	19 30 N	111 25 W	8.03
01	02	820517	18.52	03	02	06	10	03	3	140			8.33
01	03	820517	18.52	06	02	03	10	02	3	140			10.19
01	04	820517	18.52	01	04	05	10	02	3	140			9.26
01	05	820517	18.52	05	04	01	10	02	3	140			4.63
01	06	820517	18.52	05	01	04	10	02	3	140			5.25
01	07	820517	18.52	02	03	06	10	01	3	140			5.86
01	08	820517	18.52	06	03	02	10	01	3	140	19 09 N	111 06 W	6.17
01	09	820517	18.52	06	02	03	11	01	3	140			1.85
01	10	820517	18.52	06	02	03	11	01	3	145			4.01
01	11	820517	18.52	04	05	01	10	01	3	145			4.63
01	12	820517	18.52	05	01	04	10	01	3	145			6.17
01	13	820517	18.52	01	04	05	11	01	3	145			7.72
01	14	820517	18.52	03	02	06	12	12	2	145			6.17
01	15	820517	18.52	03	06	02	12	12	2	145			7.72
01	16	820517	18.52	02	06	03	12	12	2	145	18 49 N	110 53 W	5.25
01	17	820517	18.52	04	01	05	12	12	2	133			8.64
01	18	820517	18.52	05	04	01	12	12	2	133			4.63
01	19	820517	18.52	01	05	04	12	12	2	133			4.63
01	20	820517	18.52	02	03	06	12	12	1	133			6.17
01	21	820517	18.52	02	03	06	01	12	1	233	18 39 N	110 44 W	0.31
02	01	820517	18.52	06	03	02	01	12	1	133	18 35 N	110 45 W	3.09
02	02	820517	18.52	05	04	01	02	12	1	133			7.10
02	03	820517	18.52	01	04	05	02	01	2	133			1.23
02	04	820517	18.52	01	04	05	03	01	2	138			0.62
03	01	820517	18.52	01	04	05	03	01	2	133	18 30 N	110 40 W	8.03

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
03	02	820517	18.52	02	06	03	04	01	2	133			6.79
03	03	820517	18.52	02	03	06	04	01	2	133			6.48
03	04	820517	18.52	06	03	02	04	01	2	133			5.56
03	05	820517	18.52	04	01	05			3	133			8.95
03	06	820517	18.52	05	01	04			3	133			5.86
03	07	820517	18.52	05	04	01			3	133			4.01
03	08	820517	18.52	06	03	02			3	133			4.01
03	09	820517	18.52	02	03	06			3	133	18 10 N	110 21 W	7.72
03	10	820517	19.08	02	06	03			3	133			6.36
03	11	820517	19.08	01	04	05			3	133			7.95
03	12	820517	19.08	04	05	01			3	133			7.95
01	01	820518	18.52	01	05	04			3	131	16 36 N	108 40 W	8.03
01	02	820518	18.52	01	04	05	10	02	3	131			7.72
01	03	820518	18.52	05	04	01	10	02	3	131			7.72
01	04	820518	18.52	05	01	04	10	02	3	131			3.40
02	01	820518	18.52	06	02	03	10	02	3	131			8.03
02	02	820518	18.52	06	03	02	10	02	3	131			5.86
02	03	820518	18.89	02	03	06			3	131			1.57
02	04	820518	18.52	02	03	06			3	131	16 20 N	108 22 W	0.31
03	01	820518	18.52	02	03	06			3	131	16 19 N	108 21 W	8.03
03	02	820518	18.52	02	06	03			3	131			1.85
04	01	820518	18.52	02	06	03			3	131			3.70
04	02	820518	18.52	04	01	05			2	131			19.45
04	03	820518	18.52	04	05	01			1	131			7.72
04	04	820518	18.52	01	04	05			1	131			8.95
04	05	820518	18.52	03	06	02			1	131			6.48
04	06	820518	18.52	03	02	06			1	131	15 59 N	107 56 W	7.72
04	07	820518	18.52	06	02	03			1	131			4.63
05	01	820518	18.52	06	03	02			1	131	15 51 N	107 51 W	8.64
05	02	820518	18.52	02	03	06			1	131			2.47
05	03	820518	18.52	01	04	05	04	12	2	131			9.26
05	04	820518	18.52	05	01	04	05	12	2	131			10.80
05	05	820518	18.52	04	05	01	05	01	2	131			9.26
05	06	820518	18.52	01	04	05	05	01	2	131			8.33
05	07	820518	18.52	02	03	06	05	01	1	131			6.48
05	08	820518	18.52	02	06	03	05	01	2	131			6.79

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
05	09	820518	18.52	05	04	01	05	02	3	131			6.79
05	10	820518	18.52	06	03	02	05	02	3	131	15 23 N	107 24 W	2.47
05	11	820518	18.52	06	03	02	05	02	2	131	15 22 N	107 22 W	5.56
05	12	820518	18.52	02	03	06	05	02	2	131			5.25
05	13	820518	18.52	02	06	03	05	02	2	131			3.09
05	14	820518	18.52	04	01	05	05	02	3	131			10.19
05	15	820518	18.52	04	05	01	05	03	3	131			3.09
05	16	820518	18.52	04	05	01	05	03	3	131	15 12 N	107 10 W	0.31
01	01	820519	18.52	03	06	02			3	131	13 48 N	105 38 W	5.86
01	02	820519	18.52	03	02	06			3	131			7.41
01	03	820519	18.52	06	02	03			2	131			6.48
01	04	820519	18.52	06	03	02			2	131			7.72
01	05	820519	18.52	04	01	05			2	131			12.35
02	01	820519	18.52	01	05	04			2	131			12.04
02	02	820519	18.52	05	04	01			1	131	13 26 N	105 15 W	6.48
03	01	820519	18.52	02	03	06			1	131	13 23 N	105 12 W	10.49
03	02	820519	18.52	06	03	02			1	131			1.54
04	01	820519	18.52	06	03	02			1	131	13 17 N	105 05 W	2.47
05	01	820519	18.52	06	03	02			1	131	13 12 N	105 00 W	2.78
05	02	820519	18.52	04	01	05			1	131			12.96
05	03	820519	18.52	01	04	05			1	131			2.16
06	01	820519	18.52	01	04	05			2	131	13 03 N	104 49 W	2.16
06	02	820519	18.52	06	02	03			2	131			8.95
06	03	820519	18.52	06	03	02	04	01	2	131			8.03
06	04	820519	18.52	02	03	06	04	01	2	131			8.64
06	05	820519	18.52	02	06	03	04	01	2	131			5.25
06	06	820519	18.52	03	06	02	04	01	2	131			6.17
06	07	820519	18.52	04	05	01	04	02	2	131			9.26
06	08	820519	18.71	05	01	04	05	02	2	131			5.30
06	09	820519	18.52	02	03	06	05	02	3	131			5.56
06	10	820519	18.52	04	01	05			4	131			2.78
06	11	820519	18.52	04	01	05			4	131	17 35 N	104 26 W	11.11
06	12	820519	18.52	04	01	05			4	131	12 35 N	104 21 W	0.31
01	01	820521	18.52	05	01	04	12	02	5	060	08 21 N	100 17 W	9.26
01	02	820521	18.52	04	05	01	12	02	5	060			9.26
01	03	820521	18.52	01	04	05	12	02	5	060			9.57

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
01	04	820521	18.52	03	02	06	12	02	5	060			5.86
01	05	820521	18.52	01	04	05	12	02	5	060			12.35
01	06	820521	18.52	04	05	01	12	01	5	060			4.32
02	01	820521	18.52	06	02	03	12	01	5	060	08 35 N	099 50 W	7.41
02	02	820521	18.52	06	03	02	12	01	5	060			7.10
02	03	820521	18.52	02	03	06	12	12	5	060			8.03
02	04	820521	18.52	02	06	03	12	12	5	060			6.79
02	05	820521	18.52	03	06	02	12	12	5	060			6.48
02	06	820521	18.52	03	02	06	12	12	5	060			11.42
02	07	820521	18.52	06	02	03	12	12	5	060	08 46 N	099 26 W	4.01
02	08	820521	18.52	01	04	05	12	12	5	060			8.33
03	01	820521	18.52	05	01	04	12	12	5	060	08 51 N	099 19 W	11.73
03	02	820521	18.52	04	05	01	12	12	5	060			1.54
04	01	820521	18.52	04	01	05			5	060	08 55 N	099 09 W	10.19
04	02	820521	18.52	04	05	01	07	01	5	060			7.10
04	03	820521	18.52	02	03	06	07	01	5	060			8.95
04	04	820521	18.52	06	03	02	07	01	5	060			9.57
04	05	820521	18.52	06	02	03	08	01	5	060	09 03 N	098 50 W	8.95
04	06	820521	18.52	03	02	06	08	02	5	060			4.32
04	07	820521	18.52	04	05	01	08	02	5	060			6.79
04	08	820521	18.52	06	02	03	08	02	5	060			7.72
04	09	820521	18.52	06	03	02	08	02	4	060			8.64
04	10	820521	18.52	02	03	06	08	03	4	060			1.54
04	11	820521	18.52	02	03	06	08	03	4	060	09 12 N	098 31 W	0.31
01	01	820522	18.52	02	03	06	12	03	3	067	10 10 N	096 49 W	6.79
01	02	820522	18.52	06	03	02	12	02	3	067			7.72
01	03	820522	18.52	06	02	03	12	02	3	067			10.19
02	01	820522	18.52	03	02	06	12	02	3	067			8.64
02	02	820522	18.52	03	06	02	12	02	3	067	10 20 N	096 31 W	3.40
02	03	820522	18.52	01	04	05			3	067			4.94
02	04	820522	18.52	03	06	02	12	01	3	067			4.63
02	05	820522	18.52	02	06	03			3	067			5.25
03	01	820522	18.52	02	06	03			3	067	10 25 N	096 22 W	1.23
04	01	820522	18.52	02	06	03			3	067	10 26 N	096 21 W	3.09
04	02	820522	18.52	04	05	01			4	067			10.49
05	01	820522	18.52	04	01	05			4	067	10 32 N	096 09 W	10.49

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
05	02	820522	18.52	04	01	05			4	074			8.03
05	03	820522	18.52	05	01	04			4	074			6.17
06	01	820522	18.52	05	04	01			4	074	10 38 N	095 56 W	7.72
06	02	820522	18.52	06	03	02			3	074			8.64
06	03	820522	18.52	02	03	06			3	074			8.33
06	04	820522	18.52	02	06	03			3	074			2.47
07	01	820522	18.52	02	06	03			3	074			4.01
07	02	820522	18.52	03	06	02			3	074			8.33
07	03	820522	18.52	03	02	06			3	074			5.56
07	04	820522	18.52	03	02	06			3	074	10 46 N	095 31 W	0.31
08	01	820522	18.52	06	02	03			3	074	10 44 N	095 29 W	3.09
09	01	820522	18.52	01	04	05			3	074			12.96
09	02	820522	18.52	05	01	04			3	074	10 50 N	095 20 W	9.26
09	03	820522	18.52	04	05	01			3	074			7.41
09	04	820522	18.52	06	03	02			3	074			6.17
10	01	820522	18.52	04	01	05			3	074	10 44 N	095 07 W	8.33
10	02	820522	18.52	04	01	05			3	074	10 45 N	095 02 W	0.93
01	01	820523	18.52	05	04	01	09	03	4	152	08 50 N	093 58 W	6.17
01	02	820523	18.52	01	04	05	09	03	4	152			5.25
01	03	820523	18.52	01	05	04	09	03	4	152			9.26
01	04	820523	18.52	06	03	02	09	02	4	152			6.17
01	05	820523	18.52	02	03	06	09	02	4	152			7.10
01	06	820523	18.52	02	06	03	09	02	4	152	08 32 N	093 49 W	5.86
01	07	820523	18.52	03	06	02	09	02	4	152			4.94
01	08	820523	18.52	01	05	04	09	02	4	152			2.16
02	01	820523	18.52	05	04	01	10	01	4	130	08 21 N	093 46 W	6.79
02	02	820523	18.52	06	02	03	10	01	4	152	08 19 N	093 45 W	6.17
02	03	820523	18.52	06	03	02	10	12	4	152			7.10
02	04	820523	18.52	02	03	06	10	12	4	152			5.56
02	05	820523	18.52	04	05	01	10	12	4	152			5.86
02	06	820523	18.52	01	04	05	12	12	3	152			6.79
02	07	820523	18.52	05	01	04	12	12	3	152			8.03
02	08	820523	18.52	03	02	06	12	12	3	152			1.23
02	09	820523	18.52	03	02	06	12	12	3	172			1.54
02	10	820523	18.52	03	02	06	12	12	3	152			5.25
02	11	820523	18.52	06	02	03	12	12	3	152			9.57

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
02	12	820523	18.52	01	04	05	12	12	3	152			5.56
02	13	820523	18.52	05	01	04	12	12	3	152			5.56
03	01	820523	18.52	06	03	02	12	12	3	152	07 50 N	093 26 W	7.10
03	02	820523	18.52	02	03	06	12	12	3	152			5.86
03	03	820523	18.52	02	04	06	12	12	3	152			2.47
03	04	820523	18.52	05	04	01	12	12	3	152			4.32
03	05	820523	18.52	01	05	04	04	01	3	152			6.17
03	06	820523	18.52	04	01	05	04	01	3	152			5.25
04	01	820523	18.52	06	02	03	04	01	3	152	07 32 N	093 16 W	5.86
04	02	820523	18.52	04	01	05	04	02	3	152			6.17
04	03	820523	18.52	01	05	04	04	02	3	152			6.17
04	04	820523	18.52	05	04	01	04	02	3	152			6.79
04	05	820523	18.52	02	03	06	04	03	3	152			7.72
04	06	820523	18.52	02	06	03	04	03	3	152			3.09
04	07	820523	18.52	02	06	03	04	03	3	152	07 15 N	093 06 W	0.31
01	01	820524	18.52	02	06	03			4	106	06 39 N	091 14 W	5.56
01	02	820524	18.52	03	06	02			4	106			6.48
01	03	820524	18.52	03	02	06			4	106			6.17
01	04	820524	18.52	06	02	03			4	106			5.86
01	05	820524	18.52	04	01	05			5	106			7.72
01	06	820524	18.52	01	05	04			5	106			7.72
01	07	820524	18.52	05	04	01			4	106			3.40
01	08	820524	18.52	02	03	06			4	106	06 32 N	090 49 W	6.48
01	09	820524	18.52	06	03	02			4	106			6.17
01	10	820524	18.52	06	02	03			4	106			5.56
01	11	820524	18.52	04	01	05			5	106			6.17
02	01	820524	18.52	04	01	05			5	106	06 28 N	090 32 W	0.62
02	02	820524	18.52	01	05	04			4	106			7.10
02	03	820524	18.52	06	02	03			4	106	06 27 N	090 28 W	6.79
02	04	820524	18.52	03	02	06			4	106			7.72
02	05	820524	18.52	03	06	02			4	106			4.32
02	06	820524	18.52	01	04	05			4	106			7.10
02	07	820524	18.52	04	05	01			4	106			10.19
02	08	820524	18.52	03	06	02			3	106	06 22 N	090 07 W	7.72
02	09	820524	18.52	02	06	03			3	106			4.63
02	10	820524	18.52	02	03	06			3	106			6.17

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
02	11	820524	18.52	01	04	05			3	106			7.72
02	12	820524	18.52	04	05	01			4	106			6.17
02	13	820524	18.52	05	01	04			4	106			4.63
02	14	820524	18.52	02	03	06			4	106	06 15 N	089 45 W	6.17
02	15	820524	18.52	06	03	02			4	106			6.17
02	16	820524	18.52	06	02	03			4	106			6.17
02	17	820524	18.52	04	01	05			4	106			4.01
02	18	820524	18.52	04	01	05			4	096			6.48
02	19	820524	18.52	01	05	04			4	106			9.57
02	20	820524	18.52	06	03	02			4	106	06 10 N	089 23 W	5.25
02	21	820524	18.52	06	02	03			4	106			5.56
02	22	820524	18.52	03	02	06			4	106			7.10
02	23	820524	18.52	03	02	06			4	106	06 06 N	089 12 W	0.00
01	01	820526	18.52	01	04	05	02	03	4	000	06 58 N	086 40 W	9.57
01	02	820526	18.52	04	05	01	02	02	4	000			4.63
01	03	820526	18.52	05	01	04			4	000			7.41
01	04	820526	18.52	04	01	05			4	000			7.72
02	01	820526	18.52	05	01	04	02	02	5	000			3.70
02	02	820526	18.52	06	02	03	02	02	4	000	07 16 N	086 40 W	7.72
02	03	820526	18.52	06	03	02	02	01	4	000			6.17
02	04	820526	18.52	02	03	06	02	01	4	000			7.72
02	05	820526	18.52	02	06	03	02	01	4	000			5.56
02	06	820526	18.52	03	06	02	02	01	4	000			5.25
02	07	820526	18.52	03	02	06	01	12	4	000			5.25
03	01	820526	18.52	04	01	05			4	000	07 36 N	086 37 W	7.41
04	01	820526	18.52	01	04	05			4	000			11.73
04	02	820526	18.52	05	04	01			4	000	07 42 N	086 36 W	3.40
05	01	820526	18.52	03	02	06			4	000	07 46 N	086 34 W	6.17
05	02	820526	18.52	03	06	02			4	000			6.79
05	03	820526	18.52	02	06	03			4	000			7.72
05	04	820526	18.52	02	03	06			4	000			6.17
05	05	820526	18.52	06	03	02			4	000			6.17
05	06	820526	18.52	06	02	03			4	000			0.62
06	01	820526	18.52	04	01	05			4	000	08 20 N	086 33 W	6.79
06	02	820526	18.52	05	04	01			4	000			7.41
06	03	820526	18.52	06	03	02			4	000	08 28 N	086 32 W	6.79

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
06	04	820526	18.52	06	02	03			4	000			6.17
06	05	820526	18.52	05	04	01			4	000			6.48
06	06	820526	18.52	03	02	06			4	000			6.79
06	07	820526	18.52	06	02	03			4	000			4.01
06	08	820526	18.52	06	03	02			4	000	08 42 N	086 31 W	6.79
06	09	820526	18.52	06	03	02			4	000	08 45 N	086 30 W	2.47
01	01	820527	18.52	06	03	02	05	03	4	266	09 05 N	088 11 W	6.17
01	02	820527	18.52	06	02	03	05	03	4	266			5.56
01	03	820527	18.52	03	02	06	05	03	4	266			6.17
01	04	820527	18.52	03	06	02	05	02	4	266			6.17
01	05	820527	18.52	02	06	03	05	02	4	266			4.63
01	06	820527	18.52	02	03	06	05	02	4	266			7.72
01	07	820527	18.52	01	04	05	05	02	4	266			4.94
01	08	820527	18.15	01	04	05	05	02	4	266			4.54
01	09	820527	18.15	04	05	01	05	02	4	266			6.35
02	01	820527	18.15	05	01	04			4	258	09 07 N	088 37 W	3.02
02	02	820527	18.15	02	03	06			4	258	09 07 N	088 38 W	6.65
02	03	820527	16.67	06	03	02	06	01	4	258			5.56
02	04	820527	16.67	06	02	03	06	01	4	258			6.39
02	05	820527	16.67	03	02	06	12	12	4	258			5.56
02	06	820527	16.67	03	06	02	12	12	4	258			0.28
02	07	820527	16.67	03	06	02	12	12	4	258			5.83
02	08	820527	16.67	06	02	03	12	12	4	258			4.17
03	01	820527	17.78	03	06	02			4	258	09 03 N	089 19 W	6.22
03	02	820527	17.78	03	02	06			4	258			2.96
03	03	820527	17.78	06	02	03			4	258			0.30
04	01	820527	18.15	04	01	05			4	258	09 05 N	089 28 W	2.12
05	01	820527	18.15	04	01	05			4	258	09 05 N	089 32 W	3.02
05	02	820527	18.15	02	06	03			4	258			3.63
06	01	820527	18.15	04	01	05			4	258	09 03 N	089 39 W	6.05
06	02	820527	18.15	01	05	04			4	258	09 03 N	089 48 W	6.05
01	01	820528	18.52	01	04	05			4	330	10 44 N	090 51 W	9.26
01	02	820528	18.52	04	05	01			4	330			6.17
02	01	820528	18.52	05	01	04			4	330	10 53 N	090 56 W	4.63
02	02	820528	18.52	06	02	03			4	330			2.16
03	01	820528	18.52	01	04	05			4	330	11 01 N	091 00 W	7.72

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
03	02	820528	18.52	04	05	01			4	330			6.17
04	01	820528	18.52	03	06	02			4	330	11 14 N	091 07 W	1.85
05	01	820528	18.52	03	06	02			4	330	11 24 N	091 12 W	6.79
05	02	820528	18.52	02	06	03			4	330			11.42
05	03	820528	18.52	04	05	01			4	330			8.33
05	04	820528	18.52	01	04	05			3	330			9.57
05	05	820528	18.52	05	01	04			3	330			5.56
06	01	820528	18.52	04	05	01	12	01	3	330			7.41
06	02	820528	18.52	04	01	05			3	330			0.31
07	01	820528	18.52	01	04	05			4	330			6.17
07	02	820528	18.52	05	04	01			4	330			5.86
08	01	820528	18.52	02	03	06			4	330	12 09 N	091 38 W	30.25
08	02	820528	18.52	02	03	06			4	330	12 15 N	091 39 W	0.31
01	01	820529	18.52	04	01	05			4	288	13 38 N	093 53 W	9.26
01	02	820529	18.52	05	04	01			3	288			7.72
01	03	820529	18.52	01	04	05			3	288			6.79
01	04	820529	18.52	01	05	04			4	288			8.03
01	05	820529	18.52	02	03	06			4	288	13 43 N	094 09 W	6.17
01	06	820529	18.52	06	03	02			4	288			5.25
01	07	820529	18.52	06	02	03			4	288			6.17
01	08	820529	18.52	03	02	06	12	12	4	288			6.48
01	09	820529	18.52	03	06	02	12	12	4	288			5.86
01	10	820529	18.52	02	06	03	01	12	4	288			6.17
01	11	820529	18.52	02	03	06			4	288			6.17
01	12	820529	18.52	06	03	02			4	288	13 52 N	094 31 W	6.79
01	13	820529	18.52	06	02	03			4	288			5.56
01	14	820529	18.52	01	04	05			4	288	13 54 N	094 37 W	9.26
01	15	820529	18.52	04	05	01	12	01	4	288			9.26
01	16	820529	18.52	05	01	04			3	288			9.26
01	17	820529	18.52	01	04	05			3	288			4.63
01	18	820529	18.52	03	02	06			3	288	14 01 N	094 51 W	6.17
01	19	820529	18.52	01	04	05			3	288			4.01
02	01	820529	18.52	01	04	05			3	288	14 05 N	094 59 W	11.42
02	02	820529	18.52	04	05	01			3	288	14 07 N	095 04 W	0.31
01	01	820530	18.52	02	03	06			3	251	13 36 N	097 24 W	5.86
01	02	820530	18.52	04	01	05			3	251			1.85

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
01	03	820530	18.52	04	01	05			3	153			7.10
02	01	820530	18.52	06	03	02			4	260	13 30 N	097 29 W	5.56
02	02	820530	18.52	06	02	03			4	260			7.10
03	01	820530	18.52	01	04	05			4	260	13 31 N	097 39 W	4.63
03	02	820530	18.52	05	01	04			4	260			3.40
04	01	820530	18.52	01	04	05			4	260	13 30 N	097 45 W	5.56
04	02	820530	18.52	05	01	04			4	260			1.85
04	03	820530	18.52	05	01	04			4	248			4.94
04	04	820530	18.52	04	05	01			3	248			5.56
04	05	820530	18.52	02	03	06			3	248	13 26 N	097 53 W	6.48
04	06	820530	18.52	06	03	02	01	01	3	248			6.48
04	07	820530	18.52	06	02	03			3	248			6.17
04	08	820530	18.52	01	04	05			4	248			7.10
04	09	820530	18.52	04	05	01	01	02	4	248			4.63
04	10	820530	18.52	05	01	04	01	02	4	248			6.79
04	11	820530	18.52	02	06	03	01	02	4	248			5.56
04	12	820530	18.52	03	06	02	01	02	4	248	13 19 N	098 15 W	6.48
04	13	820530	18.52	03	02	06	01	02	4	248			5.86
04	14	820530	18.52	04	01	05	02	02	4	248	13 17 N	098 21 W	6.17
04	15	820530	18.52	01	05	04	02	03	4	248			6.17
04	16	820530	18.52	05	01	04	02	03	4	248			4.63
04	17	820530	18.52	05	01	04	02	03	4	248	13 15 N	098 29 W	0.31
01	01	820531	18.52	06	03	02	04	02	4	295	13 06 N	099 15 W	6.79
01	02	820531	18.52	02	03	06	04	02	4	295			8.03
01	03	820531	18.52	04	05	01	04	01	4	295			2.16
02	01	820531	18.52	05	01	04	04	01	4	295			6.17
02	02	820531	18.52	02	06	03	04	01	5	295			6.17
02	03	820531	18.52	03	06	02	04	01	5	295			5.86
02	04	820531	18.52	03	02	06	04	12	5	295	13 13 N	099 30 W	5.86
02	05	820531	18.52	01	04	05			5	295			7.72
02	06	820531	18.52	05	01	04			5	295			6.79
02	07	820531	18.52	04	05	01	04	12	5	295			4.63
02	08	820531	18.52	06	03	02	12	12	5	295	13 18 N	099 41 W	5.56
02	09	820531	18.52	02	03	06	12	12	5	295			6.17
02	10	820531	18.52	02	06	03	12	12	5	295			6.17
02	11	820531	18.52	01	04		12	12	5	295			9.26

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
02	12	820531	18.52	04	01		01	01	5	295			9.57
02	13	820531	17.59	06	02	03	12	12	5	295	13 25 N	099 56 W	6.16
02	14	820531	18.15	03	02	06	12	12	5	295			5.75
02	15	820531	18.15	03	06	02	12	01	5	295			5.75
03	01	820531	18.15	04	01		12	01	5	295	13 29 N	100 05 W	1.51
03	02	820531	18.15	04	01		01	01	5	240			7.26
04	01	820531	17.59	04	01	05	11	01	5	313	13 25 N		4.69
04	02	820531	17.59	06	03	02	11	01	5	313	13 27 N	100 14 W	5.86
04	03	820531	17.59	02	03	06	11	01	4	313			6.16
04	04	820531	18.15	02	06	03	11	01	4	313			6.05
04	05	820531	18.15	05	04	01	11	02	4	313			6.05
04	06	820531	18.15	04	01	05	11	02	4	313			5.75
04	07	820531	18.15	01	05	04	11	02	4	313			1.21
05	01	820531	18.15	03	02	06	11	02	4	313	13 36 N	100 29 W	5.75
05	02	820531	18.15	06	02	03			4	313			4.84
05	03	820531	18.15	06	03	02	11	02	4	313			4.23
05	04	820531	18.15	06	03	02	11	02	4	313	13 42 N	100 36 W	1.21
01	01	820601	18.52	04	01	05	12	03	3	063	14 10 N	100 41 W	9.57
01	02	820601	18.52	05	04	01	12	02	3	063			8.95
01	03	820601	18.52	01	05	04	01	02	3	063			2.47
02	01	820601	18.52	02	06	03	01	02	3	063			4.94
02	02	820601	18.52	04	01	05	01	02	3	063	14 20 N	100 24 W	5.86
03	01	820601	18.52	06	03	02			2	063	14 23 N	100 19 W	5.86
03	02	820601	18.52	02	03	06			2	063			5.86
03	03	820601	18.52	02	06	03			2	063			6.17
03	04	820601	18.52	03	06	02	12	01	2	063			6.48
03	05	820601	18.52	03	02	06	12	01	2	063	14 29 N	100 04 W	5.86
03	06	820601	18.52	06	02	03	12	01	2	063			6.17
03	07	820601	18.52	01	04	05	12	01	2	063			5.86
04	01	820601	18.52	02	06	03	12	01	2	063			5.56
04	02	820601	18.52	01	04	05	12	12	3	063	14 36 N	099 49 W	7.41
04	03	820601	18.52	04	05	01			3	063			6.48
04	04	820601	18.52	05	04	01			3	063			1.23
04	05	820601	18.52	05	04	01			3	078			1.85
04	06	820601	18.52	06	03	02	12	12	3	078	14 38 N	099 39 W	2.78
05	01	820601	18.52	02	03	06	12	12	2	047	14 37 N	099 32 W	5.56

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
05	02	820601	18.52	02	06	03	12	12	2	047			5.86
05	03	820601	18.52	03	06	02	12	12	2	047			6.79
05	04	820601	18.52	03	02	06	12	12	2	047			6.17
05	05	820601	18.52	04	01	05			3	047			6.48
05	06	820601	18.52	01	05	04			3	047			6.79
05	07	820601	18.52	05	04	01	08	01	3	047			5.56
05	08	820601	18.52	04	01	05	08	01	3	047			6.17
06	01	820601	19.26	02	03	06			3	047	15 01 N	099 11 W	7.38
06	02	820601	19.26	06	03	02			3	047			1.93
07	01	820601	19.26	06	02	03			3	047	15 08 N	099 05 W	6.42
07	02	820601	19.26	04	05	01			3	047			4.17
07	03	820601	19.26	04	05	01			3	047	15 12 N	099 01 W	0.32
01	01	820602	18.52	06	03	02	04	03	3	293	15 12 N	098 56 W	6.48
01	02	820602	18.52	02	03	06	04	03	2	293			6.17
01	03	820602	18.52	02	06	03	04	03	2	293			5.86
01	04	820602	18.52	03	06	02	04	02	3	293			2.16
01	05	820602	18.52	01	04	05	04	02	3	293			4.63
01	06	820602	18.52	03	06	02	04	02	3	293			7.41
01	07	820602	18.52	03	02	06			2	293			4.63
01	08	820602	18.52	06	02	03			2	293	15 20 N	099 15 W	6.17
02	01	820602	18.52	01	04	05	05	02	3	293	15 19 N	099 19 W	4.94
03	01	820602	18.52	05	01	04	05	02	3	293	15 20 N	099 22 W	6.79
04	01	820602	18.52	02	03	06	05	02	3	293	15 25 N	099 26 W	8.64
05	01	820602	18.52	02	03	06	05	01	3	293	15 26 N	099 27 W	5.56
06	01	820602	18.52	02	06	03	01	12	3	287			6.17
06	02	820602	18.52	03	06	02	01	12	3	287	15 32 N	099 32 W	6.79
06	03	820602	18.52	04	05	01	01	12	3	287			5.56
06	04	820602	18.52	05	01	04	01	12	3	287			6.17
06	05	820602	18.52	01	04	05	01	12	3	287			6.17
06	06	820602	18.52	04	05	01	01	12	3	287			6.17
06	07	820602	18.52	05	01	04	01	01	3	287			6.17
06	08	820602	18.52	01	04	05	01	01	3	287			6.48
06	09	820602	18.52	03	02	06	01	01	3	287	15 40 N	099 55 W	5.86
06	10	820602	18.52	06	02	03	01	01	3	287	15 41 N	099 59 W	5.56
07	01	820602	18.52	06	03	02	12	01	3	287	15 45 N	100 04 W	6.48
07	02	820602	18.52	02	03	06	12	01	3	287			6.17

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
07	03	820602	18.52	02	06	03	12	01	3	287			5.56
07	04	820602	18.52	03	06	02	12	01	3	287			5.25
07	05	820602	18.52	04	01	05	12	02	3	317			7.72
01	01	820603	18.52	04	05	01	04	03	3	313			9.26
01	02	820603	18.52	01	04	05	04	03	3	313			5.25
01	03	820603	18.52	06	02	03	04	02	3	313			5.56
01	04	820603	18.52	01	04	05	04	02	3	313			9.26
01	05	820603	18.52	05	01	04	04	02	3	313			7.72
01	06	820603	18.52	04	05	01	04	02	3	313	16 41 N	102 02 W	4.63
02	01	820603	18.52	01	04	05	04	02	3	313	16 43 N	102 05 W	9.26
02	02	820603	18.52	02	03	06	04	01	3	313	16 47 N	102 09 W	4.63
03	01	820603	18.52	06	03	02	04	01	3	313	16 51 N	102 14 W	8.64
03	02	820603	18.52	06	02	03	03	01	3	313			1.54
03	03	820603	18.52	01	04	05	03	01	3	313			4.63
03	04	820603	18.52	03	02	06	03	01	3	313	16 57 N	102 21 W	4.63
04	01	820603	18.52	06	02	03	03	01	3	313	16 59 N	102 25 W	4.63
04	02	820603	18.52	06	03	02	12	01	3	313			5.25
04	03	820603	18.52	04	01	05	12	12	3	313			9.26
04	04	820603	18.52	01	05	04	12	12	3	313			6.17
05	01	820603	18.52	05	04	01	11	12	3	313	17 11 N	102 33 W	8.64
05	02	820603	18.52	04	01	05	11	12	3	313			9.26
05	03	820603	18.52	01	05	04	11	01	3	313			9.88
05	04	820603	18.52	05	04	01	11	01	4	313			8.64
05	05	820603	18.52	06	03	02	11	01	4	313	17 26 N	102 48 W	7.10
05	06	820603	18.52	02	03	06	11	01	4	313			3.40
06	01	820603	18.52	03	02	06	11	02	4	313	17 38 N	102 57 W	4.63
06	02	820603	18.52	06	02	03	11	02	4	313			3.40
01	01	820604	18.89	02	03	06	03	03	1	320	18 52 N	104 15 W	5.98
01	02	820604	18.89	06	03	02	03	03	1	320			4.72
01	01	820608	18.52	04	01	05			2	188	17 24 N	104 41 W	8.95
01	02	820608	18.52	01	05	04	08	03	2	188			7.41
02	01	820608	18.52	01	04	05	08	02	2	188			7.72
02	02	820608	18.52	05	01	04	08	02	2	188			6.48
02	03	820608	18.52	03	02	06	08	02	2	188	17 01 N	104 44 W	5.86
02	04	820608	18.52	03	06	02	08	02	2	188			6.17
02	05	820608	18.52	02	06	03	08	02	2	188			6.48

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
02	06	820608	18.52	02	03	06	08	01	2	188			6.48
02	07	820608	18.52	06	03	02	08	01	2	188			5.86
02	08	820608	18.52	06	02	03	08	01	2	188			5.25
02	09	820608	18.52	06	02	03	08	01	2	185			1.23
02	10	820608	18.52	05	04	01	08	01	2	185			5.56
02	11	820608	18.52	01	05	04	08	01	2	185			7.72
02	12	820608	18.52	03	02	06	12	12	2	185			5.25
02	13	820608	18.52	04	05	01	12	12	2	185			4.01
02	14	820608	18.52	04	05	01	12	12	2	182			1.85
02	15	820608	18.52	01	04	05	12	12	2	182			5.86
02	16	820608	18.52	05	01	04	12	12	2	182			8.33
02	17	820608	18.52	03	06	02	12	12	2	182	16 19 N	104 51 W	4.94
02	18	820608	18.52	02	06	03	12	12	2	182			5.56
02	19	820608	18.52	02	03	06	12	12	2	182			5.86
02	20	820608	18.52	06	03	02	12	12	2	182			6.79
02	21	820608	18.52	06	02	03	01	01	2	182	16 11 N	104 53 W	1.85
03	01	820608	18.52	06	02	03	01	01	2	182			1.23
03	02	820608	18.52	03	02	06	01	01	2	182			5.86
03	03	820608	18.52	05	04	01	01	01	2	182			6.17
03	04	820608	18.52	01	05	04	04	01	2	182	15 55 N	104 45 W	9.26
04	01	820608	18.52	04	01	05	04	01	2	182	15 50 N	104 54 W	2.78
04	02	820608	18.52	05	04	01	04	01	2	182			5.56
04	03	820608	18.52	01	05	04	04	01	2	182			6.79
04	04	820608	18.52	04	01	05	04	01	2	182			7.10
04	05	820608	18.52	03	02	06	03	01	2	182	15 38 N	104 55 W	6.17
04	06	820608	18.52	06	02	03	03	01	2	182			5.56
04	07	820608	18.52	06	03	02	03	02	2	182			5.86
04	08	820608	18.52	02	03	06	03	02	2	182			8.64
04	09	820608	18.52	02	06	03	03	02	2	182	15 22 N	104 57 W	4.94
04	10	820608	18.52	03	06	02	03	02	2	182			4.94
04	11	820608	18.52	04	01	05	03	03	2	182			6.79
04	12	820608	18.52	05	04	01	03	03	2	182			3.09
04	13	820608	18.52	05	04	01	03	03	2	182	15 10 N	104 58 W	0.31
01	01	820609	19.45	02	03	06			2	180	13 05 N	104 56 W	5.19
01	02	820609	19.45	06	03	02	08	03	2	180			6.48
01	03	820609	19.45	06	02	03	08	03	2	180			6.48

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
01	04	820609	19.45	03	02	06	08	02	2	180			6.16
01	05	820609	19.45	03	06	02	08	02	2	180			8.10
01	06	820609	19.45	04	05	01	08	02	2	180			5.19
02	01	820609	19.45	02	03	06	08	02	2	180	12 44 N	104 59 W	7.13
02	02	820609	19.45	06	03	02	08	01	2	180			8.10
02	03	820609	19.45	01	04	05	08	01	2	180			8.10
02	04	820609	19.45	05	01	04	08	01	2	180			9.72
02	05	820609	18.52	04	05	01	08	01	2	180			6.17
02	06	820609	18.52	04	05	01			2	180			1.23
03	01	820609	18.52	01	04	05			3	180	12 22 N	105 01 W	4.01
04	01	820609	18.52	04	01	05			3	180	12 16 N	105 06 W	3.09
05	01	820609	18.52	05	01	04			2	180	12 13 N	105 08 W	1.23
05	02	820609	18.52	02	03	06	12	12	2	180			6.79
05	03	820609	18.52	06	03	02	12	12	2	180	12 09 N	105 07 W	5.56
05	04	820609	18.52	06	02	03	12	12	2	180			6.48
05	05	820609	18.52	03	02	06	12	12	2	180			6.17
05	06	820609	18.52	03	06	02	12	12	2	180			6.79
06	01	820609	18.52	02	06	03	02	01	2	180	11 56 N	105 09 W	4.63
06	02	820609	18.52	02	03	06	03	01	2	180			1.54
06	03	820609	18.52	02	03	06	02	01	2	176			3.40
06	04	820609	18.52	04	01	05	03	01	2	176			8.95
06	05	820609	9.26	04	01	05	03	01	2	176			0.46
06	06	820609	18.52	01	05	04	03	01	2	176			1.23
07	01	820609	18.52	01	05	04	03	01	2	176	11 43 N	105 09 W	2.16
07	02	820609	18.52	05	04	01	03	02	2	176			11.42
07	03	820609	18.52	06	02	03	04	02	2	176			6.79
07	04	820609	18.52	04	01	05	04	02	2	176			5.86
07	05	820609	9.26	04	01	05	04	02	2	176			0.31
07	06	820609	18.52	04	01	05	04	02	2	176			1.85
08	01	820609	18.52	01	05	04	04	02	2	176			6.48
08	02	820609	18.52	02	06	03	04	03	2	176	11 25 N	105 07 W	1.54
09	01	820609	18.52	02	03	06	04	03	2	176	11 24 N	105 08 W	4.32
01	01	820610	17.59	05	04	01			5	176	09 32 N	105 10 W	7.33
01	02	820610	17.59	01	04	05			4	176			2.93
01	03	820610	17.59	01	04	05	08	03	4	176			5.86
01	04	820610	17.59	05	01	04	08	02	4	176			8.80

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
01	05	820610	17.59	04	05	01	08	02	4	176			5.86
02	01	820610	17.59	02	03	06	08	02	4	176	09 17 N	105 09 W	3.23
02	02	820610	17.59	01	05	04	08	02	4	176			6.45
02	03	820610	17.59	04	01	05	08	02	4	176			9.38
02	04	820610	17.59	06	03	02	08	01	4	176	09 04 N	105 08 W	5.57
02	05	820610	17.78	06	02	03	08	01	4	176			6.22
02	06	820610	17.78	03	02	06	08	01	4	176			2.67
03	01	820610	17.78	03	06	02	12	12	4	176	08 52 N	105 07 W	6.22
04	01	820610	17.78	02	06	03			3	176	08 45 N	105 07 W	6.22
04	02	820610	17.78	02	03	06	12	12	3	176			6.22
04	03	820610	17.78	06	03	02	12	12	3	176			6.82
04	04	820610	17.78	04	01		12	12	3	176			11.85
04	05	820610	17.78	01	04		12	12	4	176			8.89
04	06	820610	17.78	04	01		04	01	4	176			13.33
04	07	820610	17.78	01	04		04	01	4	176			8.89
04	08	820610	17.78	04	01		04	01	4	176			2.37
05	01	820610	17.78	04	01		04	01	4	176			6.22
05	02	820610	17.78	02	06	03	04	01	4	176	08 05 N	105 04 W	5.04
05	03	820610	18.52	02	03	06	04	01	4	176			5.56
05	04	820610	18.52	06	03	02	04	01	4	176			6.17
05	05	820610	18.52	06	02	03	04	01	4	176			6.48
05	06	820610	18.52	03	02	06	03	02	4	176			7.72
05	07	820610	18.52	01	04		04	02	4	176			2.78
06	01	820610	18.52	03	06	02	04	02	4	176	07 40 N	105 02 W	5.56
06	02	820610	18.52	02	06	03			4	176			3.09
06	03	820610	18.52	04	01				4	176			9.26
06	04	820610	18.52	04	01				4	176	07 29 N	105 01 W	0.62
01	01	820611	18.52	02	03	06			3	315	06 00 N	105 00 W	4.63
01	02	820611	18.52	06	03	02	03	02	3	315			4.63
01	03	820611	18.52	04	01				4	315			18.83
01	04	820611	18.52	06	02	03			4	315	06 14 N	105 13 W	6.17
01	05	820611	18.52	03	02	06			4	315			5.86
01	06	820611	18.52	03	06	02	03	01	4	315			6.17
01	07	820611	18.52	01	04	05	03	01	4	315			6.17
01	08	820611	18.52	05	01	04	04	01	4	315			6.17
01	09	820611	18.52	04	05	01	04	01	4	315			3.09

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
02	01	820611	18.52	04	05	01	04	01	4	315			0.93
02	02	820611	18.52	03	02	06	04	01	4	315			6.17
02	03	820611	18.52	06	02	03			3	315	06 32 N	105 32 W	6.17
02	04	820611	18.52	06	03	02	03	01	3	315			5.56
02	05	820611	18.52	05	04	01			4	315			6.17
02	06	820611	18.52	01	05	04			4	315			6.17
02	07	820611	18.52	04	01	05			4	315			6.48
02	08	820611	18.52	02	03	06	12	12	4	315	06 45 N	105 46 W	5.86
02	09	820611	18.52	02	06	03	12	12	4	315			2.47
03	01	820611	18.52	04	05	01	12	12	4	315	06 56 N	105 51 W	1.23
04	01	820611	18.52	04	05	01	12	12	4	315	06 57 N	105 52 W	1.85
05	01	820611	18.52	04	05	01	12	12	4	315			4.32
05	02	820611	18.52	03	02	06			4	315	07 04 N	105 56 W	6.17
05	03	820611	18.52	06	02	03			4	315			6.79
06	01	820611	18.52	04	01	05			4	319	07 05 N	102 26 W	4.32
06	02	820611	18.52	05	04	01			4	319			2.78
07	01	820611	18.52	03	06	02			4	319	07 12 N	106 33 W	2.78
07	02	820611	18.52	02	06	03	11	02	4	319			6.79
07	03	820611	18.52	02	03	06			4	319			8.03
07	04	820611	18.52	01	04	05			4	319			8.64
07	05	820611	18.52	01	04	05			4	319	07 20 N	106 01 W	0.31
01	01	820612	19.45	04	01	05			3	313	08 44 N	107 39 W	4.86
01	02	820612	19.45	01	05	04	04	02	3	313			6.48
02	01	820612	19.45	06	02	03	04	02	2	313	08 54 N	107 48 W	6.81
02	02	820612	19.45	04	05	01	04	02	2	313			8.10
02	03	820612	19.45	01	04	05			3	313			5.83
02	04	820612	19.45	05	01	04			3	313			5.19
02	05	820612	19.45	02	03	06			2	313	09 04 N	108 01 W	4.21
03	01	820612	18.52	01	04	05	03	12	3	313	09 14 N	108 06 W	6.17
03	02	820612	18.52	04	05	01	03	12	3	313			0.93
04	01	820612	18.52	04	05	01	03	12	3	313			3.09
04	02	820612	18.52	05	01	04	03	12	3	313			6.48
04	03	820612	18.52	03	06	02	12	12	2	313	09 21 N	108 13 W	5.86
04	04	820612	18.52	02	06	03	12	12	2	313			6.79
05	01	820612	18.52	04	01	05	12	01	2	295			6.17
05	02	820612	18.52	05	04	01	12	01	2	295	10 01 N	108 41 W	4.32

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
05	03	820612	18.52	01	05	04	12	02	2	295			7.72
05	04	820612	18.52	02	06	03	12	02	2	295			6.17
05	05	820612	18.52	03	06	02			2	295			1.85
06	01	820612	18.52	04	01	05	12	03	2	295			6.17
06	02	820612	18.52	05	04	01	12	03	2	295			3.09
06	03	820612	18.52	05	04	01			1	295	10 07 N	109 00 W	0.31
01	01	820614	18.52	03	02	06			2	324	10 19 N	109 12 W	6.17
01	02	820614	18.52	06	02	03			2	324			6.79
01	03	820614	18.52	06	03	02			2	324			2.47
02	01	820614	18.52	06	03	02	12	12	3	318	10 48 N	109 32 W	7.41
02	02	820614	18.52	02	03	06	12	12	3	318			5.56
02	03	820614	18.52	02	03	06			3	318	10 54 N	109 37 W	2.16
03	01	820614	18.52	05	04	01	11	01	3	318	11 02 N	109 43 W	6.17
03	02	820614	18.52	04	01	05			3	318			2.47
04	01	820614	18.52	01	05	04			3	318	11 17 N	109 52 W	3.70
04	02	820614	18.52	02	06	03			3	318			6.17
05	01	820614	18.52	01	04	05			3	318	11 25 N	109 47 W	4.63
05	02	820614	18.52	01	04	05			3	318	11 27 N	109 49 W	0.31
01	01	820615	18.52	02	06	03	03	03	3	318	12 59 N	111 13 W	7.41
01	02	820615	18.52	03	06	02	03	02	3	318			5.86
01	03	820615	18.52	03	02	06	03	02	3	318	13 07 N	111 19 W	5.25
02	01	820615	18.52	06	02	03	03	02	3	318			6.17
02	02	820615	18.52	06	03	02	03	02	3	318			8.33
02	03	820615	18.52	02	03	06	03	01	3	318			5.86
02	04	820615	18.52	02	06	03	03	01	3	318			6.79
02	05	820615	18.52	03	06	02	03	01	3	318			5.25
02	06	820615	18.52	05	01	04	04	01	3	318			7.41
03	01	820615	18.52	04	05	01	04	01	3	318	13 27 N	111 38 W	4.01
03	02	820615	18.52	04	05	01	02	01	3	330			4.63
04	01	820615	18.52	02	03	06	12	12	3	350	13 28 N	111 46 W	5.56
04	02	820615	18.52	04	01	05	12	12	3	350			8.33
04	03	820615	18.52	05	04	01	12	12	3	350			9.26
04	04	820615	18.52	06	03	02	12	12	3	350			6.17
04	05	820615	18.52	06	02	03	12	12	3	325			6.17
04	06	820615	18.52	03	02	06	12	12	3	325			6.79
04	07	820615	18.52	03	06	02	12	12	3	325	13 49 N	111 52 W	6.17

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
05	01	820615	18.52	02	03	06	12	12	3	280	13 57 N	111 49 W	6.17
05	02	820615	18.52	06	03	02	12	01	2	280			2.16
05	03	820615	18.52	06	03	02	02	01	2	194	13 58 N	111 55 W	3.40
05	04	820615	18.52	06	02	03	02	01	2	194			3.70
05	05	820615	18.52	04	05	01	02	01	2	194			9.88
05	06	820615	18.52	01	04	05	02	01	2	194			4.01
05	07	820615	18.52	02	03	06	02	01	2	194			4.63
05	08	820615	18.52	05	01	04	03	02	2	194			9.26
05	09	820615	18.52	04	05	01	03	02	2	194			8.64
05	10	820615	18.52	01	04	05	03	02	2	194			11.73
05	11	820615	18.52	05	01	04	03	03	2	194			2.78
05	12	820615	18.52	05	01	04			2	194	13 27 N	112 06 W	0.31
01	01	820616	18.52	04	05				3	190	11 30 N	112 40 W	9.26
01	02	820616	18.52	05	04	01	08	03	3	190			9.26
01	03	820616	18.52	03	02	06	08	02	3	190			6.17
01	04	820616	18.52	04	01	05			3	190			8.03
02	01	820616	18.52	01	05	04			3	190	11 11 N	112 42 W	10.49
02	02	820616	18.52	05	04	01			3	190			3.70
03	01	820616	18.52	06	02	03			3	190	10 58 N	112 45 W	4.63
04	01	820616	18.52	02	06	03			3	190	10 51 N	112 55 W	5.25
04	02	820616	18.52	03	06	02			3	190			1.85
04	03	820616	18.52	04	01	05			3	190			4.94
04	04	820616	18.52	03	06	02	12	12	3	190			5.56
04	05	820616	18.52	03	02	06	12	12	3	190			7.10
04	06	820616	18.52	06	02	03	12	12	3	190			5.25
04	07	820616	18.52	01	04	05	12	12	4	190			9.26
04	08	820616	18.52	05	01	04	12	12	4	190			9.57
04	09	820616	18.52	04	05	01			4	190			0.31
05	01	820616	18.52	01	04	05	03	01	4	190	10 23 N	112 57 W	10.19
05	02	820616	18.52	05	01	04	03	01	4	190			9.26
05	03	820616	18.52	04	05	01	03	01	4	190			5.25
05	04	820616	18.52	04	05	01	02	01	4	196			4.94
05	05	820616	18.52	06	02	03	02	01	4	196			5.56
05	06	820616	18.52	06	03	02	02	01	4	196	10 04 N	113 01 W	7.10
06	01	820616	18.52	02	03	06	02	02	4	196	09 56 N	113 02 W	6.17
06	02	820616	18.52	02	06	03	03	02	4	196			6.17

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
06	03	820616	18.52	03	06	02	03	02	4	196			7.72
06	04	820616	18.52	03	02	06	03	03	4	196			6.17
06	05	820616	18.52	06	02	03	03	03	4	196	09 42 N	113 05 W	3.70
01	01	820617	17.22	02	03	06			4	196	07 46 N	113 33 W	4.88
01	02	820617	17.22	06	03	02			4	196			6.60
01	03	820617	17.22	06	02	03			4	196			7.18
01	04	820617	17.22	04	01	05			5	196			5.74
01	05	820617	17.22	05	04	01	08	02	5	196			5.74
01	06	820617	17.22	01	05	04	08	02	5	196			4.59
01	07	820617	16.67	03	02	06			5	196	07 25 N	113 39 W	5.28
01	08	820617	16.67	06	02	03			4	196			6.11
01	09	820617	16.67	06	03	02			4	196			5.00
01	10	820617	16.67	01	04	05			5	196			5.56
01	11	820617	16.67	05	01	04	08	02	5	196			5.56
01	12	820617	16.67	04	05	01	08	02	5	196			5.56
01	13	820617	16.67	03	06	02	08	01	5	196			5.56
01	14	820617	16.67	02	06	03	08	01	5	196			5.56
01	15	820617	16.67	02	03	06	12	12	5	196			6.11
01	16	820617	16.67	05	01	04			5	196			5.28
01	17	820617	16.67	04	05	01			5	196			5.28
01	18	820617	17.22	01	04	05			4	196			5.74
02	01	820617	17.22	06	02	03			4	196	06 46 N	113 47 W	5.74
02	02	820617	17.22	06	03	02			4	196			5.74
02	03	820617	17.22	01	05	04	02	12	4	196			5.74
02	04	820617	17.22	04	01	05	03	12	4	196			5.74
02	05	820617	17.22	05	04	01	03	01	4	196			4.02
03	01	820617	17.22	02	03	06	03	01	4	196	06 30 N	113 52 W	1.44
04	01	820617	17.22	02	03	06	02	01	4	196	06 29 N	113 52 W	4.02
05	01	820617	17.59	02	03	06			4	196	06 14 N	113 56 W	3.52
05	02	820617	17.59	02	06	03			4	196			5.57
05	03	820617	17.59	03	06	02	03	02	4	196			5.57
05	04	820617	17.59	01	04	05	03	03	4	196			3.52
06	01	820617	17.59	05	01	04			4	196			0.88
06	02	820617	17.59	05	01	04	03	03	5	196	06 02 N	114 00 W	0.29
01	01	820618	18.52	04	01	05			4	320	07 37 N	115 08 W	3.09
01	02	820618	18.52	04	01	05			4	315			10.80

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
01	03	820618	18.52	02	06	03			4	315			19.75
02	01	820618	18.52	05	01	04			4	315	07 53 N	115 22 W	6.17
02	02	820618	18.52	01	04	05			4	315			6.17
02	03	820618	18.52	04	05	01			4	315			4.63
02	04	820618	18.52	02	03	06			4	315	07 59 N	115 28 W	6.17
02	05	820618	18.52	06	03	02			4	315			6.17
02	06	820618	18.52	06	02	03			4	315			6.17
02	07	820618	18.52	05	04	01			4	315			4.01
03	01	820618	18.52	06	03	02			3	315	08 28 N	115 57 W	3.09
04	01	820618	18.52	04	01	05			3	315	08 37 N	116 07 W	12.35
05	01	820618	18.52	03	06	02			3	315	08 46 N	116 15 W	10.49
05	02	820618	18.52	05	01	04			2	315			7.41
06	01	820618	18.52	01	04	05			2	315	08 50 N	116 22 W	5.56
06	02	820618	18.52	02	06	03			3	315			6.48
06	03	820618	18.52	02	03	06			3	315			5.86
06	04	820618	18.52	06	03	02			3	315	08 59 N	116 28 W	6.48
01	01	820619	18.52	02	03	06	03	03	2	319	10 40 N	117 44 W	6.17
01	02	820619	18.52	06	03	02	03	03	2	319			7.72
01	03	820619	18.52	04	05	01	03	03	2	319			4.94
01	04	820619	18.52	06	02	03	03	02	2	319			5.86
01	05	820619	18.52	03	02	06	03	02	2	319	10 54 N	117 53 W	2.16
02	01	820619	18.52	03	06	02	03	02	2	319	10 57 N	117 54 W	2.78
03	01	820619	18.52	04	01	05	03	01	2	319	11 03 N	117 57 W	6.48
04	01	820619	18.52	04	01	05	02	01	2	000	11 09 N	118 07 W	1.54
04	02	820619	18.52	02	03	06	02	01	2	000	11 10 N	118 06 W	6.17
04	03	820619	18.52	02	06	03	02	01	2	000			3.09
05	01	820619	18.52	06	02	03	12	12	2	000	11 20 N	118 14 W	6.79
05	02	820619	18.52	01	04	05	12	12	2	000			8.33
05	03	820619	18.52	04	05	01	12	12	2	000			3.40
06	01	820619	18.52	04	05	01	12	12	2	326	11 31 N	118 14 W	2.78
06	02	820619	18.52	05	01	04	12	12	2	326			5.25
07	01	820619	18.52	06	02	03			3	323	11 37 N	118 16 W	9.26
07	02	820619	18.52	04	01	05			3	323			9.26
07	03	820619	18.52	05	04	01			3	323			7.72
07	04	820619	18.52	01	05	04			3	323			4.63
07	05	820619	18.52	01	05	04	11	03	3	323	11 51 N	118 28 W	0.31

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
01	01	820620	18.52	01	04		03	03	4	319	13 30 N	119 41 W	9.26
01	02	820620	18.52	05	01	04	03	03	4	319			0.93
02	01	820620	18.52	05	04	01	03	03	4	319	13 35 N	119 45 W	1.85
02	02	820620	18.52	02	03	06	03	02	3	319			4.94
02	03	820620	18.52	01	04	05	03	02	4	319			9.26
02	04	820620	18.52	05	01	04	03	02	4	319			5.56
03	01	820620	18.52	05	01	04	03	02	4	319	13 44 N	119 54 W	0.93
03	02	820620	18.52	06	02	03	03	02	4	319			5.86
03	03	820620	18.52	06	03	02	03	01	4	319			6.17
03	04	820620	18.52	02	03	06	03	01	4	319	13 49 N	119 59 W	6.17
03	05	820620	18.52	02	06	03	03	01	4	319			3.09
03	06	820620	18.52	02	06	03	07	01	4	209			3.09
03	07	820620	18.52	03	06	02	07	01	4	209	13 50 N	120 06 W	5.86
04	01	820620	18.52	03	02	06	07	01	4	209	13 50 N	120 06 W	3.70
04	02	820620	18.52	04	01	05	07	01	4	209			8.95
04	03	820620	18.52	01	05	04	07	01	4	209			4.63
04	04	820620	18.52	06	02	03	07	01	4	209			5.25
04	05	820620	18.52	04	05	01	12	12	4	209			5.56
04	06	820620	18.52	01	04	05	12	12	4	209			3.09
05	01	820620	18.52	05	01	04	12	12	4	209			7.10
05	02	820620	18.52	06	02	03	12	12	4	209	13 30 N	120 20 W	4.32
06	01	820620	18.52	03	02	06	12	12	4	209	13 27 N	120 20 W	4.94
06	02	820620	18.52	03	06	02	12	12	4	209			5.86
06	03	820620	18.52	02	06	03	12	12	4	209			6.48
06	04	820620	18.52	02	03	06	12	12	4	209			6.17
06	05	820620	18.52	06	03	02	12	12	4	209			6.17
06	06	820620	18.52	04	01	05	12	12	4	209	13 10 N	120 32 W	1.85
07	01	820620	18.52	04	01	05	12	12	4	209	13 09 N	120 31 W	0.62
07	02	820620	18.52	01	05	04	03	01	4	209			7.10
07	03	820620	18.52	05	04	01	03	01	4	209			5.86
07	04	820620	18.52	04	01	05	02	01	4	209			5.56
07	05	820620	18.52	01	05	04	02	02	4	209			6.17
07	06	820620	18.52	05	04	01	02	02	4	209			6.17
07	07	820620	18.52	03	06	02	02	02	4	209	12 52 N	120 43 W	5.56
07	08	820620	18.52	03	02	06			4	209			5.56
07	09	820620	18.52	03	02	06			4	209	12 46 N	120 46 W	0.31

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
08	01	820620	18.52	06	02	03			4	209			4.94
08	02	820620	18.52	06	03	02			4	209			5.86
08	03	820620	18.52	02	03	06			4	209			4.32
08	04	820620	18.52	02	03	06			4	209	12 39 N	120 53 W	0.31
01	01	820621	18.52	03	02	06			2	205	10 47 N	122 03 W	7.72
01	02	820621	18.52	06	02	03	08	03	2	205			6.17
01	03	820621	18.52	06	03	02	08	02	2	205			6.17
01	04	820621	18.52	02	03	06	08	02	2	205			1.85
02	01	820621	18.52	05	04	01	08	02	2	205	10 36 N	122 08 W	2.47
02	02	820621	18.52	02	06	03	08	02	2	205			6.79
02	03	820621	18.52	03	06	02	08	02	2	205			7.10
02	04	820621	18.52	03	02	06	08	01	2	205			3.09
02	05	820621	18.52	04	01	05	08	01	2	205			9.26
02	06	820621	18.52	01	05	04	08	01	2	205			9.26
02	07	820621	18.52	05	04	01	08	01	1	205			1.85
02	08	820621	18.52	05	04	01	07	01	1	210			7.41
02	09	820621	18.52	04	01	05	07	01	1	210			9.26
03	01	820621	18.52	01	05	04	07	01	1	210	10 08 N	122 24 W	0.62
04	01	820621	18.52	05	04	01	12	12	1	210	10 09 N	122 26 W	2.78
05	01	820621	18.52	02	03	06	12	12	2	210	10 25 N	122 27 W	6.79
05	02	820621	18.52	06	03	02	12	12	1	210			5.86
05	03	820621	18.52	06	02	03	12	12	2	210			6.17
05	04	820621	18.52	03	02	06	12	12	2	210			6.17
05	05	820621	18.52	03	06	02	12	12	1	210			6.17
05	06	820621	18.52	02	06	03	12	12	1	210			6.17
05	07	820621	18.52	02	03	06	12	12	1	210	09 48 N	122 38 W	6.79
05	08	820621	18.52	06	03	02	02	01	1	210			4.01
06	01	820621	18.52	01	04	05	02	01	2	210	09 44 N	122 41 W	8.33
07	01	820621	18.52	04	05	01	02	02	3	210	09 35 N	122 40 W	4.63
01	01	820622	18.52	04	01	05	07	03	2	215	07 55 N	123 40 W	3.09
01	02	820622	18.52	01	05	04	07	03	2	215			8.64
02	01	820622	18.52	01	04	05	07	02	2	215	07 46 N	123 42 W	3.09
02	02	820622	18.52	02	03	06	07	02	2	215			6.17
02	03	820622	18.52	04	05	01	07	02	2	215			17.90
02	04	820622	18.52	06	02	03	07	02	2	215			2.78
02	05	820622	18.52	06	02	03	07	02	2	220			2.78

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
02	06	820622	18.52	06	03	02	07	01	2	220	07 31 N	123 52 W	4.32
03	01	820622	18.52	02	03	06	07	01	2	220	07 27 N	123 51 W	7.10
03	02	820622	18.52	02	06	03	07	01	2	220			6.48
03	03	820622	18.52	03	06	02	07	01	2	220			7.10
03	04	820622	18.52	03	02	06	12	12	2	220			6.79
03	05	820622	18.52	06	02	03	12	12	2	220			6.79
04	01	820622	18.52	04	05	01	12	12	2	220	07 13 N	124 02 W	7.72
04	02	820622	18.52	05	01	04	12	12	2	220			5.25
05	01	820622	18.52	01	04	05	12	12	2	220	07 07 N	124 09 W	6.17
05	02	820622	18.52	04	05	01	12	12	2	220			7.72
06	01	820622	18.52	05	01	04	03	01	2	220	07 01 N	124 14 W	9.26
06	02	820622	18.52	01	04	05	03	01	2	220			9.57
06	03	820622	18.52	03	02	06	02	01	2	220			5.86
06	04	820622	18.52	06	02	03	02	01	2	220	06 50 N	124 23 W	7.41
06	05	820622	18.52	06	03	02	02	01	2	220			5.25
06	06	820622	18.52	02	03	06	02	01	2	220			4.01
06	07	820622	18.52	02	03	06	02	01	2	220	06 43 N	124 29 W	0.31
07	01	820622	18.52	02	06	03	02	01	2	220	06 38 N	124 29 W	6.17
07	02	820622	18.52	03	06	02	02	01	2	220			7.72
07	03	820622	18.52	01	04	05	02	03	2	220			9.57
07	04	820622	18.52	04	05	01	02	03	2	220			4.32
07	05	820622	18.52	04	05	01	02	03	2	220	06 26 N	124 39 W	0.31
01	01	820623	18.52	06	02	03			1	327	07 42 N	126 03 W	5.86
01	02	820623	18.52	03	02	06			1	327			6.79
01	03	820623	18.52	03	06	02			2	327			5.56
01	04	820623	18.52	02	06	03			2	327			3.09
02	01	820623	18.52	04	05	01	03	02	3	327			6.79
02	02	820623	18.52	01	04	05	03	02	3	327			7.72
02	03	820623	18.52	03	06	02	03	02	3	327	08 04 N	126 16 W	5.86
02	04	820623	18.52	02	06	03	03	02	3	327			6.48
02	05	820623	18.52	02	03	06	03	01	3	327			4.01
02	06	820623	18.52	02	03	06	03	01	3	327	08 11 N	126 21 W	0.31
03	01	820623	18.52	01	04	05			4	327	08 16 N	126 24 W	6.17
03	02	820623	18.52	04	05	01			4	327			4.63
03	03	820623	18.52	02	03	06			4	327			6.17
03	04	820623	18.52	06	03	02			4	327			6.17

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
03	05	820623	18.52	06	02	03			4	327			7.72
03	06	820623	18.52	01	04	05	12	12	4	327			4.63
03	07	820623	18.52	04	05	01	12	12	4	327			6.17
03	08	820623	18.52	05	01	04	12	12	5	327			6.48
03	09	820623	18.52	03	02	06	12	12	5	327	08 39 N	126 37 W	6.17
03	10	820623	18.52	03	06	02	12	12	5	327			5.86
03	11	820623	18.52	02	06	03	12	12	5	327			6.48
03	12	820623	18.52	01	04	05			5	327			6.48
03	13	820623	18.52	04	05	01	11	01	5	327			5.86
03	14	820623	18.52	05	01	04	11	01	5	327			6.48
03	15	820623	18.52	02	06	03	11	01	5	327			5.86
03	16	820623	18.52	02	03	06	11	01	5	327	08 59 N	126 52 W	0.31
04	01	820623	18.52	02	03	06	11	02	5	327	09 00 N	126 56 W	5.56
04	02	820623	18.52	06	03	02	11	02	5	327			7.72
04	03	820623	18.52	04	01	05	11	02	5	327			3.70
05	01	820623	18.52	04	01	05	11	03	5	327	09 08 N	127 04 W	0.31
01	01	820624	18.52	05	04	01	03	03	4	331	10 58 N	128 08 W	6.48
01	02	820624	18.52	04	01	05	03	03	4	331			5.25
01	03	820624	9.26	04	01	05	03	03	4	331	11 03 N	128 11 W	0.77
01	04	820624	18.52	01	05	04	03	02	4	331			6.79
01	05	820624	18.52	05	04	01	03	02	4	331			4.63
01	06	820624	18.52	06	03	02	03	02	4	331			6.17
01	07	820624	18.52	02	03	06	03	02	4	331	11 10 N	128 15 W	6.17
01	08	820624	18.52	02	06	03	03	02	4	331			6.17
01	09	820624	18.52	01	04	05	03	02	4	331	11 19 N	128 20 W	0.93
02	01	820624	18.52	01	04	05	03	02	4	331	11 21 N	128 20 W	3.09
02	02	820624	18.52	05	01	04	03	02	4	331			5.86
02	03	820624	18.52	04	05	01	03	02	5	331			6.17
02	04	820624	18.52	06	02	03	03	01	5	331			4.63
03	01	820624	18.52	03	02	06	02	01	5	331	11 32 N	128 23 W	4.01
03	02	820624	18.52	04	01	05	02	01	5	331			6.48
03	03	820624	18.52	05	04	01	02	01	5	331			5.86
03	04	820624	18.52	01	05	04	02	01	5	331			6.17
03	05	820624	18.52	02	06	03	02	01	5	331			6.17
03	06	820624	18.52	03	06	02	12	12	5	331			6.17
03	07	820624	18.52	03	02	06	12	12	5	331			6.48

SERIES	LEG	DATE	SPEED	OBSERVER CODES			SUN POSITION		BEAUF.	COURSE	POSITION		KM
			KM/HR	LEFT	RIGHT	REC.	HORZ.	VERT.	NO.	(DEG.)	LATITUDE	LONGITUDE	IN LEG
03	08	820624	18.52	05	01	04	12	12	5	331			6.48
03	09	820624	18.52	04	05	01	12	12	5	331			0.31
03	10	820624	18.52	04	05	01	12	12	5	331	11 55 N	128 38 W	5.25
03	11	820624	18.52	01	04	05	12	12	5	331			6.17
03	12	820624	18.52	02	03	06	12	12	5	331	12 01 N	128 42 W	6.79
03	13	820624	18.52	06	03	02	12	12	5	331			5.56
03	14	820624	18.52	06	02	03	12	12	5	331			6.79
03	15	820624	18.52	01	04	05	11	12	5	331			5.86
03	16	820624	18.52	04	05	01	11	12	5	331			5.86
03	17	820624	18.52	05	01	04	11	01	5	331			6.79
03	18	820624	18.52	06	02	03	11	01	5	331			5.56
03	19	820624	18.52	03	02	06	11	01	5	331			6.17
03	20	820624	18.52	03	06	02	11	01	5	331	12 26 N	128 58 W	6.79
03	21	820624	18.52	04	01	05	11	01	5	331			6.17
03	22	820624	18.52	01	05	04	10	02	5	331			5.86
03	23	820624	18.52	05	04	01	10	02	5	331			6.48
03	24	820624	18.52	03	06	02			5	331	12 38 N	129 06 W	5.56
03	25	820624	18.52	02	06	03			5	331			6.17
03	26	820624	18.52	02	03	06			5	331			5.25
03	27	820624	18.52	02	03	06			5	331	12 46 N	129 10 W	0.31
01	01	820625	18.52	06	03	02	07	02	3	212	13 58 N	130 03 W	7.41
01	02	820625	18.52	02	03	06	07	02	3	212			5.86
01	03	820625	18.52	02	06	03	07	02	3	212			0.62
02	01	820625	18.52	05	04	01	07	02	4	212			4.01
02	02	820625	18.52	02	06	03	07	02	4	212			6.48
02	03	820625	18.52	03	06	02	07	02	4	212			6.17
02	04	820625	18.52	03	02	06	07	01	4	212			5.86
02	05	820625	18.52	01	04	05	07	01	4	212			6.48
02	06	820625	18.52	04	05	01	08	01	4	212			4.32
02	07	820625	18.52	05	01	04	08	01	4	212			7.72
02	08	820625	18.52	01	04	05	08	01	4	212			6.79
02	09	820625	18.52	04	05	01	08	01	4	212			5.56
02	10	820625	18.52	05	01	04	08	01	4	212			6.48
02	11	820625	18.52	02	03	06	12	12	4	212			7.41
02	12	820625	18.52	02	06	03	12	12	4	212			6.17
02	13	820625	18.52	01	04	05	12	12	4	212			4.63

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
02	14	820625	18.52	03	06	02	12	12	4	212			6.17
02	15	820625	18.52	03	02	06	12	12	4	212	13 08 N	130 35 W	5.56
02	16	820625	18.52	06	02	03	12	12	4	212			6.79
02	17	820625	18.52	01	04	05	12	12	4	212			6.17
02	18	820625	18.52	05	01	04	12	12	4	212			6.17
02	19	820625	18.52	04	05	01			4	212			12.35
02	20	820625	18.52	05	01	04			4	212			6.17
02	21	820625	18.52	04	05	01			4	212			6.17
02	22	820625	18.52	03	06	02			3	212			6.17
02	23	820625	18.52	02	06	03			3	212			6.17
02	24	820625	18.52	02	03	06			3	212	12 39 N	130 59 W	2.16
02	25	820625	18.52	02	03	06			3	206			4.01
02	26	820625	18.52	06	03	02			3	206			6.17
02	27	820625	18.52	06	02	03			3	206			6.17
02	28	820625	18.52	03	02	06			3	206			6.17
02	29	820625	18.52	01	04	05			3	206			6.79
02	30	820625	18.52	04	05	01			3	206			5.56
02	31	820625	18.52	05	01	04			4	206			6.17
02	32	820625	18.52	01	04	05			4	206			4.01
01	01	820626	18.52	01	04	05			4	206	10 13 N	132 26 W	6.17
01	02	820626	18.52	04	05	01	08	03	4	206			7.72
01	03	820626	18.52	02	06	03	08	03	4	206			6.17
01	04	820626	18.52	01	05	04	08	03	4	206			5.25
01	05	820626	18.52	05	04	01	08	02	4	206			5.56
01	06	820626	18.52	04	01	05	08	02	4	206			6.48
01	07	820626	18.52	03	06	02	08	02	4	206	09 52 N	132 38 W	6.79
01	08	820626	18.52	02	06	03	08	02	4	206			5.25
01	09	820626	18.52	02	03	06	08	02	4	206	09 43 N	132 43 W	6.48
02	01	820626	18.52	06	03	02	08	01	4	206	09 42 N	132 46 W	4.32
02	02	820626	18.52	06	02	03	08	01	4	206			4.63
02	03	820626	18.52	03	02	06	08	01	4	206			4.63
02	04	820626	18.52	01	04	05	08	01	4	206			6.17
02	05	820626	18.52	04	05	01	12	12	4	206			7.41
02	06	820626	18.52	03	06	02	12	12	4	206			5.56
02	07	820626	18.52	05	01	04	08	01	4	206			5.86
02	08	820626	18.52	01	04	05	08	01	4	206			5.86

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
02	09	820626	18.52	04	05	01	12	12	4	206			6.17
02	10	820626	18.52	03	02	06	12	12	4	206			6.48
02	11	820626	18.52	06	02	03	12	12	4	206			6.17
02	12	820626	18.52	06	03	02	12	12	4	206	09 10 N	133 04 W	6.17
02	13	820626	18.52	02	03	06	12	12	4	206			5.86
02	14	820626	18.52	02	06	03	12	12	4	206			6.17
02	15	820626	18.52	03	06	02	12	12	4	206			6.79
02	16	820626	18.52	01	04	05			4	206			5.86
02	17	820626	18.52	04	05	01			4	206			5.86
02	18	820626	18.52	05	01	04			4	206			6.17
02	19	820626	18.52	01	04	05			4	206			6.17
02	20	820626	18.52	04	05	01			3	206	08 44 N	133 18 W	6.17
02	21	820626	18.52	05	01	04			2	206			6.17
02	22	820626	18.52	02	03	06			2	206			6.17
02	23	820626	18.52	02	06	03			2	206			6.48
02	24	820626	18.52	03	06	02			2	206			5.56
02	25	820626	18.52	03	02	06			2	206	08 33 N	133 24 W	6.79
02	26	820626	18.52	06	02	03			2	206			3.40
03	01	820626	18.52	06	03	02			2	206	08 24 N	133 29 W	1.23
01	01	820627	18.52	02	03	06			2	218	06 34 N	134 35 W	6.79
01	02	820627	18.52	06	03	02			3	218			7.10
01	03	820627	18.52	06	02	03			3	218			6.48
01	04	820627	18.52	03	02	06			3	218			6.17
01	05	820627	18.52	03	06	02	07	02	3	218			5.86
01	06	820627	18.52	01	04	05			3	218			9.26
01	07	820627	18.52	04	05	01			3	215			5.25
02	01	820627	18.52	03	06	02			3	321	06 26 N	135 12 W	8.64
03	01	820627	18.52	04	05	01			3	321	06 33 N	135 25 W	14.51
03	02	820627	18.52	02	06	03			3	321			5.86
03	03	820627	18.52	01	04	05	11	01	3	321			8.03
03	04	820627	18.52	04	05	01	11	02	3	321			9.26
03	05	820627	18.52	05	01	04	11	02	3	321			9.26
03	06	820627	18.52	01	04	05			3	321			10.80
03	07	820627	18.52	01	04	05			3	321	07 02 N	135 33 W	0.31
01	01	820628	18.52	01	04	05			2	321	08 47 N	136 40 W	9.26
01	02	820628	18.52	04	05	01			2	321			9.57

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
02	01	820628	18.52	01	04	05			3	324	10 06 N	137 35 W	4.63
03	01	820628	18.52	05	01	04			3	324	10 05 N	137 43 W	7.72
03	02	820628	18.52	02	06	03			3	324			6.79
03	03	820628	18.52	03	06	02			3	324			8.33
03	04	820628	18.52	03	02	06			3	324			4.32
04	01	820628	18.52	06	02	03			3	324	10 23 N	137 53 W	3.70
04	02	820628	18.52	06	03	02			3	324			3.09
04	03	820628	18.52	06	03	02			3	324	10 27 N	137 55 W	0.00
01	01	820629	18.52	02	03	06			4	330	12 08 N	138 56 W	6.48
01	02	820629	18.52	06	03	02			4	330			5.86
01	03	820629	18.52	05	04	01			4	330			4.63
01	04	820629	18.52	04	01	05			4	330			5.56
02	01	820629	18.52	01	05	04			4	330			3.70
02	02	820629	18.52	06	02	03			4	330			6.17
02	03	820629	18.52	03	02	06			4	330	12 25 N	139 07 W	6.17
02	04	820629	18.52	03	06	02	03	02	4	330			6.17
02	05	820629	18.52	01	04	05	03	01	4	330			9.26
02	06	820629	18.52	05	01	04	03	02	4	330			3.09
02	07	820629	18.52	04	05	01			4	330			6.17
02	08	820629	18.52	02	06	03			4	330			6.79
02	09	820629	18.52	03	06	02			4	330	12 43 N	139 18 W	5.86
02	10	820629	18.52	03	02	06			4	330			5.86
02	11	820629	18.52	04	01	05			4	330			6.17
02	12	820629	18.52	01	05	04			4	330			6.17
02	13	820629	18.52	05	04	01			4	330			6.17
02	14	820629	18.52	02	03	06			4	330			6.48
02	15	820629	18.52	06	03	02			4	330	13 01 N	139 28 W	6.17
02	16	820629	18.52	06	02	03			4	330			5.86
02	17	820629	18.52	01	04	05	12	12	4	330			5.25
02	18	820629	18.52	01	04	05	12	12	4	340			2.47
02	19	820629	18.52	04	05	01	12	12	4	340			4.63
02	20	820629	18.52	05	01	04	12	12	4	340			6.17
02	21	820629	18.52	03	02	06	12	12	4	340	13 16 N	139 39 W	6.48
02	22	820629	18.52	03	06	02	11	01	4	340			6.48
02	23	820629	18.52	02	06	03	11	01	4	340			5.56
03	01	820629	18.52	04	01	05	11	01	4	340	13 32 N	139 47 W	6.17

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
03	02	820629	18.52	03	02	06	11	01	4	340			6.17
03	03	820629	18.52	06	02	03	11	01	4	340			6.17
03	04	820629	18.52	06	03	02	11	01	4	340	13 41 N	139 45 W	1.54
03	05	820629	18.52	06	03	02	11	01	4	321			5.86
03	06	820629	18.52	05	01	04			4	321			5.25
03	07	820629	18.52	01	04	05	11	02	4	321			5.86
03	08	820629	18.52	04	05	01	11	02	4	321	13 48 N	139 52 W	6.17
03	09	820629	18.52	02	06	03	11	02	4	321			6.17
03	10	820629	18.52	03	06	02	11	02	4	321			6.17
03	11	820629	18.52	03	02	06	11	03	4	321			6.17
03	12	820629	18.52	03	02	06	11	03	4	321	13 58 N	140 01 W	0.31
01	01	820630	19.45	05	04	01			4	205	12 16 N	141 10 W	6.48
01	02	820630	19.45	04	01	05			4	205			3.24
01	03	820630	19.45	02	06	03			4	205			6.48
01	04	820630	19.45	02	03	06			4	205			6.48
01	05	820630	19.45	06	03	02			4	205			6.16
01	06	820630	19.45	01	04	05	07	02	5	205			7.78
01	07	820630	19.45	05	01	04	07	02	5	205			5.83
01	08	820630	19.45	04	05	01	07	02	5	205			6.48
01	09	820630	19.45	03	06	02	07	02	5	205	11 51 N	141 23 W	6.16
01	10	820630	19.45	02	06	03	07	02	5	205			6.48
01	11	820630	19.45	02	03	06	07	01	5	205			8.10
01	12	820630	19.45	01	04	05			5	205			4.86
01	13	820630	19.45	04	05	01			5	205			6.48
01	14	820630	19.45	05	01	04			5	205			6.81
01	15	820630	19.45	03	02	06			5	205	11 32 N	141 35 W	6.16
01	16	820630	19.45	06	02	03			5	205			6.48
01	17	820630	19.45	06	03	02			5	205			6.48
01	18	820630	19.45	04	01	05			5	205			2.27
02	01	820630	19.45	01	04	05			5	205	11 15 N	141 40 W	1.62
02	02	820630	19.45	06	03	02			5	205			5.83
02	03	820630	19.45	06	02	03			5	205			8.10
03	01	820630	19.45	05	04	01			5	202	11 05 N	141 55 W	2.27
04	01	820630	19.45	02	03	06			5	202	11 02 N	141 57 W	6.48
04	02	820630	19.45	02	06	03			5	202			3.24
04	03	820630	19.45	01	04	05			5	202			6.48

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
04	04	820630	19.45	04	05	01	02	02	5	202			6.48
04	05	820630	19.45	05	01	04	02	02	5	202			8.10
04	06	820630	19.45	02	03	06	02	02	5	202			4.86
04	07	820630	19.45	02	06	03	02	02	5	202			6.48
04	08	820630	19.45	03	06	02	02	02	5	202	10 41 N	142 08 W	6.16
04	09	820630	19.45	01	04	05			5	202			4.86
05	01	820630	19.45	05	01	04			5	202			3.57
05	02	820630	19.45	05	01	04			5	202	10 29 N	142 16 W	0.32
01	01	820701	19.45	02	06	03			2	308	10 11 N	142 48 W	6.16
01	02	820701	19.45	02	03	06			2	308			7.13
01	03	820701	19.45	06	03	02			3	308			5.83
01	04	820701	19.45	06	02	03			3	308			6.81
01	05	820701	19.45	01	04	05			4	308			3.57
02	01	820701	19.45	05	01	04	04	02	4	308			6.48
02	02	820701	19.45	04	05	01	03	02	4	308			23.34
03	01	820701	19.45	01	04	05			5	308	10 44 N	143 24 W	6.48
03	02	820701	19.45	04	05	01			5	308			6.48
03	03	820701	19.45	05	01	04			5	308			6.48
03	04	820701	19.45	01	04	05			5	308			7.13
03	05	820701	19.45	04	05	01			5	308	10 53 N	143 42 W	5.83
03	06	820701	19.45	05	01	04			5	308			6.48
03	07	820701	19.45	06	03	02			5	308	10 57 N	143 48 W	6.48
03	08	820701	19.45	06	02	03	12	12	5	308			6.48
03	09	820701	19.45	03	02	06	12	12	5	308			6.48
03	10	820701	19.45	03	06	02	12	01	5	308			6.48
03	11	820701	19.45	02	06	03	12	01	5	308			6.81
03	12	820701	19.45	02	03	06	12	01	5	308			6.48
03	13	820701	19.45	01	04	05	12	01	5	308			6.16
03	14	820701	19.45	04	05	01	12	02	5	308			6.48
03	15	820701	19.45	05	01	04	12	02	5	308			1.94
03	16	820701	19.45	02	06	03	12	02	5	308			6.16
03	17	820701	19.45	05	04	01	11	02	5	308			5.19
03	18	820701	19.45	04	01	05	11	02	5	308			6.16
03	19	820701	19.45	01	05	04	11	02	6	308			6.81
03	20	820701	19.45	06	02	03	11	02	5	308			6.48
03	21	820701	19.45	06	03	02	11	02	5	308	11 23 N	144 28 W	7.78

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
04	01	820701	19.45	02	03	06	11	03	5	308	11 24 N	144 32 W	6.16
04	02	820701	19.45	02	03	06	11	03	5	308	11 26 N	144 35 W	0.32
01	01	820702	18.52	04	05	01	04	03	5	304	12 36 N	146 17 W	10.49
01	02	820702	18.52	05	01	04	04	03	5	304			13.89
01	03	820702	18.52	06	03	02	04	02	5	304			4.63
01	04	820702	18.52	06	02	03			5	304			6.48
01	05	820702	18.52	03	02	06			5	304			5.86
01	06	820702	18.52	03	06	02			5	304	12 48 N	146 34 W	6.17
01	07	820702	18.52	02	06	03			5	304			6.48
01	08	820702	18.52	02	03	06	04	01	5	304			5.86
01	09	820702	18.52	01	04	05	04	01	5	304			6.17
01	10	820702	18.52	05	01	04	04	01	5	304			6.79
01	11	820702	18.52	04	05	01	04	01	5	304			5.56
01	12	820702	18.52	01	04	05	04	01	5	304			6.17
01	13	820702	18.52	05	01	04	04	01	6	304			6.48
01	14	820702	18.52	04	05	01	12	12	6	304			6.48
01	15	820702	18.52	02	03	06	12	12	6	304			5.86
01	16	820702	18.52	06	03	02	12	12	6	304	13 10 N	147 06 W	1.23
01	17	820702	18.52	06	03	02	12	12	6	260			3.40
01	18	820702	18.52	06	03	02	12	12	6	304			1.54
01	19	820702	18.52	06	02	03	12	12	6	304			5.86
01	20	820702	18.52	03	02	06	12	12	6	304			6.48
01	21	820702	18.52	03	06	02	12	12	6	304			5.86
01	22	820702	18.52	02	06	03	12	12	6	304			6.17
01	23	820702	18.52	05	01	04	12	12	6	304			6.17
01	24	820702	18.52	04	05	01	12	12	6	304	13 20 N	147 24 W	6.17
01	25	820702	18.52	01	04	05	12	12	6	304			6.17
01	26	820702	18.52	05	01	04	12	12	6	304			6.17
01	27	820702	18.52	04	05	01	12	01	6	304	13 26 N	147 33 W	6.17
01	28	820702	18.52	01	04	05	12	01	6	304			6.48
01	29	820702	18.52	02	03	06	12	01	6	304			5.86
01	30	820702	18.52	06	03	02	12	01	6	304	13 32 N	147 43 W	7.72
01	31	820702	18.52	01	04	05	11	01	5	304			6.17
01	32	820702	18.52	06	02	03	11	01	5	304	13 36 N	147 48 W	6.17
01	33	820702	18.52	03	02	06	11	01	5	304			5.86
01	34	820702	18.52	03	06	02	11	02	5	304			4.94

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
01	35	820702	18.52	04	01	05	11	02	5	304			6.17
01	36	820702	18.52	01	05	04	11	02	5	304			6.17
01	37	820702	18.52	05	04	01			5	304			5.86
01	38	820702	18.52	05	04	01			5	304	13 47 N	148 07 W	0.31
01	01	820703	18.52	02	03	06			5	304	15 20 N	150 19 W	4.01
01	02	820703	18.52	04	01	05	04	02	5	304			6.48
01	03	820703	18.52	05	04	01	04	02	5	304			5.86
01	04	820703	18.52	01	05	04	04	02	5	304			3.70
02	01	820703	18.52	04	01	05	04	02	5	304	15 25 N	150 30 W	9.26
02	02	820703	18.52	05	04	01	04	01	5	304			4.63
02	03	820703	18.52	06	03	02	04	01	5	304	15 31 N	150 38 W	5.25
02	04	820703	18.52	04	05	01	04	01	5	304			7.41
03	01	820703	18.52	01	04	05	04	01	5	304	15 36 N	150 45 W	8.64
03	02	820703	18.52	06	03	02	12	12	5	304			5.86
03	03	820703	18.52	06	02	03	12	12	5	304			6.17
03	04	820703	18.52	03	02	06	12	12	5	304			6.17
03	05	820703	18.52	03	06	02	12	12	5	304	15 45 N	150 57 W	6.79
03	06	820703	18.52	02	06	03	12	12	5	304			5.86
03	07	820703	18.52	02	03	06	12	12	5	304			5.86
03	08	820703	18.52	06	03	02	12	01	5	304			6.17
03	09	820703	18.52	06	02	03	12	01	5	304			6.48
03	10	820703	18.52	03	02	06	12	01	5	304			5.86
03	11	820703	18.52	04	01	05	12	01	5	304			9.26
03	12	820703	18.52	05	04	01	12	01	5	304			4.63
03	13	820703	18.52	06	02	03	11	01	4	304			6.17
03	14	820703	18.52	01	04	05	11	02	4	304			9.26
03	15	820703	18.52	04	05	01	11	02	4	304			7.72
03	16	820703	18.52	05	01	04	11	02	4	304			9.26
03	17	820703	18.52	01	04	05			4	304			10.19
04	01	820703	18.52	06	03	02	11	02	4	304	16 17 N	151 41 W	7.72
04	02	820703	18.52	02	03	06	11	03	4	304			3.09
04	03	820703	18.52	02	03	06			4	304	16 20 N	151 46 W	0.31
01	01	820704	18.52	04	01	05	04	03	4	304	17 28 N	153 28 W	2.47
01	02	820704	19.45	04	01	05	03	03	4	300			5.51
01	03	820704	19.45	05	04	01	03	03	4	304			9.72
01	04	820704	19.45	01	05	04	04	03	4	304			9.72

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
01	05	820704	19.45	04	01	05	04	02	4	304			5.19
01	06	820704	19.45	02	03	06	04	02	4	304			6.16
01	07	820704	19.45	04	05	01	04	02	4	304			8.10
01	08	820704	19.45	05	01	04	04	02	4	304			9.72
01	09	820704	19.45	03	02	06	04	01	4	304	17 46 N	153 54 W	6.48
01	10	820704	19.45	06	02	03	04	01	4	304			6.48
01	11	820704	19.45	06	03	02	04	01	4	304			6.48
01	12	820704	19.45	02	03	06	04	01	4	304			6.48
01	13	820704	19.45	02	06	03	04	01	4	304			6.48
01	14	820704	19.45	03	06	02	04	01	4	304	17 57 N	154 11 W	6.48
01	15	820704	19.45	03	02	06	12	12	4	304			6.48
01	16	820704	19.45	06	02	03			4	304	18 01 N	154 17 W	5.51
01	17	820704	19.45	06	02	03	04	01	4	293			0.97
01	18	820704	19.45	06	03	02	12	12	4	293			6.48
01	19	820704	19.45	04	01	05	12	12	4	293			9.72
01	20	820704	19.45	05	04	01	12	12	4	293			9.72
01	21	820704	19.45	01	05	04	12	12	5	293			9.72
01	22	820704	19.45	04	01	05	12	12	5	293			9.07
02	01	820704	19.45	05	04	01			6	293	18 17 N	154 45 W	12.64
02	02	820704	19.45	02	03	06			5	293			6.16
02	03	820704	19.45	06	03	02	11	01	5	293			4.86
02	04	820704	19.45	06	03	02	11	01	5	300			1.62
02	05	820704	19.45	06	02	03	11	01	5	300			6.48
02	06	820704	19.45	03	02	06	11	01	5	300			4.86
02	07	820704	19.45	03	02	06	11	01	5	300	18 26 N	155 03 W	0.32
01	01	820712	18.52	04	01	05	09	03	6	167	19 00 N	157 38 W	5.56
02	01	820712	18.52	02	03	06	09	02	5	167	19 36 N	157 33 W	6.17
02	02	820712	18.52	06	03	02	09	01	3	167			6.48
02	03	820712	18.52	06	02	03	09	01	3	167			5.86
02	04	820712	18.52	04	01	05	09	01	3	167			6.17
02	05	820712	18.52	05	04	01	09	01	3	167			6.17
02	06	820712	18.52	01	05	04	09	01	2	167			6.17
02	07	820712	18.52	03	02	06	12	12	2	167			6.79
02	08	820712	18.52	03	06	02	12	12	2	167			5.56
02	09	820712	18.52	02	06	03	12	12	2	167			6.79
02	10	820712	18.52	04	01	05	12	12	3	167			5.56

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
03	01	820712	18.52	05	04	01	12	12	3	167	18 39 N	157 24 W	3.40
03	02	820712	18.52	05	04	01	12	12	4	167			4.32
03	03	820712	18.52	06	02	03	12	12	4	167			6.17
03	04	820712	18.52	03	02	06	12	12	4	167			6.17
03	05	820712	18.52	03	06	02	12	12	4	167			6.17
03	06	820712	18.52	04	01	05	01	01	4	167			6.17
03	07	820712	18.52	05	04	01	01	01	4	167			6.17
03	08	820712	18.52	01	05	04	03	01	4	167	18 39 N	157 24 W	6.48
03	09	820712	18.52	03	06	02	03	01	4	167			4.63
03	10	820712	18.52	03	06	02	04	01	4	158			1.85
03	11	820712	18.52	02	06	03	04	01	4	158			6.17
03	12	820712	18.52	02	03	06	04	01	4	158			5.56
03	13	820712	18.52	04	01	05	04	02	5	158			6.17
03	14	820712	18.52	05	04	01	04	02	5	158			6.17
03	15	820712	18.52	01	05	04	04	02	5	158			6.48
03	16	820712	18.52	02	03	06	04	02	5	158	18 19 N	157 20 W	6.17
03	17	820712	18.52	06	03	02	04	02	5	158			5.86
03	18	820712	18.52	06	02	03	04	02	5	158			4.63
03	19	820712	18.52	06	02	03	04	02	5	158	18 11 N	157 11 W	0.31
01	01	820713	18.52	02	06	03			6	162	16 21 N	156 41 W	6.48
02	01	820713	18.52	02	06	03			5	162	15 31 N	156 31 W	9.57
02	02	820713	18.52	02	03	06			5	162			5.25
02	03	820713	18.52	06	03	02			5	162			1.54
02	04	820713	18.52	01	04	05			5	162			7.10
02	05	820713	18.52	05	01	04	04	01	5	162			6.17
02	06	820713	18.52	04	05	01	04	01	5	162			6.17
02	07	820713	18.52	01	04	05	04	01	5	162			6.17
02	08	820713	18.52	05	01	04	04	01	5	162			6.17
02	09	820713	18.52	04	05	01	04	01	5	162			6.17
02	10	820713	18.52	06	02	03	04	01	5	162			6.17
02	11	820713	18.52	06	03	02	04	01	5	162			7.72
02	12	820713	18.52	02	03	06	04	01	5	162	14 57 N	156 22 W	6.17
02	13	820713	18.52	02	06	03	04	01	5	162			6.17
02	14	820713	18.52	03	06	02	04	01	5	162			5.86
02	15	820713	18.52	03	02	06	04	01	5	162			6.48
02	16	820713	18.52	01	04	05	04	02	5	162			4.63

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
02	17	820713	18.52	05	01	04	04	02	5	162			6.17
02	18	820713	18.52	04	05	01	04	02	5	162			6.17
02	19	820713	18.52	01	04	05	04	02	5	162			6.17
02	20	820713	18.52	05	01	04	04	03	5	162			8.33
02	21	820713	18.52	05	01	04			5	162	14 31 N	156 14 W	0.31
01	01	820714	17.59	04	01	05	09	03	5	165	12 40 N	155 48 W	7.33
01	02	820714	17.59	05	04	01	09	03	5	165			6.45
02	01	820714	17.59	01	05	04	09	03	5	185			2.05
02	02	820714	17.59	01	05	04	09	03	5	185	12 28 N	155 48 W	2.64
02	03	820714	17.59	06	02	03	09	02	5	185			5.57
02	04	820714	17.59	06	03	02	09	02	5	185			5.86
02	05	820714	18.52	02	03	06	09	02	5	185	12 20 N	155 49 W	6.17
02	06	820714	18.52	02	06	03	09	02	5	165			6.17
02	07	820714	18.52	03	06	02	09	01	5	165			7.41
02	08	820714	18.52	03	02	06	09	01	5	165			4.94
02	09	820714	18.52	01	04	05			5	165			6.17
02	10	820714	18.52	05	01	04	09	01	5	161			6.17
02	11	820714	18.52	04	05	01	09	01	5	161			3.70
02	12	820714	18.52	04	05	01	09	01	5	161			1.23
03	01	820714	18.52	01	04	05			5	161	11 57 N	155 45 W	4.01
03	02	820714	18.52	05	01	04	09	01	5	161			6.17
03	03	820714	18.15	04	05	01			5	161			1.81
04	01	820714	18.15	03	06	02			5	161	11 47 N	155 43 W	10.28
04	02	820714	18.15	03	02	06	12	12	5	161			6.05
04	03	820714	18.15	06	02	03	12	12	5	161			6.96
05	01	820714	18.15	06	03	02	12	12	4	161	11 32 N	155 38 W	1.81
05	02	820714	18.15	01	04	05	12	12	4	161			6.05
06	01	820714	18.15	05	01	04	04	01	4	161	11 27 N	155 39 W	3.93
07	01	820714	18.15	01	04	05	04	02	4	157	11 21 N	155 44 W	3.93
07	02	820714	18.15	05	01	04	04	02	4	157			6.05
07	03	820714	17.59	04	05	01			4	157			4.11
08	01	820714	17.59	06	02	03	04	02	4	157	11 08 N	155 39 W	4.40
08	02	820714	17.59	04	01	05	04	02	4	157			4.98
08	03	820714	17.59	06	02	03			4	157			6.74
08	04	820714	17.59	03	02	06	04	02	4	157			5.86
08	05	820714	17.59	03	06	02	04	02	4	157			2.93

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
08	06	820714	17.59	01	04	05			4	157			2.93
09	01	820714	17.59	05	01	04			4	157	10 53 N	155 33 W	4.98
09	02	820714	17.59	04	05	01			4	157			2.64
09	03	820714	17.59	04	05	01			4	157	10 50 N	155 32 W	0.29
01	01	820715	16.67	02	06	03			3	157	09 06 N	155 01 W	5.83
01	02	820715	16.67	02	03	06			3	157			3.89
01	03	820715	16.67	02	03	06	12	03	3	063			1.67
01	04	820715	16.67	06	03	02	12	02	3	063			6.94
01	05	820715	16.67	01	04	05	12	02	3	063			5.00
01	06	820715	16.67	06	02	03	12	02	3	063			6.11
01	07	820715	16.67	03	02	06	12	02	3	063	09 06 N	154 50 W	5.00
01	08	820715	16.67	03	06	02	12	02	3	063			6.11
01	09	820715	16.67	02	06	03			3	063			1.67
02	01	820715	16.67	02	03	06	12	02	3	063	09 10 N	154 44 W	6.39
02	02	820715	16.67	06	03	02	12	01	3	063			5.56
02	03	820715	16.67	01	04	05			4	063			8.33
02	04	820715	16.67	05	01	04	12	01	4	063			8.33
02	05	820715	16.67	04	05	01	12	01	4	063			2.78
03	01	820715	16.67	04	05	01	12	12	4	063	09 21 N	154 27 W	2.50
03	02	820715	16.67	01	04	05	12	12	4	063			4.17
03	03	820715	16.67	03	02	06	12	12	4	063			4.72
03	04	820715	16.67	05	01	04	12	01	4	063			8.06
03	05	820715	16.67	04	05	01			4	063			5.56
04	01	820715	16.67	06	03	02	12	12	4	063	09 30 N	154 11 W	5.56
04	02	820715	16.67	02	03	06	12	12	4	063			5.56
04	03	820715	16.67	02	06	03	12	12	4	063			5.56
04	04	820715	16.67	03	06	02	12	12	4	063			5.56
04	05	820715	16.67	03	02	06	12	12	4	063			5.83
04	06	820715	16.67	06	02	03	12	12	4	063			5.83
04	07	820715	16.67	06	03	02	08	01	3	063	09 40 N	153 55 W	5.28
04	08	820715	16.67	02	03	06	08	01	3	063			6.67
04	09	820715	16.67	01	04	05	08	01	3	063			9.17
04	10	820715	16.67	05	01	04	08	02	3	063			3.89
04	11	820715	16.67	03	06	02	08	03	3	063			5.00
04	12	820715	16.67	04	05	01	07	02	3	063			6.95
04	13	820715	16.67	01	04	05	07	02	3	063			8.33

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
04	14	820715	16.67	05	01	04	08	02	3	063			8.33
04	15	820715	16.67	04	05	01	08	02	3	063			4.17
04	16	820715	16.67	04	05	01			3	063	09 53 N	153 26 W	0.28
01	01	820716	17.59	04	05	01	12	03	3	053	10 50 N	151 46 W	10.56
01	02	820716	17.59	01	04	05	12	02	3	053			8.50
01	03	820716	17.59	05	01	04	01	02	3	053			4.40
01	04	820716	17.59	02	06	03	01	02	3	053			5.57
01	05	820716	17.59	04	05	01	01	02	3	053	10 59 N	151 32 W	7.62
01	06	820716	17.59	01	04	05	01	02	3	053			8.80
01	07	820716	17.59	05	01	04	01	02	4	053			9.09
01	08	820716	17.59	04	05	01	01	02	4	053			3.52
02	01	820716	17.59	06	03	02	01	01	3	053	11 07 N	151 19 W	3.52
02	02	820716	17.59	06	03	02	01	01	3	056			1.47
02	03	820716	17.59	06	02	03	01	01	3	056			5.86
02	04	820716	17.59	03	02	06	12	12	3	056			8.21
02	05	820716	17.59	03	06	02	12	12	3	056			5.28
02	06	820716	17.59	04	05	01	12	12	3	056			1.47
03	01	820716	17.59	06	02	03	12	12	3	056	11 17 N	151 06 W	6.16
03	02	820716	17.59	06	03	02	12	12	3	056			5.57
03	03	820716	17.59	02	03	06	12	12	3	056	11 21 N	151 01 W	4.40
03	04	820716	17.59	04	01	05			3	056			8.80
03	05	820716	17.59	05	04	01	08	01	3	056			8.80
03	06	820716	17.59	01	05	04	08	01	3	056			8.80
03	07	820716	17.59	04	01	05	08	01	3	056			8.80
03	08	820716	17.59	05	04	01			3	056			8.80
03	09	820716	17.59	01	05	04	08	02	3	056			7.92
04	01	820716	17.59	02	03	06	08	02	3	060	11 38 N	150 35 W	5.86
04	02	820716	17.59	02	06	03			3	060			1.47
04	03	820716	17.59	01	04	05			3	060			5.86
04	04	820716	17.59	02	06	03			3	060			6.16
04	05	820716	17.59	03	06	02	08	02	3	060			5.57
04	06	820716	17.59	03	02	06	08	03	3	060			6.45
04	07	820716	17.59	06	02	03			3	060			5.57
04	08	820716	17.59	06	03	02			3	060	11 49 N	150 18 W	4.11
01	01	820717	17.59	02	03	06			3	116	10 51 N	148 44 W	6.16
01	02	820717	17.59	06	03	02	10	02	3	116			8.50

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
01	03	820717	17.59	04	01	05	10	02	3	116			4.40
01	04	820717	17.59	05	04	01	10	02	3	116	10 45 N	148 33 W	5.86
02	01	820717	17.59	05	01	04	10	02	3	116	10 42 N	148 29 W	4.40
02	02	820717	17.59	03	02	06	10	02	2	116			6.16
03	01	820717	17.59	06	02	03	10	02	3	116	10 37 N	148 25 W	7.04
03	02	820717	17.59	04	01	05	10	01	3	116			5.28
03	03	820717	17.59	05	04	01	10	01	3	116			5.86
03	04	820717	17.59	01	05	04	11	01	3	116			6.16
04	01	820717	17.59	06	03	02	11	01	3	116	10 29 N	148 14 W	6.45
04	02	820717	17.59	02	03	06	11	01	2	116	10 25 N	148 07 W	5.57
04	03	820717	17.59	02	06	03	11	01	2	116			4.40
04	04	820717	17.59	01	04	05	10	01	3	116			4.40
04	05	820717	17.59	05	01	04	10	01	3	116			5.86
04	06	820717	17.59	04	05	01			3	116			2.93
05	01	820717	17.59	03	06	02	12	12	3	116	10 22 N	147 59 W	5.86
05	02	820717	17.59	03	02	06	12	12	3	116			5.86
05	03	820717	17.59	02	06	03	12	12	3	116			5.86
05	04	820717	17.59	04	01		12	12	3	116	10 17 N	147 50 W	5.86
05	05	820717	17.59	01	04	05	12	12	3	116			6.45
06	01	820717	17.59	02	03	06	12	12	3	116	10 14 N	147 39 W	4.40
06	02	820717	17.59	04	01	05	06	12	3	116			5.86
06	03	820717	17.59	05	04	01	06	01	3	116			5.86
07	01	820717	17.59	01	05	04	06	01	3	116			4.11
07	02	820717	17.59	02	06	03	06	02	3	116			5.57
07	03	820717	17.59	03	06	02	06	02	3	116	10 06 N	147 25 W	6.16
07	04	820717	17.59	03	02	06	06	02	3	116			5.57
07	05	820717	17.59	01	04	05	06	02	3	116			5.86
07	06	820717	17.59	05	01	04	06	02	3	116			5.86
07	07	820717	17.59	04	05	01	06	02	3	116			6.16
07	08	820717	17.59	03	02	06	06	03	3	116			2.64
07	09	820717	17.59	03	02	06	06	03	3	116	09 57 N	147 09 W	0.29
01	01	820718	17.59	04	01	05	10	03	3	116	09 04 N	145 31 W	3.52
02	01	820718	17.59	05	04	01	10	03	3	116	09 04 N	145 27 W	5.28
02	02	820718	17.59	01	05	04	10	03	3	116			5.86
02	03	820718	17.59	02	03	06	10	03	3	116			5.86
02	04	820718	17.59	06	03	02	10	02	3	116			5.86

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
02	05	820718	17.59	06	02	03	10	02	3	116			5.86
02	06	820718	17.59	01	04	05	10	02	4	116			5.86
02	07	820718	17.59	05	01	04	11	02	4	116			5.86
02	08	820718	17.59	04	05	01	11	02	4	116			2.93
02	09	820718	17.59	04	05	01	11	02	4	116	08 52 N	145 06 W	3.52
02	10	820718	17.59	03	06	02	11	01	3	116	08 51 N	145 05 W	6.16
02	11	820718	17.59	03	02	06	11	01	3	116			4.98
02	12	820718	17.59	06	02	03	11	01	3	116			6.16
02	13	820718	17.59	05	04	01	11	01	3	116			5.57
02	14	820718	17.59	01	05	04	11	01	3	116			5.86
02	15	820718	17.59	04	01	05	12	12	3	116			5.86
02	16	820718	17.59	02	06	03	12	12	3	116	08 41 N	144 46 W	5.86
02	17	820718	17.59	02	03	06	12	12	3	116			5.86
02	18	820718	17.59	06	03	02	12	12	3	116			5.86
02	19	820718	17.59	05	04	01	12	12	3	116			5.86
02	20	820718	17.59	01	05	04	12	12	3	116			5.86
02	21	820718	17.59	04	01	05	12	12	3	116			5.86
02	22	820718	17.59	03	02	06	12	12	3	116	08 31 N	144 28 W	5.86
02	23	820718	17.59	03	06	02	12	12	3	116			5.86
02	24	820718	17.59	02	06	03	12	12	3	116			6.45
02	25	820718	17.59	01	04	05	06	12	3	116			5.28
02	26	820718	17.59	05	01	04	06	01	3	116			5.86
02	27	820718	17.59	04	05	01	06	01	3	116			5.86
02	28	820718	17.59	02	06	03	06	01	3	116	08 21 N	144 10 W	5.86
02	29	820718	17.59	03	06	02	06	01	3	116			5.86
02	30	820718	17.59	03	02	06	06	01	3	116			7.04
03	01	820718	17.59	05	01	04	06	02	3	116	08 15 N	143 56 W	3.23
04	01	820718	17.59	04	05	01	06	02	3	116	08 14 N	143 55 W	2.35
04	02	820718	17.59	02	03	06	06	02	3	116	08 14 N	143 55 W	6.45
04	03	820718	17.59	06	03	02	06	02	3	116			5.28
04	04	820718	17.59	06	02	03	06	02	3	116			5.28
04	05	820718	17.59	06	02	03	06	02	3	116	08 10 N	143 49 W	0.29
01	01	820719	19.45	02	03	06			3	051	07 00 N	141 58 W	6.48
01	02	820719	19.45	06	03	02			2	051			6.16
01	03	820719	19.45	06	02	03	01	02	2	051	07 09 N	141 53 W	8.10
01	04	820719	19.45	03	02	06	01	02	2	051			0.65

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
02	01	820719	19.45	03	06	02	01	02	2	051	07 15 N	141 46 W	4.86
02	02	820719	19.45	02	06	03	01	02	3	051			4.86
02	03	820719	19.45	04	01	05	01	02	3	051			6.48
02	04	820719	19.63	05	04	01	01	02	3	051	07 20 N	141 37 W	6.54
02	05	820719	19.63	01	05	04	01	02	3	051			2.29
03	01	820719	19.63	04	01	05	01	01	3	051	07 21 N	141 34 W	5.23
03	02	820719	19.63	05	04	01	01	01	3	051			6.54
03	03	820719	19.63	01	05	04	01	01	3	051			6.54
03	04	820719	19.63	02	06	03	01	01	3	051			6.54
03	05	820719	19.63	03	06	02	01	01	3	051			9.16
03	06	820719	19.63	01	05	04	01	01	3	051			4.91
03	07	820719	19.45	03	02	06	12	12	3	051			5.51
03	08	820719	19.45	06	02	03	12	12	3	051			7.78
04	01	820719	19.45	01	04	05	12	12	3	051	07 43 N	141 10 W	4.21
05	01	820719	19.45	04	05	01			3	051	07 48 N	141 08 W	3.57
05	02	820719	19.45	01	04	05			3	051			6.48
05	03	820719	19.45	05	01	04	08	01	3	051			6.48
05	04	820719	19.45	04	05	01	08	01	3	051			6.48
05	05	820719	19.45	02	03	06	08	01	3	051	07 56 N	140 55 W	6.48
05	06	820719	19.45	06	03	02	08	01	3	051			6.48
05	07	820719	19.45	06	02	03	08	01	3	051			6.48
05	08	820719	19.45	03	02	06	08	01	3	051			6.81
05	09	820719	19.45	03	06	02	08	01	3	051	08 07 N	140 43 W	6.16
05	10	820719	19.45	02	06	03	08	02	3	051			8.10
06	01	820719	19.45	04	01	05			3	051	08 13 N	140 33 W	4.21
07	01	820719	19.45	04	01	05			3	051	08 19 N	140 26 W	4.21
07	02	820719	19.45	05	04	01			3	051			7.45
07	03	820719	19.45	05	04	01			3	051	08 23 N	140 20 W	0.32
01	01	820720	19.45	04	01	05			4	051	09 34 N	138 40 W	8.10
01	02	820720	19.45	05	04	01			4	051			6.48
01	03	820720	19.45	01	05	04	02	03	4	051			8.75
01	04	820720	19.45	03	02	06			3	051			5.83
01	05	820720	19.45	04	01	05			3	051			4.86
01	06	820720	19.45	05	04	01	01	02	3	051			6.48
01	07	820720	19.45	01	05	04	01	02	3	051			6.81
02	01	820720	19.45	03	06	02	01	02	3	051	09 46 N	138 17 W	6.48

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
02	02	820720	19.45	02	06	03	01	02	3	051			6.48
02	03	820720	19.45	02	03	06	12	12	3	051			6.48
02	04	820720	19.45	06	03	02	12	12	3	051			5.51
02	05	820720	19.45	06	03	02	12	12	3	055	09 54 N	138 07 W	2.59
02	06	820720	19.45	04	01	05	12	12	3	055			6.48
02	07	820720	19.45	05	04	01	12	12	3	055			8.10
02	08	820720	19.45	03	02	06	12	12	3	055			4.86
02	09	820720	19.45	04	05	01	12	12	2	055			6.48
02	10	820720	19.45	01	04	05			2	055			6.48
02	11	820720	19.45	05	01	04			2	055			4.86
03	01	820720	19.45	02	06	03			2	055	10 06 N	137 49 W	7.13
03	02	820720	19.45	02	03	06			2	055			6.16
03	03	820720	19.45	06	03	02	12	12	1	055			6.16
03	04	820720	19.45	06	02	03	12	12	1	055			6.81
03	05	820720	19.45	03	02	06	12	12	1	055			6.81
03	06	820720	19.45	03	06	02	08	01	1	055			4.54
03	07	820720	19.45	04	01	05	08	01	1	055			6.48
03	08	820720	19.45	05	04	01	08	01	2	055	10 22 N	137 28 W	4.54
04	01	820720	19.45	01	05	04	08	02	2	055	10 23 N	137 25 W	3.89
04	02	820720	19.45	04	01	05	08	02	3	055			6.81
04	03	820720	19.45	05	04	01			3	055			6.81
04	04	820720	19.45	01	05	04	08	02	2	055			7.45
04	05	820720	19.45	03	06	02	08	02	2	055	10 30 N	137 13 W	6.48
04	06	820720	19.45	02	06	03	08	02	2	055			6.48
04	07	820720	19.45	02	03	06	08	02	2	055			6.81
04	08	820720	19.45	06	03	02	08	02	3	055			6.16
04	09	820720	19.45	06	02	03	08	02	3	055			7.13
04	10	820720	19.45	06	02	03	08	02	3	055	10 40 N	136 56 W	0.32
01	01	820721	18.52	02	06	03	01	03	2	055	11 47 N	135 18 W	6.17
01	02	820721	18.52	02	03	06	01	03	2	055			6.79
01	03	820721	18.52	06	03	02	01	02	2	055			5.86
01	04	820721	18.52	06	02	03	01	02	3	055			4.94
01	05	820721	18.52	04	01	05	01	02	3	055			5.56
01	06	820721	18.52	03	02	06	01	02	3	055			6.17
01	07	820721	18.52	03	06	02	01	02	3	055	11 59 N	135 01 W	3.09
01	08	820721	18.52	03	06	02	10	01	3	134			3.09

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
01	09	820721	18.52	02	06	03	10	01	3	134			4.63
01	10	820721	18.52	04	01	05	10	01	3	134			7.72
02	01	820721	18.52	05	04	01	10	01	3	134	11 53 N	134 54 W	8.33
02	02	820721	18.52	01	05	04	10	01	3	134			8.64
03	01	820721	18.52	04	01	05	10	01	3	134	11 43 N	134 46 W	6.17
03	02	820721	18.52	04	01	05	10	12	3	132			0.31
03	03	820721	18.52	05	04	01	10	12	3	132			7.10
04	01	820721	18.52	01	05	04	12	12	3	132	11 38 N	134 44 W	10.49
04	02	820721	18.52	02	03	06	12	12	3	132			6.79
04	03	820721	18.52	06	03	02	12	12	3	132			5.56
04	04	820721	18.52	06	02	03	12	12	3	132			6.79
04	05	820721	18.52	03	02	06	12	12	3	132	11 25 N	134 33 W	5.56
04	06	820721	18.52	03	06	02	12	12	2	132			6.17
04	07	820721	18.52	02	06	03	12	12	3	132	11 20 N	134 29 W	6.17
04	08	820721	18.52	02	03	06	12	12	2	132			6.79
04	09	820721	18.52	06	03	02	05	01	2	132	11 16 N	134 25 W	6.48
04	10	820721	18.52	06	02	03	05	01	2	132			3.40
05	01	820721	18.52	04	01	05	05	01	2	126	11 10 N	134 22 W	2.78
05	02	820721	18.52	05	04	01	05	01	2	126			8.95
05	03	820721	18.52	01	05	04	05	02	3	126			9.26
05	04	820721	18.52	04	01	05	05	02	3	126			4.63
05	05	820721	18.52	03	02	06	05	02	2	126	11 00 N	134 11 W	6.48
05	06	820721	18.52	05	04	01	05	02	3	126	10 57 N	134 09 W	7.41
05	07	820721	18.52	01	05	04	05	02	2	126			10.19
05	08	820721	18.52	03	06	02	05	02	2	126			5.25
05	09	820721	18.52	03	02	06	05	03	2	126			4.63
05	10	820721	18.52	03	02	06	05	03	2	126	10 47 N	133 56 W	0.31
01	01	820722	18.52	05	04	01	10	03	1	134	09 33 N	132 32 W	3.70
02	01	820722	18.52	02	03	06	10	03	1	134	09 27 N	132 26 W	4.32
02	02	820722	18.52	04	01	05	10	02	1	134			7.41
03	01	820722	18.52	05	01	04	10	02	1	134			1.85
04	01	820722	18.52	04	05	01	10	02	1	134	09 06 N	132 11 W	2.47
04	02	820722	18.52	01	04	05	10	02	1	134			6.79
05	01	820722	18.52	02	06	03	10	02	1	134	09 14 N	132 16 W	8.95
06	01	820722	18.52	06	03	02	10	01	1	134	09 08 N	132 15 W	6.48
06	02	820722	18.52	06	02	03	10	01	1	134			4.94

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
07	01	820722	18.52	04	05	01	10	12	1	134	08 52 N	131 56 W	2.16
08	01	820722	18.52	06	02	03	12	12	1	134	09 04 N	132 08 W	6.17
08	02	820722	18.52	06	03	02	12	12	1	134			6.79
08	03	820722	18.52	02	03	06	12	12	1	134			4.01
08	04	820722	18.52	04	01	05	12	12	1	134			9.26
08	05	820722	18.52	05	04	01	12	12	1	134			4.01
09	01	820722	18.52	01	05	04	12	12	1	134	08 38 N	131 42 W	9.88
09	02	820722	18.52	04	01	05	12	12	1	134			9.26
09	03	820722	18.52	05	04	01	06	01	1	134			9.26
09	04	820722	18.52	01	05	04	05	01	1	134			8.33
10	01	820722	18.52	02	03	06	05	01	1	134	08 38 N	131 40 W	8.33
10	02	820722	18.52	04	05	01	05	01	1	134			3.09
11	01	820722	18.52	02	06	03	05	02	1	134	08 36 N	131 33 W	5.86
11	02	820722	18.52	03	06	02	05	02	1	134			6.17
11	03	820722	18.52	03	02	06	05	02	1	134			6.17
11	04	820722	18.52	06	02	03	05	02	1	134			6.79
11	05	820722	18.52	06	03	02	05	02	1	134			8.64
11	06	820722	18.52	02	03	06	05	03	1	134			2.16
11	07	820722	18.52	02	03	06	05	03	1	134	08 22 N	131 18 W	0.31
01	01	820723	19.45	02	06	03	01	03	2	042	07 04 N	129 56 W	6.48
01	02	820723	19.45	02	03	06	01	03	2	042			7.78
01	03	820723	19.45	06	03	02	01	02	2	042			5.83
01	04	820723	19.45	01	04	05	01	02	2	042			5.83
01	05	820723	19.45	05	01	04	01	02	2	042			6.48
01	06	820723	19.45	04	05	01	01	02	2	042			7.13
01	07	820723	19.45	03	02	06	01	02	2	042	07 21 N	129 38 W	6.16
01	08	820723	19.45	06	02	03	01	02	2	042			6.48
01	09	820723	19.45	06	03	02	01	01	2	042			6.48
01	10	820723	19.45	01	04	05	01	01	2	042			4.21
02	01	820723	19.45	02	03	06	12	12	2	040	07 31 N	129 26 W	5.83
02	02	820723	19.45	02	06	03	12	12	2	040			7.13
03	01	820723	19.45	05	04	01	12	12	3	040	07 40 N	129 20 W	5.83
03	02	820723	19.45	01	05	04	12	12	3	040			6.48
03	03	820723	19.45	04	01	05	12	12	3	040			6.48
03	04	820723	19.45	02	03	06	12	12	2	040			6.48
03	05	820723	19.45	02	06	03	12	12	2	040	07 50 N	129 08 W	6.48

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
03	06	820723	19.45	03	06	02	12	12	2	040			6.48
03	07	820723	19.45	04	01	05	12	12	3	040			6.48
03	08	820723	19.45	05	04	01	12	12	3	040			6.48
03	09	820723	19.45	01	05	04	08	01	3	040			6.48
03	10	820723	19.45	02	06	03	08	01	3	040			8.10
03	11	820723	19.45	02	03	06	08	01	3	040	08 08 N	128 49 W	4.86
03	12	820723	19.45	06	03	02			3	040			6.81
03	13	820723	19.45	01	04	05			3	040			6.48
04	01	820723	19.45	04	05	01	08	01	3	040	08 16 N	128 37 W	6.16
05	01	820723	19.45	06	02	03	08	02	3	040			6.48
05	02	820723	19.45	06	03	02	08	02	3	040	08 24 N	128 31 W	8.10
05	03	820723	19.45	04	01	05	08	02	3	040			3.24
06	01	820723	19.45	05	04	01			3	040	08 26 N	128 24 W	3.89
06	02	820723	19.45	01	05	04			3	040			5.83
06	03	820723	19.45	04	01	05			3	040			3.57
06	04	820723	19.45	04	01	05			3	040	08 32 N	128 18 W	0.32
01	01	820724	18.52	04	01	05	02	03	1	035	09 58 N	126 59 W	10.80
01	02	820724	18.52	05	04	01	02	03	1	035			6.17
01	03	820724	18.52	01	05	04	02	03	1	035			7.72
01	04	820724	18.52	02	03	06	02	03	1	035			5.25
01	05	820724	18.52	06	03	02	02	02	1	035	10 10 N	126 49 W	5.56
01	06	820724	18.52	06	02	03	02	02	1	035			6.17
01	07	820724	18.52	04	01	05	02	02	1	035			7.72
02	01	820724	18.52	03	06	02	02	01	1	035	10 19 N	126 41 W	6.17
02	02	820724	18.52	02	06	03	02	01	1	035			6.48
02	03	820724	18.52	02	03	06	02	01	1	035			5.86
02	04	820724	18.52	01	05	04	02	01	1	035	10 27 N	126 33 W	5.25
03	01	820724	18.52	05	04	01	12	12	1	049	10 39 N	126 28 W	4.01
04	01	820724	18.52	02	03	06	12	12	1	049	10 41 N	126 24 W	7.72
04	02	820724	18.52	06	03	02	12	12	1	049			5.25
04	03	820724	18.52	04	01	05	12	12	1	049			6.17
04	04	820724	18.52	05	04	01	12	12	1	049			8.64
05	01	820724	18.52	01	05	04	12	12	1	049	10 49 N	126 14 W	2.78
05	02	820724	18.52	03	02	06	12	12	1	049			5.56
05	03	820724	18.52	06	02	03	12	12	1	049			9.26
06	01	820724	18.52	04	01	05	08	01	1	049	11 01 N	126 04 W	6.48

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
06	02	820724	18.52	05	04	01	08	01	1	049			6.17
06	03	820724	18.52	01	05	04	08	01	1	049			4.63
07	01	820724	18.52	02	03	06	08	01	1	049	11 09 N	125 55 W	6.79
07	02	820724	18.52	02	06	03	08	02	1	049			6.79
07	03	820724	18.52	04	01	05	08	02	1	049			3.70
08	01	820724	18.52	01	05	04	08	02	1	049			7.41
08	02	820724	18.52	06	03	02	08	02	1	049	11 25 N	125 43 W	4.94
09	01	820724	18.52	02	06	03	08	03	1	049	11 23 N	125 39 W	4.32
09	02	820724	18.52	02	06	03	08	03	1	049	11 25 N	125 37 W	0.31
01	01	820725	19.45	06	02	03			2	141	10 59 N	124 07 W	6.48
01	02	820725	19.45	06	03	02	10	02	2	141			7.78
01	03	820725	19.45	02	03	06	10	02	2	141			2.59
01	04	820725	19.45	05	04	01	10	02	2	141			4.86
01	05	820725	19.45	02	03	06	10	02	2	141			6.48
01	06	820725	19.45	02	06	03	10	02	2	141	10 45 N	123 54 W	6.48
01	07	820725	19.45	03	06	02	10	02	2	141			4.86
02	01	820725	19.45	04	01	05	10	01	3	141	10 36 N	123 50 W	3.57
02	02	820725	19.45	05	04	01	10	01	3	141			6.48
02	03	820725	19.45	01	05	04	10	01	3	141			6.48
02	04	820725	19.45	04	01	05	10	01	3	141			6.48
02	05	820725	19.45	05	04	01	10	01	3	141			6.48
02	06	820725	19.45	03	02	06	12	12	3	141			6.48
02	07	820725	19.45	06	02	03	12	12	3	141	10 20 N	123 37 W	8.10
02	08	820725	19.45	04	01	05	12	12	3	141			5.51
02	09	820725	19.45	02	03	06	12	12	3	141			6.16
02	10	820725	19.45	06	03	02	12	12	3	141	10 13 N	123 30 W	6.48
02	11	820725	19.45	06	02	03	12	12	3	141			6.16
02	12	820725	19.45	04	01	05	12	12	3	141			6.48
02	13	820725	19.45	05	04	01	12	12	3	141			6.48
02	14	820725	19.45	01	05	04	12	12	3	141			6.48
02	15	820725	19.45	04	01	05			3	141			3.24
03	01	820725	19.45	05	04	01			3	141	09 55 N	123 17 W	5.83
03	02	820725	19.45	01	05	04			3	141			6.48
03	03	820725	19.45	03	02	06			3	141	09 49 N	123 12 W	7.13
03	04	820725	19.45	03	06	02	05	01	2	141			5.83
03	05	820725	19.45	02	06	03	05	01	2	141			6.48

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
03	06	820725	19.45	02	03	06	05	01	2	141			7.45
03	07	820725	19.45	06	03	02	05	02	3	141			5.51
03	08	820725	19.45	06	02	03	05	02	3	141	09 36 N	123 01 W	9.07
03	09	820725	19.45	04	01	05	05	02	3	141			7.13
03	10	820725	19.45	05	04	01			3	141			3.89
03	11	820725	19.45	01	05	04			3	141			6.16
03	12	820725	19.45	04	01	05			3	141			6.16
03	13	820725	19.45	05	04	01			2	141			6.48
03	14	820725	19.45	05	04	01			2	141	09 19 N	122 48 W	0.65
01	01	820727	18.52	02	06	03			5	010	08 15 N	118 33 W	6.79
01	02	820727	18.52	04	01	05			5	010			5.56
01	03	820727	18.52	02	06	03			5	010			4.63
02	01	820727	18.52	04	01	05			5	010	08 44 N	118 28 W	4.63
02	02	820727	18.52	05	04	01			5	010			9.26
02	03	820727	18.52	01	05	04			5	010			4.01
02	04	820727	18.52	01	05	04			5	020			1.85
02	05	820727	18.52	02	03	06			5	020			3.70
03	01	820727	18.52	04	01	05	12	12	6	020			2.47
03	02	820727	18.52	05	04	01			6	020	09 01 N	118 19 W	8.03
04	01	820727	18.52	02	06	03			5	017	09 27 N	118 06 W	6.48
04	02	820727	18.52	03	06	02			5	017			6.17
04	03	820727	18.52	03	02	06			5	017			5.56
04	04	820727	18.52	04	01	05			5	017			4.63
05	01	820727	18.52	06	02	03			5	017	09 39 N	117 58 W	8.03
05	02	820727	18.52	05	04	01			4	017			0.93
05	03	820727	18.52	01	05	04			4	017			9.26
05	04	820727	18.52	04	01	05			4	017			9.88
05	05	820727	18.52	05	04	01			3	017			16.98
06	01	820727	18.52	01	04	05			3	017	10 06 N	117 50 W	0.31
01	01	820728	17.59	04	01	05			2	030			4.98
01	02	820728	17.59	02	03	06			2	030			5.28
01	03	820728	17.59	05	04	01			2	030	11 54 N	117 05 W	7.33
01	04	820728	17.59	01	05	04			2	030			4.40
01	05	820728	17.59	01	05	04	02	02	2	017			4.69
01	06	820728	17.59	04	01	05	02	02	2	017			8.50
01	07	820728	17.59	05	04	01	02	01	2	017			9.97

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
01	08	820728	17.59	06	03	02	02	01	2	017	12 11 N	116 58 W	4.69
01	09	820728	17.59	06	02	03	02	01	2	017			5.86
01	10	820728	17.59	03	02	06	02	01	2	017			1.76
01	11	820728	17.59	03	02	06	02	01	2	022			4.11
01	12	820728	17.59	03	06	02			2	022	12 20 N	116 56 W	7.33
01	13	820728	17.59	02	06	03	02	01	2	022			5.86
01	14	820728	17.59	04	01	05			2	022			4.98
01	15	820728	17.59	02	03	06			2	022			5.28
02	01	820728	17.59	02	03	06			3	022	12 33 N	116 52 W	1.76
02	02	820728	17.59	02	06	03			3	022			4.11
03	01	820728	17.59	04	01	05			4	022	12 40 N	116 50 W	4.40
03	02	820728	17.59	05	04	01			5	022			2.93
01	01	820729	18.52	04	01	05			4	015	16 32 N	115 23 W	7.72
01	02	820729	18.52	05	04	01			4	015			6.17
01	03	820729	18.52	02	03	06			4	015			6.48
01	04	820729	18.52	06	03	02			4	015			6.17
01	05	820729	18.52	06	02	03			4	015			5.86
01	06	820729	18.52	04	01	05			3	015			6.17
01	07	820729	18.52	05	04	01			3	015			6.17
01	08	820729	18.52	01	05	04			3	015			7.10
01	09	820729	18.52	03	06	02			3	015	16 59 N	115 20 W	5.25
01	10	820729	18.52	02	06	03			3	015			2.16
01	11	820729	18.52	02	06	03			3	026			4.32
01	12	820729	18.52	02	03	06			3	026	17 04 N	115 18 W	4.32
02	01	820729	18.52	06	03	02			3	026	17 18 N	115 12 W	5.86
02	02	820729	18.52	06	02	03			3	026			6.17
02	03	820729	18.52	03	02	06			3	026			4.94
02	04	820729	18.52	04	01	05			3	026			5.86
02	05	820729	18.52	05	04	01			3	026			6.17
02	06	820729	18.52	01	05	04			3	026			6.17
02	07	820729	18.52	04	01	05			3	026			4.63
02	08	820729	18.52	04	01	05			3	026	17 39 N	115 01 W	0.31
01	01	820730	18.52	04	05	01	01	12	2	351	18 23 N	114 47 W	8.95
01	02	820730	18.52	01	04	05	01	12	2	351			7.10
01	03	820730	18.52	02	03	06	12	12	2	351			6.79
01	04	820730	18.52	06	03	02	12	12	2	351	18 36 N	114 49 W	5.86

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
02	01	820730	18.52	04	01	05	12	12	2	351	18 46 N	114 49 W	6.17
02	02	820730	18.52	05	04	01	12	12	2	351			6.48
02	03	820730	18.52	06	03	02	12	12	2	351	18 54 N	114 50 W	5.86
02	04	820730	18.52	06	02	03	12	12	2	351			2.47
03	01	820730	18.52	01	04	05	10	02	3	351	18 59 N	114 53 W	4.32
03	02	820730	18.52	04	01	05	10	02	3	351			6.48
03	03	820730	18.52	05	04	01	10	02	3	351			1.23
04	01	820730	18.52	05	04	01	10	02	3	351	19 07 N	114 57 W	2.47
04	02	820730	18.52	02	03	06	10	02	3	351			6.48
04	03	820730	18.52	02	06	03	10	02	3	351			6.17
04	04	820730	18.52	03	06	02	10	02	3	351	19 17 N	114 59 W	4.63
04	05	820730	18.52	04	01	05	10	03	3	351			6.48
04	06	820730	18.52	05	04	01	10	03	2	351			5.86
04	07	820730	18.52	01	05	04	10	03	2	351			6.17
05	01	820730	18.52	02	06	03	10	03	2	351	19 27 N	114 59 W	5.86
01	01	820731	19.45	02	06	03	02	03	2	350	21 23 N	115 17 W	6.48
01	02	820731	19.45	03	06	02	02	02	2	350			7.45
01	03	820731	19.45	03	02	06	02	02	2	350			7.13
01	04	820731	19.45	04	01	05	02	02	2	350			5.19
01	05	820731	19.45	06	02	03	02	02	3	350			6.16
01	06	820731	19.45	06	03	02	02	02	3	350			6.48
01	07	820731	19.45	02	03	06	02	02	3	350	21 43 N	115 20 W	6.48
01	08	820731	19.45	04	01	05	02	02	4	350			6.48
01	09	820731	19.45	05	04	01	02	01	4	350			6.48
01	10	820731	19.45	01	05	01	03	01	4	350			6.48
01	11	820731	19.45	04	01	05	03	01	4	350			6.48
01	12	820731	19.45	05	04	01	03	01	4	350			6.48
01	13	820731	19.45	01	05	04	03	01	4	350			7.78
01	14	820731	19.45	03	06	02	03	01	4	350	22 09 N	115 24 W	5.19
01	15	820731	19.45	02	06	03	03	01	4	350			8.10
01	16	820731	19.45	01	05	04	03	01	4	350			6.48
01	17	820731	19.45	02	03	06	12	12	4	350			7.78
01	18	820731	19.45	06	03	02	12	12	4	350	22 23 N	115 26 W	5.19
01	19	820731	19.45	06	02	03	12	12	4	350			4.86
01	20	820731	19.45	04	01	05	12	12	4	350			6.48
01	21	820731	19.45	05	04	01	12	12	4	350			6.48

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
01	22	820731	19.45	01	05	04	12	12	4	350			6.48
01	23	820731	19.45	04	01	05	12	12	3	350			6.48
01	24	820731	19.45	05	04	01	12	12	3	350			6.48
01	25	820731	19.45	01	05	04	12	12	3	350			8.10
01	26	820731	19.45	03	02	06	12	12	3	350	22 48 N	115 29 W	4.86
01	27	820731	19.45	03	06	02	10	01	3	350			6.48
01	28	820731	19.45	02	06	03	10	01	3	350			6.81
01	29	820731	19.45	02	03	06	10	01	3	350			6.81
01	30	820731	19.45	06	03	02	10	01	3	350	23 01 N	115 31 W	5.83
01	31	820731	19.45	06	02	03	10	02	3	350			9.40
01	32	820731	19.45	04	05	01	10	02	3	350	23 08 N	115 32 W	0.32
02	01	820731	19.45	04	05	01	10	03	3	351			1.62
02	02	820731	19.45	01	04	05	10	03	3	351	23 13 N	115 34 W	5.51
03	01	820731	19.45	05	01	04	10	03	3	351	23 16 N	115 33 W	4.21
03	02	820731	19.45	05	01	04	10	03	3	351	23 18 N	115 33 W	0.32
01	01	820801	18.52	01	04	05			4	351	25 15 N	115 52 W	3.09
01	02	820801	18.52	05	01	04			4	351			6.17
01	03	820801	18.52	04	05	01			4	351			7.72
01	04	820801	18.52	02	06	03			4	351			6.17
01	05	820801	18.52	01	05	04			4	351			4.63
01	06	820801	18.52	04	01	05	02	02	4	351			6.17
01	07	820801	18.52	05	04	01	02	02	4	351			7.10
01	08	820801	18.52	06	03	02	02	02	4	351	25 36 N	115 54 W	5.25
01	09	820801	18.52	02	03	06	02	01	4	351			6.17
01	10	820801	18.52	02	06	03	02	01	4	351			6.17
01	11	820801	18.52	03	06	02	02	01	4	351			6.17
01	12	820801	18.52	03	02	06	02	01	4	351			6.17
01	13	820801	18.52	06	02	03	02	01	4	351			6.17
01	14	820801	18.52	04	01	05			4	351			6.17
01	15	820801	18.52	05	04	01			4	351			7.72
01	16	820801	18.52	02	06	03	02	01	3	351	26 02 N	115 58 W	6.79
01	17	820801	18.52	04	01	05	02	01	3	351			4.01
01	18	820801	18.52	01	05	04			3	351			6.17
01	19	820801	18.52	04	05	01	12	12	3	351			7.10
01	20	820801	18.52	06	03	02	12	12	3	351	26 14 N	116 01 W	5.25
01	21	820801	18.52	02	03	06	12	12	3	351			6.17

SERIES	LEG	DATE	SPEED KM/HR	OBSERVER CODES LEFT	RIGHT	REC.	SUN POSITION HORZ.	VERT.	BEAUF. NO.	COURSE (DEG.)	POSITION LATITUDE	LONGITUDE	KM IN LEG
01	22	820801	18.52	02	06	03	12	12	3	351			6.17
01	23	820801	18.52	03	06	02	12	12	3	351			6.17
01	24	820801	18.52	03	02	06	12	12	3	351			6.17
01	25	820801	18.52	06	02	03	12	12	3	351			6.17
01	26	820801	18.52	04	01	05	12	12	3	351			6.79
01	27	820801	18.52	05	04	01	11	01	3	351			5.56
01	28	820801	18.52	01	05	04	10	01	3	351			6.17
01	29	820801	18.52	04	01	05	09	01	3	351			6.17
01	30	820801	18.52	05	04	01	09	01	3	351			6.17
01	31	820801	18.52	01	05	04	10	01	3	351			7.41
01	32	820801	18.52	02	03	06	10	01	3	351	26 52 N	116 06 W	4.94
01	33	820801	18.52	02	06	03	10	02	3	351			6.48
01	34	820801	18.52	03	06	02	10	02	3	351			5.86
01	35	820801	18.52	03	02	06	10	02	3	351			6.17
01	36	820801	18.52	06	02	03	10	02	3	351			6.17
01	37	820801	18.52	06	03	02	10	02	3	351	27 09 N	116 07 W	6.17
01	01	820802	19.45	02	03	06			2	351	29 13 N	116 24 W	3.57
01	02	820802	19.45	02	03	06			2	035			2.27
01	03	820802	19.45	06	03	02			2	035			6.48
01	04	820802	19.45	06	02	03			2	035			7.13
02	01	820802	19.45	03	02	06			2	035			5.51
02	02	820802	19.45	03	06	02			1	035	29 26 N	116 15 W	6.48
02	03	820802	19.45	02	06	03			1	035			6.48
02	04	820802	19.45	02	03	06			1	035	29 32 N	116 09 W	3.24
03	01	820802	19.45	02	03	06			1	035	29 33 N	116 09 W	1.94
03	02	820802	19.45	06	03	02			1	035			5.83
03	03	820802	19.45	06	02	03			1	035			4.21
03	04	820802	19.45	04	01	05			1	035			5.51
04	01	820802	19.45	05	04	01			1	035	29 43 N	116 00 W	8.75
05	01	820802	19.45	06	02	03			1	335	29 49 N	115 54 W	4.21

Table 3. Marine mammal sightings, classified by species code groups, encountered in the Eastern Tropical Pacific during May 14 through August 2, 1982.

SIGHTINGS BY SPECIES

SPECIES: OFFSHORE SPOTTED DOLPHIN (STENELLA ATTENUATA)

SPECIES CODE: 2

DATE YRMODY	SERIES	LEG	SIGHT NUMBER	SUN POSITION HORZ.	SUN POSITION VERT.	BEAUF. NUMBER	DETECTED BY	PERP. DIST.(KM)	LATITUDE DEG MIN	LONGITUDE DEG MIN	PROPORTION (% OF SCHOOL)	MEAN SCHOOL SIZE EST BEST	MEAN SCHOOL SIZE EST LOW
820517	01	20	06	12	12	1	03	4.6	18 39 N	110 44 W	33.3	338.0	271.0
820519	02	02	05			1	05	0.5	13 24 N	105 19 W	100.0	23.0	17.0
820521	03	02	05	12	12	5	04	0.7	08 53 N	099 12 W	8.3	183.0	150.0
820522	01	03	05	12	02	3	06	0.7	10 17 N	096 37 W	87.5	89.0	65.0
820522	07	03	17			3	02	2.4	10 46 N	095 31 W	33.3	188.0	153.0
820524	02	02	02			4	04	0.1	06 27 N	090 29 W	100.0	0.0*	10.0
820530	01	03	01			3	04	9.2	13 33 N	097 27 W	38.8	233.0	219.0
820530	02	02	02			4	06	5.4	13 29 N	097 34 W	73.0	400.0	290.0
820601	04	04	04			3	04	2.4	14 38 N	099 40 W	100.0	159.0	86.0
820601	05	08	05	08	01	3	04	6.8	14 55 N	099 11 W	49.5	208.0	151.0
820601	06	01	07			3	02	1.9	15 02 N	099 10 W	55.0	538.0	425.0
820603	02	01	01	04	02	3	04	1.4	16 46 N	102 08 W	8.4	28.0	23.0
820603	05	06	04	11	01	4	02	6.4	17 41 N	102 59 W	73.0	164.0	114.0
820603	06	02	05	11	02	4	02	4.1	17 41 N	102 59 W	39.0	640.0	480.0
820609	03	01	01			3	01	5.4	12 21 N	105 02 W	99.0	533.0	369.0
820612			05			3		5.1	09 51 N	108 36 W	17.0	690.0	560.0
820612	02	05	02			2	02	5.1	09 05 N	108 02 W	27.5	68.0	50.0
820612	04	04	04	12	12	2	06	8.2	09 25 N	108 17 W	75.0	550.0	383.0
820612	05	04	09	12	02	2	06	2.7	10 05 N	108 49 W	23.7	419.0	338.0
820614	04	02	04			3	06	10.2	11 21 N	109 55 W	41.7	592.0	467.0
820615	01	03	01	03	02	3	02	2.6	13 07 N	111 19 W	61.3	150.0	104.0
820615	03	02	02	02	01	3	04	5.9	13 30 N	111 40 W	96.0	290.0	185.0
820615	04	06	03	12	12	3	02	6.8	13 47 N	111 51 W	40.0	100.0	68.0
820616	03	01	02			3	02	10.1	10 55 N	112 43 W	7.5	125.0	118.0
820619	02	01	03	03	02	2	03	8.5	10 57 N	117 54 W	100.0	95.0	61.0
820619	03	01	04	03	01	2	04	3.7	11 06 N	117 58 W	55.0	85.0	63.0
820619	04	03	06	02	01	2	06	2.9	11 14 N	118 07 W	63.3	350.0	258.0
820622	01	02	01	07	03	2	01	2.6	07 51 N	123 43 W	70.3	77.0	50.0
820622	06	06	09	02	01	2	03	2.6	06 44 N	124 29 W	42.0	280.0	210.0
820627	02	01	01			3	03	1.5	06 34 N	135 18 W	70.5	80.0	64.0
820628	02	01	01			3	01	6.1	10 06 N	137 44 W	60.0	75.0	50.0

SIGHTINGS BY SPECIES

SPECIES: OFFSHORE SPOTTED DOLPHIN (STENELLA ATTENUATA)

SPECIES CODE: 2

DATE YRMODY	SERIES	LEG	SIGHT NUMBER	SUN POSITION HORZ.	SUN POSITION VERT.	BEAUF. NUMBER	DETECTED BY	PERP. DIST.(KM)	LATITUDE DEG MIN	LONGITUDE DEG MIN	PROPORTION (% OF SCHOOL)	MEAN SCHOOL SIZE EST BEST	MEAN SCHOOL SIZE EST LOW
820629	01	04	01			4	04	0.2	12 17 N	139 02 W	53.3	67.0	53.0
820630	01	18	01			5	01	2.7	11 23 N	141 41 W	5.5	70.0	53.0
820630	04	08	04	02	02	5	06	0.0	10 39 N	142 10 W	42.5	123.0	68.0
820712	02	10	01	12	12	3	01	0.0	19 05 N	157 27 W	100.0	35.0	26.0
820714	06	01	01	04	01	4	04	1.8	11 26 N	155 38 W	28.3	122.0	95.0
820716	03	09	04	08	02	3		0.0	11 37 N	150 36 W	1.4	73.0	56.0
820717			01	10	02	3	01	0.6	10 42 N	148 29 W	27.5	96.0	65.0
820717	03	04	03	11	01	3	01	0.6	10 31 N	148 15 W	54.0	151.0	121.0
820717	05	05	05	12	12	3	01	3.8	10 15 N	147 45 W	12.5	95.0	78.0
820718	01	01	01	10	03	3	01	1.4	09 03 N	145 30 W	10.7	583.0	467.0
820718	02	30	02	06	01	3	03	1.2	08 16 N	144 01 W	23.3	202.0	172.0
820718	03	01	03	06	02	3	05	2.2	08 15 N	143 56 W	0.7	43.0	103.0
820718	04	03	06	06	02	3	06	1.5	08 11 N	143 52 W	15.0	43.0	25.0
820719	01	03	01	01	02	2	02	1.6	07 09 N	141 53 W	11.0	96.0	64.0
820719	04	01	05	12	12	3	04	2.6	07 43 N	141 09 W	92.5	75.0	63.0
820720	01	07	01	01	02	3	05	4.0	09 50 N	138 23 W	25.0	25.0	45.0
820721	03	03	05	10	12	3	04	0.2	11 40 N	134 47 W	64.7	67.0	54.0
820722	05	01	03	10	02	1	02	1.9	09 14 N	132 17 W	20.0	25.0	19.0
820724	02	04	08	02	01	1	01	4.3	10 27 N	126 34 W	88.0	500.0	400.0
820724	06	03	17	08	01	1	05	0.5	11 07 N	125 59 W	53.3	170.0	141.0
820724	08	02	22	08	02	1	03	1.8	11 26 N	125 42 W	100.0	52.0	39.0
820725	01	07	02	10	02	2	03	5.6	10 43 N	123 52 W	47.5	376.0	310.0
820727	02	04	01			5	01	0.2	08 58 N	118 24 W	66.7	31.0	23.0
820728	01	03	02			2	04	1.5	11 56 N	117 04 W	50.0	3.0	3.0
820730	03	02	04	10	02	3	04	2.1	19 03 N	114 56 W	100.0	35.0	26.0

SIGHTINGS BY SPECIES

SPECIES: SPINNER DOLPHIN (STENELLA LONGIROSTRIS) SPECIES CODE: 3

DATE YRMODY	SERIES	LEG	SIGHT NUMBER	SUN POSITION HORZ.	SUN POSITION VERT.	BEAUF. NUMBER	DETECTED BY	PERP. DIST.(KM)	LATITUDE DEG MIN	LONGITUDE DEG MIN	PROPORTION (% OF SCHOOL)	MEAN SCHOOL SIZE EST BEST	MEAN SCHOOL SIZE EST LOW
820521	01	06	01	12	01	5	04	1.3	08 32 N	099 51 W	0.0	27.0	20.0
820529			04			3	04	0.1	14 09 N	095 06 W	8.7	17.0	25.0
820601	06	01	07			3	02	1.9	15 02 N	099 10 W	12.5	538.0	425.0
820603	02	01	01	04	02	3	04	1.4	16 46 N	102 08 W	19.0	28.0	23.0
820603	06	02	05	11	02	4	02	4.1	17 41 N	102 59 W	8.0	640.0	480.0
820609	03	01	01			3	01	5.4	12 21 N	105 02 W	0.3	533.0	369.0
820610	02	05	03	08	01	4	02	0.1	08 55 N	105 08 W	0.5	31.0	25.0
820612			05			3		5.1	09 51 N	108 36 W	0.6	690.0	560.0
820612	05	04	09	12	02	2	06	2.7	10 05 N	108 49 W	1.5	419.0	338.0
820614	04	02	04			3	06	10.2	11 21 N	109 55 W	3.3	592.0	467.0
820615	03	02	02	02	01	3	04	5.9	13 30 N	111 40 W	1.5	290.0	185.0
820619	04	03	06	02	01	2	06	2.9	11 14 N	118 07 W	15.0	350.0	258.0
820630	04	08	04	02	02	5	06	0.0	10 39 N	142 10 W	12.5	123.0	68.0
820718	01	01	01	10	03	3	01	1.4	09 03 N	145 30 W	3.3	583.0	467.0
820724	02	04	08	02	01	1	01	4.3	10 27 N	126 34 W	1.3	500.0	400.0

SIGHTINGS BY SPECIES

SPECIES: COMMON DOLPHIN
(DELPHINUS DELPHIS)

SPECIES CODE: 5

DATE YRMODY	SERIES	LEG	SIGHT NUMBER	SUN POSITION HORZ.	SUN POSITION VERT.	BEAUF. NUMBER	DETECTED BY	PERP. DIST.(KM)	LATITUDE DEG MIN	LONGITUDE DEG MIN	PROPORTION (% OF SCHOOL)	MEAN SCHOOL SIZE ESI BEST	MEAN SCHOOL SIZE ESI LOW
820514	01	05	02	03	02	5	01	0.4	28 32 N	117 00 W	100.0	11.0	8.0
820515	02	01	04	01	01	4	02	1.5	24 52 N	115 41 W	100.0	458.0	304.0
820515	03	07	05	05	02	3	03	0.9	24 24 N	115 17 W	66.7	43.0	22.0
820521	01	06	01	12	01	5	04	1.3	08 32 N	099 51 W	16.7	27.0	20.0
820522	05	03	13			4	05	0.7	10 36 N	096 57 W	100.0	0.0*	58.0
820522	08	01	18			3	06	1.4	10 45 N	095 28 W	100.0	329.0	263.0
820526	04	02	03			4	05	3.0	07 44 N	086 36 W	100.0	163.0	120.0
820527	03	02	06			4	03	2.9	09 03 N	089 24 W	100.0	660.0	480.0
820620	05	02	02	12	12	4	02	0.7	13 30 N	120 20 W	100.0	30.0	19.0
820729			01			5	03	0.0	15 59 N	115 34 W	100.0	15.0	10.0
820731			02	10	02	3	04	0.2	23 10 N	115 34 W	100.0	160.0	265.0
820802			06			1	04	3.5	30 00 N	115 59 W	100.0	85.0	75.0
820802			08			1	04	2.0	30 01 N	116 00 W	100.0	375.0	275.0
820802			14			2	02	0.3	30 32 N	116 14 W	100.0	300.0	250.0
820802	04	01	04			1	05	3.7	29 46 N	115 58 W	100.0	1050.0	925.0

SIGHTINGS BY SPECIES

SPECIES: COASTAL SPOTTED DOLPHIN (S.A. GRAFFMANI) SPECIES CODE: 6

DATE YRMODY	SERIES	LEG	SIGHT NUMBER	SUN POSITION HORZ.	SUN POSITION VERT.	BEAUF. NUMBER	DETECTED BY	PERP. DIST.(KM)	LATITUDE DEG MIN	LONGITUDE DEG MIN	PROPORTION (% OF SCHOOL)	MEAN SCHOOL SIZE EST BEST	MEAN SCHOOL SIZE EST LOW
820522	07	03	17			3	02	2.4	10 46 N	095 31 W	16.7	188.0	153.0

SIGHTINGS BY SPECIES

SPECIES: EASTERN SPINNER DOLPHIN (STENELLA LONGIROSTRIS)

SPECIES CODE: 10

DATE YRMODY	SERIES	LEG	SIGHT NUMBER	SUN POSITION HORZ.	SUN POSITION VERT.	BEAUF. NUMBER	DETECTED BY	PERP. DIST.(KM)	LATITUDE DEG MIN	LONGITUDE DEG MIN	PROPORTION (% OF SCHOOL)	MEAN SCHOOL SIZE EST BEST	MEAN SCHOOL SIZE EST LOW
820521	03	02	05	12	12	5	04	0.7	08 53 N	099 12 W	88.3	183.0	150.0
820529			04			3	04	0.1	14 09 N	095 06 W	4.7	17.0	25.0
820530	01	03	01			3	04	9.2	13 33 N	097 27 W	61.3	233.0	219.0
820530	02	02	02			4	06	5.4	13 29 N	097 34 W	27.0	400.0	290.0
820601	06	01	07			3	02	1.9	15 02 N	099 10 W	20.0	538.0	425.0
820603	02	01	01	04	02	3	04	1.4	16 46 N	102 08 W	70.4	28.0	23.0
820603	06	02	05	11	02	4	02	4.1	17 41 N	102 59 W	32.0	640.0	480.0
820609	03	01	01			3	01	5.4	12 21 N	105 02 W	0.3	533.0	369.0
820610	02	05	03	08	01	4	02	0.1	08 55 N	105 08 W	99.5	31.0	25.0
820612			05			3		5.1	09 51 N	108 36 W	3.2	690.0	560.0
820612	02	05	02			2	02	5.1	09 05 N	108 02 W	41.5	68.0	50.0
820612	04	04	04	12	12	2	06	8.2	09 25 N	108 17 W	25.0	550.0	383.0
820612	05	04	09	12	02	2	06	2.7	10 05 N	108 49 W	6.5	419.0	338.0
820614	04	02	04			3	06	10.2	11 21 N	109 55 W	9.5	592.0	467.0
820615	01	03	01	03	02	3	02	2.6	13 07 N	111 19 W	15.5	150.0	104.0
820615	03	02	02	02	01	3	04	5.9	13 30 N	111 40 W	2.5	290.0	185.0
820615	04	06	03	12	12	3	02	6.8	13 47 N	111 51 W	10.0	100.0	68.0
820616	01	04	01			3	01	1.7	11 14 N	112 45 W	100.0	28.0	20.0
820616	03	01	02			3	02	10.1	10 55 N	112 43 W	64.5	125.0	118.0
820619	03	01	04	03	01	2	04	3.7	11 06 N	117 58 W	5.0	85.0	63.0
820619	04	03	06	02	01	2	06	2.9	11 14 N	118 07 W	21.7	350.0	258.0
820622	06	06	09	02	01	2	03	2.6	06 44 N	124 29 W	0.6	280.0	210.0
820724	02	04	08	02	01	1	01	4.3	10 27 N	126 34 W	4.0	500.0	400.0
820724	06	03	17	08	01	1	05	0.5	11 07 N	125 59 W	3.3	170.0	141.0

SIGHTINGS BY SPECIES

SPECIES: WHITEBELLY SPINNER DOLPHIN (STENELLA LONGIROSTRIS)

SPECIES CODE: 11

DATE YRMODY	SERIES	LEG	SIGHT NUMBER	SUN POSITION HORZ.	SUN POSITION VERT.	BEAUF. NUMBER	DETECTED BY	PERP. DIST.(KM)	LATITUDE DEG MIN	LONGITUDE DEG MIN	PROPORTION (% OF SCHOOL)	MEAN SCHOOL SIZE EST BEST	MEAN SCHOOL SIZE EST LOW
820622	06	06	09	02	01	2	03	2.6	06 44 N	124 29 W	43.4	280.0	210.0
820627	02	01	01			3	03	1.5	06 34 N	135 18 W	28.2	80.0	64.0
820629	01	04	01			4	04	0.2	12 17 N	139 02 W	46.7	67.0	53.0
820630	01	18	01			5	01	2.7	11 23 N	141 41 W	94.5	70.0	53.0
820630	04	08	04	02	02	5	06	0.0	10 39 N	142 10 W	45.0	123.0	68.0
820701	03	21	01	11	02	5		0.0	11 24 N	144 30 W	25.0	15.0	7.0
820714	06	01	01	04	01	4	04	1.8	11 26 N	155 38 W	71.7	122.0	95.0
820714	09	01	03			4	01	0.2	10 52 N	155 33 W	100.0	2.0	2.0
820715	04	10	01	08	02	3	05	0.3	09 45 N	153 44 W	50.0	5.0	5.0
820716	03	09	04	08	02	3		0.0	11 37 N	150 36 W	98.6	73.0	56.0
820717			01	10	02	3	01	0.6	10 42 N	148 29 W	39.2	96.0	65.0
820717	03	04	03	11	01	3	01	0.6	10 31 N	148 15 W	46.0	151.0	121.0
820717	05	05	05	12	12	3	01	3.8	10 15 N	147 45 W	87.5	95.0	78.0
820718	01	01	01	10	03	3	01	1.4	09 03 N	145 30 W	86.0	583.0	467.0
820718	02	30	02	06	01	3	03	1.2	08 16 N	144 01 W	75.0	202.0	172.0
820718	03	01	03	06	02	3	05	2.2	08 15 N	143 56 W	86.0	43.0	103.0
820718	04	03	06	06	02	3	06	1.5	08 11 N	143 52 W	85.0	43.0	25.0
820719	01	03	01	01	02	2	02	1.6	07 09 N	141 53 W	76.5	96.0	64.0
820719	04	01	05	12	12	3	04	2.6	07 43 N	141 09 W	5.0	75.0	63.0
820724	02	04	08	02	01	1	01	4.3	10 27 N	126 34 W	6.7	500.0	400.0
820724	06	03	17	08	01	1	05	0.5	11 07 N	125 59 W	43.3	170.0	141.0
820725	01	07	02	10	02	2	03	5.6	10 43 N	123 52 W	52.5	376.0	310.0

SPECIES: STRIPED DOLPHIN
(S. COERULEOALBA)

SPECIES CODE: 13

DATE YRMODY	SERIES	LEG	SIGHT NUMBER	SUN POSITION HORZ.	SUN POSITION VERT.	BEAUF. NUMBER	DETECTED BY	PERP. DIST.(KM)	LATITUDE DEG MIN	LONGITUDE DEG MIN	PROPORTION (% OF SCHOOL)	MEAN SCHOOL SIZE EST BEST	MEAN SCHOOL SIZE EST LOW
820518	01	04	01	10	02	3	05	0.5	16 28 N	108 29 W	75.0	10.0	7.0
820518	04	07	08			1	02	0.9	15 53 N	107 52 W	75.0	14.0	10.0
820518	05	09	11	05	02	3	05	0.1	15 25 N	107 26 W	100.0	10.0	8.0
820521	02	08	03	12	12	5	04	1.0	08 48 N	099 23 W	100.0	15.0	11.0
820522	04	02	11			4	05	0.8	10 28 N	096 16 W	100.0	168.0	138.0
820522	06	04	16			3	06	0.4	10 43 N	095 42 W	100.0	119.0	71.0
820522	09	04	22			3	06	0.3	10 43 N	095 09 W	33.3	6.0	12.0
820523	01	08	02	09	02	4	01	2.2	08 26 N	093 47 W	100.0	0.0*	15.0
820523	03	06	06	04	01	3	01	3.8	07 37 N	093 17 W	100.0	226.0	151.0
820523	04	06	09	04	03	3	06	1.0	07 17 N	093 09 W	33.3	13.0	9.0
820610	01	05	01	08	02	4	04	0.9	09 17 N	105 09 W	100.0	14.0	8.0
820611	04	01	08	12	12	4	05	0.2	06 56 N	105 52 W	90.0	188.0	98.0
820612	01	02	01	04	02	3	01	2.4	08 53 N	107 43 W	100.0	38.0	31.0
820614			03			3	03	3.5	11 17 N	109 54 W	100.0	28.0	22.0
820617	02	04	01	03	12	4	04	0.2	06 36 N	113 50 W	100.0	37.0	30.0
820623	04	03	01	11	02	5	04	2.5	09 08 N	127 01 W	100.0	14.0	8.0
820626	01	09	01	08	02	4	02	0.5	09 45 N	132 42 W	100.0	28.0	21.0
820701	03	21	01	11	02	5		0.0	11 24 N	144 30 W	25.0	15.0	7.0
820702	01	14	01	12	12	6	04	1.0	13 06 N	147 01 W	100.0	20.0	15.0
820719	03	08	04	12	12	3	02	2.0	07 38 N	141 14 W	100.0	75.0	58.0
820722	05	01	03	10	02	1	02	1.9	09 14 N	132 17 W	70.0	25.0	19.0
820722	10	01	11	05	01	1	02	2.6	08 36 N	131 38 W	100.0	29.0	17.0
820723	03	13	02			3	04	1.6	08 14 N	128 44 W	100.0	12.0	12.0
820724			20			1	04	0.0	11 20 N	125 48 W	100.0	40.0	30.0
820724	03	01	10	12	12	1	04	0.1	10 39 N	126 28 W	100.0	168.0	132.0
820724	08	01	21	08	02	1	01	3.9	11 24 N	125 44 W	100.0	0.0*	0.0*

SIGHTINGS BY SPECIES

SPECIES: ROUGH-TOOTHED DOLPHIN (STENO BREDANENSIS)

SPECIES CODE: 15

DATE YRMODY	SERIES	LEG	SIGHT NUMBER	SUN POSITION HORZ.	SUN POSITION VERT.	BEAUF. NUMBER	DETECTED BY	PERP. DIST.(KM)	LATITUDE DEG MIN	LONGITUDE DEG MIN	PROPORTION (% OF SCHOOL)	MEAN SCHOOL SIZE EST BEST	MEAN SCHOOL SIZE EST LOW
820519	01	02	01			3	02	0.5	13 43 N	105 33 W	66.7	7.0	6.0
820520			01			6	04	6.6	10 52 N	102 52 W	100.0	4.0	4.0
820522	03	01	10			3	04	0.2	10 26 N	096 21 W	100.0	5.0	5.0
820529	01	19	03			3	04	2.1	14 03 N	094 57 W	100.0	5.0	5.0
820601	05	08	05	08	01	3	04	6.8	14 55 N	099 11 W	1.0	208.0	151.0
820602	02	01	01	05	02	3	01	0.1	15 20 N	099 21 W	100.0	15.0	13.0
820609	06	05	02	03	01	2	01	0.1	11 43 N	105 10 W	77.5	10.0	9.0
820609	09	01	06	04	03	2	02	2.1	11 23 N	105 09 W	5.0	113.0	55.0
820620	06	06	03	12	12	4	01	1.6	13 10 N	120 32 W	100.0	3.0	3.0
820713			01	12	12	5	04	0.1	15 40 N	156 33 W	100.0	12.0	8.0
820717	07	08	08	06	03	3	03	3.8	09 58 N	147 09 W	33.3	7.0	5.0
820718	04	01	04	06	02	3	04	0.3	08 14 N	143 55 W	50.0	7.0	7.0
820719	02	05	03	01	02	3	05	0.1	07 23 N	141 34 W	100.0	15.0	13.0
820720	01	07	01	01	02	3	05	4.0	09 50 N	138 23 W	25.0	25.0	45.0
820720	02	11	03			2	05	1.9	10 05 N	137 51 W	50.0	18.0	16.0
820720	03	08	04	08	01	2	04	0.3	10 23 N	137 27 W	100.0	8.0	6.0
820730	04	07	05	10	03	2	04	0.9	19 26 N	114 59 W	100.0	13.0	10.0

SIGHTINGS BY SPECIES

SPECIES: BOTTLENOSED DOLPHINS (TURSIOPS TRUNCATUS)

SPECIES CODE: 18

DATE YRMODY	SERIES	LEG	SIGHT NUMBER	SUN POSITION HORZ.	SUN POSITION VERT.	BEAUF. NUMBER	DETECTED BY	PERP. DIST.(KM)	LATITUDE DEG MIN	LONGITUDE DEG MIN	PROPORTION (% OF SCHOOL)	MEAN SCHOOL SIZE EST BEST	MEAN SCHOOL SIZE EST LOW
820521	02	08	04	12	12	5	04	1.0	08 49 N	099 20 W	62.3	25.0	23.0
820522	02	03	07			3	05	0.0	10 22 N	096 28 W	100.0	2.0	2.0
820522	09	01	19			3	04	0.1	10 45 N	095 22 W	100.0	9.0	7.0
820527	01	06	03	05	02	4	05	0.0	09 05 N	088 25 W	47.0	10.0	8.0
820527	01	08	04	05	02	4	01	2.9	09 06 N	088 31 W	100.0	9.0	8.0
820527	01	09	05	05	02	4	04	0.1	09 06 N	088 34 W	81.3	3.0	6.0
820527	06	01	07			4	04	0.5	09 03 N	089 42 W	100.0	3.0	3.0
820527	06	02	08			4	01	0.5	09 03 N	089 46 W	55.3	42.0	34.0
820529			04			3	04	0.1	14 09 N	095 06 W	2.7	17.0	25.0
820602	03	01	02	05	02	3	01	6.1	15 22 N	099 25 W	48.0	15.0	14.0
820602	05	01	04	05	01	3	03	1.6	15 27 N	099 30 W	99.5	25.0	19.0
820603	05	06	04	11	01	4	02	6.4	17 41 N	102 59 W	2.2	164.0	114.0
820608	04	05	05	03	01	2	02	0.5	15 35 N	104 56 W	100.0	2.0	2.0
820609	03	01	01			3	01	5.4	12 21 N	105 02 W	0.3	533.0	369.0
820613			01			2		0.0	10 19 N	109 10 W	100.0	35.0	25.0
820614	01	01	01			2	03	0.5	10 12 N	109 14 W	100.0	11.0	9.0
820721	01	10	02	10	01	3	01	0.1	11 53 N	134 54 W	65.0	19.0	16.0
820721	03	03	05	10	12	3	04	0.2	11 40 N	134 47 W	30.3	67.0	54.0
820724	07	03	19	08	02	1	04	0.9	11 16 N	125 48 W	100.0	33.0	28.0
820730			01	01	12	1		0.0	10 19 N	114 44 W	100.0	12.0	10.0
820802	03	04	03			1	01	0.2	29 40 N	116 03 W	16.2	49.0	45.0

SIGHTINGS BY SPECIES

SPECIES: RISSO'S DOLPHIN (GRAMPUS GRISEUS) SPECIES CODE: 21

DATE YRMODY	SERIES	LEG	SIGHT NUMBER	SUN POSITION HORZ.	SUN POSITION VERT.	BEAUF. NUMBER	DETECTED BY	PERP. DIST.(KM)	LATITUDE DEG MIN	LONGITUDE DEG MIN	PROPORTION (% OF SCHOOL)	MEAN SCHOOL SIZE ESI BEST	MEAN SCHOOL SIZE ESI LOW
820521	04	07	08	08	02	5	04	0.3	09 07 N	098 42 W	40.0	5.0	4.0
820522	02	01	06	12	02	3	02	0.1	10 19 N	096 33 W	66.7	6.0	4.0
820522	02	05	09			3	06	0.3	10 25 N	096 23 W	66.7	8.0	6.0
820522	06	01	15			4	04	0.2	10 40 N	095 53 W	100.0	4.0	3.0
820522	09	01	20			3	05	1.4	10 46 N	095 21 W	100.0	2.0	2.0
820522	09	01	21			3	05	0.2	10 46 N	095 21 W	100.0	1.0	1.0
820527	01	04	02	05	02	4	02	0.2	09 05 N	088 21 W	50.0	5.0	4.0
820527	01	06	03	05	02	4	05	0.0	09 05 N	088 25 W	28.0	10.0	8.0
820529			01			4	04	0.6	13 38 N	093 53 W	100.0	1.0	1.0
820601	02	02	01	01	02	3	04	1.0	14 20 N	100 24 W	100.0	2.0	2.0
820602	03	01	02	05	02	3	01	6.1	15 22 N	099 25 W	52.0	15.0	14.0
820611	01	09	01	04	01	4	05	1.1	06 28 N	105 27 W	100.0	2.0	2.0
820622	02	06	02	07	01	2	06	1.5	07 30 N	123 53 W	6.0	9.0	8.0
820622	03	05	03	12	12	2	02	0.1	07 15 N	124 01 W	100.0	5.0	5.0
820628	03	01	02			3	01	6.1	10 09 N	137 45 W	50.0	2.0	2.0

SIGHTINGS BY SPECIES

SPECIES: PACIFIC WHITE-SIDED DOLPHIN (LAGENORHYNCHUS OBLIQUIDENS)

SPECIES CODE: 22

DATE YRMODY	SERIES	LEG	SIGHT NUMBER	SUN POSITION HORZ.	SUN POSITION VERT.	BEAUF. NUMBER	DETECTED BY	PERP. DIST.(KM)	LATITUDE DEG MIN	LONGITUDE DEG MIN	PROPORTION (% OF SCHOOL)	MEAN SCHOOL SIZE EST BEST	MEAN SCHOOL SIZE EST LOW
820802			12			1	06	1.7	30 19 N	116 08 W	100.0	14.0	11.0
820802			13			1	04	3.9	30 24 N	116 10 W	56.0	12.0	21.0

SIGHTINGS BY SPECIES

SPECIES: PYGMY KILLER WHALE (FERESA ATTENUATA)

SPECIES CODE: 32

DATE YRMODY	SERIES	LEG	SIGHT NUMBER	SUN POSITION HORZ.	SUN POSITION VERT.	BEAUF. NUMBER	DETECTED BY	PERP. DIST.(KM)	LATITUDE DEG MIN	LONGITUDE DEG MIN	PROPORTION (% OF SCHOOL)	MEAN SCHOOL SIZE EST BEST	MEAN SCHOOL SIZE EST LOW
820601			06			3	04	0.0	15 01 N	099 11 W	97.4	23.0	21.0
820722	06	02	04	10	01	1	02	0.4	09 06 N	132 11 W	100.0	20.0	17.0

SIGHTINGS BY SPECIES

SPECIES: FALSE KILLER WHALE
(PSEUDORCA CRASSIDENS)

SPECIES CODE: 33

DATE YRMODY	SERIES	LEG	SIGHT NUMBER	SUN POSITION HORZ.	SUN POSITION VERT.	BEAUF. NUMBER	DETECTED BY	PERP. DIST.(KM)	LATITUDE DEG MIN	LONGITUDE DEG MIN	PROPORTION (% OF SCHOOL)	MEAN SCHOOL SIZE ESI BEST	MEAN SCHOOL SIZE ESI LOW
820618	05	02	02			2	05	1.2	08 50 N	116 20 W	100.0	5.0	7.0
820622	02	06	02	07	01	2	06	1.5	07 30 N	123 53 W	69.0	9.0	8.0
820723	05	02	03	08	02	3	02	0.0	08 25 N	128 28 W	100.0	4.0	7.0

SIGHTINGS BY SPECIES

SPECIES: PILOT WHALE
(GLOBICEPHALA SP.)

SPECIES CODE: 34

DATE YRMODY	SERIES	LEG	SIGHT NUMBER	SUN POSITION HORZ.	SUN POSITION VERT.	BEAUF. NUMBER	DETECTED BY	PERP. DIST.(KM)	LATITUDE DEG MIN	LONGITUDE DEG MIN	PROPORTION (% OF SCHOOL)	MEAN SCHOOL SIZE EST BEST	MEAN SCHOOL SIZE EST LOW
820521	02	06	02	12	12	5	02	0.6	08 45 N	099 29 W	57.0	5.0	8.0
820521	02	08	04	12	12	5	04	1.0	08 49 N	099 20 W	30.0	25.0	23.0
820526	02	04	02	02	01	4	02	0.1	07 25 N	086 40 W	100.0	7.0	6.0
820527	01	09	05	05	02	4	04	0.1	09 06 N	088 34 W	18.7	3.0	6.0
820527	06	02	08			4	01	0.5	09 03 N	089 46 W	43.3	42.0	34.0
820610	02	05	02	08	01	4	02	0.8	08 57 N	105 08 W	100.0	1.0	1.0
820611	01	09	02	04	01	4	04	3.8	06 28 N	105 28 W	100.0	4.0	4.0
820611	02	02	03	04	01	4	03	0.3	06 31 N	105 31 W	5.0	20.0	15.0
820611	02	07	04			4	04	4.5	06 43 N	105 44 W	100.0	0.0*	4.0
820611	03	01	07	12	12	4	05	0.0	06 56 N	105 51 W	100.0	17.0	20.0
820612	05	02	08	12	01	2	05	0.5	10 01 N	108 41 W	100.0	20.0	15.0
820619	01	05	02	03	02	2	03	2.6	10 54 N	117 53 W	100.0	2.0	2.0
820620	08	03	04			4	03	0.8	12 39 N	120 52 W	100.0	3.0	3.0
820622	02	06	02	07	01	2	06	1.5	07 30 N	123 53 W	10.0	9.0	8.0
820629	02	05	02	03	01	4	05	0.7	12 35 N	139 12 W	100.0	12.0	10.0
820721	01	10	02	10	01	3	01	0.1	11 53 N	134 54 W	35.0	19.0	16.0
820724	06	01	15	08	01	1	04	3.1	10 53 N	126 11 W	40.0	12.0	9.0
820801	01	22	02	12	12	3	02	1.9	26 21 N	116 02 W	85.0	5.0	5.0
820802			07			1	04	1.5	30 00 N	115 59 W	100.0	9.0	7.0
820802			09			1	02	0.5	30 07 N	116 02 W	100.0	17.0	13.0
820802	03	04	03			1	01	0.2	29 40 N	116 03 W	83.8	49.0	45.0

SIGHTINGS BY SPECIES

SPECIES: KILLER WHALE (ORCINUS ORCA)

SPECIES CODE: 37

DATE YRMODY	SERIES	LEG	SIGHT NUMBER	SUN POSITION HORZ.	SUN POSITION VERT.	BEAUF. NUMBER	DETECTED BY	PERP. DIST.(KM)	LATITUDE DEG MIN	LONGITUDE DEG MIN	PROPORTION (% OF SCHOOL)	MEAN SCHOOL SIZE ESI BEST	MEAN SCHOOL SIZE ESI LOW
820517	03	01	07	03	01	2	01	4.6	18 27 N	110 37 W	100.0	2.0	2.0
820621	01	04	01	08	02	2	03	1.7	10 37 N	122 09 W	100.0	8.0	7.0
820717	06	03	07	06	01	3	04	0.4	10 10 N	147 32 W	100.0	1.0	1.0

SIGHTINGS BY SPECIES

SPECIES: SPERM WHALE
(PHYSETER MACROCEPHALUS)

SPECIES CODE: 46

DATE YRMODY	SERIES	LEG	SIGHT NUMBER	SUN POSITION HORZ.	SUN POSITION VERT.	BEAUF. NUMBER	DETECTED BY	PERP. DIST.(KM)	LATITUDE DEG MIN	LONGITUDE DEG MIN	PROPORTION (% OF SCHOOL)	MEAN SCHOOL SIZE EST BEST	MEAN SCHOOL SIZE EST LOW
820514			01	12	12	3	01	2.8	29 19 N	117 08 W	100.0	1.0	1.0
820612	05	01	07	12	01	2	01	7.2	10 00 N	108 39 W	50.0	2.0	2.0
820716	01	08	02	01	02	4	05	2.2	11 08 N	151 14 W	100.0	5.0	5.0

SIGHTINGS BY SPECIES

SPECIES: PYGMY SPERM WHALE (KOGIA BREVICEPS)

SPECIES CODE: 47

DATE YRMODY	SERIES	LEG	SIGHT NUMBER	SUN POSITION HORZ.	SUN POSITION VERT.	BEAUF. NUMBER	DETECTED BY	PERP. DIST.(KM)	LATITUDE DEG MIN	LONGITUDE DEG MIN	PROPORTION (% OF SCHOOL)	MEAN SCHOOL SIZE EST BEST	MEAN SCHOOL SIZE EST LOW
820608	03	04	03	04	01	2	04	0.0	15 50 N	104 54 W	100.0	1.0	1.0

SIGHTINGS BY SPECIES

SPECIES: DWARF SPERM WHALE (KOGIA SIMUS)

SPECIES CODE: 48

DATE YRMODY	SERIES	LEG	SIGHT NUMBER	SUN POSITION HORZ.	SUN POSITION VERT.	BEAUF. NUMBER	DETECTED BY	PERP. DIST.(KM)	LATITUDE DEG MIN	LONGITUDE DEG MIN	PROPORTION (% OF SCHOOL)	MEAN SCHOOL SIZE EST BEST	MEAN SCHOOL SIZE EST LOW
820609	07	04	03	04	02	2	01	1.1	11 28 N	105 09 W	100.0	1.0	1.0
820609	08	02	05	04	03	2	02	0.8	11 24 N	105 07 W	25.0	5.0	4.0
820722	07	01	05	10	12	1	05	0.7	09 05 N	132 08 W	100.0	3.0	3.0
820722	08	05	07	12	12	1	05	1.0	08 53 N	131 57 W	100.0	2.0	2.0
820722	09	04	10	05	01	1	05	0.1	08 38 N	131 42 W	20.0	3.0	3.0
820724	01	01	02	02	03	1	04	0.3	10 00 N	126 57 W	100.0	2.0	2.0
820724	01	05	03	02	02	1	06	0.3	10 11 N	126 48 W	100.0	3.0	3.0
820724	02	01	05	02	01	1	06	1.3	10 21 N	126 40 W	100.0	4.0	4.0
820724	02	04	07	02	01	1	01	1.0	10 26 N	126 34 W	100.0	1.0	1.0
820724	06	02	16	08	01	1	05	0.5	11 05 N	126 00 W	100.0	2.0	2.0

SIGHTINGS BY SPECIES

SPECIES: BEAKED WHALE (ZIPHIID) SPECIES CODE: 49

DATE YRMODY	SERIES	LEG	SIGHT NUMBER	SUN POSITION HORZ.	SUN POSITION VERT.	BEAUF. NUMBER	DETECTED BY	PERP. DIST.(KM)	LATITUDE DEG MIN	LONGITUDE DEG MIN	PROPORTION (% OF SCHOOL)	MEAN SCHOOL SIZE ESI BEST	MEAN SCHOOL SIZE ESI LOW
820517	01	18	05	12	12	2	05	0.5	18 44 N	110 49 W	100.0	1.0	1.0
820518	03	02	02			3	02	3.3	16 16 N	108 17 W	100.0	1.0	1.0
820518	04	04	06			1	01	0.6	16 04 N	108 02 W	100.0	2.0	2.0
820611	07	02	12	11	02	4	02	0.3	07 14 N	105 59 W	100.0	3.0	3.0
820612	03	02	03	03	12	3	04	3.2	09 16 N	108 08 W	100.0	2.0	2.0
820619	04	01	05	02	01	2	01	2.2	11 09 N	118 07 W	100.0	2.0	2.0
820619	05	03	07	12	12	2	04	0.5	11 31 N	118 14 W	33.3	4.0	4.0
820619	06	01	08	12	12	2	04	5.9	11 31 N	118 14 W	100.0	3.0	3.0
820619	07	01	09			3	05	0.0	11 38 N	118 17 W	100.0	1.0	1.0
820622	04	02	07	12	12	2	01	1.3	07 07 N	124 08 W	100.0	1.0	1.0
820622	05	02	08	12	12	2	01	0.1	07 01 N	124 14 W	100.0	1.0	1.0
820630			02			5	04	0.5	11 22 N	141 41 W	50.0	1.0	1.0
820802			15			2	06	0.2	30 40 N	116 18 W	50.0	1.0	1.0
820802	03	02	02			1	03	0.5	29 35 N	116 05 W	33.3	2.0	2.0

SIGHTINGS BY SPECIES

SPECIES: UNID. MESOPLODONT
(MESOPLODON SP.)

SPECIES CODE: 51

DATE YRMODY	SERIES	LEG	SIGHT NUMBER	SUN POSITION HORZ.	SUN POSITION VERT.	BEAUF. NUMBER	DETECTED BY	PERP. DIST.(KM)	LATITUDE DEG MIN	LONGITUDE DEG MIN	PROPORTION (% OF SCHOOL)	MEAN SCHOOL SIZE EST BEST	MEAN SCHOOL SIZE EST LOW
820609	07	06	04	04	02	2	04	0.9	11 28 N	105 08 W	100.0	2.0	2.0
820613			02			2	02	2.6	10 16 N	109 15 W	100.0	5.0	5.0
820614			02			3		0.0	10 48 N	109 32 W	100.0	2.0	2.0
820620	01	02	01	03	03	4	05	0.5	13 34 N	119 45 W	100.0	2.0	2.0
820722	09	03	09	06	01	1	05	0.4	08 42 N	131 46 W	100.0	1.0	1.0
820724	04	04	14	12	12	1	04	2.1	10 49 N	126 15 W	100.0	3.0	3.0
820728	01	02	01			2	02	0.8	11 54 N	117 05 W	50.0	4.0	3.0
820802			15			2	06	0.2	30 40 N	116 18 W	50.0	1.0	1.0
820802	03	02	02			1	03	0.5	29 35 N	116 05 W	33.3	2.0	2.0

SIGHTINGS BY SPECIES

SPECIES: CUVIER'S BEAKED WHALE (ZIPHIUS CAVIROSTRIS)

SPECIES CODE: 61

DATE YRMODY	SERIES	LEG	SIGHT NUMBER	SUN POSITION HORZ.	SUN POSITION VERT.	BEAUF. NUMBER	DETECTED BY	PERP. DIST.(KM)	LATITUDE DEG MIN	LONGITUDE DEG MIN	PROPORTION (% OF SCHOOL)	MEAN SCHOOL SIZE EST BEST	MEAN SCHOOL SIZE EST LOW
820518	05	04	09	05	12	2	04	0.1	15 40 N	107 41 W	100.0	3.0	3.0
820610	04	08	05	04	01	4	01	0.2	08 09 N	105 05 W	50.0	3.0	3.0
820611			06	12	12	4	02	0.2	06 50 N	105 50 W	50.0	3.0	2.0
820616	04	05	03	12	12	3	02	0.7	10 43 N	112 56 W	100.0	1.0	1.0
820619	05	03	07	12	12	2	04	0.5	11 31 N	118 14 W	66.7	4.0	4.0
820624	01	02	01	03	03	4	01	1.2	11 02 N	128 10 W	100.0	2.0	2.0
820630			02			5	04	0.5	11 22 N	141 41 W	50.0	1.0	1.0
820721			04			3	01	0.0	11 45 N	134 45 W	100.0	2.0	2.0
820722			12	07	01	1	05	0.6	08 42 N	131 46 W	100.0	3.0	3.0

SIGHTINGS BY SPECIES

SPECIES: RORQUAL (BALAENOPTERA SP.) SPECIES CODE: 70

DATE YRMODY	SERIES	LEG	SIGHT NUMBER	SUN POSITION HORZ.	SUN POSITION VERT.	BEAUF. NUMBER	DETECTED BY	PERP. DIST.(KM)	LATITUDE DEG MIN	LONGITUDE DEG MIN	PROPORTION (% OF SCHOOL)	MEAN SCHOOL SIZE EST BEST	MEAN SCHOOL SIZE EST LOW
820515	01	16	02	12	12	4	03	0.6	25 15 N	115 54 W	100.0	1.0	1.0
820518	04	02	04			2	04	0.2	16 14 N	108 14 W	100.0	1.0	1.0
820722	02	02	01	10	02	1	01	6.1	09 24 N	132 23 W	100.0	1.0	1.0
820722	11	04	13	05	02	1	02	0.4	08 28 N	131 24 W	40.0	1.0	1.0
820731	01	31	01	10	02	3	06	1.5	23 08 N	115 32 W	50.0	1.0	1.0
820801	01	35	03	10	02	3	04	1.9	27 06 N	116 06 W	100.0	1.0	1.0
820802			16	11	02	2	06	1.5	30 42 N	116 19 W	100.0	1.0	1.0
820802			17	11	02	2	04	2.6	30 42 N	116 19 W	100.0	0.0*	1.0
820802			18			2	04	5.0	30 53 N	116 25 W	50.0	2.0	2.0

SIGHTINGS BY SPECIES

SPECIES: MINKE WHALE (B.ACUTOROSTRATA) SPECIES CODE: 71

DATE YRMODY	SERIES	LEG	SIGHT NUMBER	SUN POSITION HORZ.	SUN POSITION VERT.	BEAUF. NUMBER	DETECTED BY	PERP. DIST.(KM)	LATITUDE DEG MIN	LONGITUDE DEG MIN	PROPORTION (% OF SCHOOL)	MEAN SCHOOL SIZE EST BEST	MEAN SCHOOL SIZE EST LOW
820802			13			1	04	3.9	30 24 N	116 10 W	2.7	12.0	21.0

SIGHTINGS BY SPECIES

SPECIES: BRYDE'S WHALE
(B. EDENI)

SPECIES CODE: 72

DATE YRMODY	SERIES	LEG	SIGHT NUMBER	SUN POSITION HORZ.	SUN POSITION VERT.	BEAUF. NUMBER	DETECTED BY	PERP. DIST.(KM)	LATITUDE DEG MIN	LONGITUDE DEG MIN	PROPORTION (% OF SCHOOL)	MEAN SCHOOL SIZE EST BEST	MEAN SCHOOL SIZE EST LOW
820523	02	13	05	12	12	3	05	5.2	07 50 N	093 28 W	100.0	2.0	2.0
820621	04	01	04	12	12	1	01	1.2	10 08 N	122 27 W	66.7	1.0	1.0
820722	11	04	13	05	02	1	02	0.4	08 28 N	131 24 W	60.0	1.0	1.0

SIGHTINGS BY SPECIES

SPECIES: FIN WHALE
(B. PHYSALUS)

SPECIES CODE: 74

DATE YRMODY	SERIES	LEG	SIGHT NUMBER	SUN POSITION HORZ.	SUN POSITION VERT.	BEAUF. NUMBER	DETECTED BY	PERP. DIST.(KM)	LATITUDE DEG MIN	LONGITUDE DEG MIN	PROPORTION (% OF SCHOOL)	MEAN SCHOOL SIZE ESI BEST	MEAN SCHOOL SIZE ESI LOW
820802			10			1	06	1.4	30 09 N	116 03 W	21.2	8.0	7.0

SIGHTINGS BY SPECIES

SPECIES: BLUE WHALE
(B. MUSCULUS)

SPECIES CODE: 75

DATE YRMODY	SERIES	LEG	SIGHT NUMBER	SUN POSITION HORZ.	SUN POSITION VERT.	BEAUF. NUMBER	DETECTED BY	PERP. DIST.(KM)	LATITUDE DEG MIN	LONGITUDE DEG MIN	PROPORTION (% OF SCHOOL)	MEAN SCHOOL SIZE EST BEST	MEAN SCHOOL SIZE EST LOW
820802			10			1	06	1.4	30 09 N	116 03 W	62.2	8.0	7.0
820802			18			2	04	5.0	30 53 N	116 25 W	50.0	2.0	2.0

SIGHTINGS BY SPECIES

SPECIES: HUMPBACK WHALE (MEGAPTERA NOVAEANGLIAE)

SPECIES CODE: 76

DATE YRMODY	SERIES	LEG	SIGHT NUMBER	SUN POSITION HORZ.	SUN POSITION VERT.	BEAUF. NUMBER	DETECTED BY	PERP. DIST.(KM)	LATITUDE DEG MIN	LONGITUDE DEG MIN	PROPORTION (% OF SCHOOL)	MEAN SCHOOL SIZE EST BEST	MEAN SCHOOL SIZE EST LOW
820515			03	12	12	4	06	0.3			50.0	1.0	1.0
820802			13			1	04	3.9	30 24	116 10	11.0	12.0	21.0

SIGHTINGS BY SPECIES

SPECIES: UNIDENTIFIED DOLPHIN SPECIES CODE: 77

DATE YRMODY	SERIES	LEG	SIGHT NUMBER	SUN POSITION HORZ.	SUN POSITION VERT.	BEAUF. NUMBER	DETECTED BY	PERP. DIST.(KM)	LATITUDE DEG MIN	LONGITUDE DEG MIN	PROPORTION (% OF SCHOOL)	MEAN SCHOOL SIZE EST BEST	MEAN SCHOOL SIZE EST LOW
820515	01	13	01			4	01	2.7	25 32 N	116 04 W	100.0	6.0	5.0
820517	01	03	01	10	02	3	06	0.8	19 21 N	111 18 W	100.0	48.0	23.0
820517	01	12	02	10	01	3	04	0.1	19 01 N	110 59 W	100.0	2.0	2.0
820517	01	14	03	12	12	2	02	0.6	18 54 N	110 55 W	100.0	1.0	1.0
820517	01	15	04	12	12	2	02	2.5	18 51 N	110 54 W	100.0	5.0	4.0
820517	03	04	08	04	01	2	06	2.7	18 21 N	110 32 W	100.0	1.0	1.0
820518	01	04	01	10	02	3	05	0.5	16 28 N	108 29 W	25.0	10.0	7.0
820518	04	05	07			1	03	2.5	15 59 N	107 56 W	100.0	15.0	10.0
820518	04	07	08			1	02	0.9	15 53 N	107 52 W	25.0	14.0	10.0
820518	05	06	10	05	01	2	04	9.4	15 33 N	107 35 W	100.0	0.0*	5.0
820519	01	02	01			3	02	0.5	13 43 N	105 33 W	33.3	7.0	6.0
820519	01	05	02			2	04	6.0	13 35 N	105 25 W	100.0	0.0*	3.0
820519	05	01	06			1	03	2.7	13 12 N	105 00 W	100.0	100.0	75.0
820521	01	06	01	12	01	5	04	1.3	08 32 N	099 51 W	50.0	27.0	20.0
820521	02	08	04	12	12	5	04	1.0	08 49 N	099 20 W	6.0	25.0	23.0
820521	03	02	05	12	12	5	04	0.7	08 53 N	099 12 W	3.3	183.0	150.0
820521	04	04	06	07	01	5	04	0.4	09 01 N	098 53 W	100.0	4.0	3.0
820521	04	07	08	08	02	5	04	0.3	09 07 N	098 42 W	60.0	5.0	4.0
820522	01	02	02	12	02	3	03	1.3	10 14 N	096 42 W	100.0	2.0	2.0
820522	01	03	04	12	02	3	02	3.2	10 17 N	096 38 W	100.0	2.0	2.0
820522	01	03	05	12	02	3	06	0.7	10 17 N	096 37 W	12.5	89.0	65.0
820522	02	01	06	12	02	3	02	0.1	10 19 N	096 33 W	33.3	6.0	4.0
820522	02	05	09			3	06	0.3	10 25 N	096 23 W	33.3	8.0	6.0
820522	04	02	12			4	05	3.6	10 29 N	096 16 W	100.0	3.0	3.0
820522	09	04	22			3	06	0.3	10 43 N	095 09 W	66.7	6.0	12.0
820523	01	03	01	09	03	4	05	4.9	08 43 N	093 55 W	100.0	1.0	1.0
820523	04	04	07	04	02	3	05	4.8	07 23 N	093 12 W	100.0	0.0*	1.0
820523	04	06	09	04	03	3	06	1.0	07 17 N	093 09 W	66.7	13.0	9.0
820524	01	10	01			4	02	0.5	06 30 N	090 41 W	100.0	4.0	3.0
820524	02	04	03			4	03	0.2	06 25 N	090 21 W	100.0	3.0	3.0
820524	02	17	04			4	04	0.1	06 25 N	089 32 W	100.0	0.0*	8.0

SIGHTINGS BY SPECIES

SPECIES: UNIDENTIFIED DOLPHIN SPECIES CODE: 77

DATE YRMODY	SERIES	LEG	SIGHT NUMBER	SUN POSITION HORZ.	SUN POSITION VERT.	BEAUF. NUMBER	DETECTED BY	PERP. DIST.(KM)	LATITUDE DEG MIN	LONGITUDE DEG MIN	PROPORTION (% OF SCHOOL)	MEAN SCHOOL SIZE EST BEST	MEAN SCHOOL SIZE EST LOW
820526	01	04	01			4	01	2.3	07 11 N	086 39 W	100.0	0.0*	2.0
820527	01	04	02	05	02	4	02	0.2	09 05 N	088 21 W	50.0	5.0	4.0
820527	01	06	03	05	02	4	05	0.0	09 05 N	088 25 W	15.0	10.0	8.0
820528			02	12	01	3	05	3.8	11 43 N	091 22 W	100.0	1.0	1.0
820529			04			3	04	0.1	14 09 N	095 06 W	1.3	17.0	25.0
820529	01	16	02			3	05	4.6	13 59 N	094 49 W	100.0	1.0	1.0
820530	04	08	03			4	05	0.0	13 22 N	098 05 W	100.0	1.0	1.0
820601	03	07	03	12	01	2	01	5.2	14 32 N	099 55 W	99.5	10.0	11.0
820602	05	01	04	05	01	3	03	1.6	15 27 N	099 30 W	0.5	25.0	19.0
820602	07	05	05	12	02	3	04	0.2	15 52 N	100 20 W	100.0	0.0*	1.0
820603	05	06	04	11	01	4	02	6.4	17 41 N	102 59 W	0.5	164.0	114.0
820609	06	05	02	03	01	2	01	0.1	11 43 N	105 10 W	22.5	10.0	9.0
820609	08	02	05	04	03	2	02	0.8	11 24 N	105 07 W	8.3	5.0	4.0
820609	09	01	06	04	03	2	02	2.1	11 23 N	105 09 W	95.0	113.0	55.0
820610	04	06	04	04	01	4	04	3.1	08 20 N	105 05 W	100.0	0.0*	6.0
820611	02	02	03	04	01	4	03	0.3	06 31 N	105 31 W	95.0	20.0	15.0
820611	02	09	05	12	12	4	02	3.2	06 49 N	105 50 W	100.0	25.0	15.0
820611	04	01	08	12	12	4	05	0.2	06 56 N	105 52 W	10.0	188.0	98.0
820611	06	01	10			4	01	8.9	07 07 N	106 28 W	100.0	6.0	5.0
820612	02	05	02			2	02	5.1	09 05 N	108 02 W	14.7	68.0	50.0
820614	05	01	05			3	01	4.7	11 26 N	109 48 W	100.0	50.0	30.0
820615	04	06	03	12	12	3	02	6.8	13 47 N	111 51 W	10.0	100.0	68.0
820616	03	01	02			3	02	10.1	10 55 N	112 43 W	24.2	125.0	118.0
820616	06	05	04	03	03	4	06	2.5	09 41 N	113 05 W	100.0	15.0	10.0
820617	05	01	02			4	02	1.3	06 57 N	113 45 W	100.0	5.0	2.0
820618	05	01	01			3	03	1.5	08 46 N	116 15 W	100.0	20.0	10.0
820619	01	03	01	03	03	2	05	7.7	10 50 N	117 50 W	100.0	0.0*	1.0
820619	03	01	04	03	01	2	04	3.7	11 06 N	117 58 W	40.0	85.0	63.0
820622	01	02	01	07	03	2	01	2.6	07 51 N	123 43 W	29.7	77.0	50.0
820622	02	06	02	07	01	2	06	1.5	07 30 N	123 53 W	10.0	9.0	8.0
820622	06	06	09	02	01	2	03	2.6	06 44 N	124 29 W	14.0	280.0	210.0

SIGHTINGS BY SPECIES

SPECIES: UNIDENTIFIED DOLPHIN SPECIES CODE: 77

DATE YRMODY	SERIES	LEG	SIGHT NUMBER	SUN POSITION HORZ.	SUN POSITION VERT.	BEAUF. NUMBER	DETECTED BY	PERP. DIST.(KM)	LATITUDE DEG MIN	LONGITUDE DEG MIN	PROPORTION (% OF SCHOOL)	MEAN SCHOOL SIZE EST BEST	MEAN SCHOOL SIZE EST LOW
820627	02	01	01			3	03	1.5	06 34 N	135 18 W	1.3	80.0	64.0
820628	02	01	01			3	01	6.1	10 06 N	137 44 W	40.0	75.0	50.0
820630	04	04	03	02	02	5	05	6.8	10 51 N	142 03 W	100.0	0.0*	1.0
820701	03	21	01	11	02	5		0.0	11 24 N	144 30 W	50.0	15.0	7.0
820714	08	06	02			4	04	2.2	10 55 N	155 35 W	100.0	0.0*	5.0
820715	04	10	01	08	02	3	05	0.3	09 45 N	153 44 W	50.0	5.0	5.0
820717	04	03	04	11	01	2	02	1.3	10 24 N	148 04 W	100.0	4.0	4.0
820717	07	08	08	06	03	3	03	3.8	09 58 N	147 09 W	66.7	7.0	5.0
820718	03	01	03	06	02	3	05	2.2	08 15 N	143 56 W	13.3	43.0	103.0
820718	04	01	04	06	02	3	04	0.3	08 14 N	143 55 W	50.0	7.0	7.0
820718	04	02	05	06	02	3	03	3.2	08 13 N	143 54 W	100.0	10.0	8.0
820719	01	03	01	01	02	2	02	1.6	07 09 N	141 53 W	12.5	96.0	64.0
820719	04	01	05	12	12	3	04	2.6	07 43 N	141 09 W	2.5	75.0	63.0
820719	05	10	06	08	02	3	06	4.8	08 10 N	140 39 W	100.0	20.0	10.0
820720	01	07	01	01	02	3	05	4.0	09 50 N	138 23 W	37.5	25.0	45.0
820720	02	11	03			2	05	1.9	10 05 N	137 51 W	50.0	18.0	16.0
820721	03	03	05	10	12	3	04	0.2	11 40 N	134 47 W	5.0	67.0	54.0
820722	05	01	03	10	02	1	02	1.9	09 14 N	132 17 W	10.0	25.0	19.0
820722	08	01	06	12	12	1	06	6.2	09 03 N	132 07 W	100.0	15.0	3.0
820723	03	09	01	08	01	3	04	0.3	08 04 N	128 54 W	100.0	0.0*	3.0
820723	06	02	04			3	01	2.4	08 30 N	128 20 W	100.0	0.0*	15.0
820724			09	12	12	1	01	1.1	10 28 N	126 33 W	100.0	0.0*	25.0
820724	01	07	04	02	02	1	01	10.6	10 16 N	126 44 W	100.0	0.0*	5.0
820724	04	04	11	12	12	1	04	0.0	10 48 N	126 16 W	100.0	0.0*	1.0
820724	04	04	13	12	12	1	05	9.7	10 49 N	126 15 W	100.0	1.0	1.0
820724	06	01	15	08	01	1	04	3.1	10 53 N	126 11 W	60.0	12.0	9.0
820725	01	07	01	10	02	2	06	6.8	10 43 N	123 52 W	100.0	100.0	50.0
820725	02	04	03	10	01	3	04	1.6	10 27 N	123 43 W	100.0	0.0*	2.0
820725	03	09	05	05	02	3	04	2.3	09 30 N	122 57 W	100.0	0.0*	5.0
820727	02	04	01			5	01	0.2	08 58 N	118 24 W	33.3	31.0	23.0
820727	03	02	02			6	05	4.1	09 03 N	118 18 W	100.0	0.0*	2.0

SIGHTINGS BY SPECIES

SPECIES: UNIDENTIFIED DOLPHIN SPECIES CODE: 77

DATE YRMODY	SERIES	LEG	SIGHT NUMBER	SUN POSITION HORZ.	SUN POSITION VERT.	BEAUF. NUMBER	DETECTED BY	PERP. DIST.(KM)	LATITUDE DEG MIN	LONGITUDE DEG MIN	PROPORTION (% OF SCHOOL)	MEAN SCHOOL SIZE ESI BEST	MEAN SCHOOL SIZE ESI LOW
820727	05	03	03			4	01	0.4	09 49 N	117 54 W	100.0	2.0	2.0
820727	05	05	04			3	04	1.7	09 57 N	117 50 W	100.0	0.0*	16.0
820728	01	03	02			2	04	1.5	11 56 N	117 04 W	50.0	3.0	3.0
820728	01	05	03	02	02	2	01	0.2	12 00 N	117 02 W	50.0	0.0*	3.0
820729			02			5	04	1.1	16 17 N	115 29 W	100.0	8.0	7.0
820729	01	05	03			4	06	4.6	16 47 N	115 23 W	100.0	20.0	5.0
820729	01	08	04			3	05	7.3	16 57 N	115 20 W	100.0	0.0*	1.0
820729	02	04	05			3	04	1.9	17 29 N	115 06 W	100.0	0.0*	5.0
820730			02	12	12	2	04	0.0	18 59 N	114 53 W	100.0	12.0	9.0
820730			03			2	04	6.1	18 59 N	114 56 W	100.0	0.0*	5.0
820730	05	01	06	10	03	2	06	6.1	19 29 N	114 59 W	100.0	80.0	50.0
820801	01	22	02	12	12	3	02	1.9	26 21 N	116 02 W	15.0	5.0	5.0
820802			13			1	04	3.9	30 24 N	116 10 W	27.3	12.0	21.0
820802	04	01	05			1	04	0.0	29 46 N	115 58 W	100.0	0.0*	35.0

SIGHTINGS BY SPECIES

SPECIES: UNIDENTIFIED SMALL WHALE SPECIES CODE: 78

DATE YRMODY	SERIES	LEG	SIGHT NUMBER	SUN POSITION HORZ.	SUN POSITION VERT.	BEAUF. NUMBER	DETECTED BY	PERP. DIST.(Km)	LATITUDE DEG MIN	LONGITUDE DEG MIN	PROPORTION (% OF SCHOOL)	MEAN SCHOOL SIZE EST BEST	MEAN SCHOOL SIZE EST LOW
820519	01	05	03			2	04	0.5	13 33 N	105 22 W	100.0	1.0	1.0
820519	02	01	04			2	05	0.5	13 30 N	105 19 W	100.0	3.0	3.0
820519	05	02	07			1	01	2.5	13 09 N	104 56 W	100.0	1.0	1.0
820521	04	07	07	08	02	5	04	2.3	09 06 N	098 43 W	100.0	0.0*	5.0
820602	05	01	03	05	01	3	03	4.4	15 27 N	099 30 W	100.0	1.0	1.0
820604	01	01	01	03	03	1	02	1.1	18 53 N	104 15 W	50.0	1.0	1.0
820608	02	13	02	12	12	2	04	2.0	16 28 N	104 51 W	100.0	2.0	2.0
820608	04	02	04	04	01	2	04	1.5	15 48 N	104 54 W	100.0	1.0	1.0
820609	08	02	05	04	03	2	02	0.8	11 24 N	105 07 W	41.8	5.0	4.0
820610	04	08	05	04	01	4	01	0.2	08 09 N	105 05 W	50.0	3.0	3.0
820611			06	12	12	4	02	0.2	06 50 N	105 50 W	50.0	3.0	2.0
820611	05	01	09	12	12	4	04	0.1	07 03 N	105 55 W	100.0	1.0	1.0
820612			06			2	02	0.1	09 54 N	108 35 W	100.0	1.0	1.0
820615	05	05	05	02	01	2	04	2.4	13 54 N	111 56 W	100.0	1.0	1.0
820621	02	09	02	07	01	1	04	0.2	10 10 N	122 22 W	100.0	1.0	1.0
820622	02	06	02	07	01	2	06	1.5	07 30 N	123 53 W	5.0	9.0	8.0
820622	03	05	04	12	12	2	02	1.0	07 13 N	124 02 W	100.0	2.0	2.0
820622	04	01	05	12	12	2	04	1.3	07 11 N	124 04 W	100.0	1.0	1.0
820622	04	01	06	12	12	2	04	1.4	07 10 N	124 05 W	100.0	1.0	1.0
820625	02	11	01	12	12	4	02	3.9	13 10 N	130 34 W	100.0	1.0	1.0
820716	02	04	03	12	12	3	02	1.9	11 14 N	151 12 W	100.0	1.0	1.0
820719	02	02	02	01	02	3	01	2.9	07 17 N	141 44 W	100.0	1.0	1.0
820721	02	02	03	10	01	3	04	4.1	11 46 N	134 46 W	100.0	6.0	6.0
820722	04	02	02	10	02	1	01	5.2	09 16 N	132 18 W	100.0	3.0	3.0
820722	09	01	08	12	12	1	05	4.0	08 51 N	131 55 W	100.0	1.0	1.0
820722	09	04	10	05	01	1	05	0.1	08 38 N	131 42 W	60.0	3.0	3.0
820724	01	01	01	02	03	1	04	1.8	09 58 N	126 59 W	100.0	2.0	2.0
820724	02	02	06	02	01	1	06	1.4	10 23 N	126 37 W	100.0	2.0	2.0
820725	03	05	04	05	01	2	02	1.4	09 42 N	123 07 W	100.0	2.0	2.0
820728	01	02	01			2	02	0.8	11 54 N	117 05 W	50.0	4.0	3.0
820801	01	21	01	12	12	3	02	0.3	26 18 N	116 01 W	100.0	1.0	1.0

SIGHTINGS BY SPECIES

SPECIES: UNIDENTIFIED SMALL WHALE SPECIES CODE: 78

DATE YRMODY	SERIES	LEG	SIGHT NUMBER	SUN POSITION HORZ.	SUN POSITION VERT.	BEAUF. NUMBER	DETECTED BY	PERP. DIST.(KM)	LATITUDE DEG MIN	LONGITUDE DEG MIN	PROPORTION (% OF SCHOOL)	MEAN SCHOOL SIZE EST BEST	MEAN SCHOOL SIZE EST LOW
820802			13			1	04	3.9	30 24 N	116 10 W	3.0	12.0	21.0
820802	01	04	01			2	02	0.4	29 23 N	116 18 W	100.0	1.0	1.0
820802	03	02	02			1	03	0.5	29 35 N	116 05 W	33.3	2.0	2.0

SIGHTINGS BY SPECIES

SPECIES: UNIDENTIFIED LARGE WHALE — SPECIES CODE: 79

DATE YRMODY	SERIES	LEG	SIGHT NUMBER	SUN POSITION HORZ.	SUN POSITION VERT.	BEAUF. NUMBER	DETECTED BY	PERP. DIST.(KM)	LATITUDE DEG MIN	LONGITUDE DEG MIN	PROPORTION (% OF SCHOOL)	MEAN SCHOOL SIZE EST BEST	MEAN SCHOOL SIZE EST LOW
820522	01	02	01	12	02	3	03	3.3	10 13 N	096 44 W	100.0	1.0	1.0
820523	02	07	04	12	12	3	04	1.4	08 04 N	093 35 W	100.0	1.0	1.0
820523	04	05	08	04	03	3	03	1.7	07 19 N	093 10 W	100.0	1.0	1.0
820603	03	04	02	03	01	3	02	3.9	16 58 N	102 25 W	100.0	1.0	1.0
820603	06	02	06	11	02	4	02	3.6	17 41 N	102 59 W	50.0	1.0	1.0
820608	02	12	01	12	12	2	02	2.7	16 30 N	104 50 W	100.0	1.0	1.0
820612	05	01	07	12	01	2	01	7.2	10 00 N	108 39 W	50.0	2.0	2.0
820615	05	05	06	02	01	2	05	5.6	13 50 N	111 57 W	100.0	1.0	1.0
820621	03	01	03	07	01	1		12.5	10 08 N	122 24 W	100.0	1.0	1.0
820621	04	01	04	12	12	1	01	1.2	10 08 N	122 27 W	33.3	1.0	1.0

SIGHTINGS BY SPECIES

SPECIES: SPOTTED DOLPHIN
(STENELLA ATTENUATA)

SPECIES CODE: 90

DATE YRMODY	SERIES	LEG	SIGHT NUMBER	SUN POSITION HORZ.	SUN POSITION VERT.	BEAUF. NUMBER	DETECTED BY	PERP. DIST.(KM)	LATITUDE DEG MIN	LONGITUDE DEG MIN	PROPORTION (% OF SCHOOL)	MEAN SCHOOL SIZE EST BEST	MEAN SCHOOL SIZE EST LOW
820517	01	20	06	12	12	1	03	4.6	18 39 N	110 44 W	66.7	338.0	271.0
820521	01	06	01	12	01	5	04	1.3	08 32 N	099 51 W	0.0	27.0	20.0
820522	07	03	17			3	02	2.4	10 46 N	095 31 W	50.0	188.0	153.0
820528	05	05	01			3	05	1.3	11 41 N	091 20 W	100.0	11.0	9.0
820529			04			3	04	0.1	14 09 N	095 06 W	82.7	17.0	25.0
820601			06			3	04	0.0	15 01 N	099 11 W	2.6	23.0	21.0
820601	02	02	02	01	02	3	04	2.3	14 20 N	100 22 W	100.0	50.0	38.0
820601	03	07	03	12	01	2	01	5.2	14 32 N	099 55 W	0.5	10.0	11.0
820601	05	08	05	08	01	3	04	6.8	14 55 N	099 11 W	49.5	208.0	151.0
820601	06	01	07			3	02	1.9	15 02 N	099 10 W	12.5	538.0	425.0
820601	07	01	08			3	01	0.0	15 10 N	099 03 W	100.0	17.0	14.0
820603	02	01	01	04	02	3	04	1.4	16 46 N	102 08 W	2.2	28.0	23.0
820603	05	06	04	11	01	4	02	6.4	17 41 N	102 59 W	24.3	164.0	114.0
820603	06	02	05	11	02	4	02	4.1	17 41 N	102 59 W	21.0	640.0	480.0
820612			05			3		5.1	09 51 N	108 36 W	79.2	690.0	560.0
820612	02	05	02			2	02	5.1	09 05 N	108 02 W	16.3	68.0	50.0
820612	05	04	09	12	02	2	06	2.7	10 05 N	108 49 W	68.3	419.0	338.0
820614	04	02	04			3	06	10.2	11 21 N	109 55 W	45.5	592.0	467.0
820615	01	03	01	03	02	3	02	2.6	13 07 N	111 19 W	23.3	150.0	104.0
820615	04	06	03	12	12	3	02	6.8	13 47 N	111 51 W	40.0	100.0	68.0
820616	03	01	02			3	02	10.1	10 55 N	112 43 W	3.8	125.0	118.0
820717			01	10	02	3	01	0.6	10 42 N	148 29 W	16.7	96.0	65.0
820718	02	30	02	06	01	3	03	1.2	08 16 N	144 01 W	1.7	202.0	172.0
820720	01	07	01	01	02	3	05	4.0	09 50 N	138 23 W	12.5	25.0	45.0

SIGHTINGS BY SPECIES

SPECIES: UNIDENTIFIED CETACEAN SPECIES CODE: 96

DATE YRMODY	SERIES	LEG	SIGHT NUMBER	SUN POSITION HORZ.	SUN POSITION VERT.	BEAUF. NUMBER	DETECTED BY	PERP. DIST.(KM)	LATITUDE DEG MIN	LONGITUDE DEG MIN	PROPORTION (% OF SCHOOL)	MEAN SCHOOL SIZE EST BEST	MEAN SCHOOL SIZE EST LOW
820518	04	02	05			2	04	5.4	16 12 N	108 12 W	100.0	0.0*	3.0
820521	02	06	02	12	12	5	02	0.6	08 45 N	099 29 W	43.0	5.0	8.0
820521	02	08	04	12	12	5	04	1.0	08 49 N	099 20 W	1.7	25.0	23.0
820522	02	05	08			3	02	0.5	10 24 N	096 25 W	100.0	10.0	6.0
820522	06	01	14			4	04	0.4	10 39 N	095 54 W	100.0	0.0*	1.0
820527	01	06	03	05	02	4	05	0.0	09 05 N	088 25 W	10.0	10.0	8.0
820527	06	02	08			4	01	0.5	09 03 N	089 46 W	1.3	42.0	34.0
820604	01	01	01	03	03	1	02	1.1	18 53 N	104 15 W	50.0	1.0	1.0
820609	08	02	05	04	03	2	02	0.8	11 24 N	105 07 W	25.0	5.0	4.0
820628	03	01	02			3	01	6.1	10 09 N	137 45 W	50.0	2.0	2.0
820629	02	07	03			4	04	1.1	12 37 N	139 14 W	100.0	0.0*	1.0
820721	05	06	06	05	02	3	05	8.3	10 57 N	134 09 W	100.0	3.0	2.0
820722	09	04	10	05	01	1	05	0.1	08 38 N	131 42 W	20.0	3.0	3.0
820724	04	04	12	12	12	1	04	1.2	10 48 N	126 16 W	100.0	1.0	1.0
820724	07	02	18	08	02	1	02	2.1	11 15 N	125 50 W	100.0	1.0	1.0
820728	01	05	03	02	02	2	01	0.2	12 00 N	117 02 W	50.0	0.0*	3.0

SIGHTINGS BY SPECIES

SPECIES: UNIDENTIFIED OBJECT SPECIES CODE: 97

DATE YRMODY	SERIES	LEG	SIGHT NUMBER	SUN POSITION HORZ.	SUN POSITION VERT.	BEAUF. NUMBER	DETECTED BY	PERP. DIST.(KM)	LATITUDE DEG MIN	LONGITUDE DEG MIN	PROPORTION (% OF SCHOOL)	MEAN SCHOOL SIZE EST BEST	MEAN SCHOOL SIZE EST LOW
820515	03	07	05	05	02	3	03	0.9	24 24 N	115 17 W	33.3	43.0	22.0

SIGHTINGS BY SPECIES

SPECIES: UNIDENTIFIED WHALE SPECIES CODE: 98

DATE YRMODY	SERIES	LEG	SIGHT NUMBER	SUN POSITION HORZ.	SUN POSITION VERT.	BEAUF. NUMBER	DETECTED BY	PERP. DIST.(KM)	LATITUDE DEG MIN	LONGITUDE DEG MIN	PROPORTION (% OF SCHOOL)	MEAN SCHOOL SIZE ESI BEST	MEAN SCHOOL SIZE ESI LOW
820515			03	12	12	4	06	0.3			50.0	1.0	1.0
820518	04	01	03			3	06	1.0	16 15	108 16	100.0	1.0	1.0
820522	01	03	03	12	02	3	02	0.0	10 15	096 41	100.0	2.0	2.0
820523	02	05	03	10	12	4	04	1.3	08 10	093 39	100.0	1.0	1.0
820527	01	01	01	05	03	4	06	2.0	09 05	088 11	100.0	0.0*	1.0
820603	05	05	03	11	01	4	06	5.1	17 28	102 51	100.0	1.0	1.0
820603	06	02	06	11	02	4	02	3.6	17 41	102 59	50.0	1.0	1.0
820611	07	02	11	11	02	4	06	2.2	07 12	105 58	100.0	1.0	1.0
820615	04	07	04	12	12	3	06	2.7	13 52	111 54	100.0	1.0	1.0
820716	01	01	01	12	03	3	04	2.7	10 52	151 42	100.0	1.0	1.0
820717	02	01	02	10	02	3	04	1.7	10 42	148 28	100.0	1.0	1.0
820717	06	02	06	06	12	3	04	3.5	10 11	147 34	100.0	0.0*	3.0
820720	02	03	02	12	12	3	02	2.0	09 51	138 10	100.0	1.0	1.0
820721	01	01	01	01	03	2	06	2.8	11 48	135 16	100.0	1.0	1.0
820731	01	31	01	10	02	3	06	1.5	23 08	115 32	50.0	1.0	1.0
820802			11	10	01	1	06	0.0	30 15	116 06	100.0	1.0	1.0

*Denotes estimate not available.

Table 4. Summary of cetacean sightings encountered in the Eastern Tropical Pacific during May 14 through August 2, 1982.

SIGHTING SUMMARY

SPECIES NAME (SCIENTIFIC NAME)	SPECIES CODE	SPECIES SIGHTINGS TOTAL	PURE	MIXED	ESTIMATED-MEAN-SCHOOL-SIZE LOW /(N)	HIGH /(N)	BEST /(N)
OFFSHORE SPOTTED DOLPHIN (STENELLA ATTENUATA)	2	56	7	49	72.23(56)	143.29(55)	98.78(55)
SPINNER DOLPHIN (STENELLA LONGIROSTRIS)	3	15	0	15	12.92(15)	24.23(15)	17.00(15)
COMMON DOLPHIN (DELPHINUS DELPHIS)	5	15	13	2	204.67(15)	362.78(14)	262.09(14)
COASTAL SPOTTED DOLPHIN (S.A. GRAFFMANI)	6	1	0	1	25.55(1)	47.26(1)	31.40(1)
EASTERN SPINNER DOLPHIN (STENELLA LONGIROSTRIS)	10	24	2	22	43.02(24)	74.49(24)	54.40(24)
WHITEBELLY SPINNER DOLPHIN (STENELLA LONGIROSTRIS)	11	22	1	21	65.31(22)	106.33(22)	80.13(22)
STRIPED DOLPHIN (S. COERULEOALBA)	13	26	19	7	36.04(25)	75.35(24)	52.32(24)
ROUGH-TOOTHED DOLPHIN (STENO BREDANENSIS)	15	17	9	8	6.27(17)	10.25(17)	7.13(17)
BOTTLENOSED DOLPHINS (TURSIOPS TRUNCATUS)	18	21	10	11	9.51(21)	15.60(21)	11.44(21)
RISSO'S DOLPHIN (GRAMPUS GRISEUS)	21	15	7	8	2.48(15)	4.41(15)	2.87(15)
PACIFIC WHITE-SIDED DOLPHIN (LAGENORHYNCHUS OBLIQUIDENS)	22	2	1	1	11.38(2)	13.92(2)	10.36(2)
UNIDENTIFIED DOLPHIN	77	107	59	48	8.24(107)	28.30(82)	13.01(83)
SPOTTED DOLPHIN (STENELLA ATTENUATA)	90	24	3	21	65.28(24)	115.78(24)	82.19(24)
TOTALS		345	131	214			

SIGHTING SUMMARY

SPECIES NAME (SCIENTIFIC NAME)	SPECIES CODE	SPECIES SIGHTINGS TOTAL	PURE	MIXED	ESTIMATED-MEAN-SCHOOL-SIZE LOW /(N)	HIGH /(N)	BEST /(N)
PYGMY KILLER WHALE (FERESA ATTENUATA)	32	2	1	1	18.73(2)	27.61(2)	21.20(2)
FALSE KILLER WHALE (PSEUDORCA CRASSIDENS)	33	3	2	1	6.51(3)	8.01(3)	5.07(3)
PILOT WHALE (GLOBICEPHALA SP.)	34	21	11	10	7.86(21)	11.35(20)	8.99(20)
KILLER WHALE (ORCINUS ORCA)	37	3	3	0	3.33(3)	5.00(3)	3.67(3)
SPERM WHALE (PHYSETER MACROCEPHALUS)	46	3	2	1	2.33(3)	3.17(3)	2.33(3)
PYGMY SPERM WHALE (KOGIA BREVICEPS)	47	1	1	0	1.00(1)	1.00(1)	1.00(1)
DWARF SPERM WHALE (KOGIA SIMUS)	48	10	8	2	1.96(10)	2.18(10)	1.99(10)
BEAKED WHALE (ZIPHIID)	49	14	10	4	1.43(14)	1.70(14)	1.43(14)
UNID. MESOPLODONT (MESOPLODON SP.)	51	9	6	3	1.96(9)	2.44(9)	2.02(9)
CUVIER'S BEAKED WHALE (ZIPHIUS CAVIROSTRIS)	61	9	5	4	1.85(9)	2.13(9)	1.91(9)
RORQUAL (BALAENOPTERA SP.)	70	9	6	3	0.88(9)	0.93(8)	0.86(8)
MINKE WHALE (B.ACUTOROSTRATA)	71	1	0	1	0.57(1)	0.38(1)	0.32(1)
BRYDE'S WHALE (B. EDENI)	72	3	1	2	1.09(3)	1.42(3)	1.09(3)
FIN WHALE (B. PHYSALUS)	74	1	0	1	1.48(1)	2.12(1)	1.70(1)
BLUE WHALE (B. MUSCULUS)	75	2	0	2	2.68(2)	3.86(2)	2.99(2)
HUMPBACK WHALE (MEGAPTERA NOVAEANGLIAE)	76	2	0	2	1.40(2)	1.27(2)	0.91(2)
UNIDENTIFIED SMALL WHALE	78	34	25	9	1.55(34)	1.94(33)	1.48(33)
UNIDENTIFIED LARGE WHALE	79	10	7	3	0.88(10)	1.03(10)	0.88(10)

SIGHTING SUMMARY

SPECIES NAME (SCIENTIFIC NAME)	SPECIES CODE	SPECIES TOTAL	SIGHTINGS PURE	SIGHTINGS MIXED	ESTIMATED-MEAN-SCHOOL-SIZE LOW /(N)	HIGH /(N)	BEST /(N)
UNIDENTIFIED CETACEAN	96	16	7	9	1.54(16)	2.54(12)	1.87(12)
UNIDENTIFIED OBJECT	97	1	0	1	7.33(1)	32.30(1)	14.32(1)
UNIDENTIFIED WHALE	98	16	13	3	1.09(16)	1.00(14)	0.96(14)
TOTALS		170	108	62			
GRAND TOTALS		515	239	276			

Table 5. Marine mammal school size estimates for each observer, classified by species codes, for all sightings encountered in the Eastern Tropical Pacific during May 14 through August 2, 1982.

	DATE	SIGHT NO.	OBS 1 BEST EST.	OBS 1 PCT	OBS 2 BEST EST.	OBS 2 PCT	OBS 3 BEST EST.	OBS 3 PCT	OBS 4 BEST EST.	OBS 4 PCT	OBS 5 BEST EST.	OBS 5 PCT	OBS 6 BEST EST.	OBS 6 PCT
SPECIES 2														
	820517	06					350	100					250	100
	820519	05	34	100			20	100	23	100	11	100	25	100
	820521	05	150	25										
	820522	05			40	100	75	50	200	100			40	100
	820522	17					200	100					400	100
	820530	01	600	60			200	40			130	25		
	820530	02	700	70			175	70	300	70	225	65	600	90
	820601	04			100	100	250	100	85	100			200	100
	820601	05							350	99				
	820601	07			400	80	400	75					900	65
	820603	01			25	15	35	2					40	25
	820603	04			100	98	225	100					125	94
	820603	05			500	70	700	60					900	65
	820609	01	350	99					500	98	750	100		
	820612	02					150	50					40	60
	820612	04	350	75					900	75			400	75
	820612	09											500	95
	820614	04			400	80	750	80					500	90
	820615	01	270	95	100	80							80	70
	820615	02	230	97					350	95				
	820615	03			50	50	100	50					50	100
	820616	02			100	20							100	10
	820619	03	125	100			75	100	35	100	200	100	40	100
	820619	04	70	100					100	10				
	820619	06			300	50	300	70					450	70
	820622	01	45	100					60	11	125	100		
	820622	09	450	30	200	50	250	30	150	35			350	65
	820627	01			80	80	200	95					40	40
	820628	01	35	100					40	80				
	820629	01	55	55					45	35	100	70		
	820630	01	65	3					75	8				
	820630	04	45	75					200	10				
	820712	01	35	100					30	100	40	100		
	820714	01							175	5	140	80		

	DATE	SIGHT NO.	OBS 1 BEST EST.	OBS 1 PCT	OBS 2 BEST EST.	OBS 2 PCT	OBS 3 BEST EST.	OBS 3 PCT	OBS 4 BEST EST.	OBS 4 PCT	OBS 5 BEST EST.	OBS 5 PCT	OBS 6 BEST EST.	OBS 6 PCT
SPECIES 2														
	820716	04	70	2					75	5				
	820717	03	95	65			75	20	175	65	160	100	250	20
	820717	05							100	25				
	820718	01	350	20					600	12				
	820718	02					175	50	200	20				
	820718	06											60	30
	820719	01			60	10			60	34				
	820719	05	65	90					85	95				
	820720	01					100	50						
	820721	05	70	70					65	62	65	62		
	820722	03							30	100				
	820724	08	550	96					500	80	450	88		
	820724	17	110	80	110	40	300	30	175	70	200	60	125	40
	820724	22			30	100	100	100					25	100
	820725	02	375	20	280	30	600	70					250	70
	820727	01	22	100			20	100						
	820728	02	3	100										
	820730	04	35	100					30	100	40	100		
SPECIES 3														
	820601	07	450	50										
	820603	01	21	95										
	820603	05	600	40										
	820609	01	350	1										
	820610	03					25	2						
	820612	09					225	2					500	4
	820614	04	600	5							500	15		
	820615	02	230	3										
	820619	06					300	30					450	15
	820630	04	45	25										
	820718	01									800	10		
	820724	08	550	4										

	DATE	SIGHT NO.	OBS 1 BEST EST.	OBS 1 PCT	OBS 2 BEST EST.	OBS 2 PCT	OBS 3 BEST EST.	OBS 3 PCT	OBS 4 BEST EST.	OBS 4 PCT	OBS 5 BEST EST.	OBS 5 PCT	OBS 6 BEST EST.	OBS 6 PCT
SPECIES 5														
	820514	02	5	100					15	100	12	100		
	820515	04	250	100	700	100	500	100	350	100	250	100	700	100
	820515	05	25	100			100	100						
	820522	18	300	100	400	100	500	100	150	100	275	100	350	100
	820526	03	100	100			200	100	150	100	200	100		
	820527	06	750	100	400	100	900	100	300	100			950	100
	820620	02			35	100	35	100					20	100
	820802	04	1800	100			1200	100			1200	100		
SPECIES 6														
	820522	17									150	100		
SPECIES 10														
	820521	05	150	75					100	90	300	100		
	820530	01	600	40			200	60			130	75		
	820530	02	700	30			175	30	300	30	225	35	600	10
	820601	07			400	20	400	25					900	35
	820603	01			25	85	35	98	18	94			40	75
	820603	05			500	30	700	40	500	55			900	35
	820609	01							500	1				
	820610	03			45	100	25	98	35	100			20	100
	820612	02			80	50	150	50					40	40
	820612	04	350	25					900	25			400	25
	820612	09			500	10			450	15			500	1
	820614	04			400	20	750	20	800	7			500	10
	820615	01	270	5	100	20			150	7			80	30
	820615	02							350	5				
	820615	03			50	50								
	820616	01	35	100					20	100				
	820616	02			100	80	300	80					100	90
	820619	04							100	10				
	820619	06			300	50							450	15
	820622	09											350	3
	820724	08									450	12		

	DATE	SIGHT NO.	OBS 1 BEST EST.	OBS 1 PCT	OBS 2 BEST EST.	OBS 2 PCT	OBS 3 BEST EST.	OBS 3 PCT	OBS 4 BEST EST.	OBS 4 PCT	OBS 5 BEST EST.	OBS 5 PCT	OBS 6 BEST EST.	OBS 6 PCT
SPECIES 10														
	820724	17									200	20		
SPECIES 11														
	820622	09	450	70	200	50	250	30	150	35			350	32
	820627	01			80	20							40	60
	820629	01	55	45					45	65	100	30		
	820630	01	65	97					75	92				
	820630	04							200	90				
	820701	01											25	100
	820714	01	50	100					175	95	140	20		
	820714	03	2	100										
	820715	01	5	100										
	820716	04	70	98			40	100	75	95	130	100	50	100
	820717	03	95	35			75	80	175	35			250	80
	820717	05	90	100					100	75				
	820718	01	350	80					600	88	800	90		
	820718	02	230	95			175	50	200	80				
	820718	03									130	90		
	820718	06			25	100							60	70
	820719	01			60	90	200	50	60	66			65	100
	820719	05	65	10										
	820724	08							500	20				
	820724	17	110	20	110	60	300	70	175	30	200	20	125	60
	820725	02	375	80	280	70	600	30					250	30
SPECIES 13														
	820518	01	8	100					10	100	12	100		
	820518	08			15	100			8	100			12	100
	820518	11							8	100	12	100		
	820521	03	20	100					10	100				
	820522	11							85	100	250	100		
	820522	16			75	100	250	100					150	100
	820522	22							6	100				
	820523	06	100	100	90	100	400	100	40	100			500	100

	DATE	SIGHT NO.	OBS 1 BEST EST.	OBS 1 PCT	OBS 2 BEST EST.	OBS 2 PCT	OBS 3 BEST EST.	OBS 3 PCT	OBS 4 BEST EST.	OBS 4 PCT	OBS 5 BEST EST.	OBS 5 PCT	OBS 6 BEST EST.	OBS 6 PCT
SPECIES 13														
	820610	01	15	100					12	100				
	820611	08							75	80	300	100		
	820612	01	35	100	45	100			40	100			30	100
	820617	01	45	100	35	100	30	100	35	100			40	100
	820623	01	8	100					20	100				
	820626	01			20	100	30	100					35	100
	820701	01	5	100										
	820702	01							20	100				
	820719	04			100	100			50	100				
	820722	03	35	50	15	100	25	100					20	100
	820722	11			20	100	50	100					17	100
	820723	02							12	100				
	820724	10	85	100	175	100	350	100	125	100	150	100	125	100
SPECIES 15														
	820519	01					6	100	8	100				
	820522	10			5	100	5	100	5	100			5	100
	820529	03	4	100					5	100	7	100		
	820601	05	65	1					350	1				
	820602	01	11	100					15	100	20	100		
	820609	02	11	55							8	100		
	820609	06					100	10						
	820620	03	3	100										
	820717	08											7	100
	820718	04									12	100		
	820719	03	18	100					12	100				
	820720	01									1	100		
	820720	03									34	100		
	820720	04							8	100				
	820730	05	14	100			11	100	15	100	15	100	9	100
SPECIES 18														
	820521	04	60	32							15	100		
	820522	07									2	100		

	DATE	SIGHT NO.	OBS 1 BEST EST.	OBS 1 PCT	OBS 2 BEST EST.	OBS 2 PCT	OBS 3 BEST EST.	OBS 3 PCT	OBS 4 BEST EST.	OBS 4 PCT	OBS 5 BEST EST.	OBS 5 PCT	OBS 6 BEST EST.	OBS 6 PCT
SPECIES 18														
	820522	19							7	100	10	100		
	820527	03							16	75	10	70	7	43
	820527	04	6	100					12	100				
	820527	05	3	67							7	86		
	820527	07	3	100					3	100				
	820527	08	66	38					33	54	26	74		
	820602	02	20	50	12	50	20	50	11	45			11	45
	820602	04			18	98	40	100	18	100			25	100
	820603	04							206	3			125	6
	820608	05			2	100								
	820609	01							500	1				
	820614	01			12	100	10	100					10	100
	820721	02	17	70					20	60				
	820721	05	70	30					65	23	65	38		
	820724	19							25	100	40	100		
	820802	03	53	5	45	15	45	34	54	13	53	13	42	17
SPECIES 21														
	820521	08							5	40				
	820522	06			8	100			6	100				
	820522	09					8	100					10	100
	820522	15							4	100				
	820522	20	3	100							1	100		
	820522	21							1	100				
	820527	02							6	100				
	820527	03							16	25	10	30	7	57
	820601	01							2	100				
	820602	02	20	50	12	50	20	50	11	55			11	55
	820611	01									2	100		
	820622	02	25	5	8	25								
	820622	03			6	100	3	100					7	100
	820628	02									1	100		

DATE	SIGHT NO.	OBS 1 BEST EST.	OBS 1 PCT	OBS 2 BEST EST.	OBS 2 PCT	OBS 3 BEST EST.	OBS 3 PCT	OBS 4 BEST EST.	OBS 4 PCT	OBS 5 BEST EST.	OBS 5 PCT	OBS 6 BEST EST.	OBS 6 PCT
SPECIES 77													
820515	01	6	100										
820517	01			75	100							20	100
820517	02							2	100				
820517	03			1	100								
820517	04			5	100							5	100
820517	08											1	100
820518	01					10	100						
820518	07					15	100						
820518	08					20	100						
820519	01			7	100								
820519	06					100	100						
820521	01					50	100						
820521	05							100	10				
820521	06			3	100			5	100			3	100
820521	08							5	60				
820522	02					2	100						
820522	04			2	100								
820522	05					75	50						
820522	06											3	100
820522	09			7	100								
820522	12									3	100		
820522	22											12	100
820523	01									1	100		
820523	09			20	100							20	100
820524	01			4	100								
820524	03					3	100						
820527	02			4	100								
820527	03			7	60								
820529	02									1	100		
820530	03									1	100		
820601	03	20	99										
820602	04			18	2								
820603	04			100	2								
820609	02	11	45										

DATE	SIGHT NO.	OBS 1 BEST EST.	OBS 1 PCT	OBS 2 BEST EST.	OBS 2 PCT	OBS 3 BEST EST.	OBS 3 PCT	OBS 4 BEST EST.	OBS 4 PCT	OBS 5 BEST EST.	OBS 5 PCT	OBS 6 BEST EST.	OBS 6 PCT
SPECIES 77													
820609	05			6	33								
820609	06			125	80	100	90						
820611	03					20	95						
820611	05			25	100								
820611	08							75	20				
820611	10	6	100										
820614	05	50	100										
820615	03					100	50						
820616	02					300	20						
820616	04											15	100
820617	02			5	100								
820618	01					20	100						
820619	04							100	80				
820622	01							60	89				
820622	02			8	50								
820622	09					250	40	150	30				
820627	01					200	5						
820628	01					150	100	40	20				
820701	01			10	100	20	100						
820715	01									4	100		
820717	04			4	100								
820717	08			10	100	5	100						
820718	03									130	10		
820718	04							2	100				
820718	05			10	100	10	100						
820719	01					200	50						
820719	05							85	5				
820719	06											20	100
820720	01					100	50						
820720	03	2	100										
820721	05							65	15				
820722	03	35	50										
820722	06											15	100
820724	13									1	100		

DATE	SIGHT NO.	OBS 1 BEST EST.	OBS 1 PCT	OBS 2 BEST EST.	OBS 2 PCT	OBS 3 BEST EST.	OBS 3 PCT	OBS 4 BEST EST.	OBS 4 PCT	OBS 5 BEST EST.	OBS 5 PCT	OBS 6 BEST EST.	OBS 6 PCT
SPECIES 77													
820724	15							12	60				
820725	01											100	100
820727	01			50	100								
820727	03	2	100										
820728	02							3	100				
820729	03											20	100
820730	06											80	100
820801	02											9	45
SPECIES 90													
820517	06	375	100	700	100			175	100	175	100		
820522	17	175	100	200	100								
820528	01	18	100					15	100				
820601	02	50	100					50	100				
820601	03	20	1										
820601	05	65	99										
820601	07	450	50										
820601	08	18	100					15	100				
820603	01	21	5					18	6				
820603	04							206	97				
820603	05	600	60					500	45				
820612	02			80	50								
820612	09			500	90	225	98	450	85				
820614	04	600	95					800	93	500	85		
820615	01							150	93				
820615	03	200	100					100	100				
820718	02	230	5										

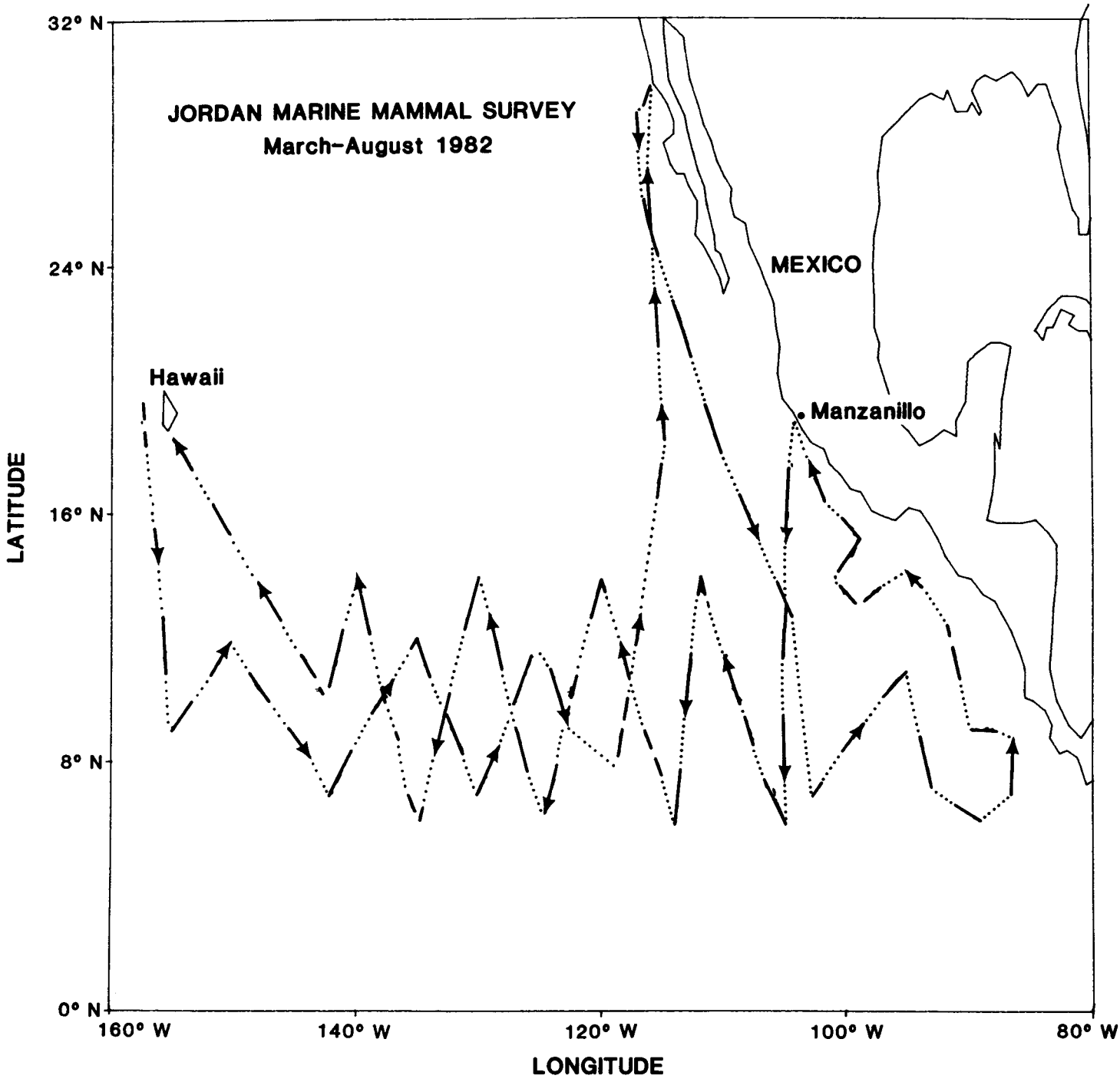


Figure 1. Tracklines surveyed from the R/V D. S. Jordan in the eastern tropical Pacific during May 14 through August 2, 1982.

CRUISE # | YEAR | MONTH | DAY

1 4 6 8

RESEARCH SHIP
MARINE MAMMAL
DAILY EFFORT RECORD

SERIES #	LEG #	START OF LEG						END OF LEG	COMPASS COURSE °T	VESSEL SPEED KTS & 10ths	POSITION: ONE OR MORE PER SERIES				OBSERVER POSITION			END LEG CODE
		TIME	SURFACE TEMP. °F & 10ths	BEAU #	FOG/ RAIN	HORZ SUN	VERT SUN	TIME			LATITUDE	N/S	LONGITUDE	E/W	LEFT BIND.	RIGHT BIND.	REC.	

10 12 14 18 22 23 24 26 28 32 35 38 42 43 48 49 51 53 55

FOG/RAIN CODES

NO FOG OR RAIN = 1
FOG = 2
RAIN = 3
FOG AND RAIN = 4

ENDING CODES

1 = COURSE CHANGE
2 = SPEED CHANGE
4 = EFFORT TERMINATED
5 = LEG ENDS TO RECORD POSITION IN FOLLOWING LEG
8 = LEG ENDS DUE TO CHANGE IN ENVIRONMENTAL CONDITIONS

Figure 2. Research ship marine mammal daily effort record.

CRUISE #	DATE YEAR	DATE MONTH	DATE DAY	SIGHT #	SERIES #	LEG #	CARD #
							0 1
1	4	6	8	10	12	14	16

RESEARCH SHIP MARINE MAMMAL SIGHTING RECORD

SIGHTING CUE TIME	SIGHTING CUE BEARING FROM SHIP	SIGHTING CUE DISTANCE nm & 10ths	ENVIR. COND. AT CUE BEAU	ENVIR. COND. AT CUE SURF TEMP °F & 10ths	ENVIR. COND. AT CUE HORZ SUN	ENVIR. COND. AT CUE VERT SUN	POSITION AT TIME OF CUE LATITUDE	N/S	POSITION AT TIME OF CUE LONGITUDE	E/W	SOURCE CODE	TIME M.M. SIGHTED	BIRDS Y/N	OBSERVER POSITIONS LEFT BIND	OBSERVER POSITIONS RIGHT BIND	OBSERVER POSITIONS REC	M.M. DETECTED BY
18	22	23 24	27	30	31 34	36	38	42	43	48	49	50	54	55	57	59	61

OBSERVER 1

OBS. CODE	SCHOOL SIZE ESTIMATE BEST	HIGH	LOW	CARD #	SPECIES 1 %	SP 1 CODE	SPECIES 2 %	SP 2 CODE	SPECIES 3 %	SP 3 CODE	SPECIES 4 %	SP 4 CODE
				0 2								
63	65	69	73 76	16	18	21	23	26	28	31	33	36

S P 1 S P 2 S P 3 S P 4

OBSERVER 2

OBS. CODE	SCHOOL SIZE ESTIMATE BEST	HIGH	LOW	SPECIES 1 %	SP 1 CODE	SPECIES 2 %	SP 2 CODE	SPECIES 3 %	SP 3 CODE	SPECIES 4 %	SP 4 CODE
38	40	44	48	52	55	57	60	62	65	67	70

S P 1 S P 2 S P 3 S P 4

OBSERVER 3

OBS. CODE	SCHOOL SIZE ESTIMATE BEST	CARD #	HIGH	LOW	SPECIES 1 %	SP 1 CODE	SPECIES 2 %	SP 2 CODE	SPECIES 3 %	SP 3 CODE	SPECIES 4 %	SP 4 CODE
		0 3										
72	74	77 16	18	22	26	29	31	34	36	39	41	44

S P 1 S P 2 S P 3 S P 4

OBSERVER 4

OBS. CODE	SCHOOL SIZE ESTIMATE BEST	HIGH	LOW	SPECIES 1 %	SP 1 CODE	SPECIES 2 %	SP 2 CODE	SPECIES 3 %	SP 3 CODE	SPECIES 4 %	CARD #	SP 4 CODE
											0 4	
46	48	52	56	60	63	65	68	70	73	75	77 16	18

S P 1 S P 2 S P 3 S P 4

OBSERVER 5

OBS. CODE	SCHOOL SIZE ESTIMATE BEST	HIGH	LOW	SPECIES 1 %	SP 1 CODE	SPECIES 2 %	SP 2 CODE	SPECIES 3 %	SP 3 CODE	SPECIES 4 %	SP 4 CODE
20	22	26	30	34	37	39	42	44	47	49	52

S P 1 S P 2 S P 3 S P 4

OBSERVER 6

OBS. CODE	SCHOOL SIZE ESTIMATE BEST	HIGH	LOW	SPECIES 1 %	SP 1 CODE	SPECIES 2 %	SP 2 CODE	CARD #	SPECIES 3 %	SP 3 CODE	SPECIES 4 %	SP 4 CODE
								0 5				
54	56	60	64	68	71	73	76	16	18	21	23	26

S P 1 S P 2 S P 3 S P 4

RC 1	RC 2	RC 3	RC 4	RC 5	RC 6
28	29	30	31	32	33

Figure 3. Research ship marine mammal sighting record.

CRUISE #	DATE YEAR	MONTH	DAY	SIGHT #	SERIES #	LEG #	OBS. CODE
1	4	6	8	10	12	14	16

SIGHTING SUMMARY

LIST ALL DIAGNOSTIC FEATURES OBSERVED
(INCLUDING ESTIMATED BODY LENGTH)

SKETCH FEATURES OF ANIMALS SIGHTED

BEHAVIOR – (DESCRIBE AGGREGATION, MOVEMENT, BOW AND STERN RIDING, BLOWS, ETC.)

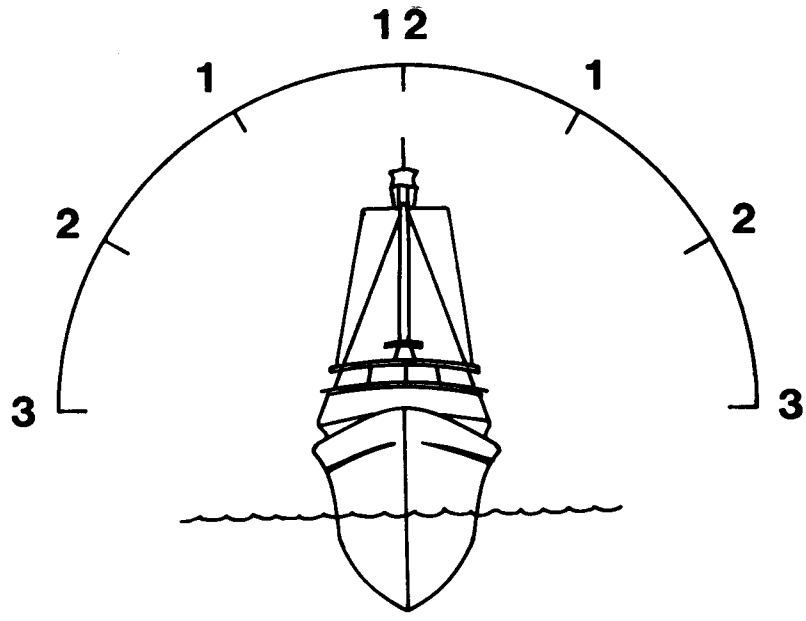
ASSOCIATED ANIMALS – (INCLUDE NUMBER AND SPECIES OF BIRDS)

PHOTOS: ROLL # _____

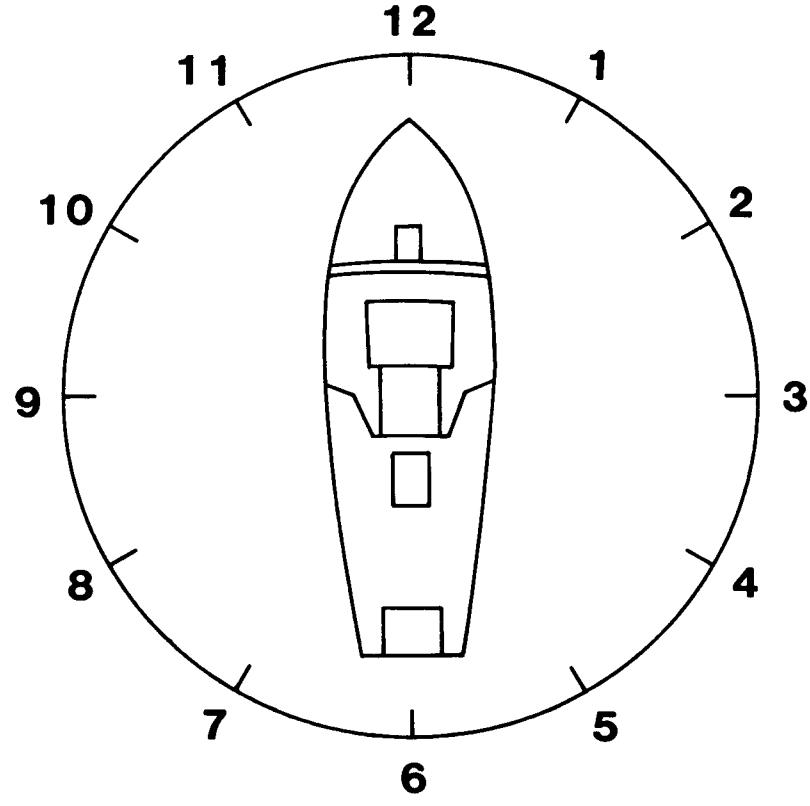
FRAME(S): # _____

TOTAL TIME OF OBSERVATION	_____	ENVIR. COND. (RAIN, OVERCAST, FOG, CHOPPY)	_____	CLOSEST DISTANCE OF OBSERVATION	_____
AMT. OF TIME AT CLOSEST DISTANCE	_____	TAGS ASSOCIATED WITH SIGHTING	_____	METHOD OF OBSERVATION (EYE, 7x, 10x, 25x)	_____

Figure 4. Research ship marine mammal sighting record continuation sheet.



VERTICAL SUN POSITION



HORIZONTAL SUN POSITION

Figure 5. Vertical and horizontal sun position categories.

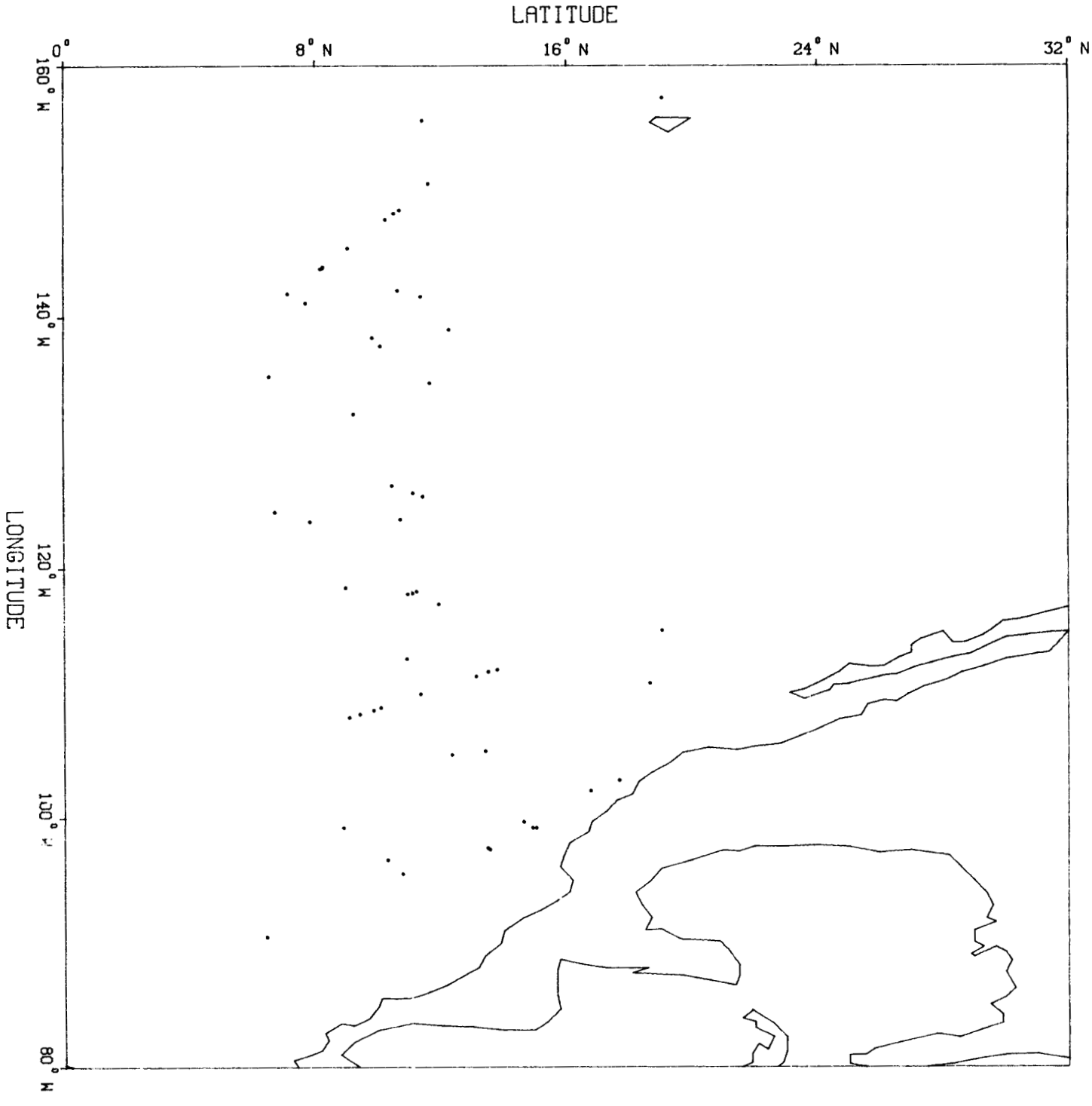


Figure 6. Record of offshore spotted dolphin, Stenella attenuata (Species Code 2) encountered in the eastern tropical Pacific during May 14 through August 2, 1982.

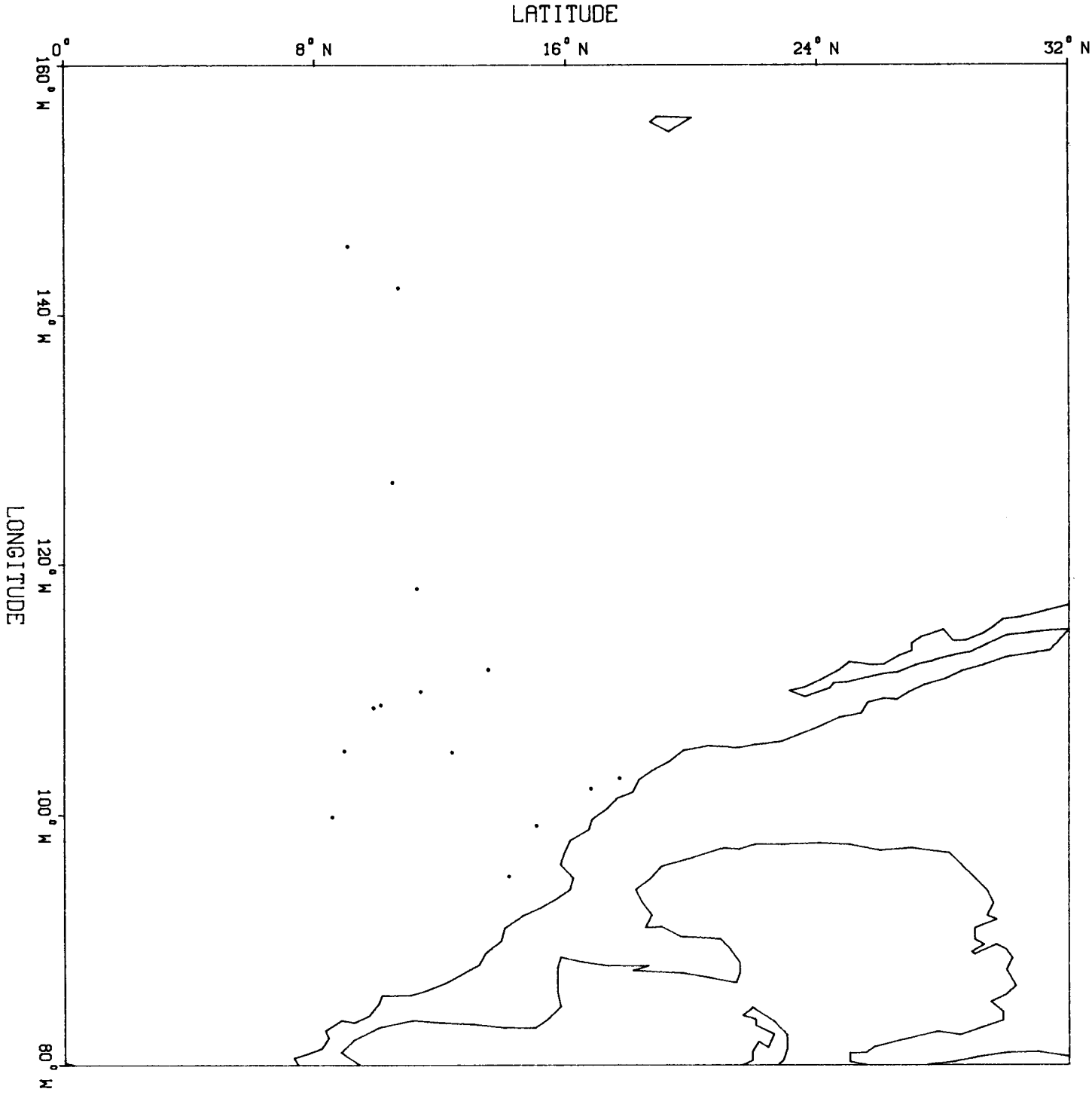


Figure 7. Record of spinner dolphin, Stenella longirostris (Species Code 3) encountered in the eastern tropical Pacific during May 14 through August 2, 1982.

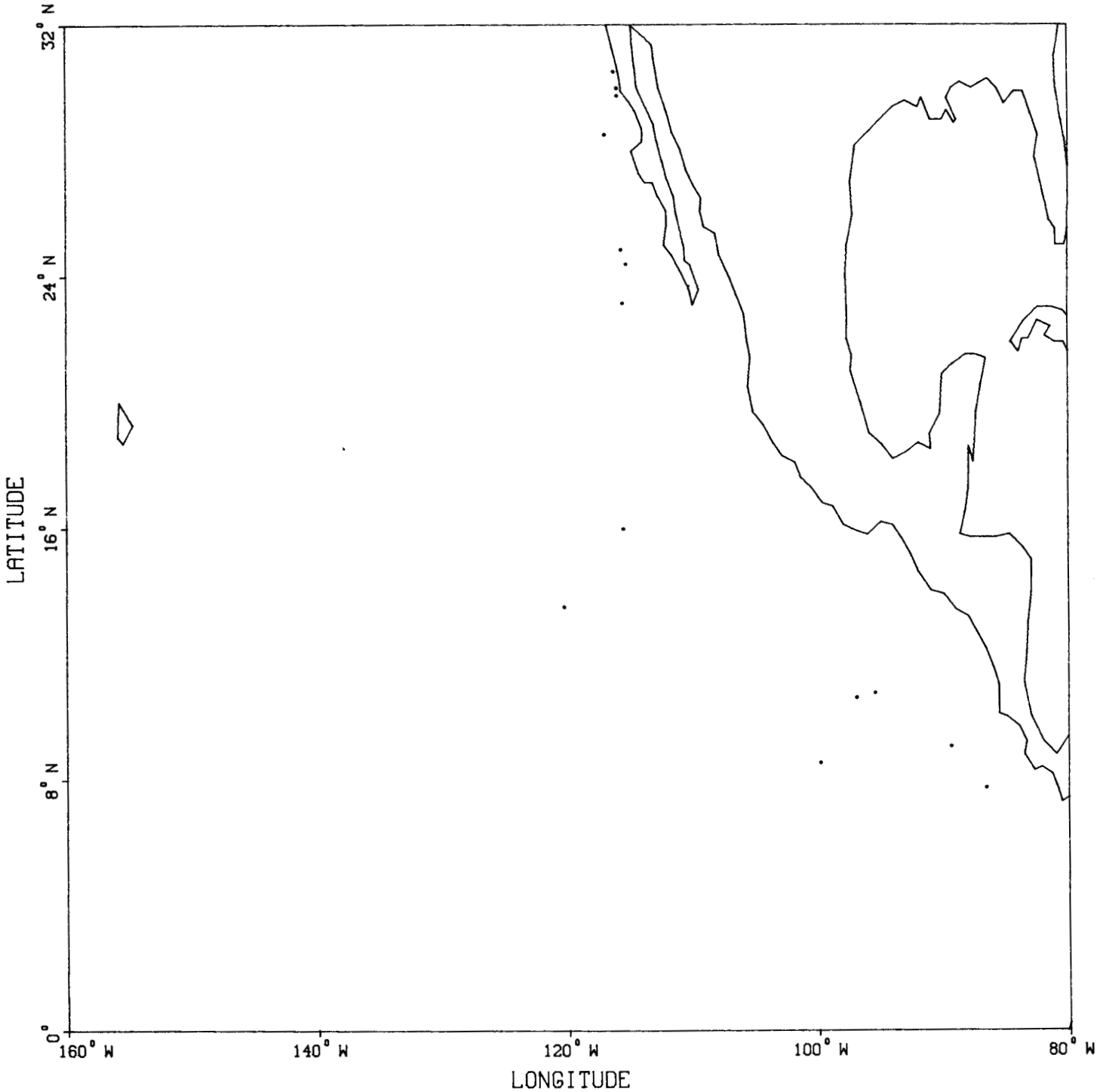


Figure 8. Record of common dolphin, Delphinus delphis (Species Code 5) encountered in the eastern tropical Pacific during May 14 through August 2, 1982.

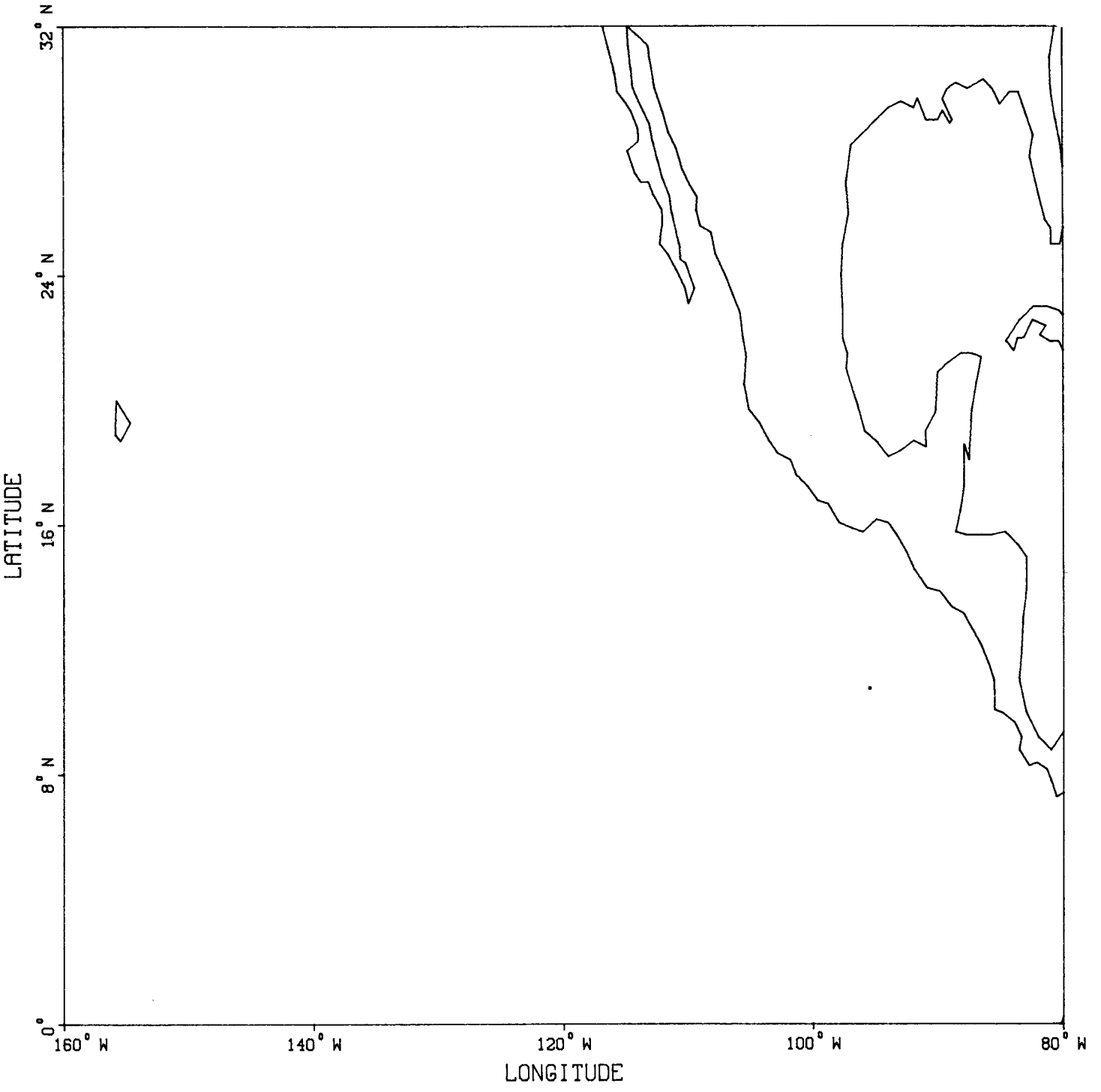


Figure 9. Record of coastal spotted dolphin Stenella attenuata graffmani (Species Code 6) encountered in the eastern tropical Pacific during May 14 through August 2, 1982

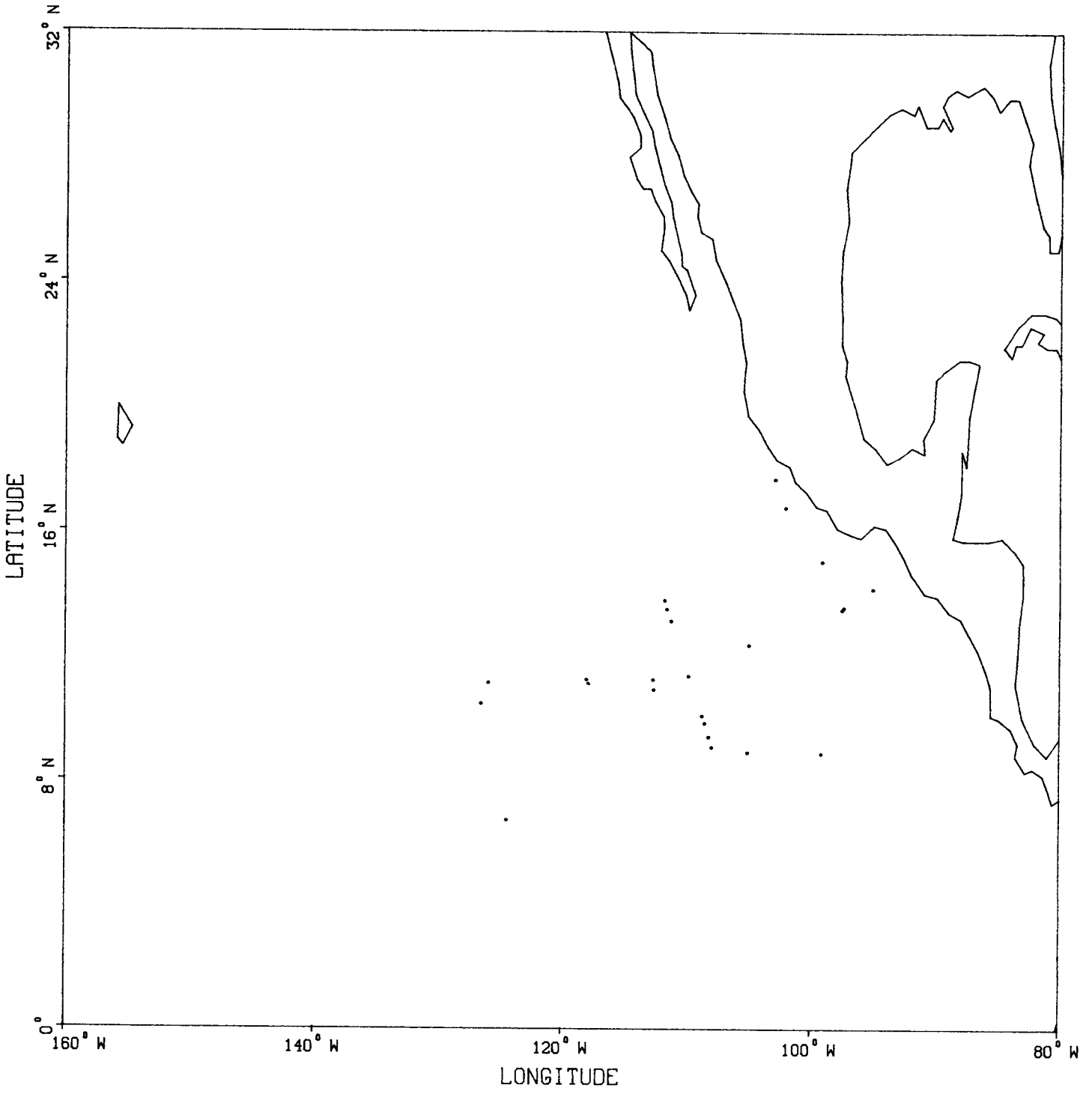


Figure 10. Record of eastern spinner dolphin, Stenella longirostris (Species Code 10) encountered in the eastern tropical Pacific during May 14 through August 2, 1982.

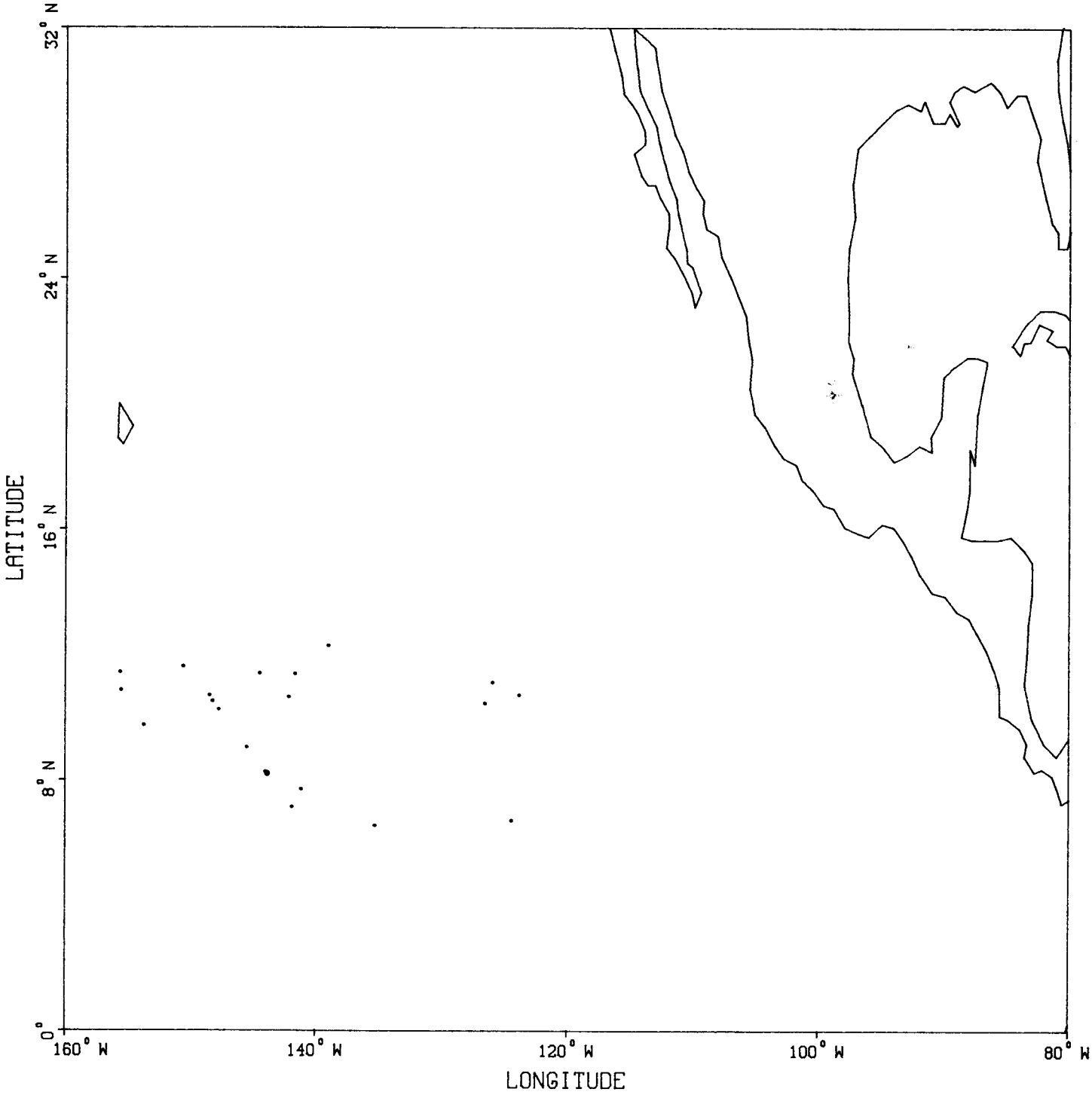


Figure 11. Record of whitebelly spinner dolphin, Stenella longirostris (Species Code 11) encountered in the eastern tropical Pacific during May 14 through August 2, 1982.

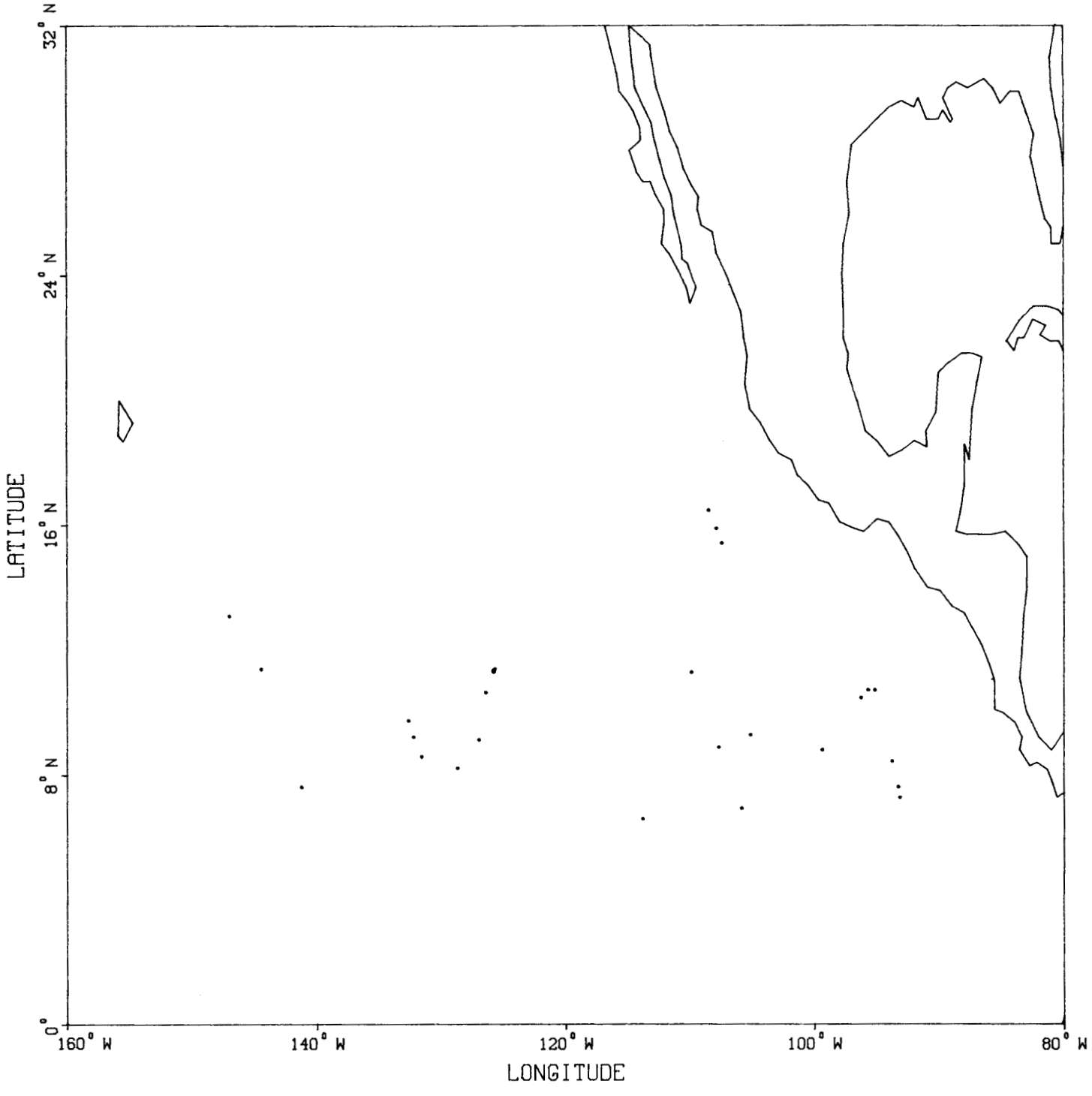


Figure 12. Record of striped dolphin, Stenella coeruleoalba (Species Code 13) encountered in the eastern tropical Pacific during May 14 through August 2, 1982.

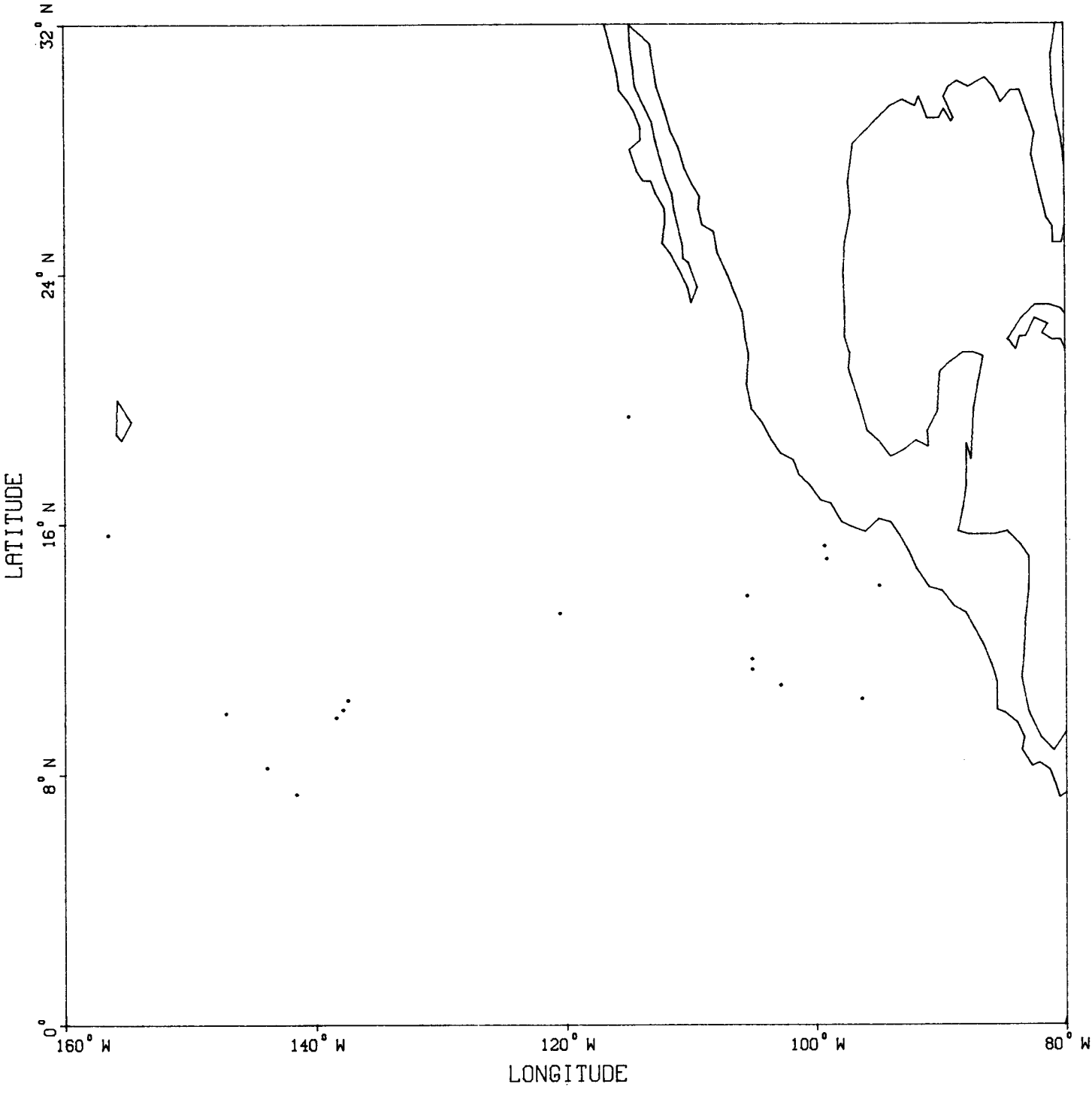


Figure 13. Record of rough toothed dolphin, Steno bredanensis (Species Code 15) encountered in the eastern tropical Pacific during May 14 through August 2, 1982.

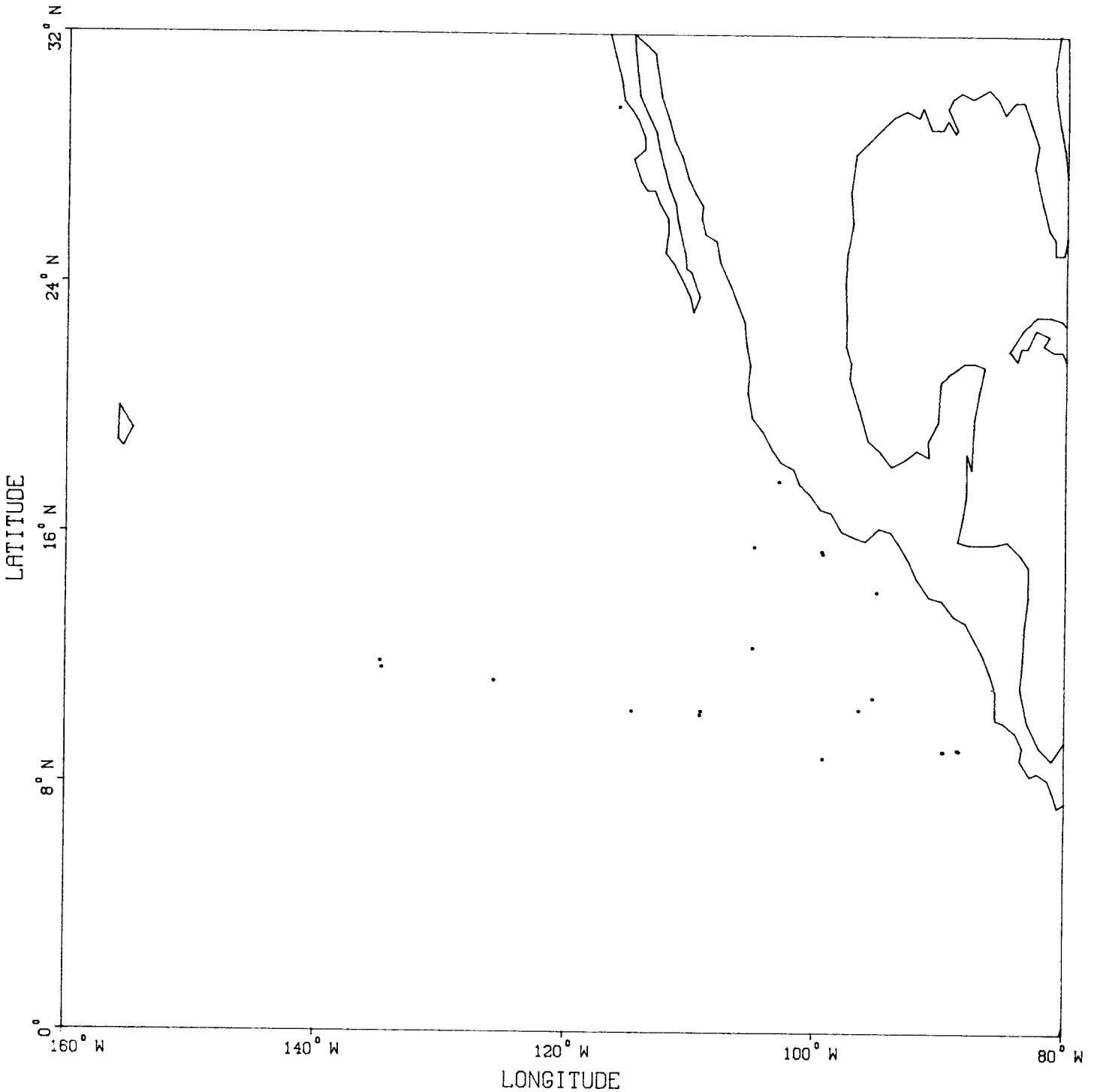


Figure 14. Record of bottlenosed dolphin, Tursiops truncatus (Species Code 18) encountered in the eastern tropical Pacific during May 14 through August 2, 1982.

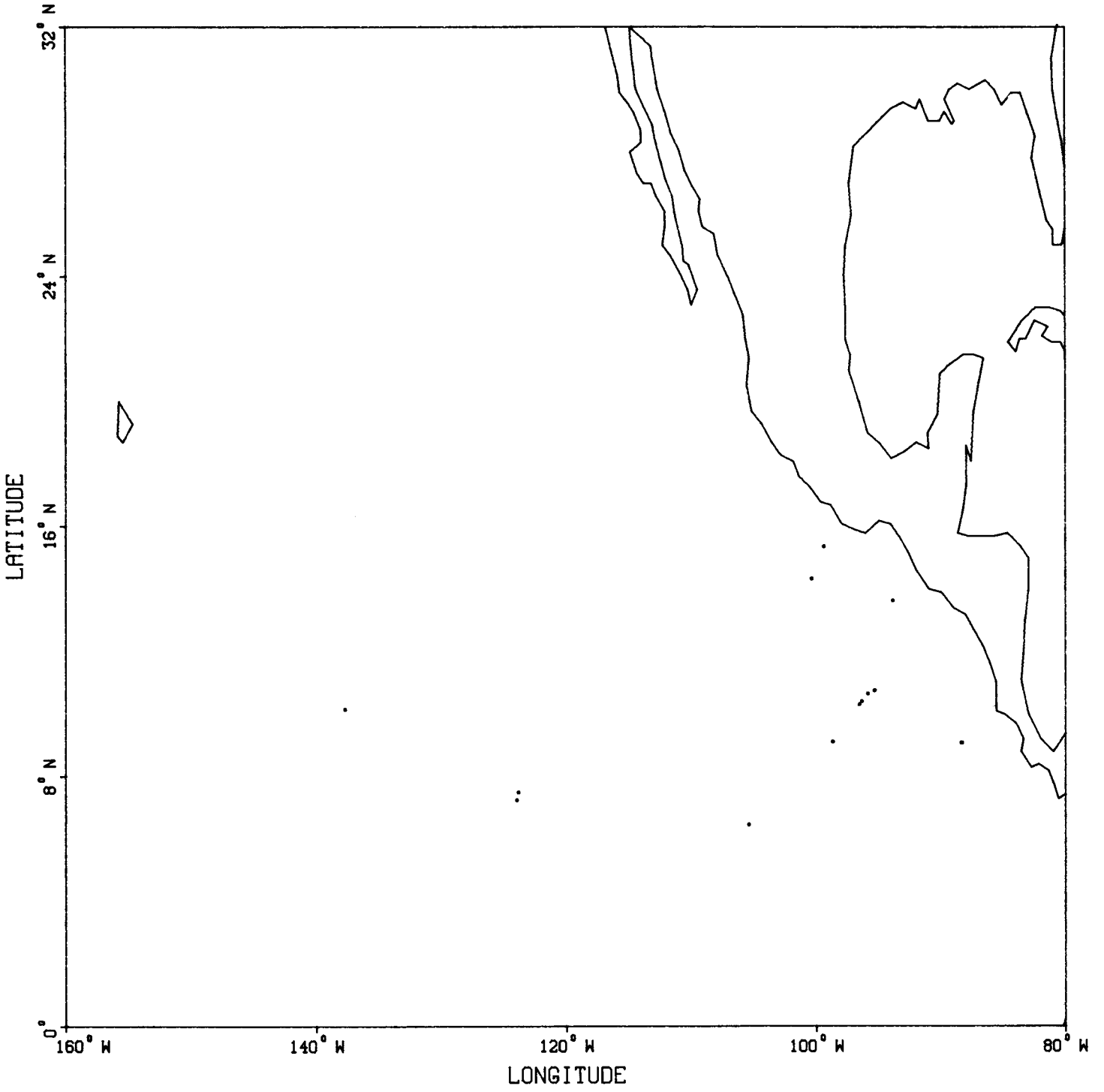


Figure 15. Record of Risso's dolphin, Grampus griseus (Species Code 21) encountered in the eastern tropical Pacific during May 14 through August 2, 1982.

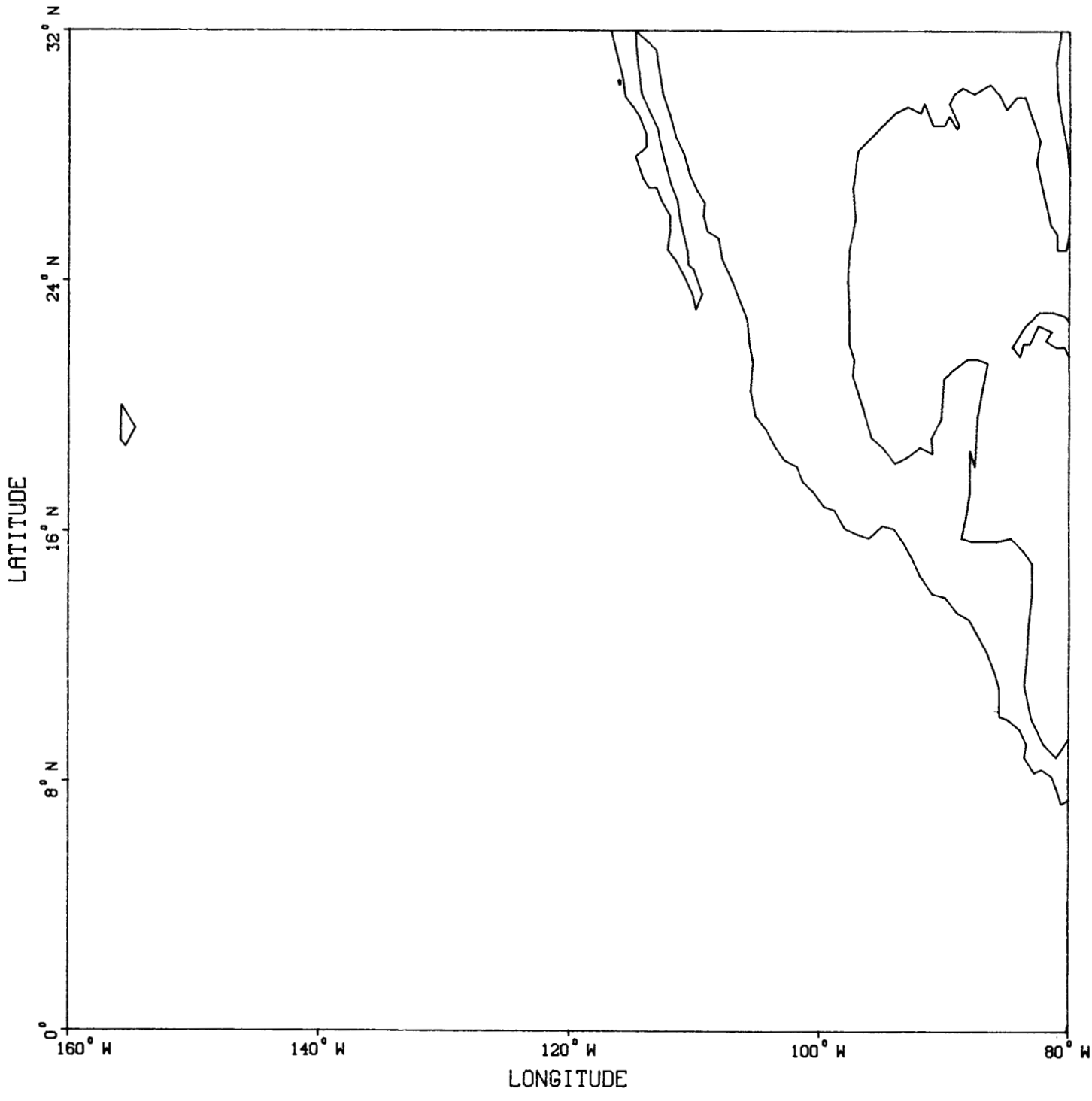


Figure 16. Record of Pacific white-sided dolphin, Lagenorhynchus obliquidens (Species Code 22) encountered in the eastern tropical Pacific during May 14 through August 2, 1982.

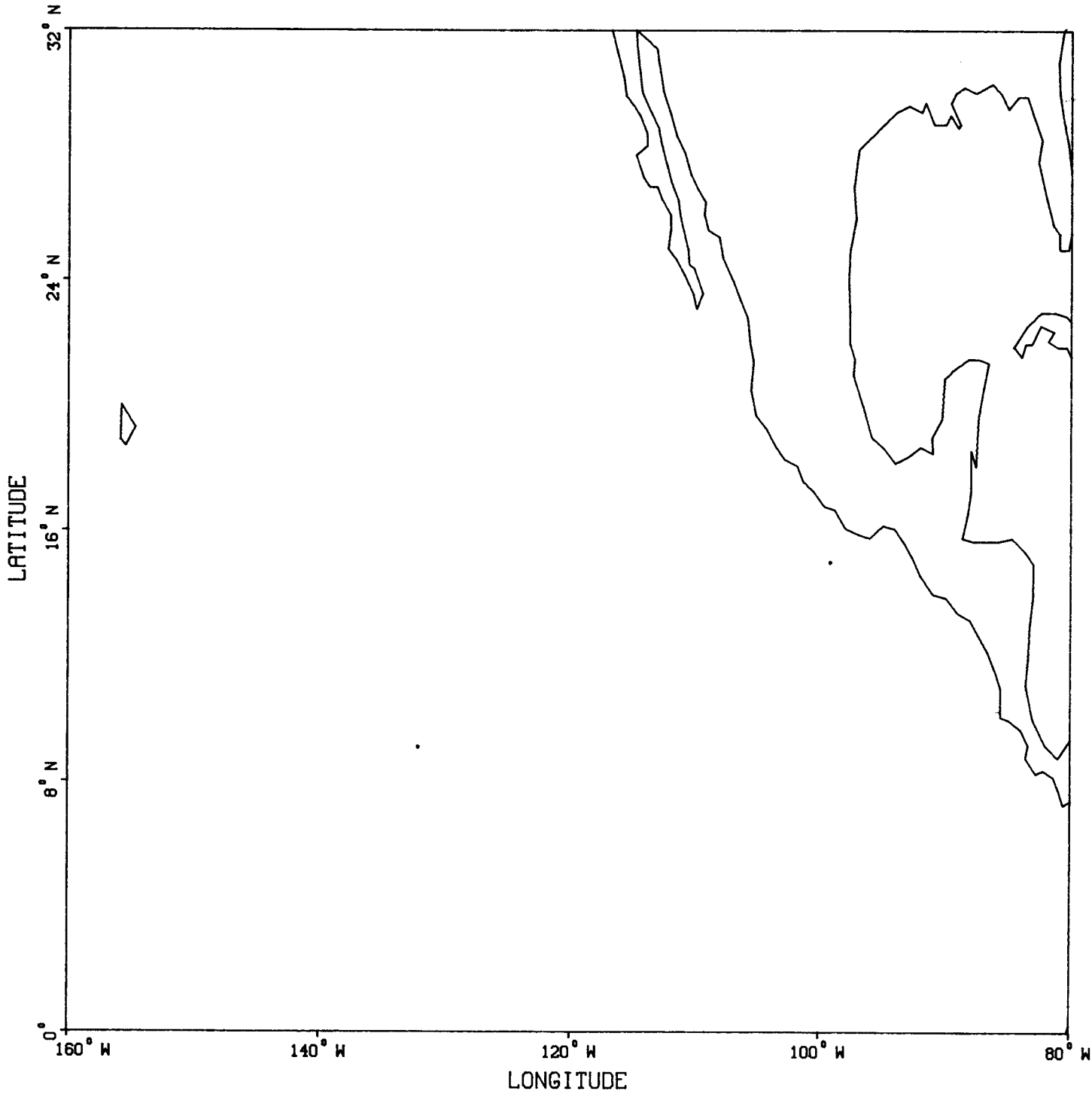


Figure 17. Record of pygmy killer whale, Feresa attenuata (Species Code 32) encountered in the eastern tropical Pacific during May 14 through August 2, 1982.

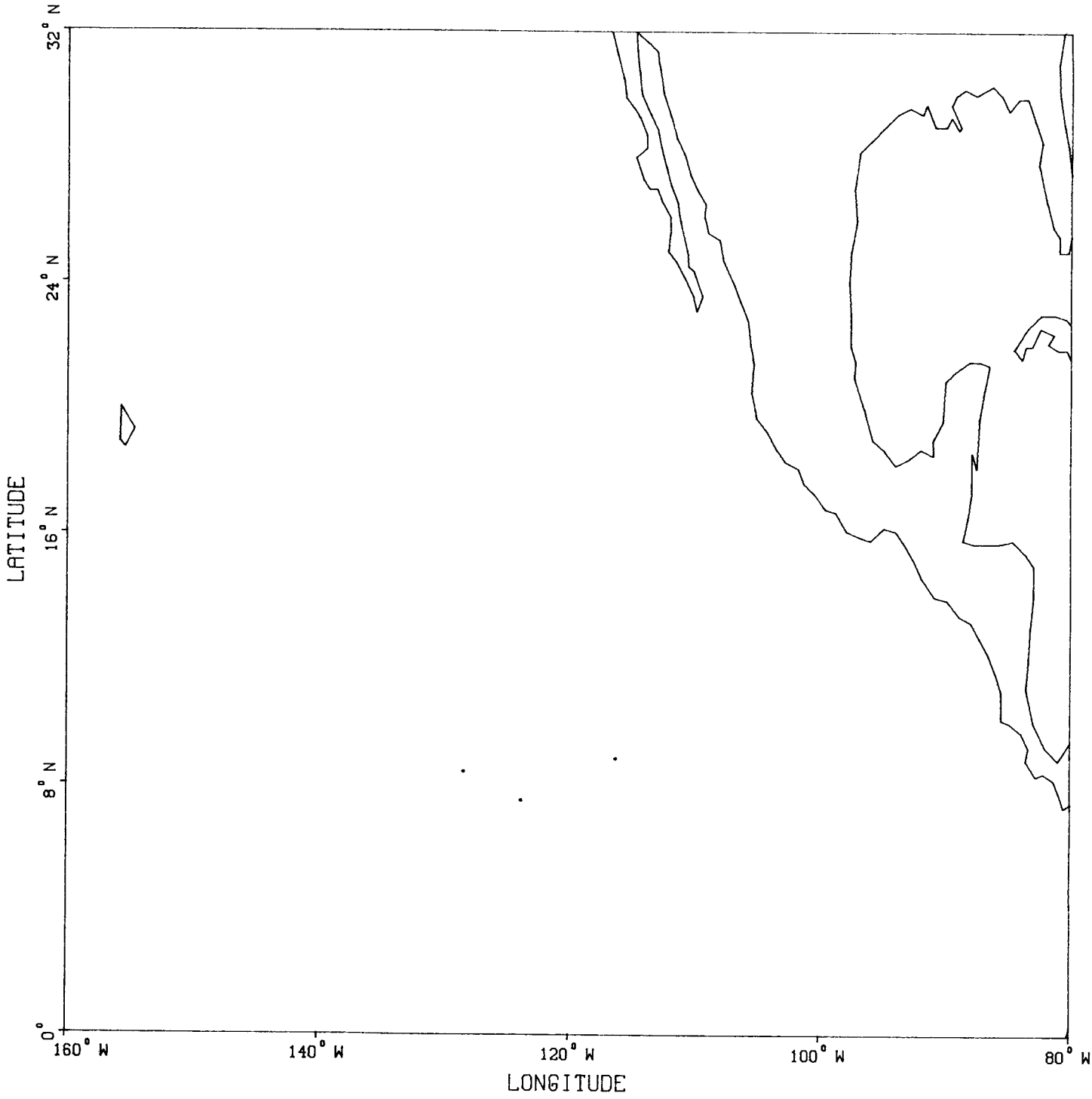


Figure 18. Record of false killer whale, Pseudorca crassidens (Species Code 33) encountered in the eastern tropical Pacific during May 14 through August 2, 1982.

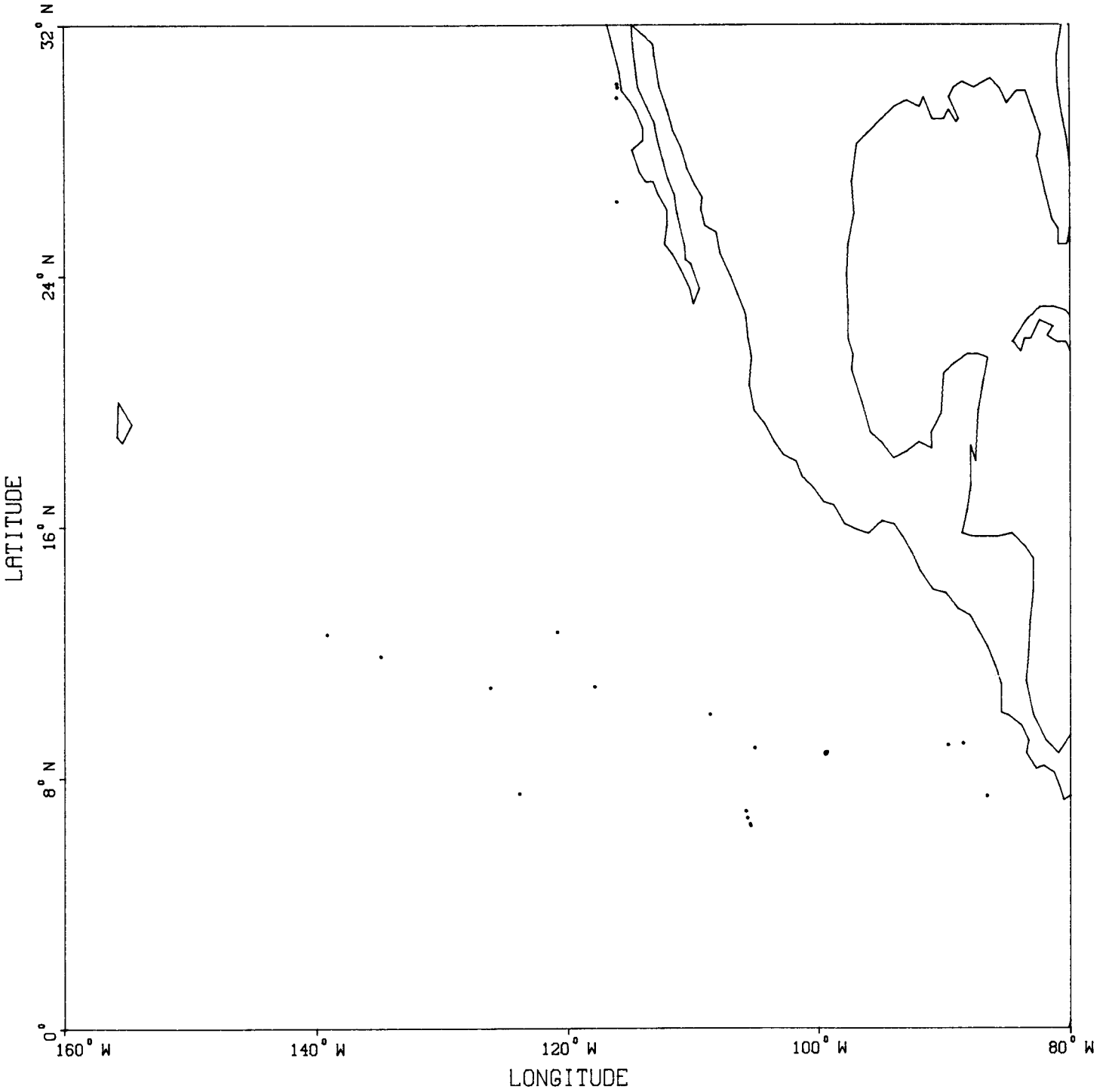


Figure 19. Record of pilot whale, Globicephala sp. (Species Code 34) encountered in the eastern tropical Pacific during May 14 through August 2, 1982.

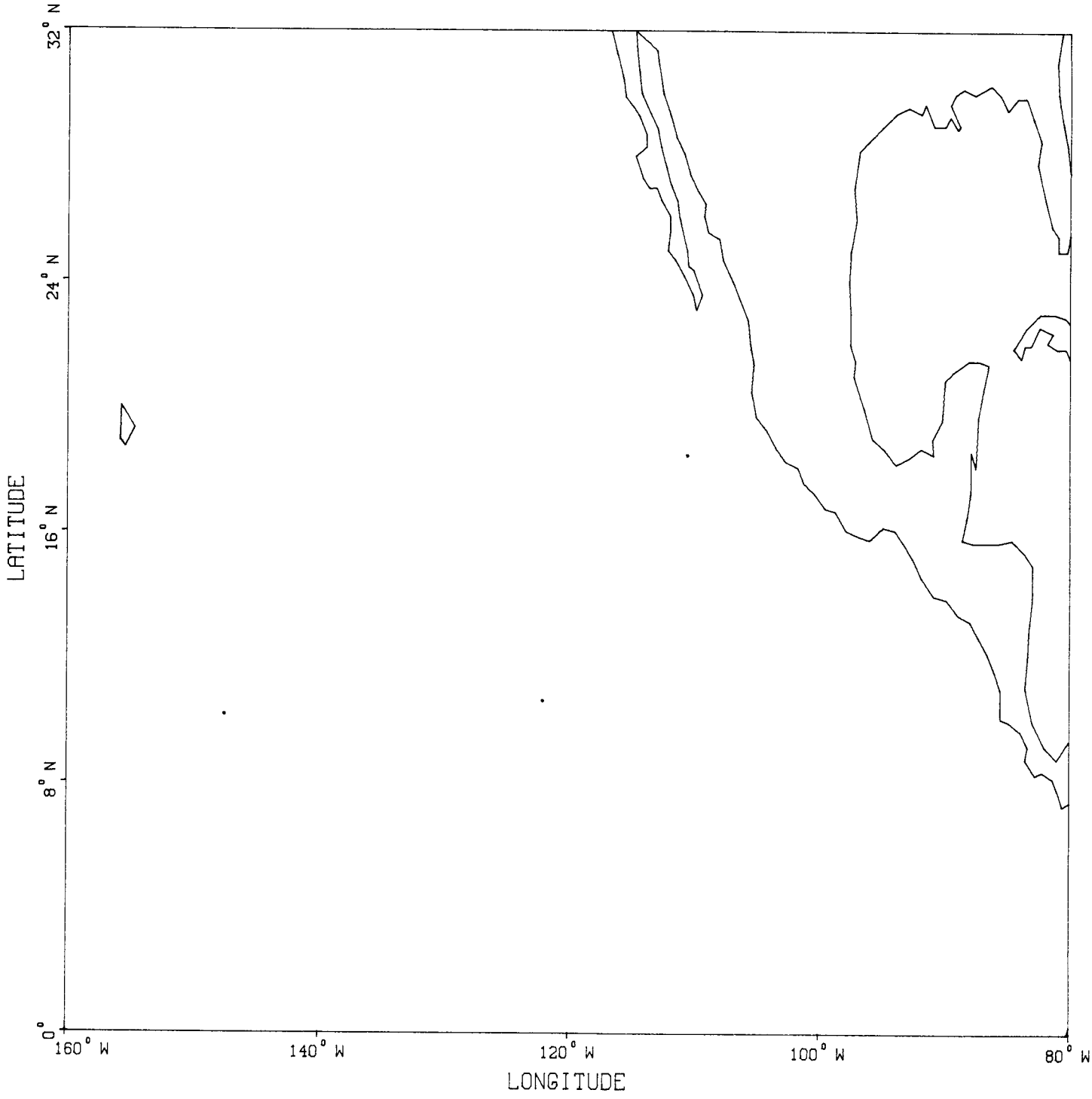


Figure 20. Record of killer whale, Orcinus orca (Species Code 37) encountered in the eastern tropical Pacific during May 14 through August 2, 1982.

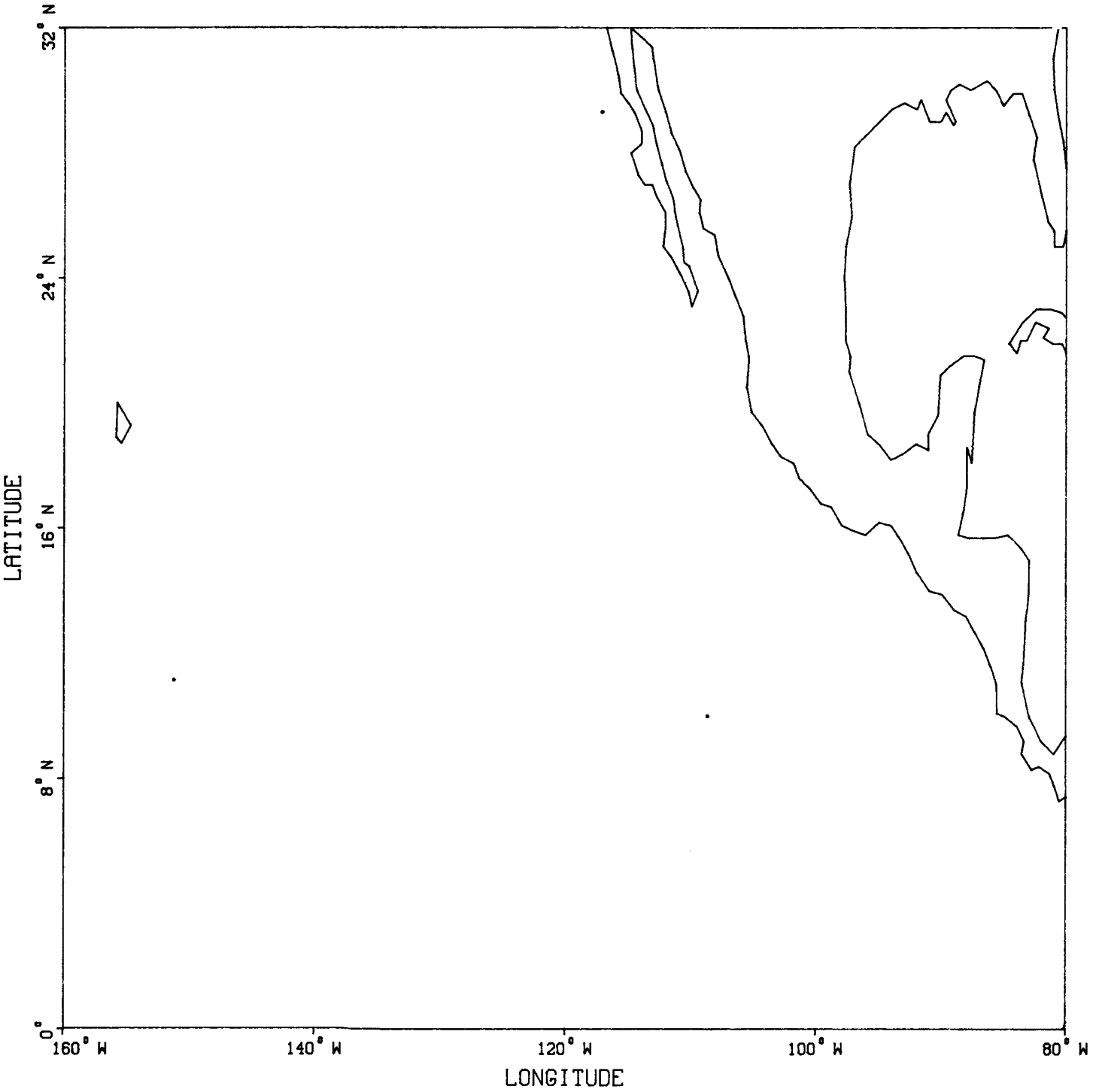


Figure 21. Record of sperm whale, Physeter catodon (Species Code 46) encountered in the eastern tropical Pacific during May 14 through August 2, 1982.

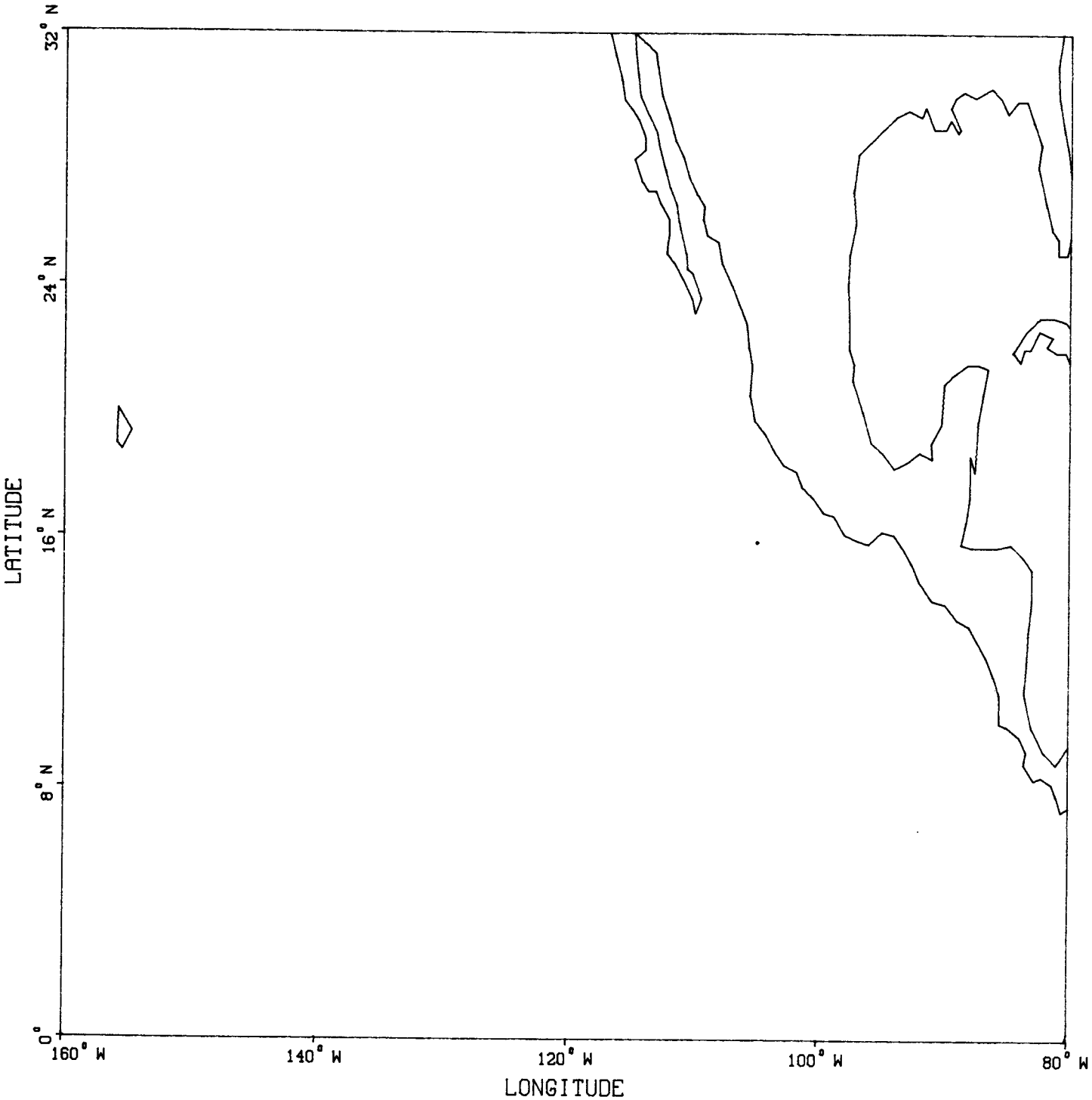


Figure 22. Record of pygmy sperm whale, Kogia breviceps (Species Code 47) encountered in the eastern tropical Pacific during May 14 through August 2, 1982.

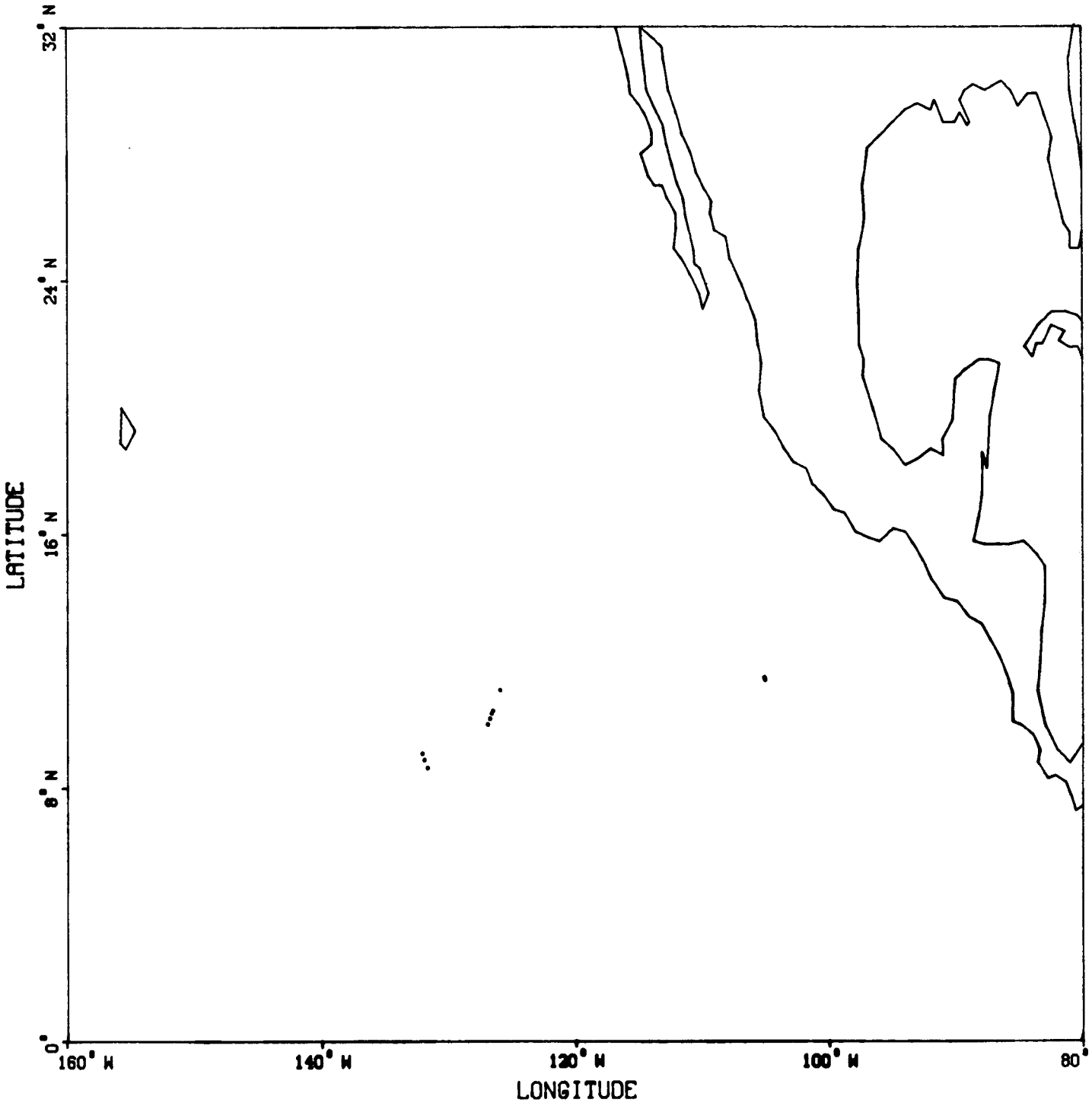


Figure 23. Record of dwarf sperm whale, Kogia simus (Species Code 48) encountered in the eastern tropical Pacific during May 14 through August 2, 1982.

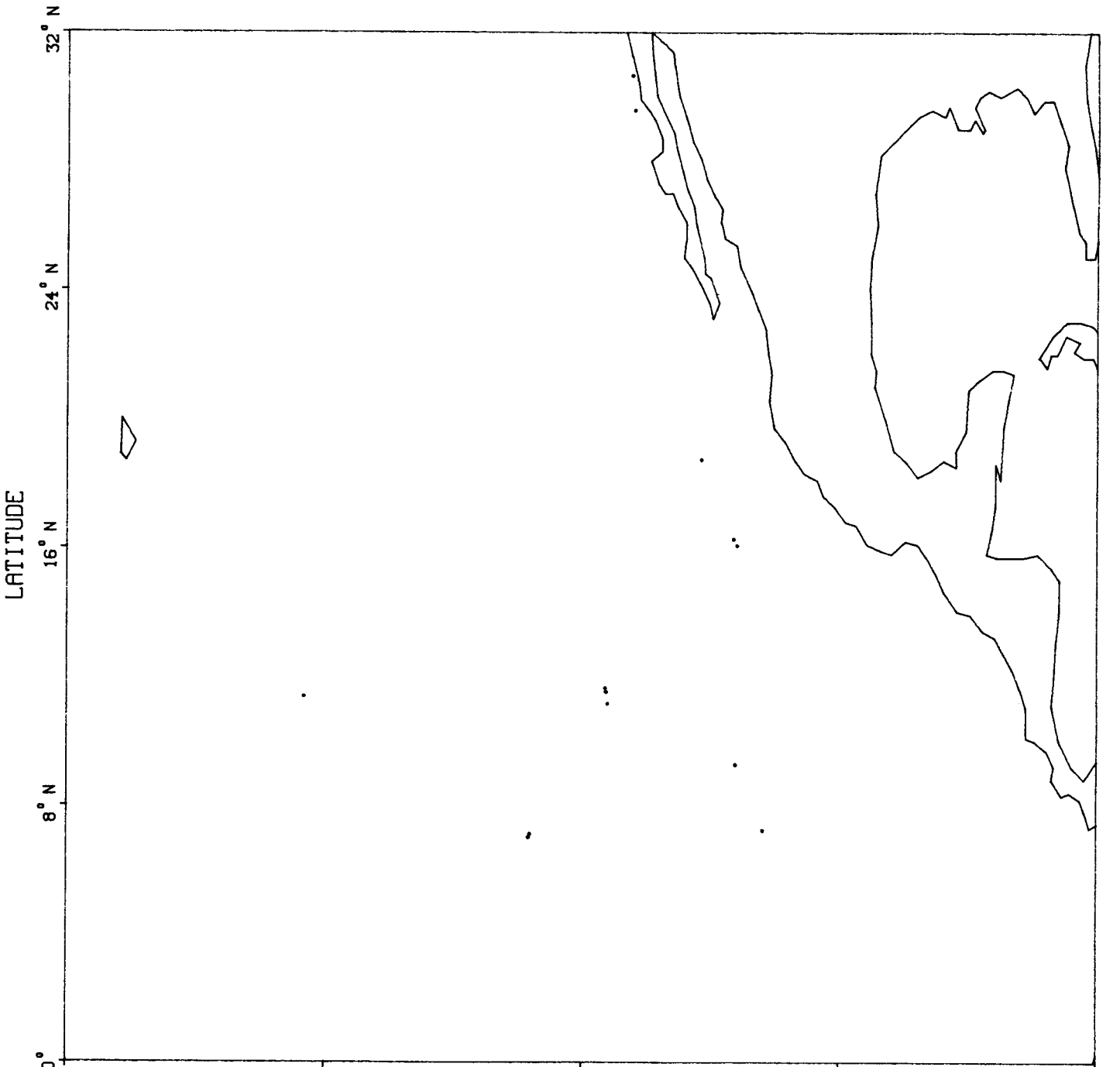


Figure 24. Record of beaked whale, Zipdiid (Species Code 49) encountered in the eastern tropical Pacific during May 14 through August 2, 1982.

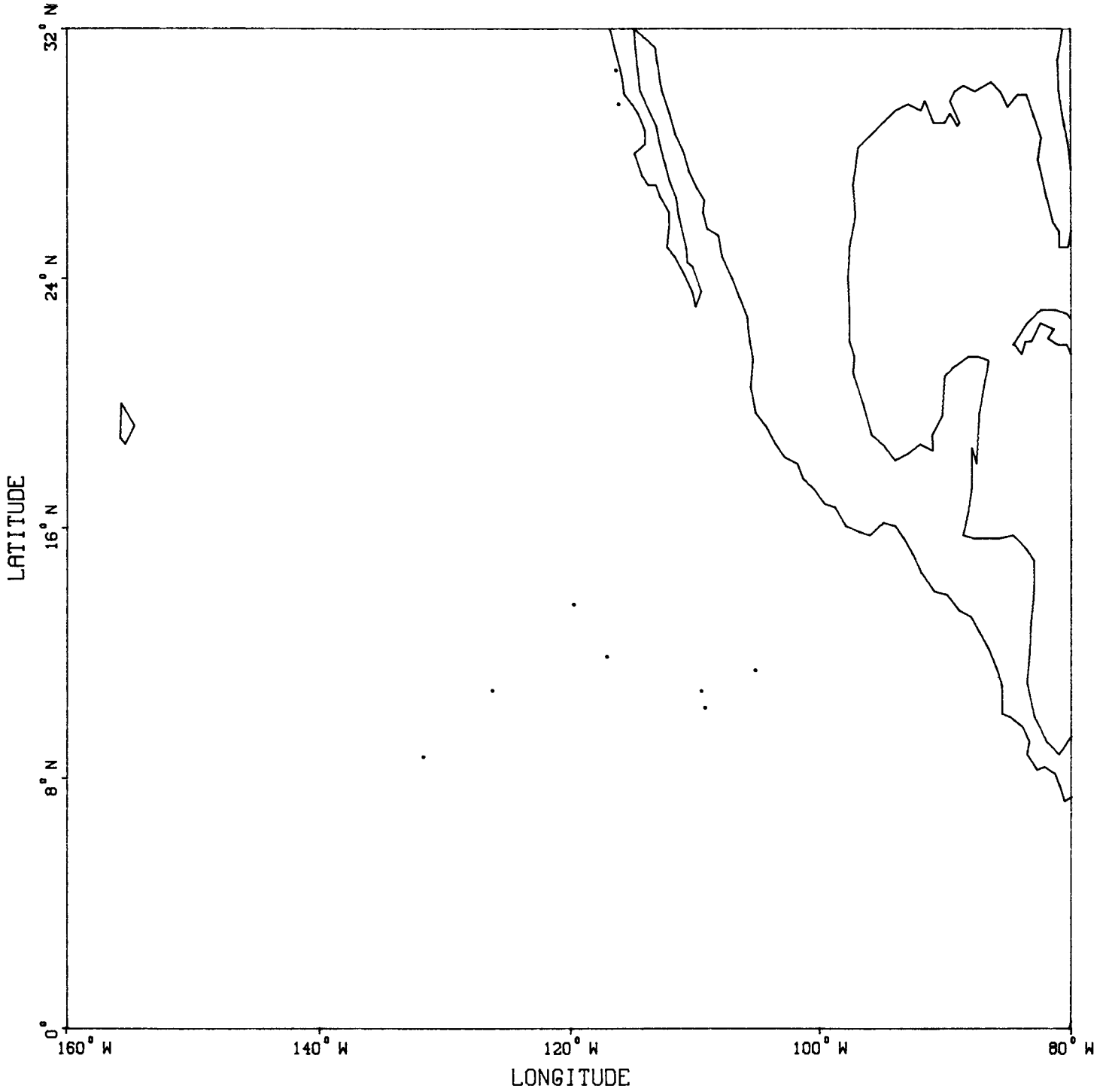


Figure 25. Record of unid. mesoplodont, Mesoplodont sp. (Species Code 51) encountered in the eastern tropical Pacific during May 14 through August 2, 1982.

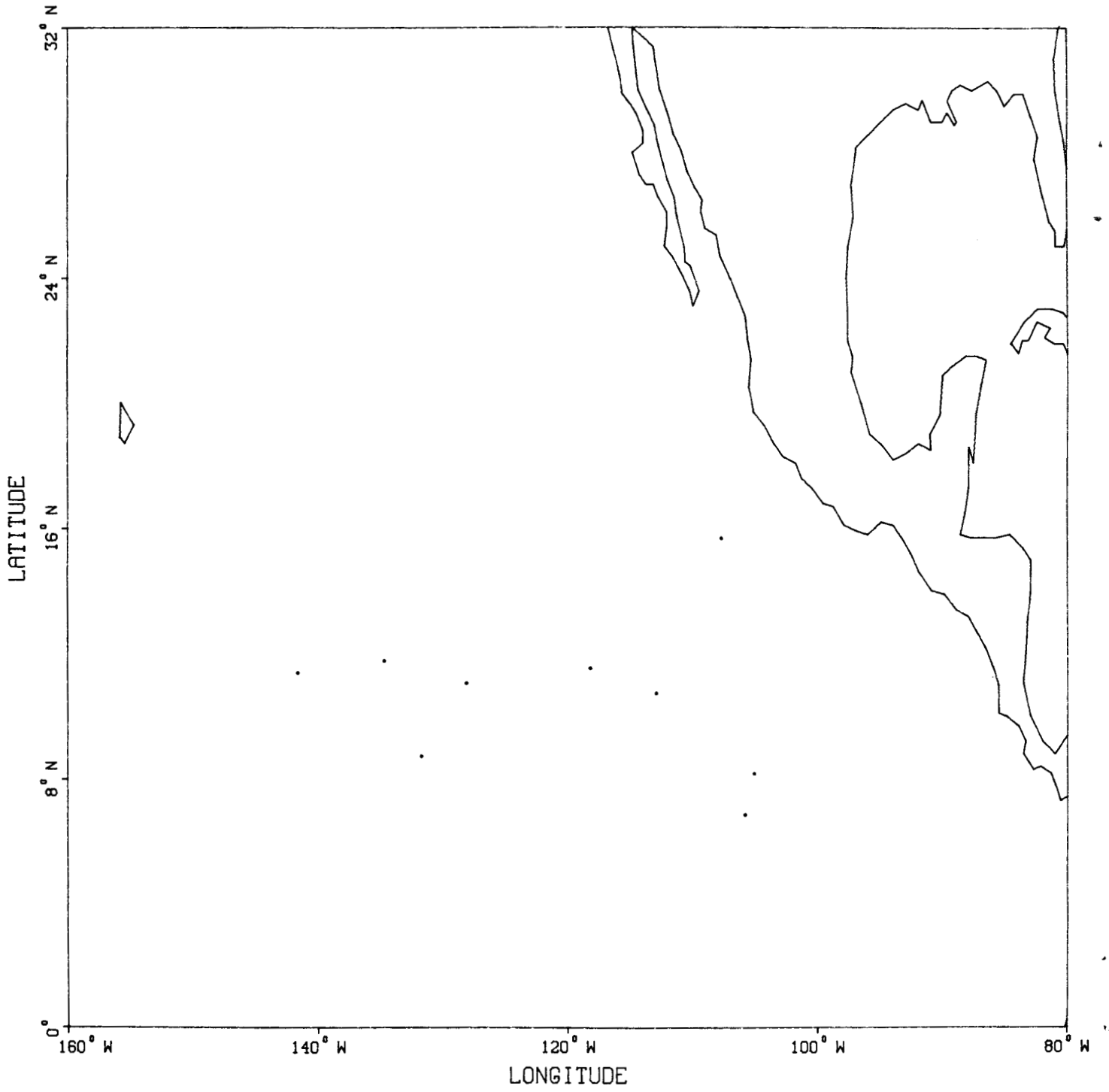


Figure 26. Record of Cuvier's beaked whale, Ziphius cavirostris (Species Code 61) encountered in the eastern tropical Pacific during May 14 through August 2, 1982.

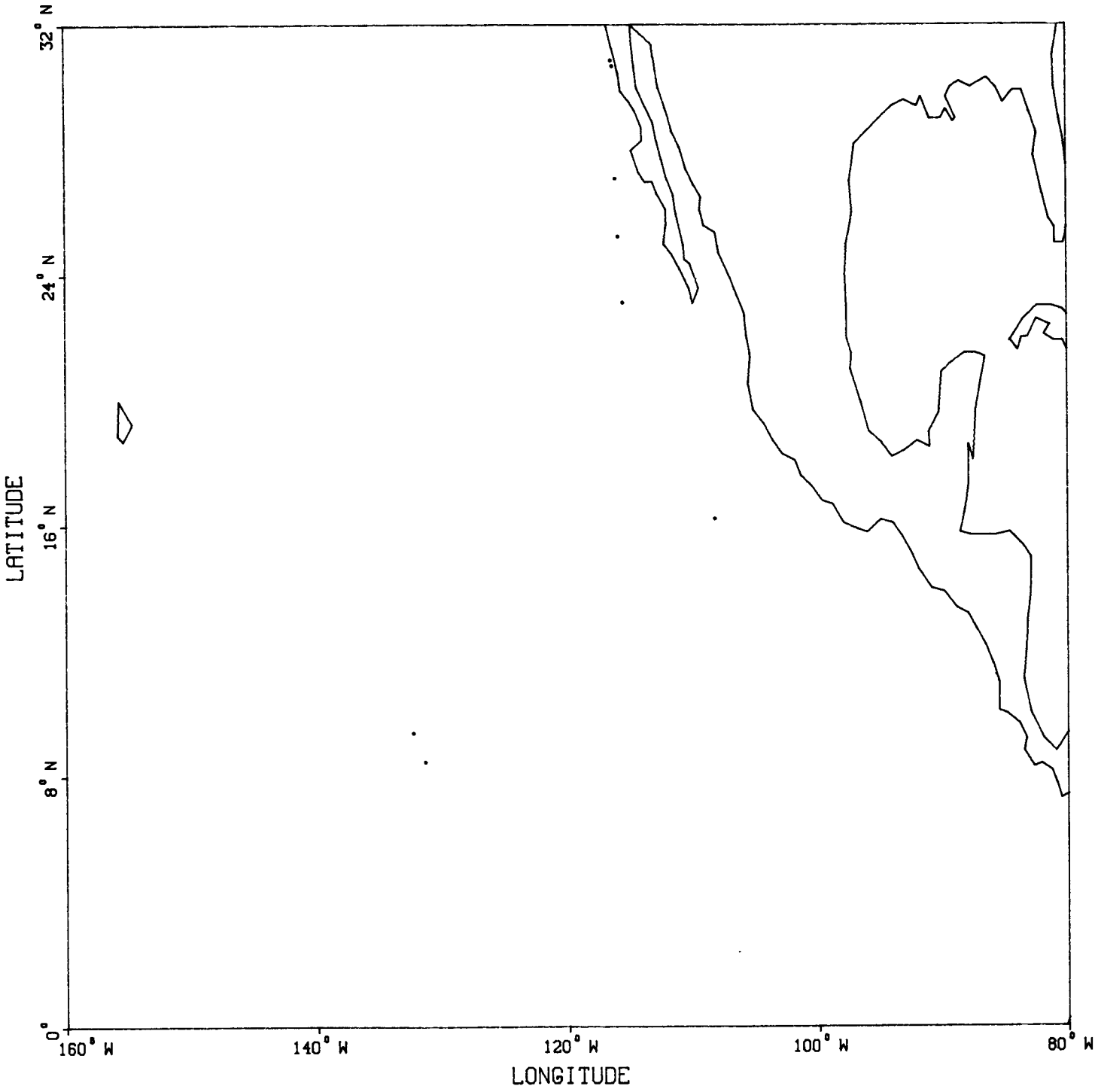


Figure 27. Record of Rorceval, Balaenoptera sp. (Species Code 70) encountered in the eastern tropical Pacific during May 14 through August 2, 1982.

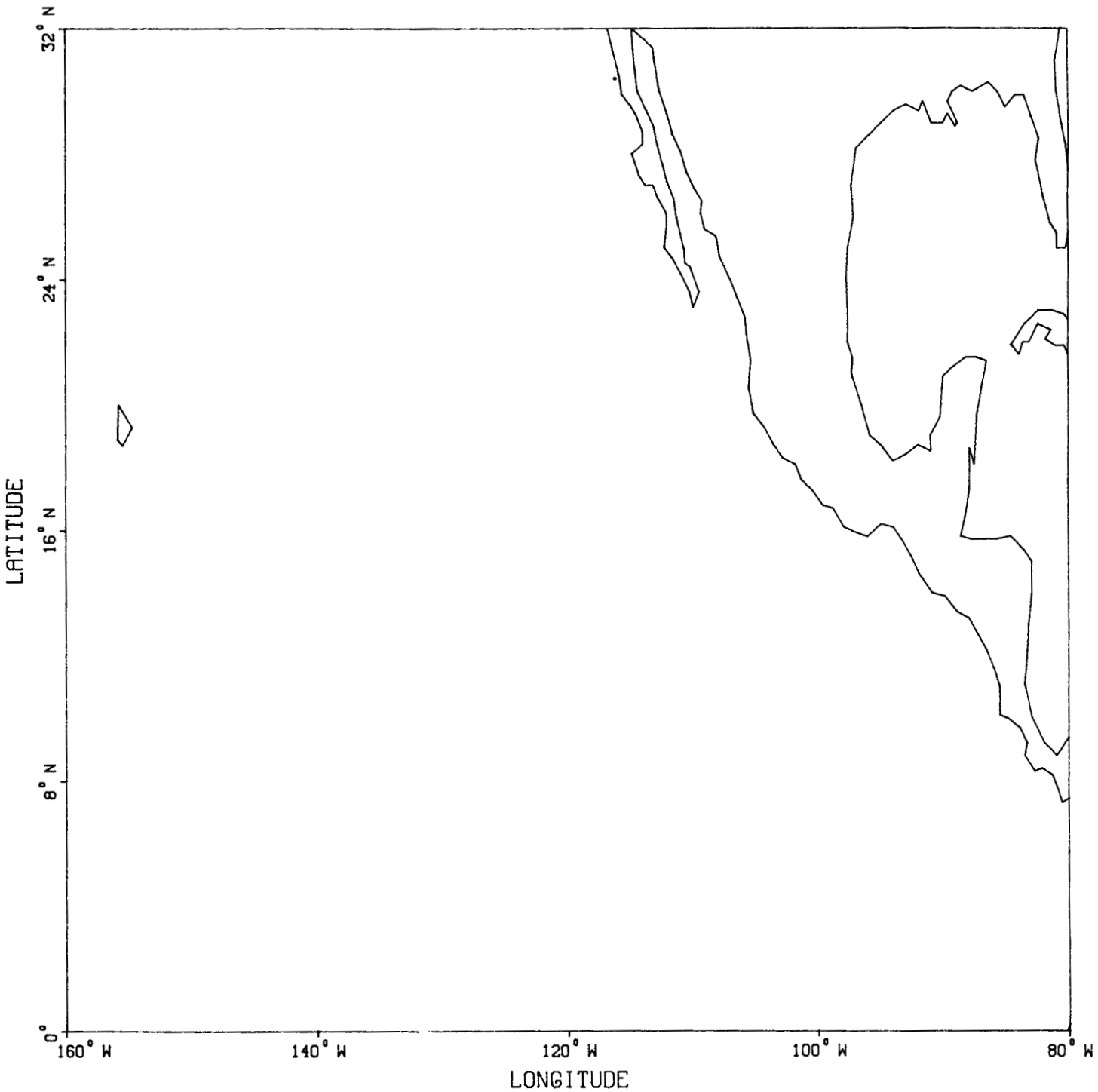


Figure 28. Record of Minke whale, Balaenoptera acutorostrata (Species Code 71) encountered in the eastern tropical Pacific during May 14 through August 2, 1982.

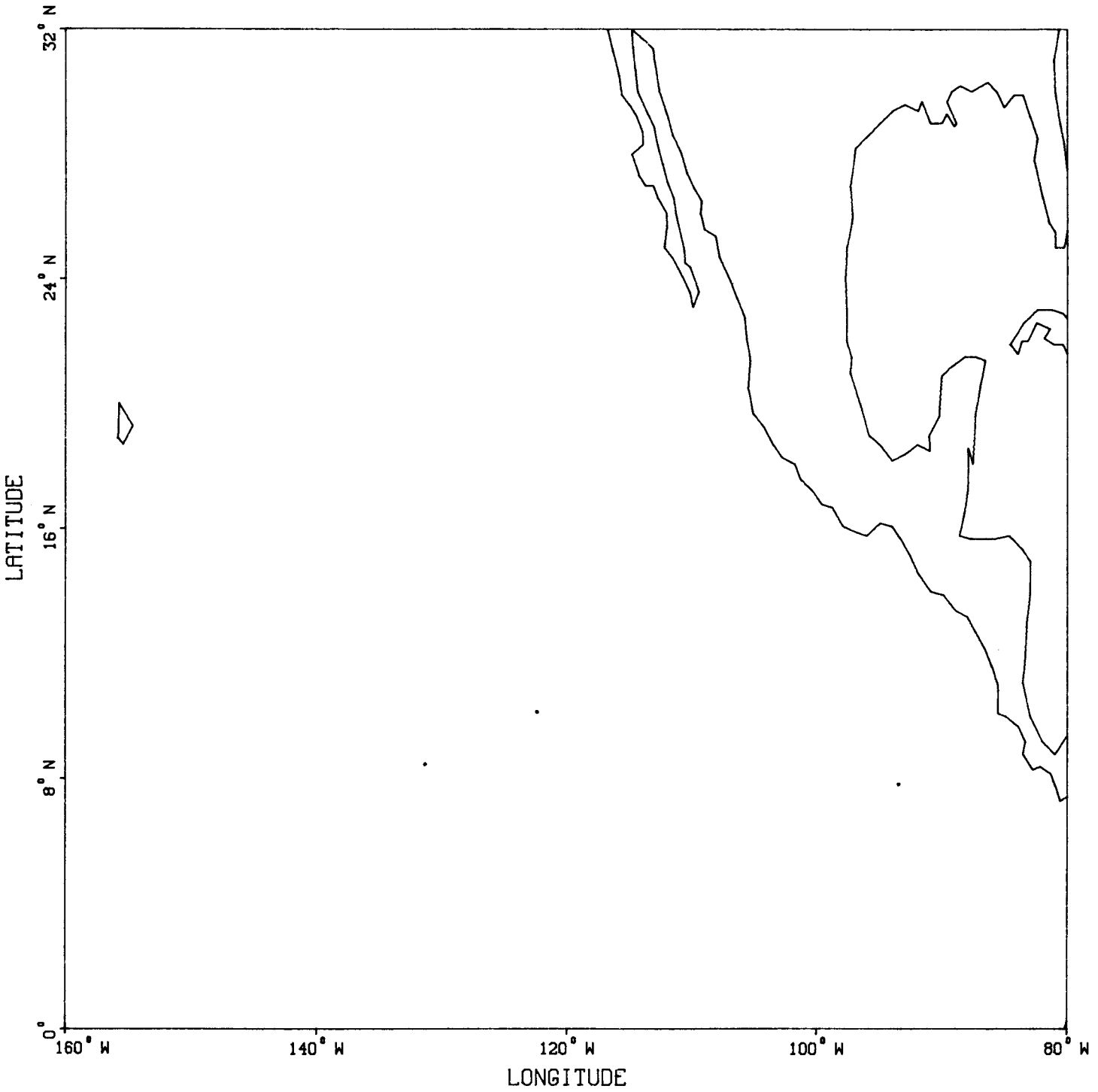


Figure 29. Record of Bryde's whale, Balaenoptera edeni (Species Code 72) encountered in the eastern tropical Pacific during May 14 through August 2, 1982.

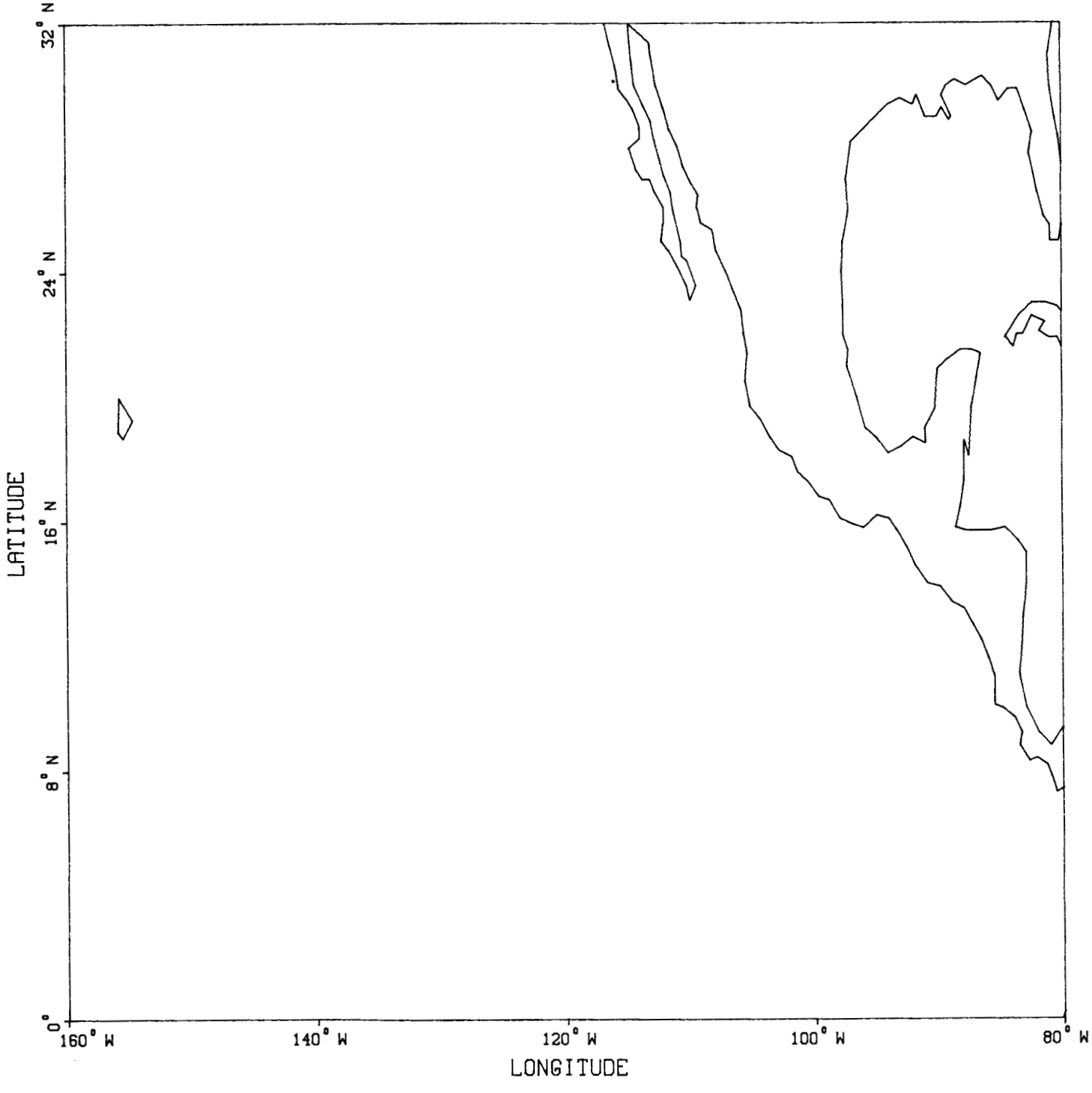


Figure 30. Record of fin whale, Balaenoptera physalus (Species Code 74) encountered in the eastern tropical Pacific during May 14 through August 2, 1982.

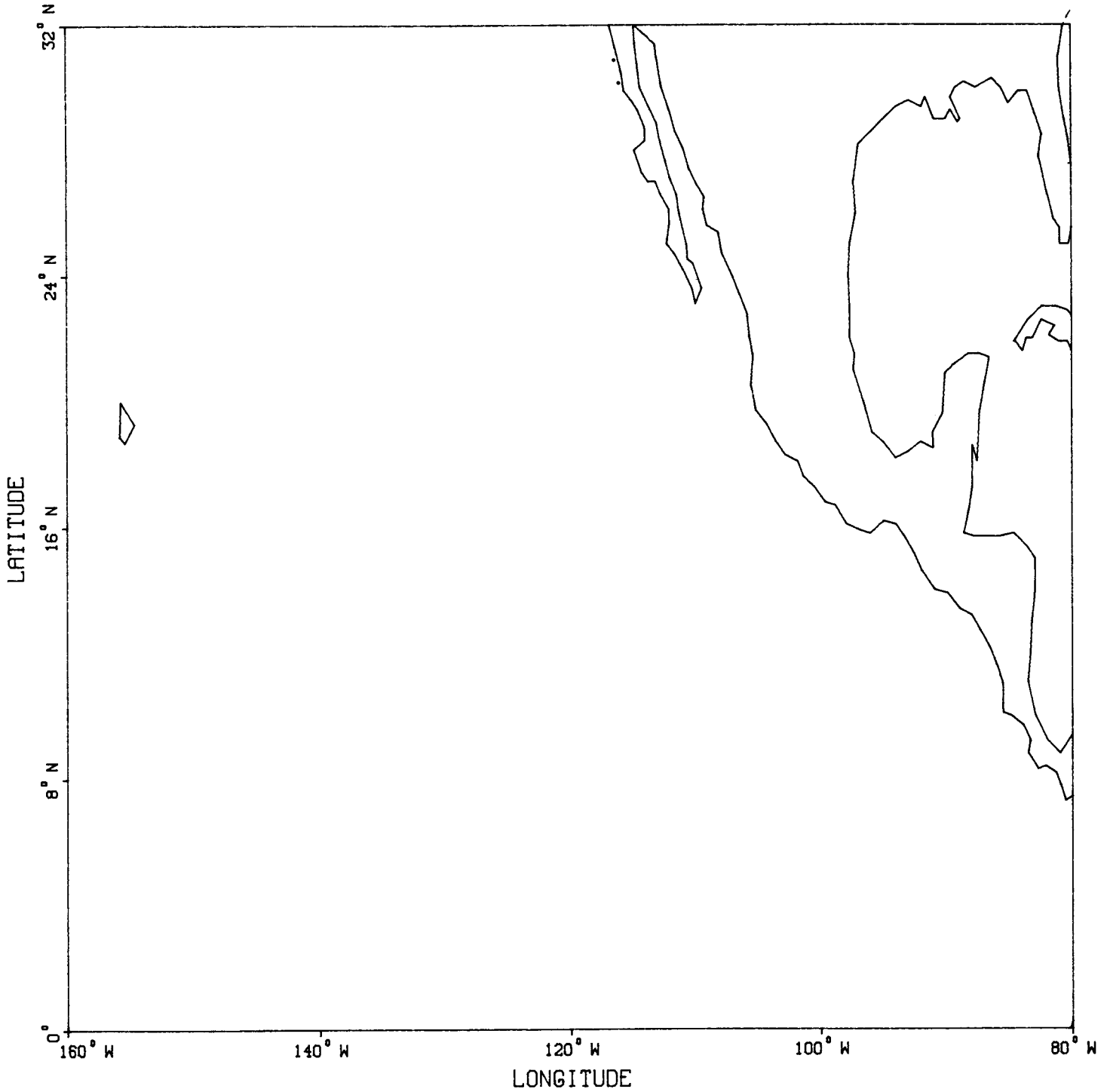


Figure 31. Record of blue whale, Balaenoptera musculus (Species Code 75) encountered in the eastern tropical Pacific during May 14 through August 2, 1982.

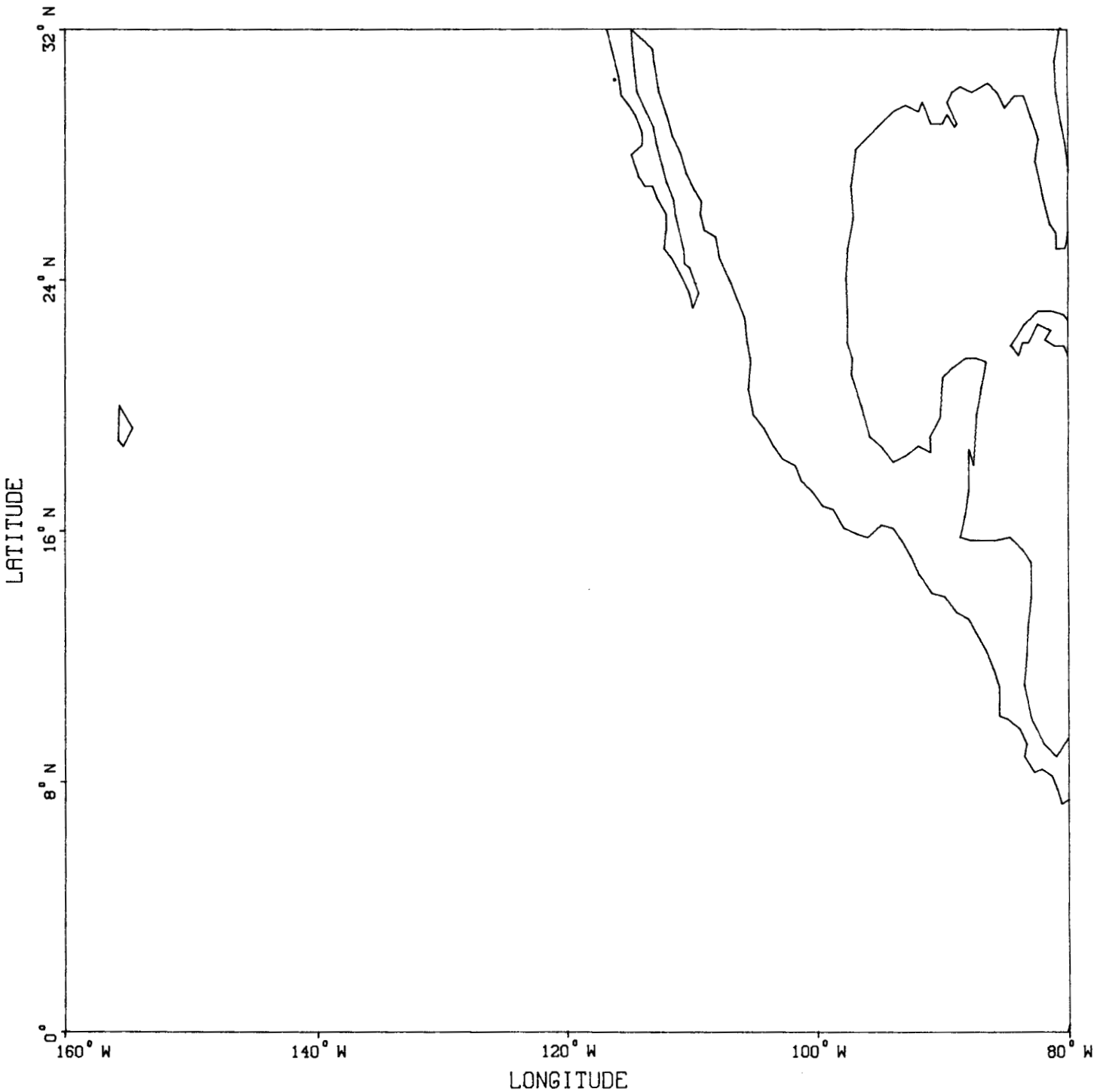


Figure 32. Record of humpback whale, Megaptera novaeangliae (Species Code 76) encountered in the eastern tropical Pacific during May 14 through August 2, 1982.

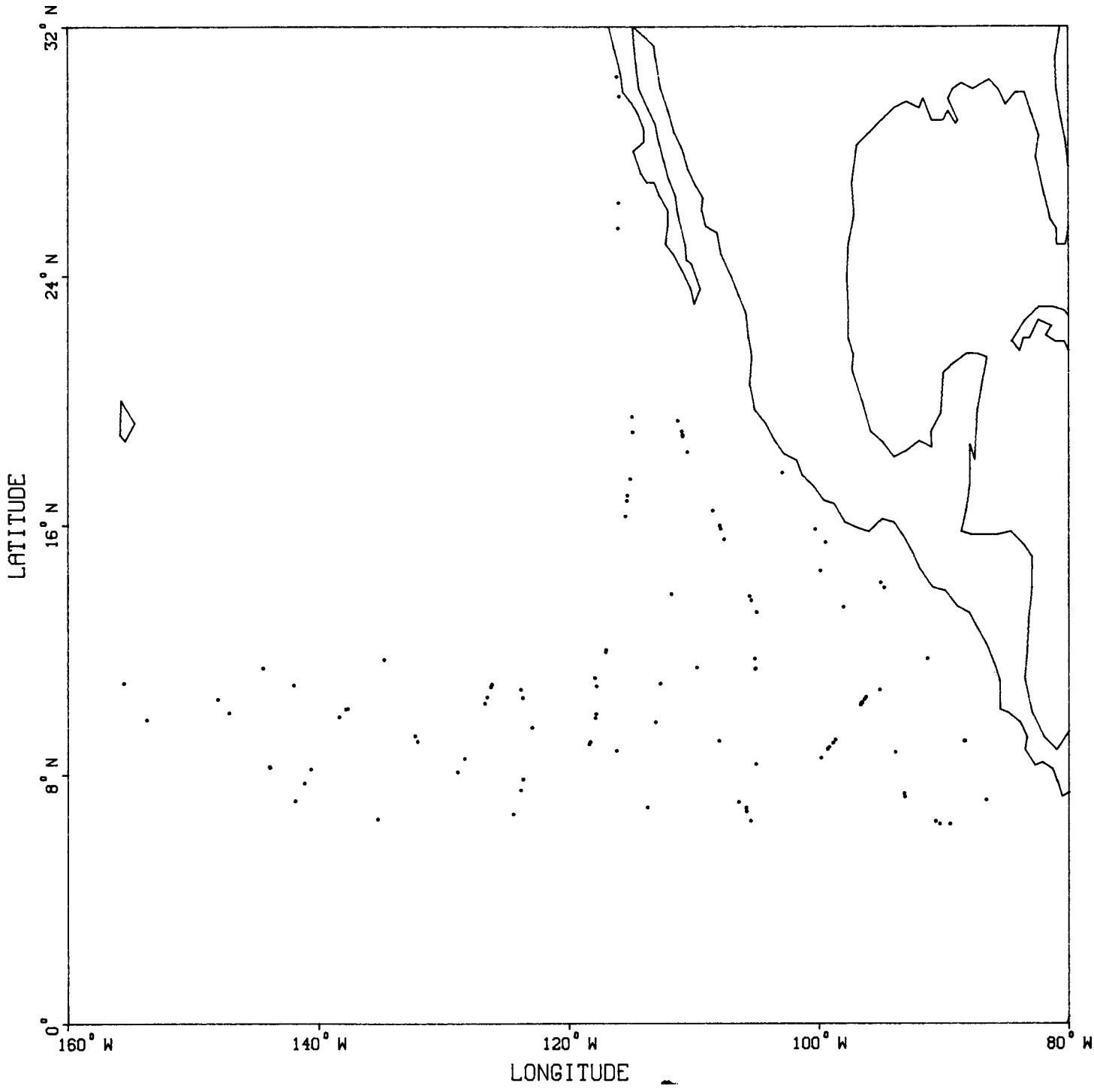


Figure 33. Record of unidentified dolphin (Species Code 77) encountered in the eastern tropical Pacific during May 14 through August 2, 1982.

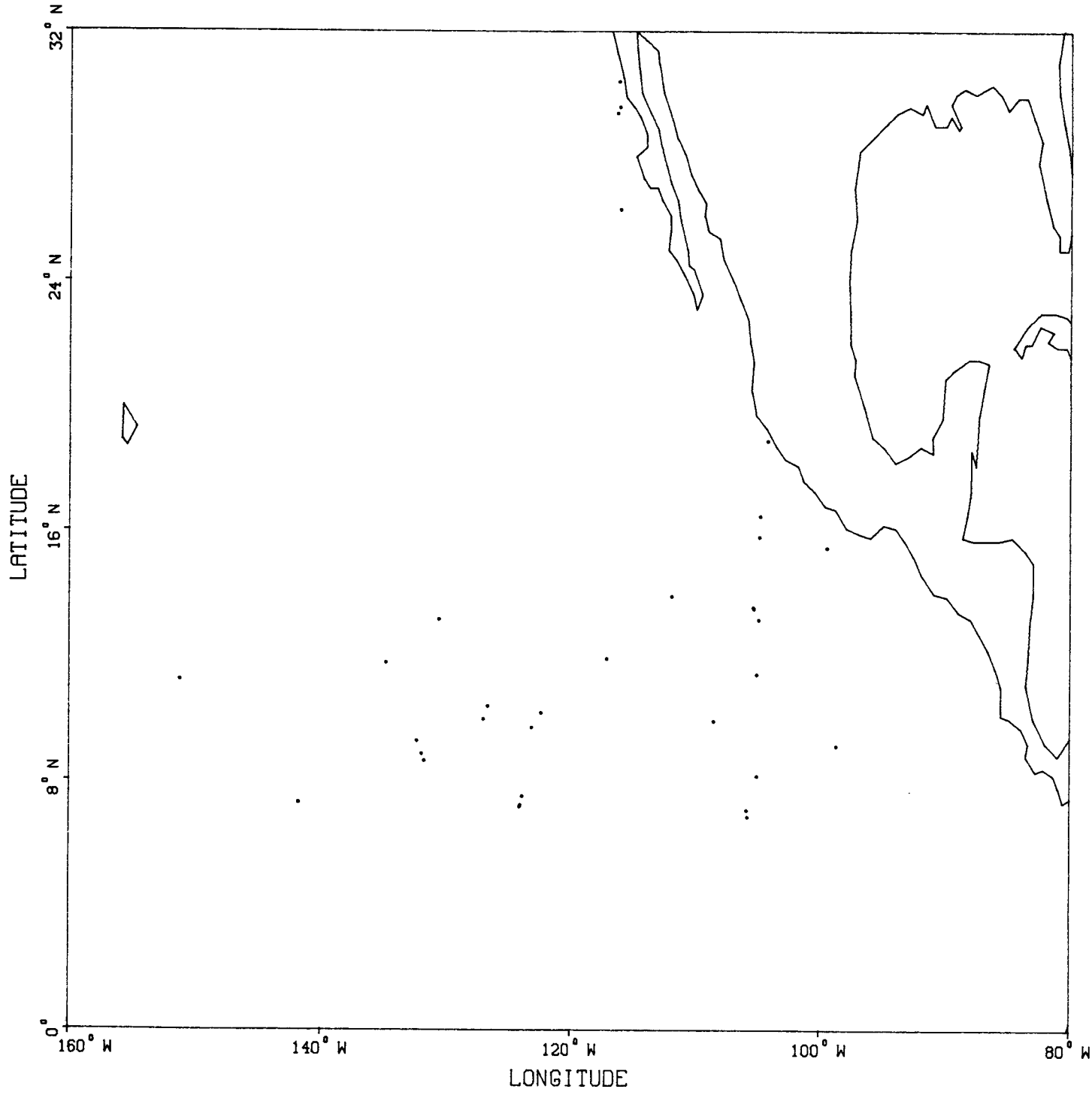


Figure 34. Record of unidentified small whale (Species Code 78) encountered in the eastern tropical Pacific during May 14 through August 2, 1982.

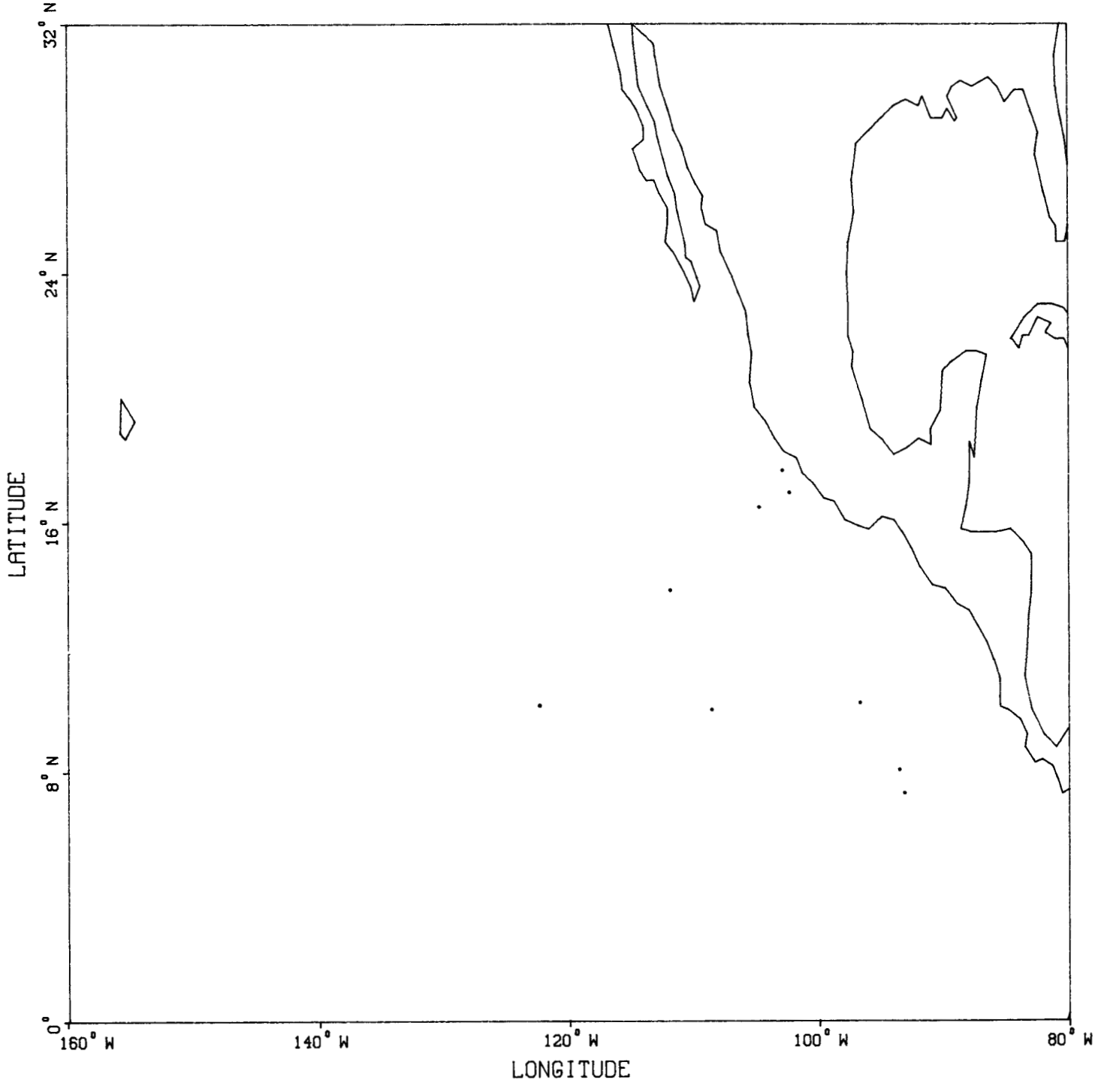


Figure 35. Record of unidentified large whale (Species Code 79) encountered in the eastern tropical Pacific during May 14 through August 2, 1982.

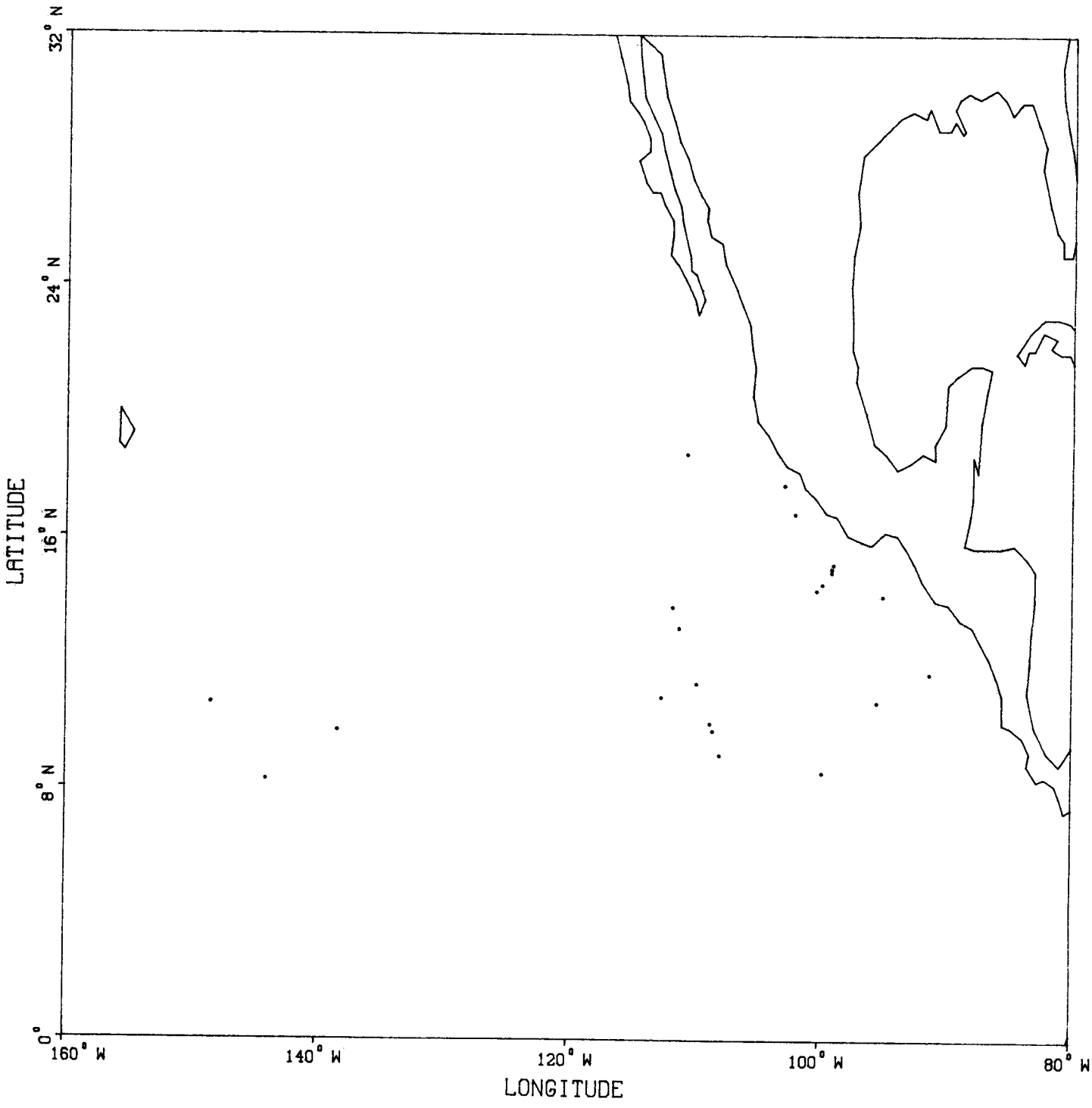


Figure 36. Record of spotted dolphin, Stenella attenuata, (Species Code 90) encountered in the eastern tropical Pacific during May 14 through August 2, 1982.

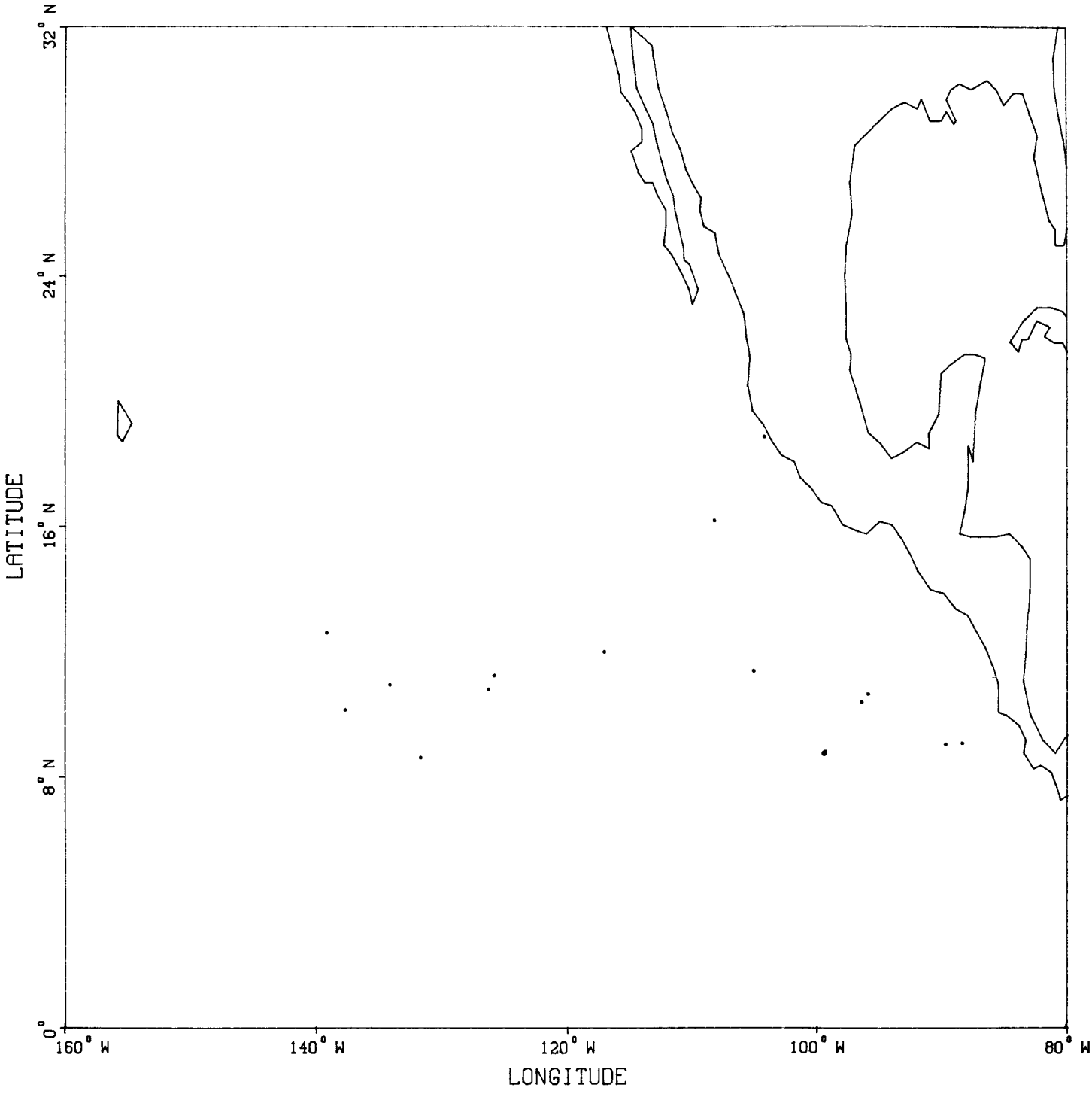


Figure 37. Record of unidentified cetacean (Species Code 96) encountered in the eastern tropical Pacific during May 14 through August 2, 1982.

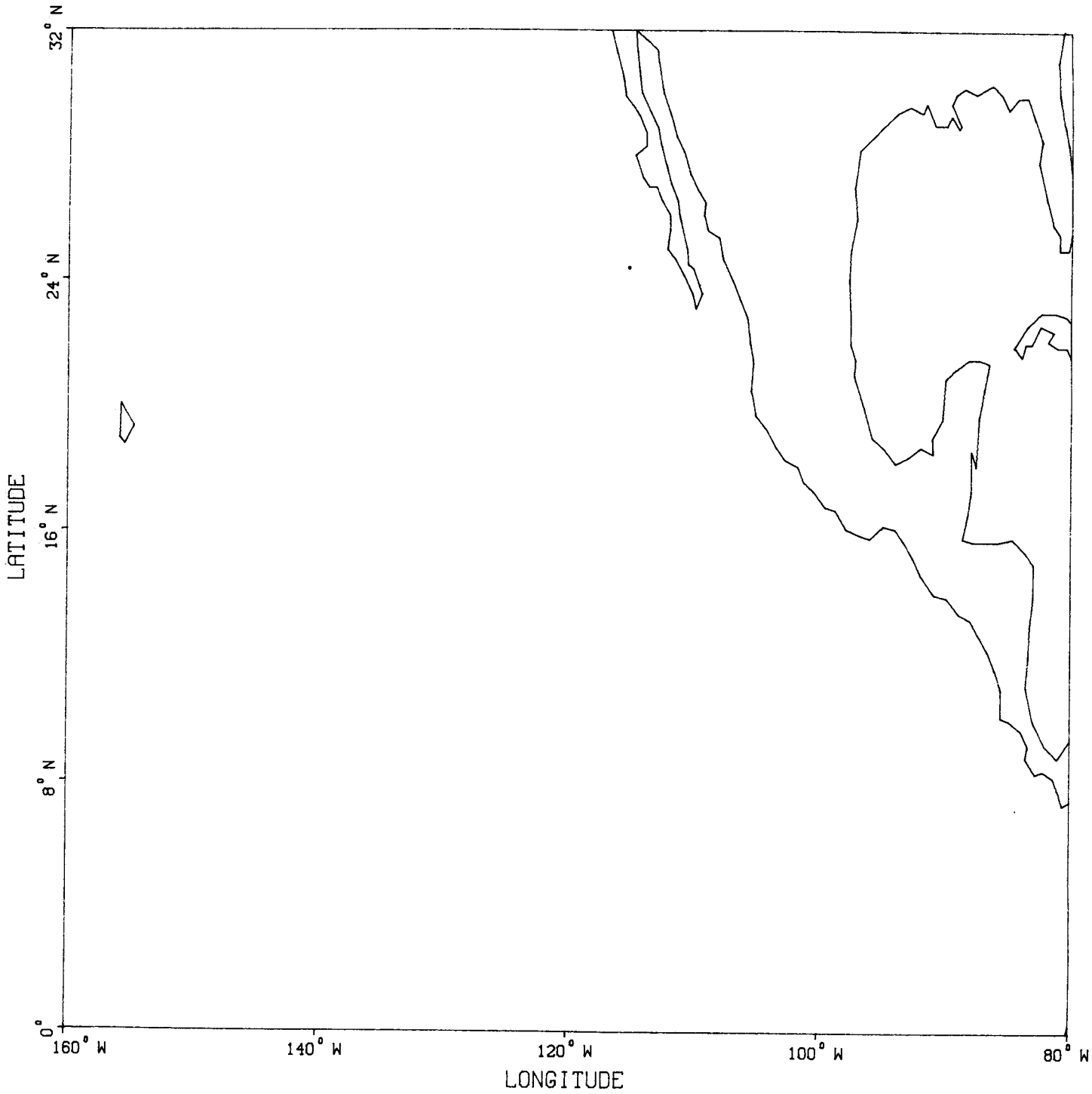


Figure 38. Record of unidentified object (Species Code 97) encountered in the eastern tropical Pacific during May 14 through August 2, 1982.

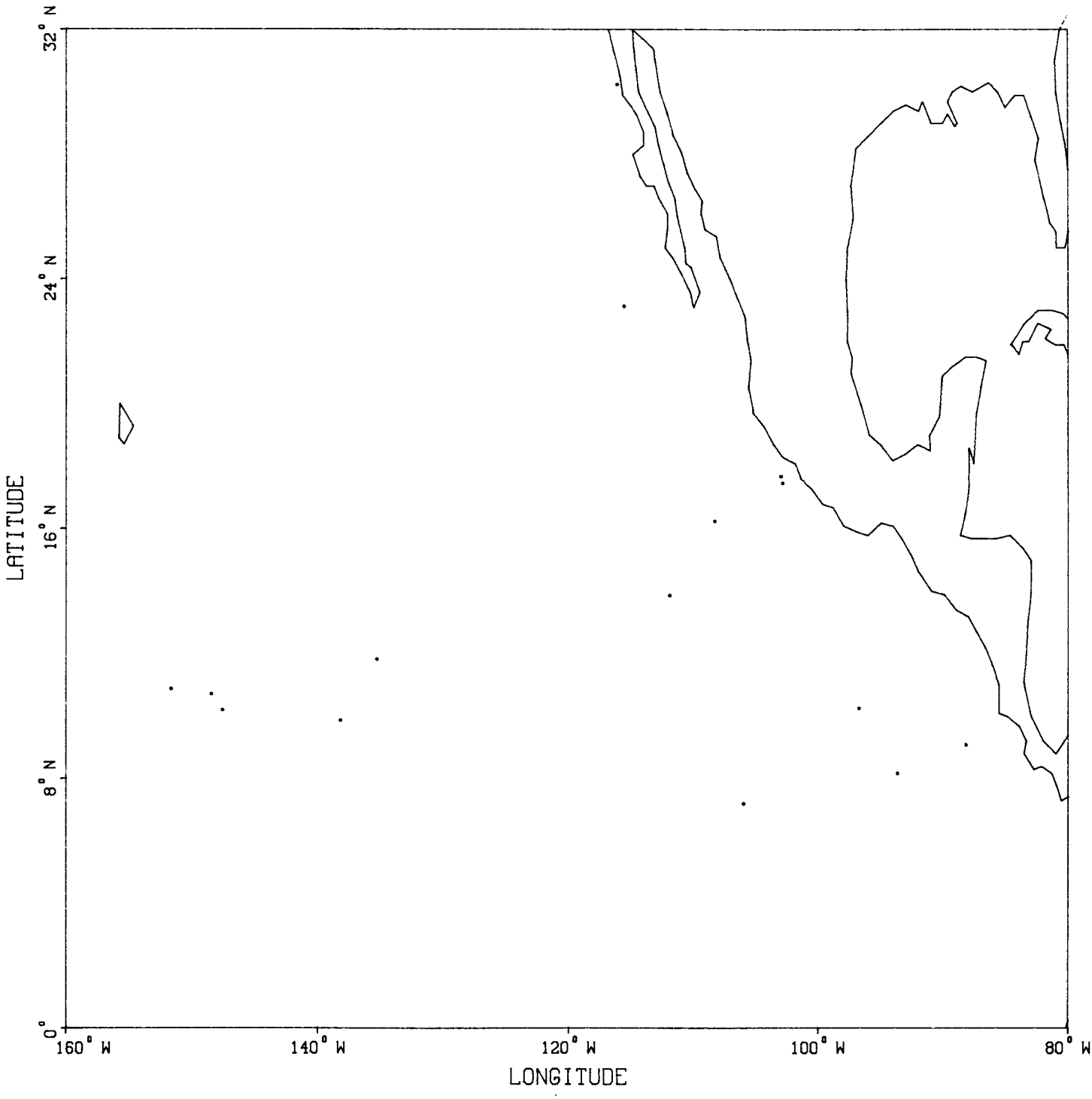


Figure 39. Record of unidentified whale (Species Code 98) encountered in the eastern tropical Pacific during May 14 through August 2, 1982.

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R. S. HOLT and J. E. POWERS
(November 1982)

24 Revised update and retrieval system for the CalCOFI oceanographic data file.
L. EBER and N. WILEY
(December 1982)

25 A preliminary study of dolphin release procedures using model purse seines.
D. B. HOLTS and J. M. COE
(December 1982)

26 "Possible effects of sampling biases on reproduction rate estimates for porpoise in the eastern tropical Pacific."
TOM POLACHECK
(January 1983)

27 "Report of porpoise experiment testing detection of on-track schools (pet dots), March 7-April 5, 1981"
RENNIE S. HOLT
(February 1983)

28 "Two computer programs to project populations with time-varying vital rates
TIM GERRODETTE, DANIEL GOODMAN and JAY BARLOW
(February 1983)