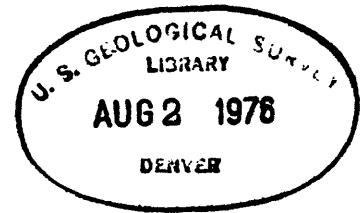


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ACOUSTIC-REFLECTION PROFILES
SCRIPPS UTILITY BOAT, AUGUST 1973
SAN DIEGO BAY, CALIFORNIA

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Work done in cooperation with California
Division of Mines and Geology and Scripps
Institution of Oceanography.

This report is preliminary and
has not been edited or reviewed for
conformity with Geological Survey
standards or nomenclature.

NOTE: Navigational fixes, by horizontal sextant angles, had a maximum error of 100 metres within the bay and 300 metres outside the bay. The sound source for the survey was a spark array with 60 electrodes that reached a subbottom penetration of about 200 metres. Discharge of 5 joules at each electrode reduced reverberation and allowed stratigraphic resolution of about 1 metre.

See C&Gs Chart 5107 for positions of buoys noted in scientific log.

SCIENTIFIC LOG FOR SAN DIEGO BAY CRUISE

SCRIPPS UTILITY BOAT, AUGUST, 1973

August 6

0800-1130- Wiring.

1325- Underway to fuel dock.

1400- Streaming gear; heading down channel toward sea.

1427- Turning back north; spark on at 1100 rpm.

1431- 100 yds. east of red buoy 12. Slight turn.

1443- Directly between red 14 and black 15.

1447- Turn.

1452- Between buoy 17 and R 16; 1/3 dist. from R 16.

1500- 1100 rpm.

1502- Between buoy 19 and R 18; 1/4 dist. from 19.

1503-4- Recorder off 1 minute. Belt trouble, slight turn.

1512- Abeam south side R 20, 50' away.

1519-20- Recorder off 1 minute. Belt trouble. 40' south of buoy 21.

1526- On line seaplane buoy 21 and end of Harbor Island. Heading toward wharf and tower.

1531- Turning.

1534- 75' northwest of corner of B Street Pier.

1535- Turn south to avoid traffic along pier.

1536- Belt problems.

1537- Heading across from southwest corner of Navy Pier.

1541- On line of seaplane buoy; 50' south of 26.

1545- End line; replace belt; turn.

1547- Restart recorder. Heading northwest.

1549- Turn onto east line.

1558- On line of seaplane buoys; 30' north of 28.
1605- Turning left, start. Heading just north of old Yacht Club Island.
1606- On new line.
1611- Directly off point south of People's Fish Market 100'.
1623- 100' east of seaplane buoy 23.
1624- Crossing lines of buoys.
1630- Abeam of 21; about 200 yds. to northeast.
1631- Abeam of seaplane buoy 15; about 300 yds.
1639- On line with seaplane buoys; heading toward Travelodge.
1640- Start turn.
1644- Abeam of lighthouse.
1647- Turning south.
1649- Abeam of NEL Pier; about 200 yds.
1653- 25' from R 18 to west.
1656- Turn west at pier; 50' off.
1704- 50' north of 17.
1707- Rounding shoal marker; 50' south. Shut down.

August 7

0826- Cast off.
0834- Start firing.
0844- 25' north of buoy 19; turn slightly.
0900- Abeam of seaplabe buoy 17.
0902- Abeam of seaplane buoy 18; 50' to south.
0905- Abeam of "Reuben E. Lee".
0910- 200' south of south corner of seaplane ramp.
0913- Begin turn at Embarcadero; 100' from dock.

0914- Shut down spark for maintenance.

0916- Spark on; heading west.

0919- On line with Coast Guard dock; 100 yds. off. Heading toward
Sheraton Hotel.

0923- Abeam of "Reuben E. Lee".

0924- Begin turn to north, clockwise.

0926- Begin turn to south away from General Dynamics dock.

0927- Abeam of "Reuben E. Lee".

0930- 30' east of seaplane buoy 20.

0935- On line with seaplane buoys; 100 yds. north of 23.

0938- On line with diagonal pier.

0940- Begin turn.

0941- Turning. Directly off north end of long building. About 100 yds.
off dock.

0942- On new line toward Tenth Street Pier. Steaming away from inside
corner of North Island basin.

0949- Abeam of buoy R 22; 100 yds. south.

0956- Abeam end Rowing Club Island about 100 yds. north.

0957- Middle of turn.

0958- 50' west of corner of Tenth Street Pier. Scale lines off.

1009- Pass between 4th and 5th piers of bridge.

1016- 50' off pier 1.

1017- Begin turn.

1018- On northeast line.

1024- Between L-shaped pier and R 4.

1026- 50' north of C 3.

1029- 50' north of buoy 1.

1036- Middle of turn. Shut down for repairs. About 100 yds. off pier.
1038- Firing again; first line of seaplane buoys.
1041- North of line of seaplane buoys.
1047- Arcer trouble.
1056- Circling.
1100- Start firing; getting on line.
1103- Start line about 300 yds. off marker.
1119- 30' north of seaplane buoy 50.
1121- Turn end of line.
1127- 20' east of R 30.
1130- Pull in spark part way.
1131- Let out spark again. Track wanders; problems corrected.
1200- Abeam R 2; slight turn.
1204- Between buoy 5 and R 6.
1208- Between buoy 7 and 8.
1210- Between buoy 11 and 12.
1215- Turn west 235° mag.
1220- On line 200 yds. off breakwater.
1232- Turning south and around to northeast.
1252- Between buoy 9 and 10.
1255- 100 yds. off ramp.
1256- Turning.
1300- Between buoy 5 and R 6.
1312- 100 yds. south of marker; turning south.
1331- Turn.
1332- South of point to north; heading west.
1350- Turning north; about 300 yds. off south end of East Island.
1401- 50' north of buoy 11.
1402- Turn toward north.

1404- Abeam of R 14 about 100 yds. to west.
 1412- Abeam of breakwater about 100 yds. off.
 1416- Turning north.
 1422- Sextant angle taken.
 1430- "
 1447- "
 1454- "
 1521- 100' north of seaplane buoy 50.
 1526- 100' south of seaplane buoy 36.
 1528- Turning west.
 1538- 50' west of bridge pier 18.
 1541- 100' north of buoy R 26.
 1545- Turn east; about 200 yds. offshore.
 1552- Turn west; 100' off corner of 10th Avenue Terminal.
 1601- Abeam of buoy R 24 about 200 yds.
 1610- 200' west of buoy R 22; slight turn.
 1617- 50' east of seaplane buoy 26.
 1629- On line between buoy 21 and 20; about 1/3 dist. from 20.
 1631- Turn about 200 yds. off "Reuben E. Lee".
 1637- 50' south of buoy 21; slight turn.
 1642- 200' off ramp. End of line. Polarity test. Pull in gear;
 head for dock.
 1700- At Scripps dock.

August 8

0818- Cast off.
 0825- Recorder on; (1/2 sec. sweep and 1/2 sec. firing rate,
 320-725 hz; 200 joules).

0826- Start firing; 50' east of buoy 15.

0833- Abeam of Ballast Point about 150 yds. off.

0846- 70' east of buoy 9.

0854- 70' east of buoy 7.

0859- Temporary course change to avoid wake.

0901- Middle of turn around buoy 5; 100' out.

0939- Middle of turn to north. 100 yds. off hotel breakwater.

0947- Change low filter setting to 280 hz.

1011- On line with jetty.

1013- 100 yds. north of buoy 18.

1016- On line west of black buoy.

1024- Middle of turn.

1027- Stop firing to remove kelp.

1028- Start firing.

1031- Cross black buoy line.

1035- On line with jetty.

1109- Turn left 100 yds. off beach.

1147- Turn left 100 yds. from jetty.

1148 to 1149- Shut down to remove kelp.

1248- Turn slightly to parallel beach; about 200 yds. off.

1251- Shut down to replace electrode. Abeam of lifeguard tower.

Electrode had been burned off; low resolution.

1310- Spark on; circling back to start of line.

1313- Turn onto line about 200 yds, off beach.

1342- 100' north of south buoy.

1413- Turn to southeast.

1458- Swing to east toward pier.

1500- Turn 100 yds. off Imperial Beach Pier.
1530- Slight course correction to starboard.
1543- 150' east of southernmost buoy.
1655- 200' southwest of end of jetty; heading toward flagpole.
1700- 100 yds. southwest of buoy R 10.
1705- 200' southwest of buoy 11.
1710- End of line. 150 yds. off Ballast Point beach. Stop firing; pull in gear. At Scripps dock.

August 9

0816- Cast off from Scripps dock.
0835- Start firing, testing; running down channel at 9 knots.
0842- Start firing.
0844- 150 yds. southwest of buoy 5. Course: 130° mag.
1030- 100 yds. off beach. Turn west at border. This line directly along line established by Bull Ring and toll road cut through ridge.
1111- Turn northeast to 020° mag.
1158- 75' off northeast pier.
1200- Start paralleling beach.
1203- Passing first jetty 150 yds. offshore.
1205- Turn to 280°, 100 yds. southeast out from north jetty.
1216- Accidental turn to north, then back.
1255- Stop to repair recorder blade.
1258- Start firing.
1300- Come around to 085° mag.
1344- Turn north along beach 150 yds. out.
1355- Turn west.
1424- 300 yds. north of seaplane buoys,

1531- Turn right onto 060° mag.

1637- Turn left onto 270° mag., about 400 yds. off beach.

1741- Slight maneuver.

1744- 200' north of buoy 7.

1753- Stop firing; end of line at Point Loma. Speed to 9 knots
down channel.

1815- Tied up at Scripps dock.

August 10

0840- Cast off from Scripps dock. Running to fuel dock. Running to Navy
boat basin.

0950- Start firing; hydrophone 60' out.

0951- Pass runway lights.

0958- Abeam of stack. Stop firing.

1003- Start firing.

1004- On line end of slips.

1006- 200' off end Harbor Island.

1014- 200' northwest of block.

1014.5- Stop firing; run to Coronado Bridge.

1043- Pass under bridge between 21 and 22.

1044- Start firing.

1050- 100' northwest of seaplane buoy 16.

1110- Turn east.

1130- Point of mole 150 yds. south.

1134- Stop firing; 150 yds. from end of Seventh Street channel.

1136- Start firing.

1140- 200' south of pier north of mole.

1200- Turn south.

1229- Outer markers to Coronado Cays.
1233- Between markers 7 and 8.
1237- Turning 150' south of marker 18.
1247- 100' northwest of 49.
1250- 100' north of R 2.
1255- Spark off at boat ramp. Turn.
1256- Firing.
1300- 100' north of R 2.
1304- 200' south of 48.
1312- 200 yds. northwest of marker 2.
1315- 100 yds. south of spit.
1316- Middle of turn.
1317- 100' south of spit near Crown Cove; turn northeast.
1332- Between buoy 40 and 38.
1333- 150' off corner.
1336- Left turn 150' from end.
1353- On line with shore to south.
1356- Turn.
1358- 100 yds. off north point.
1416- Turning north.
1417- 150' off pier.
1425- 100 yds. southwest of seaplane buoy 51.
1443- Turn 100 yds. off.
1444- Shut down sparker; pull in gear.
1451- Full speed to port.
1524- Tied up at Scripps dock.

END OF CRUISE