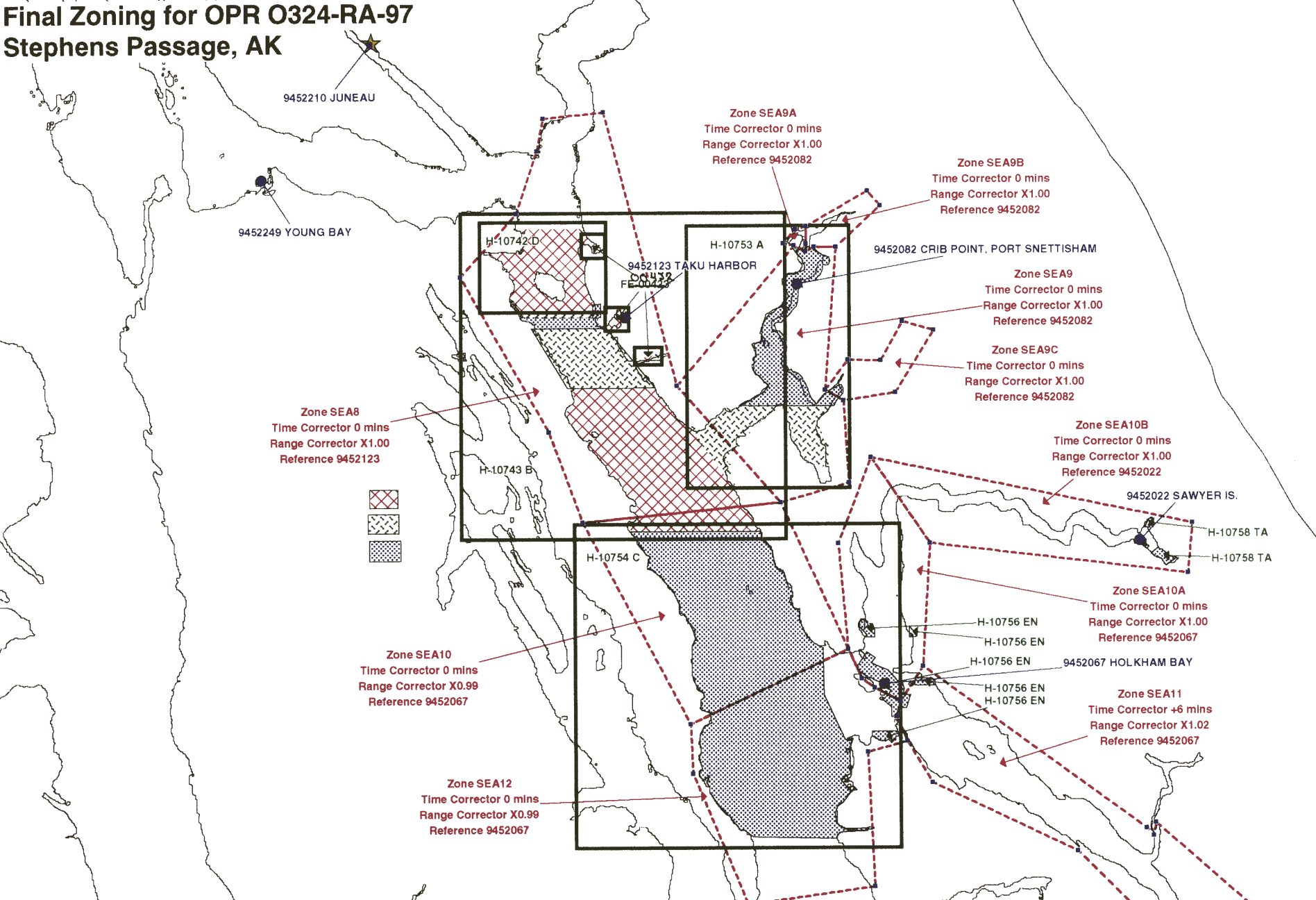
Final Zoning for OPR O324-RA-97
Stephens Passage, AK



Juneau, Alaska (945-2210), and Ketchikan, Alaska (945-0460, are the primary control stations for datum determination at all subordinate stations. RAINIER personnel installed a Sutron 8200 tide gage at Taku Harbor (945-2123) on April 21, 1997, which was removed on June 19, 1997. RAINIER personnel installed a Sutron 8200 tide gage at Speel River (945-2081) on April 16, 1997, and removed it June 19, 1997. Crib Point tide gage (945-2082) was installed June 4, 1997 and removed June 19, 1997. Refer to the Field Tide Notes and supporting data in Appendix V for individual gage performance and level closure information. This information and the boundaries of the survey have been forwarded to N/OES212. A request for approved tides was forwarded to N/OES23 in accordance with FPM 4.2.3. Approved Tide Note dated Nov. 17, 1997 is attached.

Use of Taku Harbor tide gage data is recommended for final tide correctors. Do not Concur
Final approved tides are from Juneau.

Predicted Tidal Correctors: ✓

The tidal correctors were downloaded from Tides & Currents Pro for Windows, version 2.5b Copyright 1993-1997 by Nautical Software Inc. for the Juneau, Alaska reference station (945-2210). The predicted tides at Juneau were entered into HPS and were applied to soundings without adjusting for zoning. Tidal correctors as provided in the project instructions for FE-00432 are listed below.

Zone Station	Time Corrector (min)	Range Ratio	HPS Tide Table No.
SEA8	000 hr 24 min	x1.03	Table No. 1

Real Tidal Correctors: ✓

The operating tide station at Juneau, AK (945-2210) served as control for datum determination. NOS verified six minute water level heights were used as correctors for this investigation. Data are in meters above MLLW and times are on UTC (GMT). A Next Generation Water Level Measurement System (NGWLMS) Aquatrak is the only sensor at this station. Consequently, RAINIER was not required to inspect or perform leveling of these stations.

A Sutron 8200 Bubbler tide station was established for this project in order to provide information on zoning, tidal datums (reducers), and harmonic constants for predictions. Due to the time limitations of the investigation, the tide gauge was operational for 1.5 days.

* Filed with the hydrographic data.

Refer to the Field Tide Notes, included with this letter, for individual gauge performance and level information. Raw waterlevel data from this gauge has been forwarded to N/CS41 on 11/12/98 in accordance with HSG 50 and FPM 4.7 where it will be processed into final approved (smooth) tides. The Pacific Hydrographic Branch will apply final approved (smooth) tides to the survey data during final processing. A request for delivery of final approved (smooth) tides to the Pacific Hydrographic Branch has been forwarded to N/CS41 in accordance with FPM 4.8. Approved Tide Note dated April 15, 1999 is attached.