

Tidal Zoning

The following tidal zoning was provided by NOS. This tidal zoning was compared to a Microtide bottom gage deployed in zone 461. Neither the Microtide gage nor the zoning was used to correct the soundings for this project.

Note: For time corrections, a negative (-) time correction indicates that the time of tide in that zone is earlier than (before) the predicted tides at the reference station, whereas, a positive (+) time correction indicates that the time of tide in that zone is later than (after) the predicted tides at the reference station. For height corrections, the water level heights relative to MLLW at the reference station are multiplied by the range ratio to estimate the water level heights relative to MLLW in the applicable zone.

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* - predicted tidal zoning
*
* tc - time corrector in minutes (- time of tide is before reference,
+ time after)
* rr - range ratio
*
* relative to MLLW

zone ck461 tc=-24 rr=1.00
n 60d36.01m, w 151d25.27m
n 60d31.6m, w 151d24.91m
n 60d30.83m, w 151d20.30m
n 60d31.98m, w 151d20.15m
n 60d33.38m, w 151d19.73m
n 60d34.15m, w 151d18.88m
n 60d35.53m, w 151d20.08m
n 60d36.01m, w 151d25.27m

Adequacy of Zoning

Analysis of cross lines through the survey area shows that the preliminary tidal zoning was inadequate.

A Microtide pressure gage was deployed twice for approximately 30 hours per deployment to perform a check on the adequacy of the zoning. This data was not used for data reduction. Data was successfully obtained from the gage in the first deployment but not the second. The gage had taken on water internally and had to be returned to the factory for repair. The first deployment occurred in Zone 461 which is at the southern end of this sheet. The data was adjusted for atmospheric pressure using a barometer which recorded in Kenai and then compared to the NOAA preliminary tidal data for both Nikiski (945-5760) and also Cape Kasilof (945-5711). Cape Kasilof had been set for use on a subsequent sheet but the tide series overlapped the data obtained from the bottom gage.

The Microtide gage was not deployed for long enough to adequately determine a datum for the area of the deployment but was instructional in the analysis of the adequacy of zoning. A graph on the next page shows a comparison between the Microtide gage, tides from Nikiski with the zoning constants for zone 461 applied, and tides interpolated between Nikiski and Kasilof. The interpolated tides were the result of taking the instantaneous tides at both stations and interpolating between them based on the relative locations of the two NOS tide stations and the Microtide gage.

The graph contains three tide curves. The curves for the Microtide gage and the tides interpolated between Nikiski and Cape Kasilof matched best for amplitude and phase. The curve for Nikiski which had been adjusted for zone 461 underestimated the amplitude and the phase did not match as well.