

Estimates of Coastal Freshwater Runoff: How to Get Them and What To Do With Them

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Coastal freshwater runoff is of significance as it plays a role in establishing near-shore temperature and salinity fields. These oceanographic fields, in turn, partially control near-shore circulation patterns and play a role in observed biological patterns in coastal waters. The availability of data on coastal freshwater discharge is highly variable. Coastal Alaska is characterized by considerable topographic relief, prodigious precipitation, and relatively few stream gages. The result is significant uncertainty about the volume of discharge, and its seasonal timing, into the Gulf of Alaska.

Our recent work on this topic will be presented in two parts. The first is a highly localized study of Glacier Bay National Park. Estimates of freshwater discharge were made and showed reasonable agreement with highly-limited streamflow measurements. The effects of this discharge were studied, in terms of how strongly they controlled the circulations within the bay. The second part of the talk will describe a regional study, recently begun, of the entire watershed of the Gulf of Alaska. Discussions of the development of a weather time series, the first step in this study, will be presented.