

Aphids by the bucket form “oil slick” on Cook Inlet waters

by Dominique Collet and Ed Berg



Winged aphids on tide rips on Cook Inlet looked like an oil slick. Photo by Dominique Collet.

On June 1st Erik Huebsch and Dr. Stephen Okkonen spotted what appeared to be an oil slick a few miles offshore from the mouth of the Kenai River in Cook Inlet. Dr. Okkonen, a University of Alaska Fairbanks physical oceanographer, was returning from a routine survey of the Inlet water temperatures and salinities between the Forelands.

Closer examination of the “oil slick” revealed that it was actually a quarter-inch thick floating mat of insects collected in a tide rip. Conservatively, Dr. Okkonen estimated the mass of insects to be about two to three feet wide and more than a mile long, which computes to a volume of between eight and 12 cubic yards! A jar of insects was collected and brought to the Kenai Watershed Forum, who in turn passed on this story to us.

What insects could accumulate in such a mass and where are they coming from? Specimens were sent to an aphid specialist, Dr. R. Footitt, with Agriculture and Agrifood Canada, who identified them as a winged form of the alder aphid *Boernerina occidentalis*.

Early May was warm and sunny, and aphids were busy tapping the abundant and nutritious spring sap with their hollow needle-like mouthparts. By the end of May, aphids were numerous on the stems and leaves of alders, leaving behind their shiny sticky “honeydew” secretions, which are fed upon by ants, bees, and

wasps, which in turn help protect the aphids from predation.

Aphids have both winged and wingless phases; the wingless phases are commonly seen on house plants, much to the annoyance of plant lovers, whereas the winged forms are less noticeable.

We speculate that the wind picked up a few days prior to the “oil slick” discovery. This wind lifted up the winged aphids and kept them suspended en masse in mid-air, turning the weak fliers into “aerial plankton” that was blown out over Cook Inlet.

Because surface-feeding insectivore, such as petrels, sea ducks and sea gulls are in low density on the murky waters of Cook Inlet, most of the aphids were not eaten when they landed on the water surface. Currents and winds concentrated the floating carcasses into the tide rip.

Such an astounding mass of carcasses of one type of insect in one location is quite extraordinary; nevertheless, probably only a fraction of the local aphid biomass ended up in the Inlet.

On June 2nd Ed Berg and Matt Bowser observed numerous bodies of winged aphids, possibly the same species, covering snow patches at treeline in the mountains north of the Skyline Trail. Upvalley winds had probably blown the aphids up from alder patches on the mountain slopes.

Southern peninsula residents may recall the massive flights of spruce bark beetles in the mid-1990s at about this time of year. One resident described a dark cloud that moved down the Anchor River valley one spring, which he at first thought was a small rain-squall, until it rolled over him and left him covered with bark beetles.

These events provide graphic testimony of the usually invisible but huge biomass of terrestrial invertebrates all around us.

It is common for large numbers of terrestrial insects to end up in rivers and lakes, where they are quickly dispatched by hungry fish. Terrestrial invertebrates, in fact, constitute a sizeable portion of the diet of juvenile fishes. The foliage of trees and shrubs leaning over the riverbanks is more than shade and shelter to young fishes: it also provides a generous shower of

terrestrial invertebrates.

At least eight cubic yards of aphids floating in the rips of Cook Inlet! Enough to fill the back of a full-size dump truck. That is impressive!

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Kenai Watershed Forum on a guidebook for insects of southcentral Alaska. Ed Berg has been the ecologist at the Kenai National Wildlife Refuge since 1993. Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.