

Hand Out—Dragonfly Fact Sheet

Critter fact sheet: Dragonflies

According to the Maine Department of Inland Fisheries and Wildlife, “insects in the order Odonata, damselflies and dragonflies, are a significant and conspicuous component of Maine's wildlife diversity. At this time 158 species have been documented in the state, comprising nearly 36% of the total North American odonate fauna (435 species)! Considering the distribution and habitat associations of odonates in neighboring states and provinces 5 to 10 additional species may yet be awaiting discovery in Maine. Factors contributing to Maine's odonate wealth include the state's large size and its diversity of landforms and unspoiled wetland ecosystems. Additionally, Maine holds a unique geographic position, providing habitats for species with both boreal affinities and more southerly Appalachian and coastal plain associations. Indeed over half of the state's odonates are comprised of species that reach the edge of their latitudinal range in Maine.” (<http://mdds.umf.maine.edu/index.html>).

Our research will focus on collection of dragonfly larvae to determine their body burdens of mercury. Therefore, the following summary of life history characteristics of dragonflies is somewhat targeted to that goal. Classes wishing to undertake more detailed investigations of the biology, habitat, or classification of dragonflies – or those that want to learn more about their adult life – can find plenty of information online, starting with some of the links given here: <http://mdds.umf.maine.edu/Web%20Sites.htm> or in books such as *A Guide to Common Freshwater Invertebrates of North America* by J. Reese Voshell (2002).

Handout: give students the St. Croix National Scenic Riverway fact sheet. This fact sheet is very basic – a good starter. But be aware that it is from Wisconsin, not Maine. The second page is not specific to Maine, so it may not be useful to print.

From there, it may be appropriate to point students to a more detailed site such as this one (http://cass.ucsd.edu/personal/ron/CVNC/odonata/jps_odonata.html), to gather more information. Encourage them to focus on the larval stage.

Key mercury-related facts about dragonfly larvae:

- We will focus on dragonflies in the larval stage. As the fact sheet notes, dragonflies can remain in the water as larvae for up to five years. Their **long residence time in aquatic systems** makes them prone to bioaccumulation of mercury.
- Dragonfly larvae are predators. They eat other insects, tadpoles, and even small fish. Their **predatory feeding habit** places them higher in the food chain and makes them prone to mercury bioaccumulation.
- Dragonflies are **eaten by other organisms** such as fish and frogs. So, any mercury they accumulate is passed up the food chain.
- Dragonflies are **widely distributed** across the state. We have found them in all sorts of streams, rivers, and ponds throughout the state. Because we find them in lots of places, it is possible to compare across sites and see how mercury varies across the state.
- Unlike fish, most dragonfly larvae don't travel far in the water – they exhibit relative **site fidelity**. This means that the mercury in dragonfly larvae is likely representative of the site where they are living (and perhaps immediately upstream) – not some distant water body they once lived in.