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## Just add water: sources of chironomid drift in a large river floodplain

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**Abstract** Although seasonal floodplains represent one of the most dynamic and productive of aquatic ecosystems, the sources of this productivity are poorly understood. We examined composition and sources of chironomid drift in the Yolo Bypass, the primary floodplain of the Sacramento River. We found that invertebrate drift during winter floodplain inundation is dominated by a single species, the newly identified chironomid *Hydrobaenus saetheri* (Diptera: Chironomidae). In order to determine sources of chironomids in the Yolo Bypass, invertebrates were sampled from several potential sources prior to and during initial floodplain inundation. Rehydration of dried floodplain sediments from several locations showed that *H. saetheri* dominated insect emergence from this colonization pathway. By contrast, *H. saetheri* was not a substantial component of inundated floodplain ponds or of tributary inputs to the floodplain. We conclude that the initial pulse of invertebrate abundance in Yolo Bypass floodwaters is dominated by chironomid emergence from sediments in multiple regions of the floodplain.

**Keywords** Floodplain - Chironomidae - *Hydrobaenus saetheri* - Invertebrate colonization - Sacramento River - Yolo Bypass

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SHORT RESEARCH NOTE

## Just add water: sources of chironomid drift in a large river floodplain

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**Keywords** Floodplain · Chironomidae · *Hydrobaenus saetheri* · Invertebrate colonization · Sacramento River · Yolo Bypass

### Introduction

Seasonal floodplains are dynamic and productive components of freshwater ecosystems (Junk et al., 1989). During flood events, secondary production of seasonally inundated habitats can often exceed that of adjoining perennial water sources (Bayley, 1991; Sparks, 1995; Tockner & Stanford, 2002). Moreover, aquatic invertebrate abundance in seasonal floodplains is often substantially greater than in main channels (Gladden & Smock, 1990; Sommer et al., 2004; Grosholz & Gallo, 2006). In temporary aquatic systems such as floodplains, larvae of the dipteran family Chironomidae can be the most abundant invertebrate (Wiggins et al., 1980; Taylor et al., 1999; Sommer et al., 2004). While invertebrate colonization and species succession are well-studied in seasonal ponds (e.g., Jenkins & Boulton, 1998; Hillman & Quinn, 2002; Batzer et al., 1999), fluvial floodplain invertebrate populations have received little attention (Steinhart, 2000a).

Methods of floodwater colonization by invertebrates include aerial colonization by adults

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