

Chemical Composition and Behavioral Responses of the Marine Insect *Halobates hawaiiensis* (Heteroptera: Gerridae)

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Halobates is the only insect genus with representatives in the open ocean. How adults find one another at sea has long been an intriguing issue. Since chemical communications have been demonstrated in a related marine veliid *Trochopus*, and laboratory bioassays indicated behavioral differences between males and females when insect extracts were presented, we carried out similar studies on *Halobates*. Analyses of surface lipid constituents of female and male *Halobates hawaiiensis* revealed marked differences. Palmitic and oleic acid, major constituents in the male extracts, were absent in the female extract, whereas nonacosenol, dominating the female extracts, was not detected in the male extracts. Analyses of nymphal extracts indicated an intermediate chemical profile. Surface waxes of all insect stages investigated showed nonacosanol and isononacosanol to be main components. "Headspace" analyses of airborne chemicals showed high levels of 4-hydroxy-4-methyl-2-pentanone and benzaldehyde from the male, whereas benzyl alcohol was the main component in the female mixture.