The European oyster Ostrea edulis is a keystone species that is internationally recognised as 'threatened and declining' in the NE Atlantic by OSPAR and several nations have consequently adopted strategies for its conservation and restoration. Understanding the settlement behaviour of O. edulis larvae is crucial to inform these strategies. We compared the efficiency of several treatments in triggering settlement. The most effective settlement occurred with the presence of conspecifics: 100% settled in <23 h. Marine stones with habitat-associated biofilms induced 81% settlement that started after a 45 h delay. Sterile shells and terrestrial stones did not induce more settlement than control treatments. These results indicate that O. edulis larvae are gregarious and finely-tuned to settle in response to cues which are indicative of their adult habitat requirements. The role of chemical cues in mediating settlement, and the importance of this to restoration, are discussed.