

Inducing detachment of silver-lip pearl oyster (*Pinctada maxima*, Jameson) spat from collectors

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Abstract

A number of stress factors were assessed for their potential to induce detachment of silver-lip (or gold-lip) pearl oyster (*Pinctada maxima*, Jameson) spat from spat collectors. The factors assessed were: increased salinity to 40 parts per thousand (ppt) or 45 ppt, reduced salinity to 30 ppt or 25 ppt, raised (to pH 10) and reduced (to pH 4) pH and exposure to air. All treatments promoted significantly greater ($P < 0.001$) percent spat detachment than the control treatment of 'normal' sea water (34 ppt, pH 8.0). The pH 10 treatment resulted in heavy mortality (86%) after 1 h and was abandoned. The greatest percentage of detached spat ($92.3 \pm 0.6\%$, mean \pm s.e.) resulted after 1 h exposure to hypersaline sea water at 45 ppt, this was significantly greater ($P < 0.05$) than for any other treatment. The next best treatment was pH 4, which resulted in $85.6 \pm 2.3\%$ detached spat after 1 h. Exposure to the treatments beyond 1 h, except in the case of exposure to air, did not yield significant increases ($P > 0.05$) in the proportion of detached spat. Spat that had detached in the treatment baths within the first hour began to re-attach during the second hour. With the exception of the pH 10 and air exposure treatments, detached spat in all treatments had firmly re-attached and had apparently adapted to the new environmental conditions after 24 h. Survival of spat left exposed to these treatments for 24 h was 100% as was the survival of spat exposed to air for up to 6 h. No mortality was recorded for any treatment 24 h after the spat were returned to control sea water. ©1997 Elsevier Science B.V.

Keywords: Pearl oyster; *Pinctada maxima*; Detachment; Salinity; pH

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