Tripneustes aquaculture in NSW

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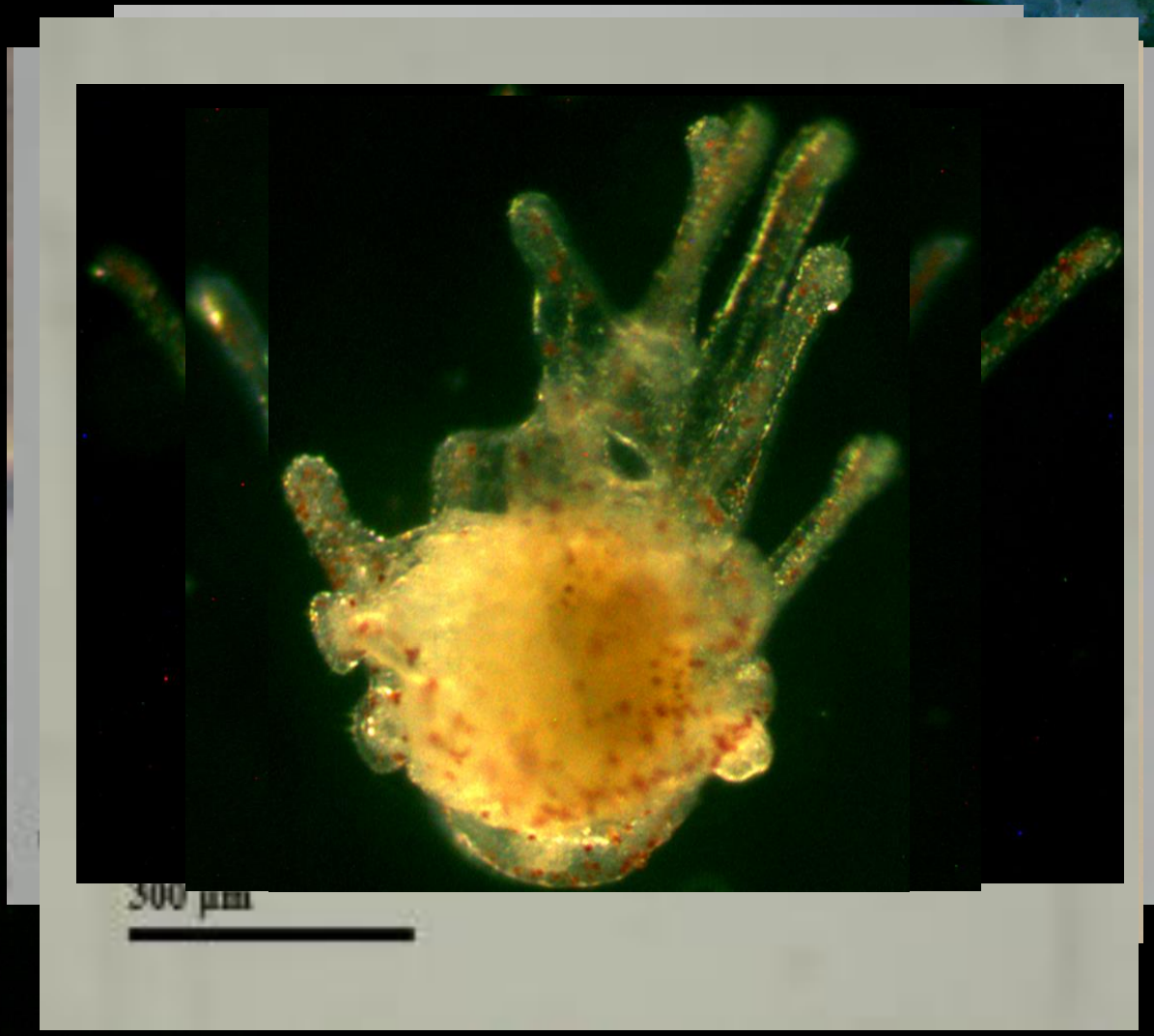
Three bottlenecks to efficient commercial production

1. Larval settlement/metamorphosis;

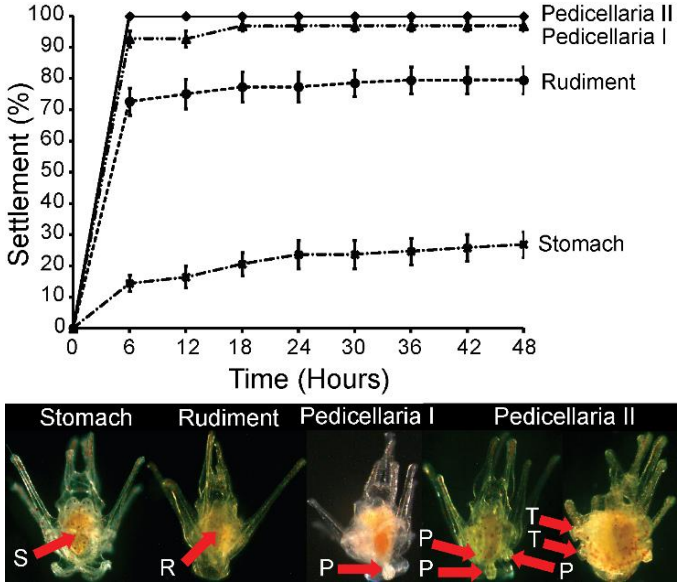
2. Optimal growth, gonad size and quality: temperature, density, and water flow.

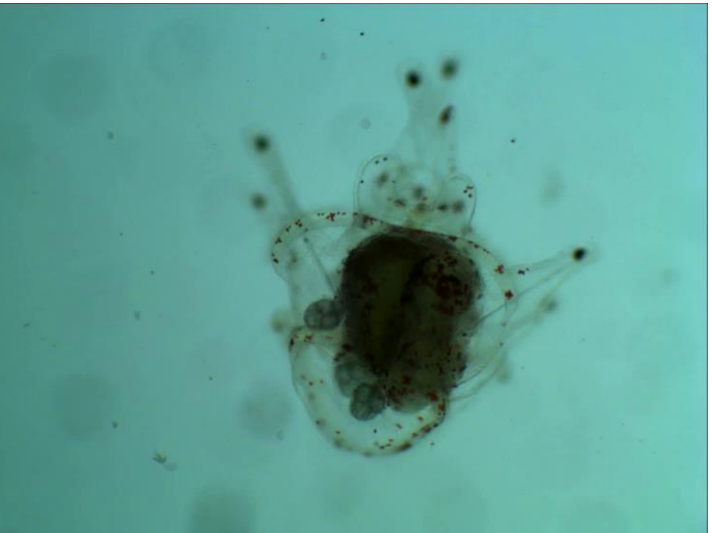
3. When to harvest for best gonad quality.

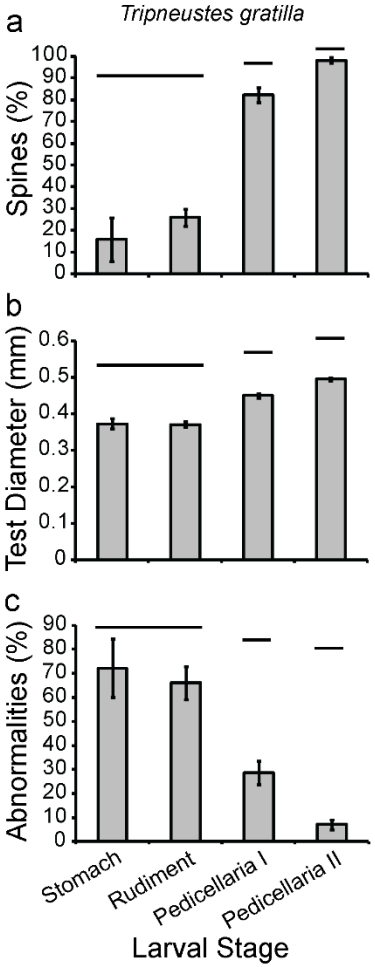
When are *Tripneustes* larvae ready to settle?

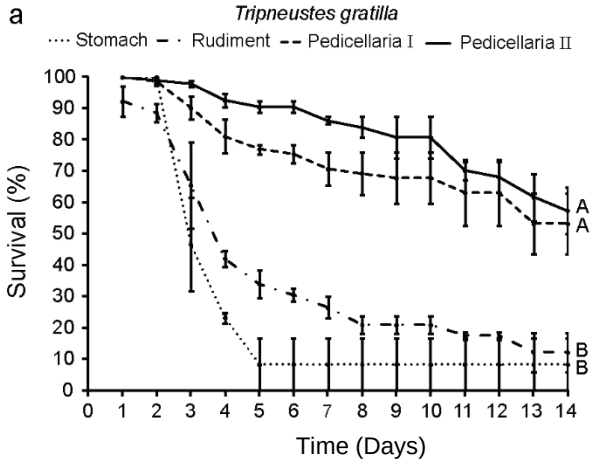


Larval *Tripneustes* are ready to settle when they have pedicellaria





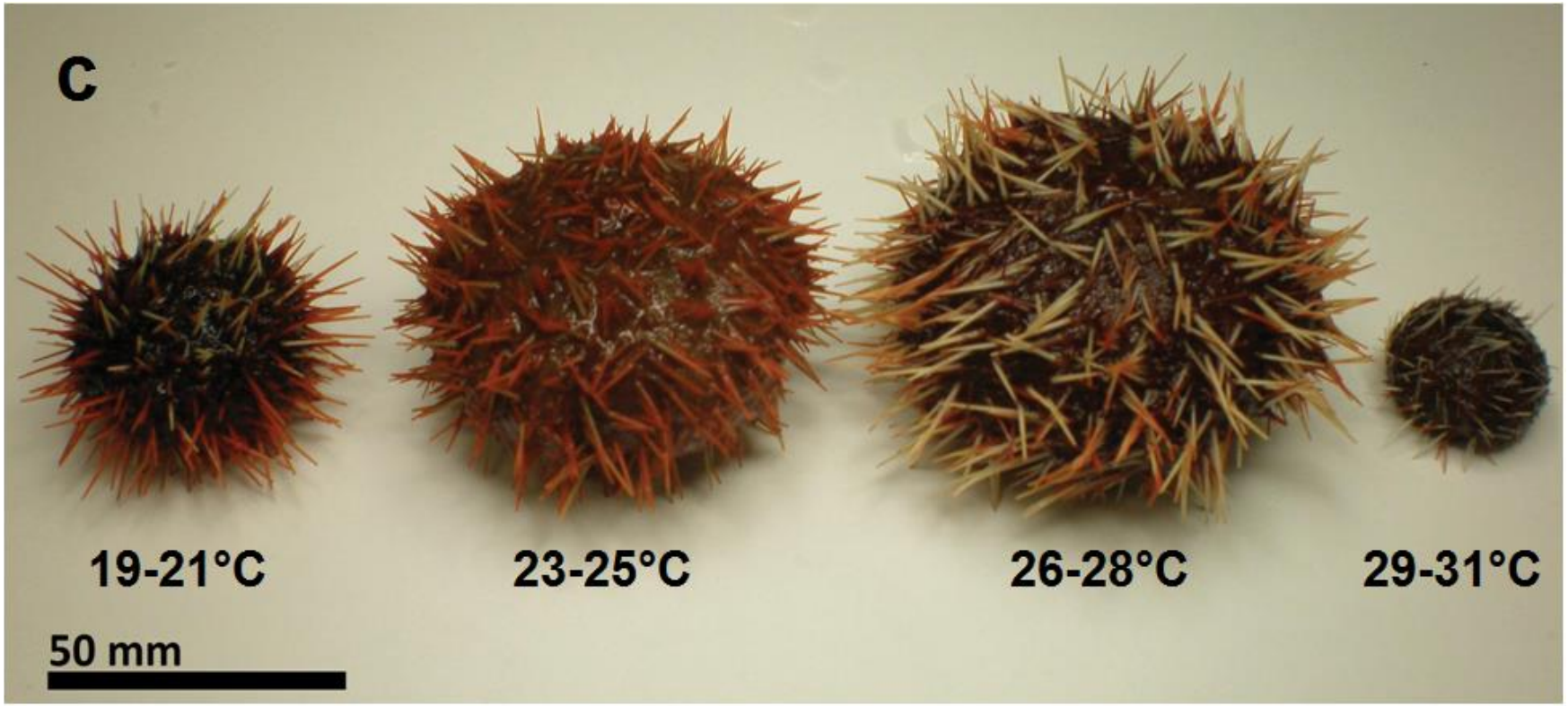




Mos B. & Dworjanyn S.A. (2016) Early metamorphosis is costly and avoided by young, but physiologically competent, marine larvae. Marine Ecology Progress Series, 559, 117-129.

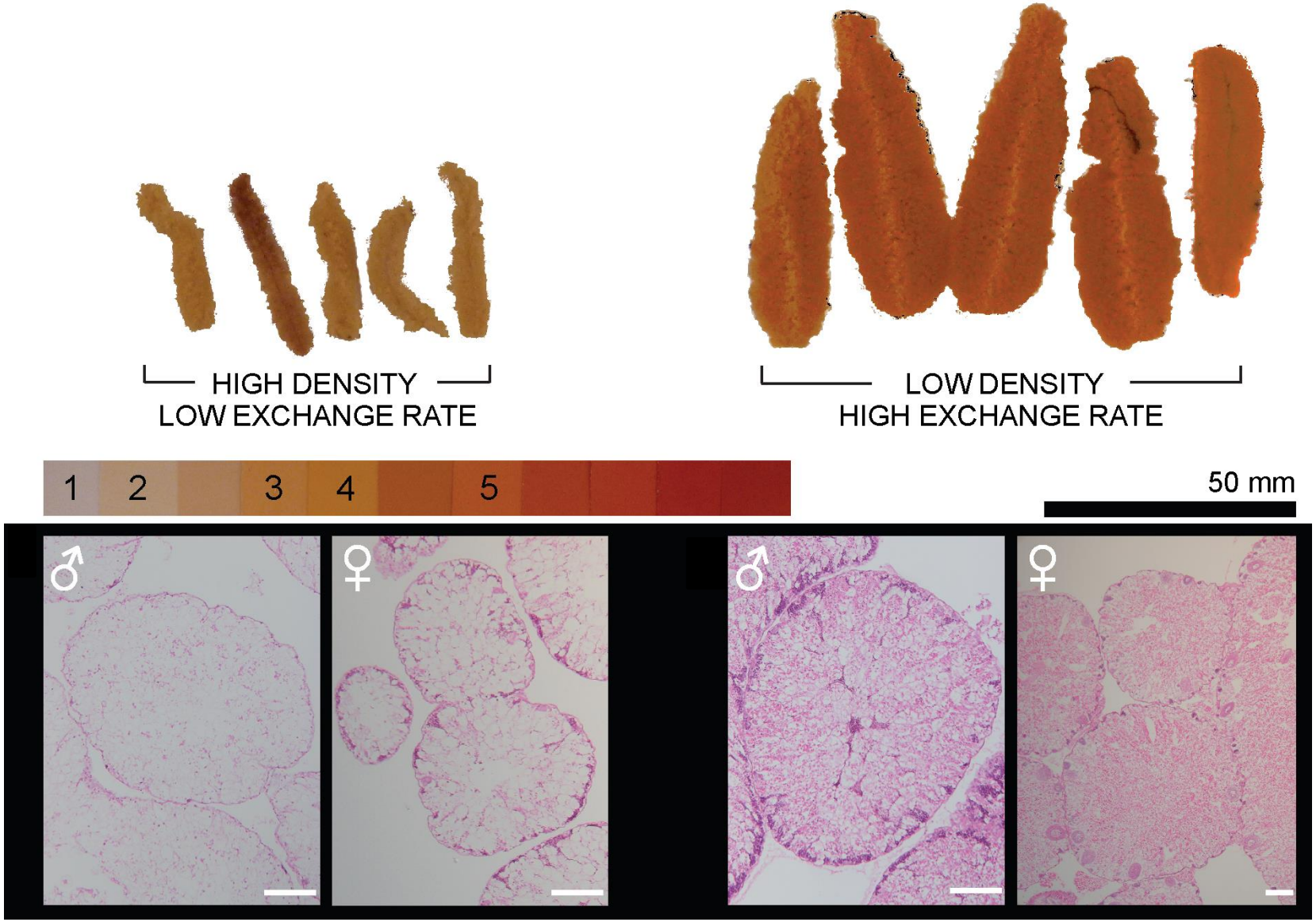
Can we just put *Tripneustes* and some food in a tank?

Tripneustes need to be grown at optimal temperature to ensure high productivity and efficiency



Mos B., Byrne M., Cowden K., Dworjanyn S.A. (2015) Biogenic acidification drives density-dependent growth of a calcifying invertebrate in culture. Marine Biology, 162(8), 1541-1558.

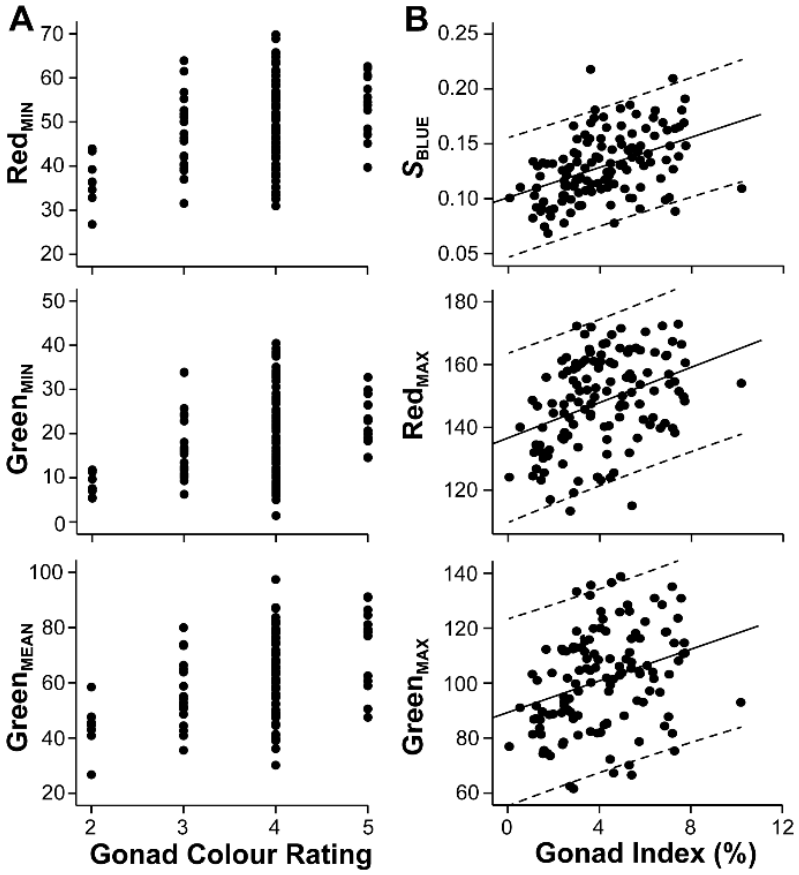
Effect of density and seawater exchange rate on gonad production after six weeks

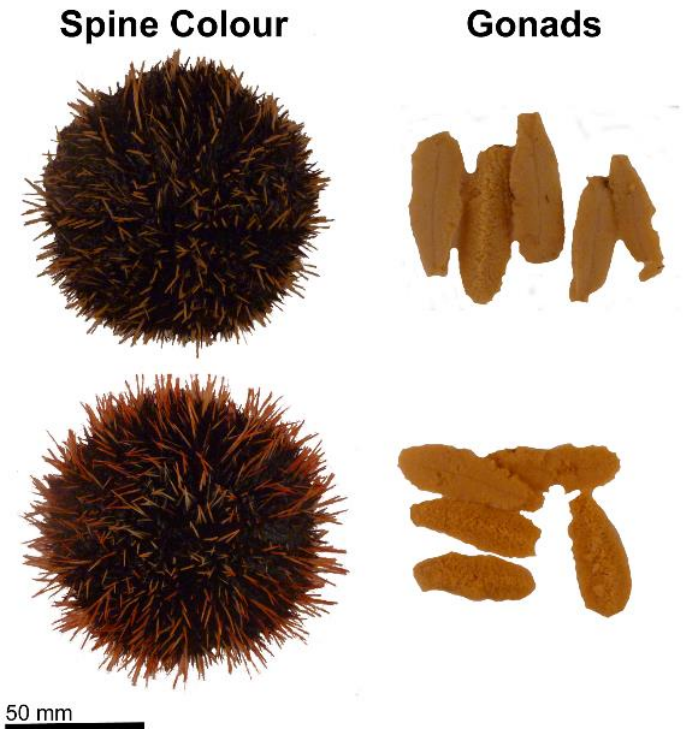


Mos B., Byrne M., Dworjanyn S.A. (2016) Biogenic acidification reduces sea urchin gonad growth and increases susceptibility of aquaculture to ocean acidification. *Marine Environmental Research*, 113, 39-48.

How do we know when *Tripneustes* is ready for harvest?

The colour of *Tripneustes* spines can give an indication of the size and the colour of their gonads





Mos B. & Dworjanyn S.A. (2019) Ready to harvest? Spine colour predicts gonad index and gonad colour rating of a commercially important sea urchin. Aquaculture, 505, 510-516.

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