**Table 4.1**. Compilation of some recent studies investigating the effects of warming and ocean acidification on all life-stages of sea urchins. This listing is restricted to recent publications and are ordered in terms of relevence to this study (preference for same species, long term, juvenile-adult life stages). Results are reported here if there was significance. Abbreviations are as follows: PL= pre-larval, L = larval, J = juvenile (post-metamorphasis), A = adult (60mm), C = control, pHcf = Ceolomic fluid pH

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| Taxon | Exposure period | Life Stage | pH | Temp (°C) | Effects Explored | Results | Location | Source | Date |
| *Tripneustes gratilla* | 147 d  (~5 mo) | J-A | C = **8.1**  -0.3 = **7.8**  -0.5 = **7.6** | C = **22**  +3 = **25**  +6 = **28** | Growth,  Gonad index,  pHcf | T:  pH:  T x pH: | NSW, Australia | Dworjanyn and Byrne | 2018 |
| *Tripneustes gratilla* | 146 d  (~5 mo) | J-A | C = **8.1**  -0.3 = **7.8**  -0.5 = **7.6** | C = **22**  +3 = **25**  +6 = **28** | Minerology (% MgCO3 and SEM), Test thickness, Crushing force | T: increased %MgCO3 in both warmer T (25,28°C),  pH: lowest pH (7.6) reduced test thickness, lowest T  T x pH: interaction in test thickness | NSW, Australia | Byrne et al. | 2014 |
| *Tripneustes gratilla* | 5 d | L | C = **8.1**  -0.3 = **7.8**  -0.5 = **7.6** | C = **24**  +3 = **27**  +6 = **30** |  | T: increased growth <30°C  pH: decrease larval growth  T x pH: +3°C diminshed pH effect | NSW, Australia | Sheppard Brennand et al. | 2010 |
|  |  |  |  |  |  |  |  |  |  |
| *Paracentrotus lividus* | 343 d  (49 wks,  ~11 mo) | J-A | C = **8.0**  -0.1 = **7.9**  -0.2 = **7.8** | C=**9-15**  +2=**11-18** | Mechanical properties | T: no effect  pH: no effect  T x pH: no effect | Plymouth, UK | Collard et al. | 2016 |
| *Hemicentrotus erythrogramma* | 4 d | L - J | C = **8.2**  -0.4 = **7.8**  -0.5 = **7.6** | C = **22**  +2 = **24**  +4 = **26** | Fertilization,  Early development | T:  pH:  T x pH: | Little Bay, Sydney, Australia |  |  |
|  |  |  |  |  |  | T:  pH:  T x pH: |  |  |  |
|  |  |  |  |  |  | T:  pH:  T x pH: |  |  |  |
|  |  |  |  |  |  | T:  pH:  T x pH: |  |  |  |

**Table 4.2**. Compilation of some recent studies investigating the effects of **ocean acidification** only.

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| Taxon | Exposure period | Life Stage | | pH | Effects Explored | Results | Location | Source | Date |
| *Tripneustes gratilla, Pseudechinus huttoni,*  *Evechinus chloroticus, Sterechinus neumayeri* |  | | L | C = 8.2  6.0, 6.5, 7.0, 7.5, 7.7, 7.8 | Somatic and skeletal growth, calcification index, development, survival, SEM | Decreased survival below 7.0..... |  | Clark et al. | 2009 |
| *Echinometra sp.* | 236 d. | |  |  |  |  |  |  |  |
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**Table 4.3**. Compilation of some recent studies investigating the effects of **warming** only**.**

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| Taxon | Exposure period | Life Stage | Temp (°C) | Effects Explored | Results | Location | Source | Date |
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