

<Marine Organism Rearing Log>

9 AM, December 27, 2023

Weather: Sunny

Water temperature: 18.3°C

Recently, we have had more abalone deaths than usual in both the regular seawater tanks and the ALPS treated water added tanks due to what appears to be oxygen deprivation. Experts believe that the cause of the oxygen deprivation was an increase in nitrate-dissolving bacteria, which attached to the gills and deprived the abalone of oxygen. We will continue our efforts to improve the environment.

<p>Abalone mortality trend (Regular seawater tank)</p> <table border="1"> <thead> <tr> <th>Date</th> <th>No. of deaths</th> <th>Total number of abalone</th> </tr> </thead> <tbody> <tr> <td>12月22日</td> <td>0</td> <td>0</td> </tr> <tr> <td>12月23日</td> <td>12</td> <td>12</td> </tr> <tr> <td>12月24日</td> <td>8</td> <td>20</td> </tr> <tr> <td>12月25日</td> <td>5</td> <td>25</td> </tr> </tbody> </table> <p>Abalone mortality trend (ALPS treated water added tank)</p> <table border="1"> <thead> <tr> <th>Date</th> <th>No. of deaths</th> <th>Total number of abalone</th> </tr> </thead> <tbody> <tr> <td>12月22日</td> <td>0</td> <td>0</td> </tr> <tr> <td>12月23日</td> <td>8</td> <td>8</td> </tr> <tr> <td>12月24日</td> <td>5</td> <td>13</td> </tr> <tr> <td>12月25日</td> <td>5</td> <td>18</td> </tr> </tbody> </table> <p>The body is sticky (lack of oxygen)</p> <p>The mantle is solid (not injured)</p>	Date	No. of deaths	Total number of abalone	12月22日	0	0	12月23日	12	12	12月24日	8	20	12月25日	5	25	Date	No. of deaths	Total number of abalone	12月22日	0	0	12月23日	8	8	12月24日	5	13	12月25日	5	18	<p>Rearing Tank System Diagram</p> <p>Bacteria grown in the denitrification layer diffuses throughout the entire tank.</p>
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<p>Nitrogen cycle diagram:</p> <ul style="list-style-type: none"> Nitrogen metabolism NH₃-NH₄ (Ammonia) NO₂ (Nitrite) NO₃ (Nitric acid) N₂ (Nitrogen gas) (Discharged outside the tank) <p>Denitrification tank</p> <p>Nitrification tank</p> <p>Reprinted from October 25, 2023 log</p>	<p>Abalone & flounder at the testing and rearing facility (December 27, 2023)</p> <p>The abalone are now in good health.</p> <p>Tactile sensors have also grown and are moving around.</p> <p>The flounder are doing well.</p> <p>No affect on the flounder</p>																														