

ほたて増養殖情報高度化事業 ヒトデ類付着予報調査

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ヒトデ類はホタテガイを捕食するが、これらは同じ時期に発生する。このため、ホタテガイを天然採苗する際、採苗器に付着するヒトデ類の個体数を予測することを目的に、別報「ホタテガイ天然採苗予報調査」の一環として本調査を実施した。

材料と方法

本調査はホタテガイ浮遊幼生調査と併せて行った。調査定点は図1に示したとおりで、平成21年1月26日から同年6月16日にかけて予備調査、補完調査を含めて17回行った。

ヒトデ類の浮遊幼生は、北原式定量プランクトンネット（網地：NXX13、口径：225mm、採水口面積：0.04m²）を用いて海底の2m上方から海面まで鉛直曳きして採取し、10%ホルマリンで固定した。検体は万能投影機で観察し、体長、発生段階別に計数した後、海水1m³当たりの個体数に換算した。

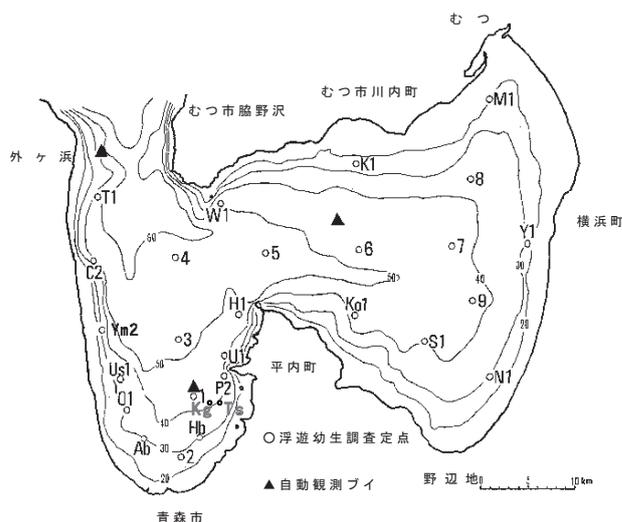


図1 ヒトデ類ラバ調査定点

結果と考察

平成21年のヒトデ類の浮遊幼生出現状況は図2に、各定点の調査結果は付表1～17に示したとおり、全湾平均での出現の推移を見ると3月下旬にピークが見られた。付着直前のブラキオラリア期幼生は5月11日に確認され、最高出現数は西湾平均で0.1個体/m³、東湾平均で0個体/m³と、平成20年（西湾0.3個体/m³、東湾0.4個体/m³）よりやや少ない状況であり、第2回ホタテガイ等付着稚貝調査結果から採苗器へヒトデの付着も確認されなかった。

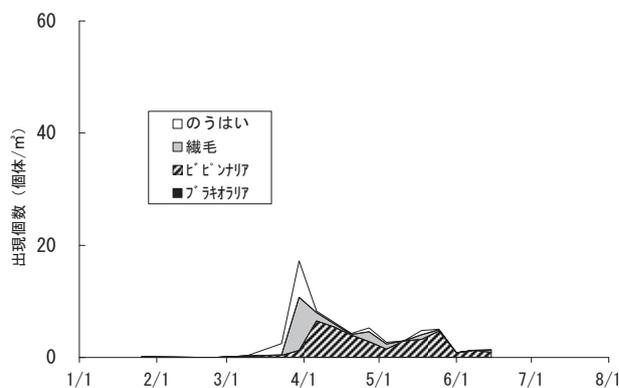


図2 ヒトデ類浮遊幼生の出現状況（全湾平均）

陸奥湾では、各年のブラキオラリア期幼生の累積出現数と採苗器へのヒトデの付着数との関係について、西湾、東湾、全湾ともに正の相関が認められており、ブラキオラリア期幼生の累積出現数が多い年は採苗器へのヒトデの付着も多くなることが示唆されている¹⁾。平成21年は、ブラキオラリア期幼生の累積出現数が全湾で0.1個体/m³と、昭和60年と同様の値で、56年以降最も少ない年であったため（表1）、ヒトデの付着数が少なく、これによる食害の影響はほとんどないものと推測された。

表1 プラキオラリア期幼生の累積出現数と採苗器へのヒトデ付着数

| 年 | 累積出現数(個体/m ³) | | | 平均付着数(個/袋) | | |
|-----|---------------------------|------|------|------------|--------|-------|
| | 西湾 | 東湾 | 全湾 | 西湾平均 | 東湾平均 | 全湾平均 |
| S56 | | | 15.8 | 41.6 | 49.3 | 46.2 |
| S57 | | | 4.2 | 0.5 | 0.8 | 0.7 |
| S58 | 2.6 | 11.3 | 18.6 | 5.8 | 14.9 | 11.2 |
| S59 | 0.5 | 1.5 | 1.2 | 0.0 | 0.1 | 0.0 |
| S60 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| S61 | 0.0 | 1.3 | 0.7 | 0.0 | 0.0 | 0.0 |
| S62 | 5.8 | 4.5 | 3.8 | 0.8 | 4.2 | 2.5 |
| S63 | 0.6 | 4.8 | 2.8 | 0.1 | 0.9 | 0.5 |
| H1 | 12.7 | 22.5 | 18.1 | 0.2 | 0.7 | 0.4 |
| H2 | 13.5 | 16.3 | 14.9 | 68.2 | 176.6 | 119.4 |
| H3 | 3.3 | 15.5 | 8.6 | 5.0 | 52.0 | 30.0 |
| H4 | 4.7 | 6.2 | 5.3 | 0.8 | 11.0 | 5.0 |
| H5 | 1.4 | 5.3 | 3.0 | 1.0 | 15.0 | 1.3 |
| H6 | 4.9 | 8.7 | 6.8 | 56.0 | 164.0 | 110.0 |
| H7 | 13.5 | 66.4 | 38.2 | 129.0 | 1133.0 | 631.0 |
| H8 | 0.4 | 2.8 | 1.3 | 0.0 | 0.0 | 0.0 |
| H9 | 1.6 | 1.1 | 1.3 | 0.0 | 0.0 | 0.0 |
| H10 | 3.6 | 47.6 | 28.6 | 1.0 | 121.0 | 49.0 |
| H11 | 0.3 | 0.5 | 0.5 | 0.0 | 0.0 | 0.0 |
| H12 | 4.8 | 22.5 | 13.9 | 0.0 | 1.0 | 0.0 |
| H13 | 1.4 | 15.2 | 8.8 | 0.0 | 12.0 | 5.0 |
| H14 | 0.2 | 1.7 | 0.9 | 0.0 | 0.0 | 0.0 |
| H15 | 3.8 | 7.7 | 6.5 | 9.0 | 51.0 | 26.0 |
| H16 | 4.6 | 14.7 | 10.7 | 1.0 | 11.0 | 5.0 |
| H17 | 0.4 | 2.0 | 1.2 | 0.0 | 2.0 | 1.0 |
| H18 | 1.9 | 1.1 | 1.6 | 0.0 | 0.0 | 0.0 |
| H19 | 0.0 | 0.4 | 0.2 | 0.0 | 0.0 | 0.0 |
| H20 | 0.3 | 0.9 | 0.7 | 0.1 | 0.4 | 0.2 |
| H21 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 |

謝 辞

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引用文献

- 1) 山内弘子・小坂善信・吉田達・鹿内満春（2007）：ほたてがい増養殖IT推進事業（ヒトデ類付着予報調査）. 青水総研増事業報告書, 36, 127-135.

付表1 平成21年度 第1回ヒトデラーバ予備調査結果

| St. | 月日 | 体長別出現数 (個体/m ³) | | | | | | | | | | | | | | | | 発生段階別出現数 (個体/m ³) | | | | | | | | | |
|------|------|-----------------------------|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|-------------------------------|------|-----|------|-----|-----|-----|------|-----|-----|
| | | 400未満 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 合計 | のうはい | 織毛 | ビビン | ナリア | ブラキオ | ラリア | |
| 1 | 1/26 | | | | | | | | | | | | | | | | | | | 0.0 | | | | | | | |
| 2 | 1/26 | | | | 0.9 | | | | | | | | | | | | | | | 0.9 | | | | | | | 0.9 |
| 3 | 1/26 | | | | | | | | | | | | | | | | | | | 0.0 | | | | | | | 0.0 |
| 4 | 1/26 | | | | | | | | | | | | | | | | | | | 0.0 | | | | | | | 0.0 |
| 西湾平均 | | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | |
| 5 | 1/26 | | | | | | | | | | | | | | | | | | | 0.0 | | | | | | | 0.0 |
| 6 | 1/26 | | | | | | | | | | | | | | | | | | | 0.0 | | | | | | | 0.0 |
| 7 | 1/26 | | | | | | | | | | | | | | | | | | | 0.0 | | | | | | | 0.0 |
| 8 | 1/26 | | | | | | | | | | | | | | | | | | | 0.0 | | | | | | | 0.0 |
| 9 | 1/26 | | | | | | | | | | | | | | | | | | | 0.0 | | | | | | | 0.0 |
| 東湾平均 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| 全湾平均 | | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | |

付表2 平成21年度 第2回ヒトデラーバ予備調査結果

| St. | 月日 | 体長別出現数 (個体/m ³) | | | | | | | | | | | | | | | | 発生段階別出現数 (個体/m ³) | | | | | | | | | |
|------|------|-----------------------------|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|-------------------------------|------|-----|------|-----|-----|-----|------|-----|-----|
| | | 400未満 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 合計 | のうはい | 織毛 | ビビン | ナリア | ブラキオ | ラリア | |
| 1 | 2/24 | | | | | | | | | | | | | | | | | | | 0.0 | | | | | | | 0.0 |
| 2 | 2/24 | | | | | | | | | | | | | | | | | | | 0.0 | | | | | | | 0.0 |
| 3 | 2/24 | | | | | | | | | | | | | | | | | | | 0.0 | | | | | | | 0.0 |
| 4 | 2/24 | | | | | | | | | | | | | | | | | | | 0.0 | | | | | | | 0.0 |
| 西湾平均 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| 5 | 2/24 | | | | | | | | | | | | | | | | | | | 0.0 | | | | | | | 0.0 |
| 6 | 2/24 | | | | | | | | | | | | | | | | | | | 0.0 | | | | | | | 0.0 |
| 7 | 2/24 | | | | | | | | | | | | | | | | | | | 0.0 | | | | | | | 0.0 |
| 8 | 2/24 | | | | | | | | | | | | | | | | | | | 0.0 | | | | | | | 0.0 |
| 9 | 2/24 | | | | | | | | | | | | | | | | | | | 0.0 | | | | | | | 0.0 |
| 東湾平均 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| 全湾平均 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |

付表5 平成21年度 第1回ヒトデラーハ調査結果

西湾 9点
東湾 4点

| St. | 月日 | 体長別出現数 (個体/m ³) | | | | | | | | | | | | 発生段階別出現数 (個体/m ³) | | | | | | | | | | |
|------|------|-----------------------------|-----|-----|-----|-----|-----|-----|------|------|------|------|------|-------------------------------|------|------|------|------|------|------|----------|----------|------------|-------------|
| | | 400 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 合計 | のう はい | 織毛 幼生 | ビピン ナリア | ブラキオ ラリア |
| T1 | 3/25 | | | | | | | | | | | | | | | | | | | 0.0 | | | | |
| C2 | 3/24 | | | | | | | | | | | | | | | | | | | 0.0 | | | | |
| Ym2 | 3/24 | 0.8 | | | | | | | | | | | | | | | | | | 0.8 | | | | |
| Us2 | 3/23 | 2.4 | | | | | | | | | | | | | | | | | | 2.4 | | | | |
| O1 | | | | | | | | | | | | | | | | | | | | 0.0 | | | | |
| Ab | | | | | | | | | | | | | | | | | | | | 0.0 | | | | |
| Hb | | | | | | | | | | | | | | | | | | | | 0.0 | | | | |
| Kg | | | | | | | | | | | | | | | | | | | | 0.0 | | | | |
| Ts | 3/22 | | | | | | | | | | | | | | | | | | | 0.0 | | | | |
| P2 | 3/22 | | | | | | 0.5 | | | | | | | | | | | | | 0.5 | | | | |
| 1 | 3/25 | | | | | | | | | | | | | | | | | | | 0.0 | | | | |
| 2 | | | | | | | | | | | | | | | | | | | | 0.0 | | | | |
| 3 | | | | | | | | | | | | | | | | | | | | 0.0 | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | 0.0 | | | | |
| U1 | 3/22 | | | | | | | | | | | | | | | | | | | 0.0 | | | | |
| H1 | 3/22 | | | | | | | | | | | | | | | | | | | 0.0 | | | | |
| 西湾平均 | | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.4 | 0.0 | 0.0 | 0.1 | 0.0 |
| Ko1 | 3/22 | | | | | | 0.8 | | | | | | | | | | | | | 0.8 | | | | |
| S3 | 3/22 | | | | | | 1.1 | | | | | | | | | | | | | 1.1 | | | | 1.1 |
| N1 | 3/24 | | 1.7 | 1.7 | | | | | | | | | | | | | | | | 3.4 | | | | 3.3 |
| Y1 | | | | | | | | | | | | | | | | | | | | 0.0 | | | | |
| M1 | 3/22 | 23.2 | | | | | | | | | | | | | | | | | | 23.2 | 23.2 | | | |
| K1 | | | | | | | | | | | | | | | | | | | | 0.0 | | | | |
| W1 | | | | | | | | | | | | | | | | | | | | 0.0 | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | 0.0 | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | 0.0 | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | 0.0 | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | 0.0 | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | 0.0 | | | | |
| 東湾平均 | | 5.8 | 0.4 | 0.4 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.8 | 5.8 | 0.2 | 1.1 | 1.1 | 0.0 |
| 全湾平均 | | 2.0 | 0.1 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.5 | 2.0 | 0.1 | 0.1 | 0.4 | 0.0 |

付表6 平成21年度 第2回ヒトデラーハ調査結果

西湾 12点
東湾 7点

| St. | 月日 | 体長別出現数 (個体/m ³) | | | | | | | | | | 発生段階別出現数 (個体/m ³) | | | | | | | | | | | | |
|------|------|-----------------------------|------|-----|-----|-----|-----|-----|------|------|------|-------------------------------|------|------|------|------|------|------|-------|------|----------|----------|------------|-------------|
| | | 400 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 合計 | のう はい | 織毛 幼生 | ビピン ナリア | ブラキオ ラリア |
| T1 | 3/30 | | | | | | | | | | | | | | | | | | | 0.0 | | | | |
| C2 | 3/30 | | | | | | | | | | | | | | | | | | | 0.0 | | | | |
| Ym2 | 3/31 | 0.8 | | | | | | | | | | | | | | | | | 0.8 | | | | | |
| Us2 | 3/30 | 1.2 | | | | | | | | | | | | | | | | | 1.2 | | | | | |
| O1 | 3/30 | 21.8 | 29.4 | 2.4 | | | | | | | | | | | | | | | 53.5 | 21.2 | 29.4 | | 2.9 | |
| Ab | 3/30 | 61.2 | 69.4 | 5.3 | | | | | | | | | | | | | | | 135.9 | 60.0 | 71.8 | | 4.1 | |
| Hb | 3/30 | 10.6 | 37.1 | 2.9 | | | | | | | | | | | | | | | 50.6 | 9.4 | 33.5 | | 7.6 | |
| Kg | 3/30 | 5.3 | 24.1 | | | | | | | | | | | | | | | | 29.4 | 2.9 | 25.9 | | 0.6 | |
| Ts | 3/29 | | | | | | | | | | | | | | | | | | 0.0 | | | | | |
| P2 | 3/30 | | | | | | | | | | | | | | | | | | 0.0 | | | | | |
| 1 | | | | | | | | | | | | | | | | | | | 0.0 | | | | | |
| 2 | | | | | | | | | | | | | | | | | | | 0.0 | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | 0.0 | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | 0.0 | | | | | |
| U1 | 3/29 | 0.5 | | | 0.5 | | | | | | | | | | | | | | 1.0 | | | 0.5 | 0.5 | |
| HI | 3/29 | | | | | | | | | | | | | | | | | | 0.0 | | | | | |
| 西湾平均 | | 8.4 | 13.3 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 22.7 | 8.0 | 13.4 | 1.3 | 0.0 | |
| Ko1 | 3/29 | | | | | | | | | | | | | | | | | | 0.0 | | | | | |
| S3 | 3/29 | | | | | | | | | | | | | | | | | | 0.0 | | | | | |
| N1 | 3/29 | 3.3 | 3.3 | | | | | | | | | | | | | | | | 6.6 | | 6.7 | | | |
| Y1 | 3/30 | 11.4 | 15.9 | | | | | | | | | | | | | | | | 27.3 | 13.6 | 12.5 | | 1.1 | |
| M1 | 3/30 | 6.3 | 3.6 | 0.9 | | | | | | | | | | | | | | | 10.8 | 3.6 | 2.7 | | 4.5 | |
| K1 | 3/30 | | | | | | | | | | | | | | | | | | 0.0 | | | | | |
| W1 | 3/30 | 6.5 | 3.0 | 0.5 | | | | | | | | | | | | | | | 10.0 | 3.5 | 4.0 | | 2.5 | |
| 5 | | | | | | | | | | | | | | | | | | | 0.0 | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | 0.0 | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | 0.0 | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | 0.0 | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | 0.0 | | | | | |
| 東湾平均 | | 3.9 | 3.7 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.8 | 3.9 | 2.7 | 1.2 | 0.0 | |
| 全湾平均 | | 6.8 | 9.8 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 17.2 | 6.5 | 9.5 | 1.3 | 0.0 | |

付表7 平成21年度 第3回ヒトデラーハ調査結果

西湾 15点
東湾 10点

| St. | 月日 | 体 長 別 出 現 数 (個体/m ³) | | | | | | | | | | | | | | | | | 発 生 段 階 別 出 現 数 (個体/m ³) | | | | | |
|------|-----|----------------------------------|------|------|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|--------------------------------------|------|----------|----------|------------|-------------|
| | | 400 未満 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 — μm 以上 | 合計 | のう はい | 織毛 幼生 | ビピン ナリア | ブラキオ ラリア |
| T1 | 4/7 | 0.5 | | 0.5 | | | | | | | | | | | | | | | 1.1 | | | | 1.1 | |
| C2 | 4/7 | 0.5 | 1.9 | 0.9 | | | | | | | | | | | | | | | 3.3 | | | | 3.3 | |
| Ym2 | 4/6 | | | | | | | | | | | | | | | | | | 0.0 | | | | | |
| Us2 | 4/6 | | 1.2 | | | | | | | | | | | | | | | | 1.2 | | | | 1.2 | |
| O1 | 4/7 | 1.2 | 12.4 | 7.1 | 2.9 | 0.6 | | | | | | | | | | | | | 24.2 | | | 3.5 | 20.6 | |
| Ab | 4/7 | 0.6 | 10.0 | 7.6 | 3.5 | | | | | | | | | | | | | | 21.7 | 0.6 | | 3.5 | 17.6 | |
| Hb | 4/7 | 0.0 | 12.9 | 20.0 | 2.4 | 0.6 | 0.6 | | | | | | | | | | | | 36.5 | | | 1.8 | 34.7 | |
| Kg | 4/7 | 0.6 | 8.8 | 20.6 | | | | | | | | | | | | | | | 30.0 | 0.6 | | | 29.4 | |
| Ts | 4/7 | 0.6 | 0.6 | 6.3 | 0.6 | 0.6 | | | | | | | | | | | | | 8.7 | | | 5.6 | 3.1 | |
| P2 | 4/4 | | 1.7 | 5.6 | 3.3 | 0.6 | 0.6 | | | | | | | | | | | | 11.8 | | | 4.4 | 7.8 | |
| 1 | 4/7 | | 1.7 | 2.5 | 0.8 | | | | | | | | | | | | | | 5.0 | | | 4.2 | 0.8 | |
| 2 | 4/7 | | 0.8 | 1.7 | 4.2 | | | | | | | | | | | | | | 6.7 | | | 1.7 | 5.0 | |
| 3 | 4/7 | | | | 0.8 | | | | | | | | | | | | | | 0.8 | | | | 0.8 | |
| 4 | | | | | | | | | | | | | | | | | | | 0.0 | | | | 0.0 | |
| U1 | 4/7 | | | | | | | | | | | | | | | | | | 0.0 | | | | 0.0 | |
| HI | 4/6 | | | | 0.8 | 0.8 | | | | | | | | | | | | | 1.6 | | | 1.7 | | |
| 西湾平均 | | 0.2 | 3.5 | 4.8 | 1.3 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.2 | 0.1 | | 1.8 | 8.4 | 0.0 |
| Ko1 | 4/6 | | | | | | | | | | | | | | | | | | 0.0 | | | | | |
| S3 | 4/5 | | 2.5 | 8.8 | 1.3 | 2.5 | | | | | | | | | | | | | 15.1 | | | 2.5 | 12.5 | |
| N1 | 4/6 | | 2.7 | | | | | | | | | | | | | | | | 5.4 | 2.7 | | 2.7 | | |
| Y1 | 4/7 | | 13.6 | 46.6 | 9.1 | 1.1 | 1.1 | | | | | | | | | | | | 71.5 | 19.3 | | 40.9 | 11.4 | |
| M1 | | | | | | | | | | | | | | | | | | | 0.0 | | | | | |
| K1 | | | | | | | | | | | | | | | | | | | 0.0 | | | | | |
| W3 | 4/6 | | 0.5 | 0.5 | 0.5 | | | | | | | | | | | | | | 1.5 | | | 0.5 | 1.0 | |
| 5 | 4/7 | | | 5.0 | 2.5 | | | | | | | | | | | | | | 7.5 | | | 2.5 | 5.0 | |
| 6 | 4/7 | | 0.8 | 0.8 | | | | | | | | | | | | | | | 1.6 | | | | 1.7 | |
| 7 | 4/8 | | | | | | | | | | | | | | | | | | 0.0 | | | | | |
| 8 | 4/8 | | | 3.5 | 0.7 | | | | | | | | | | | | | | 4.2 | | | 2.1 | 2.1 | |
| 9 | 4/8 | | | 0.7 | | | | | | | | | | | | | | | 0.7 | | | | 0.7 | |
| 東湾平均 | | 1.7 | 5.3 | 2.8 | 0.6 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.8 | 2.2 | | 5.1 | 3.4 | 0.0 |
| 全湾平均 | | 0.8 | 4.2 | 4.0 | 1.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.4 | 0.9 | | 3.1 | 6.4 | 0.0 |

付表8 平成21年度 第4回ヒトデラーハ調査結果

西湾 15点
東湾 12点

| St. | 月日 | 体 長 別 出 現 数 (個体/m ³) | | | | | | | | | | | | | | | | | 発 生 段 階 別 出 現 数 (個体/m ³) | | | | | |
|------|------|----------------------------------|------|------|------|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|--------------------------------------|------|-----|----------|----------|------------|
| | | 400 | 400 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 合計 | のう はい | 織毛 幼生 | ビピン ナリア |
| T1 | 4/13 | 1.3 | 0.7 | 0.7 | 3.3 | 1.3 | | | | | | | | | | | | | | 7.3 | 1.3 | 5.9 | | |
| C2 | 4/13 | 1.4 | 1.4 | 2.4 | 1.9 | | | 0.5 | | | | | | | | | | | | 7.5 | 1.4 | | | 6.1 |
| Ym2 | 4/13 | | | | | | | | | | | | | | | | | | | 0.0 | | | | |
| Us2 | 4/13 | | | | | | | | | | | | | | | | | | | 0.0 | | | | |
| O1 | 4/13 | 1.8 | 6.5 | 12.9 | 7.6 | 1.2 | | | | | | | | | | | | | | 30.0 | 1.8 | 4.1 | 24.1 | |
| Ab | 4/13 | 1.8 | 4.1 | 7.6 | 6.5 | | | | | | | | | | | | | | | 20.0 | 1.8 | 2.4 | 15.9 | |
| Hb | 4/13 | 4.1 | 4.1 | 8.8 | 4.7 | 1.8 | | | | | | | | | | | | | | 19.4 | | 2.4 | 17.1 | |
| Kg | 4/13 | 1.8 | 14.1 | 9.4 | 1.8 | | | | | | | | | | | | | | | 27.1 | | | 27.1 | |
| Ts | 4/12 | | | 1.3 | | | | | | | | | | | | | | | | 1.3 | | | 1.3 | |
| P2 | 4/13 | | | | 0.6 | | | | | | | | | | | | | | | 0.6 | | | 0.6 | |
| 1 | 4/13 | | 0.8 | 1.7 | 5.8 | 1.7 | 0.8 | | | | | | | | | | | | | 10.8 | | | 10.8 | |
| 2 | 4/13 | | | 5.0 | 15.0 | 2.5 | 0.8 | | | | | | | | | | | | | 23.3 | | | 24.2 | |
| 3 | 4/13 | | | | 0.8 | | | | | | | | | | | | | | | 0.8 | | | 0.8 | |
| 4 | | | | | | | | | | | | | | | | | | | | | | | | |
| U1 | 4/12 | | 0.5 | 1.0 | 0.5 | | | | | | | | | | | | | | | 2.0 | | | 2.0 | |
| HI | 4/12 | | | 0.5 | | | | | | | | | | | | | | | | 0.5 | | | 0.5 | |
| 西湾平均 | | 0.4 | 1.3 | 3.7 | 3.7 | 0.7 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.0 | 0.4 | 1.0 | 8.7 | 0.0 |
| Ko1 | 4/12 | | | 0.8 | 1.6 | | | | | | | | | | | | | | | 2.4 | | | 2.5 | |
| S3 | 4/12 | 1.2 | | 3.8 | | | | | | | | | | | | | | | | 5.0 | 1.2 | | 3.8 | |
| N1 | 4/12 | | | | | | | | | | | | | | | | | | | 0.0 | | | | |
| Y1 | 4/13 | | | | | | | | | | | | | | | | | | | 0.0 | | | | |
| M1 | 4/13 | | | | | | | | | | | | | | | | | | | 0.0 | | | | |
| K1 | 4/13 | | | | | | | | | | | | | | | | | | | 0.0 | | | | |
| W3 | 4/13 | | 2.5 | 2.5 | 0.5 | 1.0 | | | | | | | | | | | | | | 6.5 | | | 6.5 | |
| 5 | 4/13 | | | | | | | | | | | | | | | | | | | 0.0 | | | | |
| 6 | 4/13 | | | | | 0.8 | | | | | | | | | | | | | | 0.8 | | | 0.8 | |
| 7 | 4/13 | | | | 0.7 | | | | | | | | | | | | | | | 0.7 | | | 0.7 | |
| 8 | 4/13 | | | | 0.7 | | | | | | | | | | | | | | | 0.7 | | | 0.7 | |
| 9 | 4/13 | | | 1.4 | | | | | | | | | | | | | | | | 1.4 | | | 1.4 | |
| 東湾平均 | | 0.1 | 0.2 | 0.7 | 0.3 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.5 | 0.1 | 0.0 | 1.4 | 0.0 |
| 全湾平均 | | 0.3 | 0.8 | 2.4 | 2.2 | 0.4 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.2 | 0.3 | 0.5 | 5.4 | 0.0 |

付表9 平成21年度 第5回ヒトデラーハ調査結果

西湾 9点
東湾 12点

| St. | 月日 | 体 長 別 出 現 数 (個体/m ³) | | | | | | | | | | | | | | | | | 発 生 段 階 別 出 現 数 (個体/m ³) | | | | | | |
|------|------|----------------------------------|-----|-----|------|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|--------------------------------------|------|------|----------|----------|------------|-------------|
| | | 400 | 400 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 合計 | のう はい | 織毛 幼生 | ビピン ナリア | ブラキオ ラリア |
| T1 | 4/20 | | | | | | | | | | | | | | | | | | | | 0.0 | | | | |
| C2 | 4/20 | | | 0.5 | | | | | | | | | | | | | | | | | 0.5 | | | | 0.5 |
| Ym2 | 4/20 | | | | | | 0.8 | | | | | | | | | | | | | | 0.8 | | | | 0.8 |
| Us2 | 4/20 | | | | 0.6 | | 0.6 | | | | | | | | | | | | | | 1.2 | | | | 1.2 |
| O1 | 4/20 | 0.6 | 0.6 | 2.9 | 1.8 | 1.8 | | | | | | | | | | | | | | 7.7 | 0.6 | 0.6 | | 6.5 | |
| Ab | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hb | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kg | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ts | 4/19 | | | | | | | | | | | | | | | | | | | | 0.0 | | | | |
| P2 | 4/19 | | | | | | 0.6 | | | | | | | | | | | | | | 0.6 | | | 0.6 | |
| 1 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | | | | | |
| U1 | 4/19 | | | | | | | | | | | | | | | | | | | | 0.0 | | | | |
| HI | 4/18 | | | | | | | | | | | | | | | | | | | | 0.0 | | | | |
| 西湾平均 | | 0.1 | 0.1 | 0.4 | 0.2 | 0.2 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 0.1 | 0.1 | 1.1 | 1.1 | 0.0 |
| Ko1 | 4/19 | | | | | | | | | | | | | | | | | | | | 0.0 | | | | |
| S3 | 4/19 | | | | | | 1.3 | | | | | | | | | | | | | | 1.3 | | | 1.3 | |
| N1 | 4/19 | 1.0 | 1.0 | 4.1 | | | | | | | | | | | | | | | | | 6.1 | 2.0 | 1.0 | 3.1 | |
| Y1 | 4/20 | | | | | | | | | | | | | | | | | | | | 0.0 | | | | |
| M1 | 4/20 | | | | | | | | | | | | | | | | | | | | 0.0 | | | | |
| K1 | 4/20 | 4.1 | 5.1 | 1.0 | | | | | | | | | | | | | | | | | 10.2 | 1.0 | | 9.2 | |
| W3 | 4/20 | 0.5 | 1.0 | 3.0 | 1.5 | 0.5 | 0.5 | | | | | | | | | | | | | | 7.0 | | | 7.0 | |
| 5 | 4/20 | | | 2.5 | 5.9 | 5.9 | 0.8 | 0.8 | | | | | | | | | | | | | 15.9 | | | 15.9 | |
| 6 | 4/20 | | | 0.8 | 0.8 | 1.7 | | | | | | | | | | | | | | | 3.4 | | | 3.4 | |
| 7 | 4/20 | | | 0.8 | 10.1 | 4.2 | 3.4 | 0.8 | | | | | | | | | | | | | 19.3 | | | 19.3 | |
| 8 | 4/20 | | | | 1.7 | 0.8 | | | | | | | | | | | | | | | 2.5 | | | 2.5 | |
| 9 | 4/20 | | | 3.4 | 6.7 | 1.7 | 0.8 | 0.8 | | | | | | | | | | | | | 13.4 | | | 13.4 | |
| 東湾平均 | | 0.5 | 0.6 | 1.3 | 2.2 | 1.3 | 0.5 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.6 | 0.3 | 0.1 | 6.3 | 6.3 | 0.0 |
| 全湾平均 | | 0.3 | 0.4 | 0.9 | 1.4 | 0.9 | 0.4 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.3 | 0.2 | 0.1 | 4.0 | 4.0 | 0.0 |

付表10 平成21年度 第6回ヒトデラーハ調査結果

西湾 10点
東湾 11点

| St. | 月日 | 体長別出現数 (個体/m ²) | | | | | | | | | | | | 発生段階別出現数 (個体/m ²) | | | | | | | | | |
|------|------|-----------------------------|------|-----|-----|-----|-----|-----|------|------|------|------|------|-------------------------------|------|------|------|------|------|-----|----------|----------|------------|
| | | 400 未滿 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 合計 | のう はい | 織毛 幼生 | ビピン ナリア |
| T1 | 4/27 | 0.4 | 0.4 | 0.4 | | | | | | | | | | | | | | | 1.3 | | 0.4 | | 0.8 |
| C2 | 4/27 | 2.8 | 4.7 | 0.5 | | | | 0.5 | | | | | | | | | | | 8.5 | | 6.6 | | 1.9 |
| Ym2 | 4/27 | | | | | | | | | | | | | | | | | | 0.0 | | | | |
| Us2 | 4/27 | 0.6 | 8.8 | 1.2 | 0.6 | 0.6 | 1.2 | 1.8 | 0.6 | | | | | | | | | | 15.4 | 0.6 | 7.6 | | 7.1 |
| O1 | 4/27 | 6.5 | 15.3 | 2.4 | | | 0.6 | | | | | | | | | | | | 24.8 | 6.5 | 14.1 | | 4.1 |
| Ab | 4/27 | 1.2 | 2.9 | 1.2 | 1.2 | | 1.2 | 0.6 | 0.6 | | | | | | | | | | 8.9 | 1.2 | 1.8 | | 5.9 |
| Hb | 4/27 | 3.5 | 1.8 | 6.5 | 2.9 | 1.2 | 0.6 | | | | | | | | | | | | 16.5 | 3.5 | 1.8 | | 11.2 |
| Kg | 4/27 | | 0.6 | | | | | | | | | | | | | | | | 0.6 | | | | 0.6 |
| Ts | | | | | | | | | | | | | | | | | | | | | | | |
| P2 | 4/27 | | | | 0.5 | | | | | 0.5 | | | | | | | | | 1.0 | | | | 1.1 |
| 1 | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 4/27 | | | | | | | | | | | | | | | | | | 0.0 | | | | |
| 3 | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | | | |
| U1 | | | | | | | | | | | | | | | | | | | | | | | |
| HI | | | | | | | | | | | | | | | | | | | | | | | |
| 西湾平均 | | 1.5 | 3.5 | 1.2 | 0.6 | 0.2 | 0.4 | 0.2 | 0.2 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.7 | 1.2 | 3.2 | 3.3 | 0.0 |
| Ko1 | 4/27 | | | | | | | | | | | | | | | | | | 0.0 | | | | |
| S3 | 4/24 | | | | | | | | | | | | | | | | | | 0.0 | | | | |
| N1 | 4/27 | 2.7 | 1.4 | 1.4 | 2.7 | | | | | | | | | | | | | | 8.2 | 2.7 | 2.7 | | 2.7 |
| Y1 | 4/27 | | | 1.1 | | 1.1 | | 1.1 | | | | | | | | | | | 2.2 | | | | 2.3 |
| M1 | | | | | | | | | | | | | | | | | | | | | | | |
| K1 | 4/27 | | 1.0 | | | | | | | | | | | | | | | | 1.0 | | 1.0 | | |
| W3 | 4/28 | | 0.5 | 0.5 | 1.5 | 0.5 | 1.0 | | | | | | | | | | | | 4.0 | | | | 4.0 |
| 5 | 4/28 | | | | | | | | | | | | | | | | | | 0.0 | | | | |
| 6 | 4/28 | | | 1.7 | | | | | | | | | | | | | | | 1.7 | | | | 1.7 |
| 7 | 4/27 | | | | | | | | | | | | | | | | | | 0.0 | | | | |
| 8 | 4/27 | | 1.7 | | | | | | | | | | | | | | | | 1.7 | | 0.8 | | 0.8 |
| 9 | 4/27 | | | 0.8 | 4.2 | 4.2 | 5.0 | 0.8 | | | | | | | | | | | 15.1 | | | | 15.1 |
| 東湾平均 | | 0.2 | 0.4 | 0.1 | 0.9 | 0.7 | 0.5 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.1 | 0.2 | 0.4 | 2.4 | 0.0 |
| 全湾平均 | | 0.8 | 1.9 | 0.6 | 0.8 | 0.4 | 0.5 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.3 | 0.7 | 1.8 | 2.8 | 0.0 |

付表11 平成21年度 第7回ヒトデラーハ調査結果

西湾 5点
東湾 2点

| St. | 月日 | 体 長 別 出 現 数 (個体/m ³) | | | | | | | | | | | | 発 生 段 階 別 出 現 数 (個体/m ³) | | | | | | | | | | |
|------|------|----------------------------------|-----|-----|-----|-----|-----|-----|------|------|------|------|------|--------------------------------------|------|------|------|------|------|-----|----------|----------|------------|-------------|
| | | 400 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 合計 | のう はい | 織毛 幼生 | ビピン ナリア | ブラキオ ラリア |
| T1 | 4/30 | 0.4 | 0.4 | 0.8 | 0.4 | 0.4 | 0.4 | | | | | | | | | | | | | 2.1 | | 0.4 | | 1.7 |
| C2 | 5/1 | 1.4 | 3.3 | 1.4 | 0.5 | | | | | | | | | | | | | | | 6.6 | 0.9 | 1.4 | | 4.2 |
| Ym1 | 5/1 | | | | | | | | | | | | | | | | | | | 0.0 | | | | |
| Us3 | 5/1 | 1.2 | 5.3 | 0.6 | 0.6 | 0.6 | 0.6 | | | | | | | | | | | | | 8.3 | 1.2 | 4.7 | | 2.4 |
| O1 | | | | | | | | | | | | | | | | | | | | | | | | |
| Ab | | | | | | | | | | | | | | | | | | | | | | | | |
| Hb | | | | | | | | | | | | | | | | | | | | | | | | |
| Kg | | | | | | | | | | | | | | | | | | | | | | | | |
| Ts | | | | | | | | | | | | | | | | | | | | | | | | |
| P2 | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | | | | |
| U1 | 4/30 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | | | | | | | | | | | | | 2.0 | | | | 2.0 |
| HI | | | | | | | | | | | | | | | | | | | | | | | | |
| 西湾平均 | | 0.5 | 1.9 | 0.7 | 0.3 | 0.2 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.8 | 0.4 | 1.3 | | 2.1 |
| Ko1 | 4/30 | | | | | | | | | | | | | | | | | | | 0.0 | | | | |
| S3 | 5/6 | | | | | | | | | | | | | | | | | | | 0.0 | | | | |
| N1 | | | | | | | | | | | | | | | | | | | | | | | | |
| Y1 | | | | | | | | | | | | | | | | | | | | | | | | |
| M1 | | | | | | | | | | | | | | | | | | | | | | | | |
| K1 | | | | | | | | | | | | | | | | | | | | | | | | |
| W3 | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | | | |
| 東湾平均 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 全湾平均 | | 0.4 | 1.4 | 0.5 | 0.2 | 0.1 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.7 | 0.3 | 0.9 | | 1.5 |

付表12 平成21年度 第8回ヒトデラーハ調査結果

西湾 9点
東湾 7点

| St. | 月日 | 体長別出現数 (個体/m ³) | | | | | | | | | | | | | | | | | 発生段階別出現数 (個体/m ³) | | | | | | | | | | |
|------|------|-----------------------------|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|-------------------------------|------|-----|-----|-----|-----|-----|------|-----|-----|------|
| | | 400 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 合計 | のう | 織毛 | 幼生 | ナリア | ビピン | ブラキオ | ナリア | ラリア | |
| T1 | 5/13 | | | 0.4 | | | | | | | | | | | | | | | | 1.3 | | | | | | | 1.3 | | |
| C2 | 5/13 | | | 0.5 | 0.5 | 0.5 | | | | | | | | | | | | | | 1.4 | | | | | | | 1.4 | | |
| Ym2 | 5/12 | | | | | | | | | | | | | | | | | | 0.8 | 0.8 | | | | | | | | | 0.8 |
| Us3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| O1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ab | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hb | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kg | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ts | 5/10 | | | | | | | | | | | | | | | | | | | 0.0 | | | | | | | | | |
| P1 | 5/11 | | | | | | | | | | | 0.6 | | | | | | | | 0.6 | | | | | | | | | 0.6 |
| 1 | 5/12 | | | | | 0.6 | | | | | | | | | | | | | | 0.6 | | | | | | | | | 0.6 |
| 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | 5/12 | | | 0.5 | 1.0 | | | | | | | | | | | | | | | 1.5 | | | | | | | | | 1.5 |
| 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| U1 | 5/10 | | | | 1.5 | 0.5 | | | | | | | | | | | | | | 2.0 | | | | | | | | | 2.0 |
| HI | 5/10 | | | | | | | | | | | | | | | | | | | 0.0 | | | | | | | | | 0.0 |
| 西湾平均 | | 0.0 | 0.0 | 0.2 | 0.3 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 0.1 |
| Ko1 | 5/10 | 0.8 | | | 5.0 | 4.2 | 3.3 | 0.8 | | | | | | | | | | | | 14.1 | | | | | | | | | 15.0 |
| S3 | 5/10 | | | 1.3 | 2.5 | | | | | | | | | | | | | | | 3.8 | | | | | | | | | 3.8 |
| N1 | 5/11 | | 1.4 | | | | | | | | | | | | | | | | | 1.4 | | | | | | | | | 1.4 |
| Y1 | 5/11 | | | 1.1 | 4.5 | 2.3 | 1.1 | 1.1 | | | | | | | | | | | | 10.1 | | | | | | | | | 10.2 |
| M1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| K1 | 5/11 | | | | 2.2 | | | | | | | | | | | | | | | 2.2 | | | | | | | | | 2.2 |
| W3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | 5/12 | | | 0.5 | 2.0 | 1.0 | | | | | | | | | | | | | | 3.5 | | | | | | | | | 3.5 |
| 6 | 5/12 | | | | 0.5 | 1.0 | | | | | | | | | | | | | | 1.5 | | | | | | | | | 1.5 |
| 7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 東湾平均 | | 0.1 | 0.2 | 0.4 | 2.4 | 1.2 | 0.6 | 0.1 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.4 | 0.0 |
| 全湾平均 | | 0.1 | 0.1 | 0.3 | 1.2 | 0.6 | 0.3 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 2.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.8 | 0.1 | |

付表14 平成21年度 第10回ヒトデラーバ調査結果

西湾 12点
東湾 7点

| St. | 月日 | 体長別出現数 (個体/m ²) | | | | | | | | | | | | | | | | | 発生段階別出現数 (個体/m ³) | | | | | | |
|------|------|-----------------------------|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|-------------------------------|------|----------|----------|------------|-------------|-----|
| | | 400 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 合計 | のう はい | 織毛 幼生 | ビピン ナリア | ブラキオ ラリア | |
| T1 | | | | | | | | | | | | | | | | | | | | | | | | | |
| C2 | 5/25 | 0.5 | | | 0.5 | | | | | | 0.5 | | | | | | | | | 1.4 | | | | 1.4 | |
| Ym2 | 5/25 | | | | | | | | | | | | | | | | | | | 0.0 | | | | 0.6 | |
| Us3 | 5/25 | | | | 0.6 | | | | | | | | | | | | | | | 0.6 | | | | 1.8 | |
| O1 | 5/25 | 0.6 | | 1.2 | | | | | | | | | | | | | | | | 1.8 | | | | 2.4 | |
| Ab | 5/25 | | | 1.8 | 0.6 | | | | | | | | | | | | | | | 2.4 | | | | 2.4 | |
| Hb | 5/25 | | | 1.2 | 0.6 | 0.6 | | | | | | | | | | | | | | 2.4 | | | | 2.4 | |
| Kg | 5/25 | 1.2 | | | 0.6 | | | | | | | | | | | | | | | 1.8 | | 1.2 | | 0.6 | |
| Ts | 5/24 | | | | | | | | | | | | | | | | | | | 0.0 | | | | 0.0 | |
| P2 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 5/25 | 1.2 | | 1.2 | | | | | | | | | | | | | | | | 2.4 | | | | 2.3 | |
| 2 | 5/25 | | | 0.9 | | | | | | | | | | | | | | | | 0.9 | | | | 0.9 | |
| 3 | 5/25 | 0.5 | | | 0.5 | | | | | 0.5 | | | | | | | | | | 1.5 | | 0.5 | | 1.0 | |
| 4 | 5/25 | 0.5 | | 2.0 | 1.0 | | | | | 0.5 | | | | | | | | | | 3.9 | | | | 4.0 | |
| U1 | | | | | | | | | | | | | | | | | | | | | | | | | |
| HI | | | | | | | | | | | | | | | | | | | | | | | | | |
| 西湾平均 | | 0.1 | 0.3 | 0.7 | 0.3 | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.6 | 0.0 | 0.0 | 0.1 | 1.4 | 0.0 |
| Ko1 | 5/24 | 0.8 | 3.9 | 4.7 | 1.6 | | | | | | | | | | | | | | | 11.0 | 1.6 | 2.4 | | 7.0 | |
| S3 | | | | | | | | | | | | | | | | | | | | | | | | | |
| N1 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Y1 | | | | | | | | | | | | | | | | | | | | | | | | | |
| M1 | | | | | | | | | | | | | | | | | | | | | | | | | |
| K1 | | | | | | | | | | | | | | | | | | | | | | | | | |
| W1 | 5/25 | 1.0 | 2.0 | 2.0 | 1.5 | 0.5 | | 1.0 | | | 0.5 | | | | | | | | | 6.5 | | | | 6.5 | |
| 5 | 5/25 | 3.0 | 4.9 | 4.4 | 2.5 | 1.5 | 1.5 | 0.5 | | | 0.5 | | 0.5 | | | | | | | 17.8 | | 0.5 | | 17.2 | |
| 6 | 5/25 | | 3.6 | 1.5 | | 1.0 | 0.5 | | | 1.0 | | | | | | | | | | 7.7 | | | | 7.7 | |
| 7 | 5/25 | 2.9 | 6.3 | 4.6 | 0.6 | 0.6 | 0.6 | 2.3 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | | | | 0.6 | | 20.6 | | | | 20.6 | |
| 8 | 5/25 | 0.7 | 2.1 | 2.1 | | | 0.7 | | | | | | | | | | | | | 5.6 | | | | 5.6 | |
| 9 | 5/25 | | 2.4 | 4.2 | | 0.6 | | 0.6 | | | | | | | | | | | | 7.8 | | 0.6 | | 7.2 | |
| 東湾平均 | | 0.1 | 1.6 | 3.7 | 2.8 | 0.5 | 0.3 | 0.5 | 0.1 | 0.3 | 0.2 | 0.1 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 11.0 | 0.2 | 0.5 | 0.3 | 10.3 | 0.0 |
| 全湾平均 | | 0.1 | 0.8 | 1.8 | 1.2 | 0.3 | 0.2 | 0.1 | 0.2 | 0.0 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.1 | 0.1 | 0.3 | 0.3 | 4.7 | 0.0 |

付表17 平成21年度 第3回ヒトデラーバ補充調査結果

| St. | 月日 | 体長別出現数 (個体/m ³) | | | | | | | | | | | | | | | | | 発生段階別出現数 (個体/m ³) | | | | | | |
|------|------|-----------------------------|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|-------------------------------|-----|-----|-----|-----|------|-----|
| | | 400 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 合計 | のう | 織毛 | ビピン | ブラキオ | |
| 1 | 6/15 | | | | 1.2 | 0.6 | | | | | | | | | | | | | | 1.8 | はい | 幼生 | ナリア | ナリア | 1.8 |
| 2 | 6/15 | | | | | | 0.9 | | | | | | | | | | | | | 0.9 | | | | | 0.9 |
| 3 | 6/15 | | | | | | | | | | | | | | | | | | | 0.0 | | | | | 0.0 |
| 西湾平均 | | 0.0 | 0.0 | 0.0 | 0.4 | 0.2 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 0.0 | 0.0 | 0.0 | 0.9 | 0.0 |
| 5 | 6/16 | | | 2.0 | | | | | | | | | | | | | | | | 2.0 | | | | | 2.0 |
| 6 | 6/16 | | 1.9 | | | | | | | | | | | | | | | | | 1.9 | | | | | 1.9 |
| 東湾平均 | | 0.0 | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| 全湾平均 | | 0.0 | 0.4 | 0.4 | 0.2 | 0.1 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 0.0 | 0.0 | 0.4 | 0.9 | 0.0 |