The non-Siphonophoran Hydrozoa (Cnidaria) of Salento, Italy with notes on their life-cycles: an illustrated guide

CINZIA GRAVILI¹, DORIS DE VITO⁵, CRISTINA GIOIA DI CAMILLO³, LUIS MARTELL¹, STEFANO PIRAINO¹ & FERDINANDO BOERO¹,⁴

¹Dipartimento di Scienze e Tecnologie Biologiche ed Ambientali, Università del Salento, I-73100 Lecce, Italy
E-mail: cinzia.gravili@unisalento.it

²ConISMa—Consorzio Nazionale Interuniversitario per le Scienze del Mare, via Isonzo 32, 00198 Roma, Italy

³Dipartimento di Scienze della Vita e dell’Ambiente, Università Politecnica delle Marche, via Brecce Bianche, 60131 Ancona, Italy

⁴Istituto di Scienze Marine, Sezione di Genova, CNR, I-16127 Genova, Italy

Magnolia Press
Auckland, New Zealand

Accepted by A. Collins: 17 Nov. 2014; published: 15 Jan. 2015
**Table of contents**

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstract</td>
<td>5</td>
</tr>
<tr>
<td>Introduction</td>
<td>6</td>
</tr>
<tr>
<td>Material and methods</td>
<td>6</td>
</tr>
<tr>
<td>Results</td>
<td>8</td>
</tr>
<tr>
<td>Systematic account</td>
<td>8</td>
</tr>
<tr>
<td>Class HYDROIDOMEDUSA Claus, 1877</td>
<td>8</td>
</tr>
<tr>
<td>Subclass ANTHOMEDUSAIE Haeckel, 1879</td>
<td>8</td>
</tr>
<tr>
<td>Order FILIFERA Kühn, 1913</td>
<td>9</td>
</tr>
<tr>
<td>Family Bougainvillidae Lütken, 1850</td>
<td>9</td>
</tr>
<tr>
<td>Bougainvillia muscus (Allman, 1863)</td>
<td>9</td>
</tr>
<tr>
<td>Bougainvillia nana Hartlaub, 1911</td>
<td>10</td>
</tr>
<tr>
<td>Dicoryne conferta (Alder, 1856)</td>
<td>12</td>
</tr>
<tr>
<td>Garvea grisea (Motz-Kossowska, 1905)</td>
<td>13</td>
</tr>
<tr>
<td>Pachycordyle napolitana Weismann, 1883</td>
<td>14</td>
</tr>
<tr>
<td>Pachycordyle pusilla (Motz-Kossowska, 1905)</td>
<td>15</td>
</tr>
<tr>
<td>Rhizorhagium arenosum (Alder, 1862)</td>
<td>16</td>
</tr>
<tr>
<td>Family Cynaeidae L. Agassiz, 1862</td>
<td>17</td>
</tr>
<tr>
<td>Perarella schneideri (Motz-Kossowska, 1905)</td>
<td>17</td>
</tr>
<tr>
<td>Family Hydractinidae L. Agassiz, 1862</td>
<td>19</td>
</tr>
<tr>
<td>Sylactaria fucicola (M. Sars, 1857)</td>
<td>19</td>
</tr>
<tr>
<td>Sylactaria inermis (Allman, 1873)</td>
<td>20</td>
</tr>
<tr>
<td>Family Eudendriidae Schuchert, 1996</td>
<td>21</td>
</tr>
<tr>
<td>Eucodonium browni Hartlaub, 1907</td>
<td>21</td>
</tr>
<tr>
<td>Family Eudendriidae L. Agassiz, 1862</td>
<td>22</td>
</tr>
<tr>
<td>Eudendrium album Nutting, 1898</td>
<td>22</td>
</tr>
<tr>
<td>Eudendrium armatum Tichomirotff, 1887</td>
<td>24</td>
</tr>
<tr>
<td>Eudendrium capillare Alder, 1856</td>
<td>25</td>
</tr>
<tr>
<td>Eudendrium carneum Clarke, 1882</td>
<td>26</td>
</tr>
<tr>
<td>Eudendrium glomeratum Picard, 1951</td>
<td>28</td>
</tr>
<tr>
<td>Eudendrium merulum Watson, 1985</td>
<td>29</td>
</tr>
<tr>
<td>Eudendrium moulouensis Marques, Pena Cantero and Vervoort, 2000</td>
<td>30</td>
</tr>
<tr>
<td>Eudendrium racemosum (Cavolini, 1785)</td>
<td>32</td>
</tr>
<tr>
<td>Eudendrium rameum (Pallas, 1766)</td>
<td>33</td>
</tr>
<tr>
<td>Eudendrium ramosum (Linneaus, 1758)</td>
<td>34</td>
</tr>
<tr>
<td>Eudendrium simplex Pieper, 1884</td>
<td>36</td>
</tr>
<tr>
<td>Family Oceaniae Eschscholtz, 1929</td>
<td>37</td>
</tr>
<tr>
<td>Cordylophora caspia (Pallas, 1771)</td>
<td>37</td>
</tr>
<tr>
<td>Coryndendrium parasiticum (Linneaus, 1767)</td>
<td>38</td>
</tr>
<tr>
<td>Turritopsis dohrni (Weismann, 1883)</td>
<td>40</td>
</tr>
<tr>
<td>Rhizogotum nudus Broch, 1910</td>
<td>41</td>
</tr>
<tr>
<td>Family Pandeidae Haeckel, 1879</td>
<td>42</td>
</tr>
<tr>
<td>Amphinema bouillonii Schuchert, 2007</td>
<td>42</td>
</tr>
<tr>
<td>Amphinema dinema (Pérón and Lesueur, 1810)</td>
<td>44</td>
</tr>
<tr>
<td>Amphinema rugosum (Mayer, 1900)</td>
<td>45</td>
</tr>
<tr>
<td>Family Pitlocoidiidae Coward, 1909</td>
<td>47</td>
</tr>
<tr>
<td>Thecocodium brieni Bouillon, 1967</td>
<td>47</td>
</tr>
<tr>
<td>Order CAPITATA Kühn, 1913</td>
<td>48</td>
</tr>
<tr>
<td>Family Cladonematidae Gegenbaur, 1856</td>
<td>48</td>
</tr>
<tr>
<td>Cladonema radiatum Dujardin, 1843</td>
<td>48</td>
</tr>
<tr>
<td>Eleutheria dichotoma Quatrefages, 1842</td>
<td>49</td>
</tr>
<tr>
<td>Family Corynidae Johnston, 1836</td>
<td>51</td>
</tr>
<tr>
<td>Coryne muscosaL (Linneaus, 1761)</td>
<td>51</td>
</tr>
<tr>
<td>Coryne pintheri Schneider, 1898</td>
<td>52</td>
</tr>
<tr>
<td>Coryne pusilla Guertner, 1774</td>
<td>53</td>
</tr>
<tr>
<td>Slabberia halterata Forbes, 1846</td>
<td>55</td>
</tr>
<tr>
<td>Staurodisarisa ophigaster (Haeckel, 1879)</td>
<td>56</td>
</tr>
<tr>
<td>Staurodisarisa producta (Wright, 1858)</td>
<td>57</td>
</tr>
<tr>
<td>Family Pennariidae McCrady, 1859</td>
<td>59</td>
</tr>
<tr>
<td>Pennaria disticha Goldfuss, 1820</td>
<td>59</td>
</tr>
<tr>
<td>Family Tubulariidae Fleming, 1828</td>
<td>60</td>
</tr>
<tr>
<td>Ectopleura dumortierii (Van Beneden, 1844)</td>
<td>60</td>
</tr>
<tr>
<td>Ectopleura wrighti Petersen, 1979</td>
<td>62</td>
</tr>
</tbody>
</table>
Family Cladocorynidae Allman, 1872 ................................................................. 63
   Cladocoryne floccosa Rotch, 1871 ............................................................. 63
Family Porpitidae Goldfuss, 1818 ............................................................... 64
   Porpita porpita (Linnaeus, 1758) ............................................................. 64
   Velevia velevia (Linnaeus, 1758) .............................................................. 66
Family Zancleidae Russell, 1953 ................................................................. 67
   Halocoryne epizoica Hadzi, 1917 ............................................................. 67
   Zanclea costata Gegenbaur, 1856 ............................................................ 69
   Zanclea giancarlo Boero, Bouillon and Gravili, 2000 ............................ 70
   Zanclea sessilia (Gosse, 1853) ................................................................. 72
Subclass LEPTOMEDUSA E Haecckel, 1866 (1879) ....................................... 74
Order CONICA Broch, 1910 ..................................................................... 74
Family Aглаopheniidae Marktanner-Turneretscher, 1890 ......................... 74
   Aглаophenia elongata Meneghini, 1845 .................................................. 74
   Aглаophenia harpago von Schenck, 1965 ................................................. 75
   Aглаophenia kirchenpaueri (Heller, 1868) .............................................. 76
   Aглаophenia octodonta (Heller, 1868) ...................................................... 78
   Aглаophenia picardi Svoboda, 1979 ......................................................... 79
   Aглаophenia plum (Linnaeus, 1758) ......................................................... 81
   Aглаophenia tubiformis Marktanner-Turneretscher, 1890 ...................... 82
Family Campanulinidae Hincks, 1868 ......................................................... 83
   Lacoinea tenuis G.O. Sars, 1874 .............................................................. 83
Family Eirenidae Haecckel, 1879 ............................................................... 84
   Eirene viridula ( Péron and Lesueur, 1810) ............................................. 84
   Eugymathoea inquilina Palombi, 1935 ..................................................... 86
   Eutina gracilis (Forbes & Goodsir, 1851) .............................................. 87
Family Haleciidae Hincks, 1868 ................................................................ 88
   Halecium beanii (Johnston, 1838) ........................................................... 88
   Halecium labrosum Alder, 1859 ............................................................. 89
   Halecium mediterraneum Weismann, 1883 ........................................... 90
   Halecium ranum Alder, 1859 ................................................................. 92
   Halecium petrosum Stechow, 1919 ......................................................... 93
   Halecium pusillum (M. Sars, 1857) .......................................................... 94
   Halecium tenellum Hincks, 1861 ............................................................ 96
   Hydrodendron mirabile (Hincks, 1866) ................................................... 97
Family Halopteriidae Millard, 1962 ............................................................ 98
   Antennella secundaria (Gmelin, 1791) ..................................................... 98
   Antennella siliquosa (Hincks, 1877) ........................................................ 100
   Halopterus catharina (Johnston, 1833) .................................................... 101
   Halopterus diaphana (Heller, 1868) ......................................................... 102
Family Hebelidae Fraser, 1912 ................................................................ 104
   Anthohecilla parasitica (Carnician, 1880) ............................................. 104
   Hebella brochii (Hadzi, 1913) ................................................................. 105
   Hebella sceandens (Bale, 1888) .............................................................. 106
   Scandia gigas (Pieter, 1884) ................................................................. 107
Family Kirchenpaueriidae Stechow, 1921 ................................................. 108
   Kirchenpauerina pinnata (Linnaeus, 1758) ............................................ 108
   Ventromma halecioides (Alder, 1859) ...................................................... 110
Family Lafoeidae A. Agassiz, 1865 ............................................................ 111
   Acrhyptoria confora (Allman, 1877) ....................................................... 111
   Filellum serpens (Hassall, 1848) ............................................................ 112
Family Laodiceidae L. Agassiz, 1862 ........................................................ 114
   Laodicea undulata (Forbes and Goodsir, 1851) ..................................... 114
Family Loenvellidae Russell, 1953 ............................................................ 115
   Campalecium torreyi (Motz-Kossowska, 1911) .................................... 115
   Hydranthea marginaria (Hincks, 1862) ............................................... 117
   Loenvella gracilis Clarke, 1882 ............................................................. 119
Family Mitrocomidae Haecckel, 1879 ....................................................... 120
   Mitrocoma annae Haecckel, 1864 ........................................................ 120
Family Plumulariidae McCrady, 1859 ....................................................... 121
   Monotheca obliqua (Johnston, 1847) ......................................................... 121
   Monotheca posidoniae Picard, 1952 ....................................................... 123
   Nemertesia antennina (Linnaeus, 1758) ................................................ 124
   Nemertesia ramosa (Lamarck, 1816) ....................................................... 125
Abstract

The majority of Hydrozoa is represented by not readily noticeable, small species. In recent decades, however, taxonomic knowledge of the group has increased worldwide, with a significant number of investigations focused on the Mediterranean Sea. Over more than two decades, 115 species of hydrozoans were recorded from coastal waters along nearly 300 km of the Salento Peninsula (Apulia, Italy). For each species, records from different collections were merged into single sheets of a general database.

For each species, the following information is reported: description, cnidome, biology, occurrence in Salento, worldwide distribution, and bibliography. Descriptions refer to the benthic hydroid stage and, when present, also to the planktonic medusa stage. The 115 species of Hydrozoa, recorded along the Salento coastline, represent 25% of the Mediterranean Hydrozoa fauna (totaling 461 species), and nearly 3% of 3,702 world's known species covered in a recent monograph. Four species are non-indigenous, three of them with invasive behavior (Clytia hummelincki, Clytia lineariis, and Eudendrium carneum), and one species now very common (Eudendrium merulum) in Salento. The complete life cycle of Clytia paulensis (Vanhöffen, 1910) is described for the first time.

Key words: Cnidaria, Hydrozoa, distribution, Salento
Acknowledgements

Lorena Basso and Alberto Gennari drew some figures reported in the paper. This work was supported by MURST (COFIN and FIRB projects), the Centro Euromediterraneo per il Cambiamento Climatico of Lecce, the European Union (MARBEF NoE, IASON, SESAME, VECTORS, PERSEUS, COCONET, and MED-JELLYRISK projects), and the Flagship project RITMARE.

References

http://dx.doi.org/10.1080/00785326.6812.10407610
http://dx.doi.org/10.1080/11250005909439316
http://dx.doi.org/10.1111/j.1439-0485.1989.tb0074.x


Belmonte, G. (2000)...

http://dx.doi.org/10.1007/s0025315400052255

http://dx.doi.org/10.1038/326597a0


http://dx.doi.org/10.1093/plankt/fbh153

http://dx.doi.org/10.3989/scimar.2000.64s1197


http://dx.doi.org/10.2307/1538184


http://dx.doi.org/10.1080/19475721.1996.10830574


http://dx.doi.org/10.1046/j.1364-410X.1996.tb00489.x

http://dx.doi.org/10.1080/00378941.1895.10830574

http://dx.doi.org/10.1111/j.1364-410X.1926.tb00323.x


http://dx.doi.org/10.1007/bf00396859


http://dx.doi.org/10.1111/j.1439-0485.1981.tb00093.x


Lang, A. (1886)

Leloup, E. (1933a) La morphogenèse des colonies chez l'hydraire

Keller, C. (1884) Mittheilungen über Medusen.


Zootaxa, 3908 (1) © 2015 Magnolia Press

GRAVILI ET AL.

Leloup, E. (1952) Coelentérés.


http://dx.doi.org/10.1017/s0025315402005866


Llobet Nadal, I. (1987) Estudio de una población de hidropólipos epibiontes de Halimeda tuna en el Mediterráneo occidental. MS Thesis. [pagination unknown]


http://dx.doi.org/10.1007/bf01131102


http://dx.doi.org/10.2370/1543022


http://dx.doi.org/10.1080/112500003.2013.787461


http://dx.doi.org/10.1139/z04-174


http://dx.doi.org/10.1017/s002531540001393x


http://dx.doi.org/10.1111/maec.12035


http://dx.doi.org/10.1016/s0022-0981(96)02627-5


http://dx.doi.org/10.1016/j.jembe.2010.10.004


http://dx.doi.org/10.1080/11250005909439262


http://dx.doi.org/10.1007/978-1-4757-9724-4_5


http://dx.doi.org/10.1016/j.ejop.2013.04.006


http://dx.doi.org/10.1017/s0025315400060124


