CRUSTACEAN RECORDS FROM LOUGH HYNE (INE), CO. CORK, IRELAND: PART VI

J. M. C. Holmes

National Museum of Ireland, Kildare Street, Dublin 2, Ireland.

This is the sixth contribution in a series on the crustacean fauna of Lough Hyne (Ine) (W0928), the marine nature reserve in West Cork, and reports additions to the earlier lists (Holmes, 1980, 1983, 1985, 1987, 1991).

Sampling was carried out by a variety of methods during the summer months; sorting through shallow sublittoral weed and sponges, and taking small samples of sublittoral gravel. Some collecting was done by underwater light-trap (Holmes and O'Connor, 1988).

The Lough Hyne Nature Reserve has been well documented and many of its geographical features and areas have been given individual names. These are mentioned and marked on maps in numerous papers (e.g. Renouf, 1931; Kitching, 1987; Minchin, 1987a, 1987b). Most of the species in the present list are from one of three sampling areas:- a) the coarse gravels in Barloge Creek (W100280). These gravels are made up of coarse shelly material lying beneath a strong water current, and have already proved to be a rich collecting ground for rare species (e.g. Holmes, 1987). The fauna has similarities to that of equivalent gravels in Kilkieran Bay, Co. Galway (Myers and McGrath, 1982) and the Eddystone shell gravel, off the south coast of England (Spooner, 1960); b) submerged wood. Several samples of oak (Quercus) were taken, from branches lying in shallow water in the Goleen (W095278) and along by the western shore (W094280). Some of the components of the specialised fauna living on wood submerged in the sea around Ireland have already been documented by Holmes and Jeal (1987); c) Sublittoral boulders. Apart from just at the Whirlpool Cliff, the east end of the South Basin is lined by boulders which are covered in a rich fauna and flora of encrusting organisms. Many crustaceans live amongst this profusion and can be collected by soaking some of the smaller rocks in a bucket of water, with a few drops of formalin as an irritant. This causes the mobile species to leave their shelter and accumulate in the bottom of the bucket, from which they can easily be retrieved. Several samples were taken by this method.

The species list is laid out in a similar way to previous lists in the series. Some of the data on the poecilostomatoid copepods have already been published in a checklist of the Poecilostomatoida of Ireland (Holmes and Gotto, 1992), but in a different series and in a different format. They are included here for completeness.

New Irish Records are indicated by *. Voucher specimens have been deposited in the National Museum of Ireland.

Order PODOCOPIDA

Aspidoconcha limnoriae de Vos, 1953

Several specimens, west shore near the Goleen (W094280), submerged wood infested with gribble (*Limnoria*), 19.vii.1991.

This species is known to be associated with gribble (de Vos, 1958). In Ireland, A. limnoriae has been recorded from Strangford Lough (Holmes and Jeal, 1987) and Lough Hyne (Wouters and de Grave, 1992).

Pseudocythere caudata G. O. Sars 1866

Present in washings from sublittoral boulders in the South Basin. The species was overlooked until recently, but it appears to be abundant in all samples taken in that area.

Paradoxostoma variabile (Baird, 1835)

Several specimens in washings from sublittoral boulders near the Rapids (100282). Horne and Whittaker (1985) regarded the species as common and well-known.

Redekea perpusilla de Vos, 1953

Several specimens, west shore near the Goleen (W094280), submerged wood infested with gribble (*Limnoria*), 19.vii.1991.

The only previous Irish record of this species is also from wood and from Lough Hyne (Wouters and de Grave, 1992).

Order CALANOIDA

*Pseudocyclops crassiremis Brady, 1873

Several specimens, Barloge Creek (W100280), coarse gravel, 7.vii.1994; 1819, South Basin (W099283), washings from boulder, 1m, 7.vii.1995.

Order HARPACTICOIDA

Longipedia helgolandica Klie, 1949

19, South Basin (W099282), 10.viii.1989.

Halectinosoma gothiceps (Giesbrecht, 1881)

Eight specimens, north shore (W093288), 8.vii.1982 (Holmes and O'Connor, 1990).

- *Harpacticus giesbrechti Klie, 1927
 - 2♂1♀, Barloge Creek (W100280), light-trap, 1m, 15.vii.1990.
- *Tachidiella minuta G. O. Sars, 1909
 - 19, South Basin (W100282), washing from boulder, 5.viii.1992.

Tisbe angusta (G. O. Sars, 1905)

Several specimens, Whirlpool Cliff (W100283), washings from *Echinus esculentus* L., 13.vii.1995.

The discovery of *T. angusta* with *Echinus* is intriguing but the copepods may have been more closely associated with green algae (*Ulva*) with which the urchins had covered themselves rather than with the urchins themselves.

Tisbe ensifer Fischer, 1860

- 19. South Basin (W099283), washing from boulder, 1m. 7.vii.1995.
- *Tisbe tenella (G. O. Sars, 1910)
 - 1319, Barloge Creek (W100280), coarse gravel, 7.vii.1994.

*Donsiella anglica Hicks, 1988

Several specimens, west shore near the Goleen (W094280), submerged wood with gribble (Limnoria), 19.vii.1991.

These specimens correspond closely to the *D. limnoriae* of Krishnaswamy and Jones (1958). designated by Hicks (1988) as *D. anglica* sp. nov., and they are similar to but distinct from *D. victoriae* Hicks. It is possible that there is an association between *D. anglica* and *Limnoriae* quadripunctata Holthuis on the one hand, and between *D. limnoriae* Stephensen and *L. limnorum* (Rathke) on the other. Wouters and de Grave (1992) recorded *D. limnoriae* Stephensen from wood in Lough Hyne, but this copepod was not encountered in the present study.

Idomene forficata Philippi, 1843

Nine specimens, South Basin (W099283), 7.vii.1995.

The only previous Irish record is from Killary Harbour (Farran, 1913).

Amphiascus propinquus G. O. Sars, 1906

Several specimens, Barloge Creek (W100280), coarse gravel, 7.vii.1994.

Bulbamphiascus denticulatus (I. C. Thompson, 1893)

Several specimens, Barloge Creek (W100280), coarse gravel, 7.vii.1994.

Stenocopia spinosa (T. Scott, 1892)

19, Barloge Creek (W100280), coarse gravel, 7.vii.1994.

The only previous Irish record is from off Killary Harbour (Farran, 1913).

Paramesochra dubia T. Scott, 1892

Several specimens, Barloge Creek (W100280), coarse gravel, 7.vii.1994.

*Diagoniceps menaiensis Geddes, 1968

19, Barloge Creek (W100280), coarse gravel, 7.vii.1994.

This species is otherwise known only from the Menai Strait, North Wales (Geddes, 1968).

Tetragoniceps malleolatus Brady, 1880

Six specimens, Barloge Creek (W100280), coarse gravel, 7.vii.1994.

The only previous Irish record is from off Killary Harbour (Farran, 1913).

*Fultonia sp.

Five specimens, Barloge Creek (W100280), coarse gravel, 7.vii.1994.

These specimens are similar to but distinct from F. hirsuta T.Scott, the only species known from the British Isles. Their correct identification awaits further examination.

Harrietella simulans (T. Scott, 1894)

Several specimens, west shore near the Goleen (W094280), submerged wood, 19.vii.1991.

This species is known to be associated with submerged wood, but its association with gribble (*Limnoria*) is problematic (Hicks, 1988). Previous Irish records are from Strangford Lough (Holmes and Jeal, 1987) and Lough Hyne (Wouters and de Grave, 1992), in each case with wood.

Pseudolaophonte spinosa (I. C. Thompson, 1893)

Several specimens, Barloge Creek (W100280), coarse gravel, 7.vii.1994.

Order MISOPHRIOIDA

Misophria pallida Boeck, 1864

19, South Basin (W099284), 15.vii.1992; 39, South Basin (W100282), viii.1992; 29, South Basin (W100282), 19.vii.1993.

Order CYCLOPOIDA

*Cyclopina brachystylis G. O. Sars, 1921

19, Barloge Creek (W100280), coarse gravel, 24.vii.1986.

Notodelphys caerulea Thorell, 1859

Several specimens, the Goleen (W095278), in Ascidiella aspersa (O. F. Müller) on submerged wood, 20.vii.1991.

Order SIPHONOSTOMATOIDA

*Acontiophorus armatus Brady, 1880

Several specimens, Barloge Creek (W1027), from Alcyonium digitatum L., 10m, 15.vii.1992.

*Collocheres elegans A. Scott, 1896

29, South Basin (W100282), boulder with *Ophiocomina nigra* (Abildgaard), 5m depth, 19.vii.1993.

This species is known to be associated with the black brittle- star O. nigra, from off southwest England and Scotland, the Isle of Man and west Norway (Gotto, 1992).

Clavella adunca (Strøm, 1762)

Several specimens, south end of Barloge Creek, gills of pollack *Pollachius pollachius* (L.), 22.vii.1991, 3.vii.1994.

Order POECILOSTOMATOIDA

Critomolgus bulbipes (Stock and Kleeton, 1963)

Several specimens, Barloge (W103271), from Alcyonium digitatum, 15.vii.1992 (Holmes and Gotto, 1992).

The species was described from the soft corals *Alcyonium acaule* Marion and *Parerythropodium coralloides* (Pallas) in the Mediterranean (Stock and Kleeton, 1963). Irish records were listed by Holmes and Gotto (1992).

Myxomolgus myxicolae (Bocquet and Stock, 1958)

Several specimens, Lough Hyne, from the mucous tubes of Myxicola infundibulum (Rénier),

18.vii.1991, 8.viii.1992 (Holmes and Gotto, 1992).

This species is well-known from the polychaete Myxicola infundibulum (Rénier) (Bocquet and Stock, 1958).

Astericola clausi Rosoll, 1889

19, L.Hyne (W099283), washings from boulder with *Marthasterias glacialis* (L.), 12.vii.1993.

This copepod is known from several species of starfish (Humes and Stock, 1973). Other records from Lough Hyne were listed by Holmes and Gotto (1992).

Lichomolgella pusilla G. O. Sars, 1918

1649 specimens, South Basin (W100282), washings from boulder, 11.vii.1993.

The associate for this species is unknown (Humes and Stock, 1973). Other Irish records were listed by Holmes and Gotto (1992).

Lichomolgus forficula Thorell, 1859

1619 specimens, South Basin (W100282), washings from boulder, 11.vii.1993.

This species is associated with large simple ascidians such as *Ascidia* spp. and *Phallusia* mammillata (Cuvier) (Humes and Stock, 1973). Irish records were listed by Holmes and Gotto (1992).

Zygomolgus didemni (Gotto, 1956)

Several specimens, South Basin (W100282), washings from boulders, 19.vii.1993, 28.vi.1994.

This species was described from the ascidian *Didemnum maculosum* (Milne Edwards), probably living in the cloacal cavities (Gotto, 1960). It is otherwise known only from Strangford Lough (Gotto, 1993).

Pseudanthessius dubius G. O. Sars, 1918

1d, South Basin (W100282), washings from boulder with Asterias rubens L., 19.vii.1993. This species is known from the starfish Asterias rubens (Bresciani and Lützen, 1962). The only previous Irish record is from Lough Hyne (Holmes and Gotto, 1992).

Pseudanthessius nemertophilus Gallien, 1936

Several specimens, north shore, (W093288), from the bootlace worm *Lineus longissimus* (Gunnerus), 2m, 17.vii.1991, 14.vii.1992 (Holmes and Gotto, 1992, as *Nemerthessius*

nemertophilus).

This copepod is included here in the genus *Pseudanthessius* following Humes and Boxshall (1996).

Splanchnotrophus brevipes Hancock and Norman, 1863

19, Whirlpool Cliff (W001283), from nudibranch *Cuthona genovae* (O'Donoghue), collected by J.Nunn, 18.vii.1993 (Holmes and Nunn, 1996).

Enalcyonium forbesi (T. Scott, 1901)

19, Barloge (W103271), from Alcyonium digitatum, 15.vii.1992 (Holmes and Gotto, 1992).

Order ISOPODA

*Limnoria quadripunctata Holthuis, 1949

Several specimens, west shore near the Goleen (W094280), submerged wood, 19.vii.1991.

L. lignorum (Rathke) was also present, and also the amphipod Chelura terebrans Philippi, both associates of wood.

Microcharon harrisi Spooner, 1958

Seven specimens, Barloge Creek (100280), coarse gravel, 7.vii.1994.

This species is otherwise known in Ireland from Strangford Lough (Wells, 1963).

Acknowledgements

I would like to thank the Wildlife Service for permission to collect in Lough Hyne, and Professor A. A. Myers, Zoology Department, University College, Cork, for allowing me to use the laboratories at the lough. I would also like to thank Michel Clément, Heriot-Watt University, Edinburgh, for confirming the identification of Halectinosoma gothiceps, and Dr J. P. O'Connor for help and encouragement with the manuscript.

References

- Bocquet, C. and Stock, J. H. (1958) Copépodes parasites d'invertébrés des côtes de France.

 VI. Description de Paranthessius myxicolae nov. sp., copépode semi-parasite du Sabellidae

 Myxicola infundibulum (Rénier). Proc. K. ned. Akad. Wet. ser C. 61: 243-253.
- Bresciani, J. and Lützen, J. (1962) Parasitic copepods from the west coast of Sweden including some new or little known species. Vidensk. Medd. fra Dansk Naturh. Foren. Bd. 124: 367-

408.

- de Vos, A. P. C. (1958) Liste annotée des Ostracodes marins des environs de Roscoff. Arch Zool. exp. gen. 95: 1-74.
- Farran, G. P. (1913) Clare Island Survey. Marine Entomostraca. Proc. R. Ir. Acad. 31(45): 1-20. Pls.I-III.
- Geddes, D. C. (1968) A new species of *Diagoniceps* (Copepoda Harpacticoida), and two previously undescribed male harpacticoids from the Isle of Anglesey. *J. nat. Hist.* 2: 439-448.
- Gotto, R. V. (1960) A key to the ascidicolous copepods of British waters with distributional notes. Ann. Mag. nat. Hist. ser 13. 3: 221-229.
- Gotto, R. V. (1993) Commensal and parasitic copepods associated with marine invertebrates (and whales). Synopses Br. Fauna (New Series) 46.
- Hicks, G. R. F. (1988) Systematics of Donsiellinae Lang (Copepoda, Harpacticoida). J. nat. Hist. 22: 639-684.
- Holmes, J. M. C. (1980) Some crustacean records from Lough Ine, Co. Cork. Bull. Ir. biogeog. Soc. 4: 33-40.
- Holmes, J. M. C. (1983) Further crustacean records from Lough Ine, Co. Cork. Bull. Ir. biogeog. Soc. 5: 19-24.
- Holmes, J. M. C. (1985) Crustacean records from Lough Hyne, Co. Cork; Part III. Bull. Ir. biogeog. Soc. 8: 19-25.
- Holmes, J. M. C. (1987) Crustacean records from Lough Hyne (Ine), Co. Cork, Ireland: Part IV. Bull. Ir. biogeog. Soc. 10: 99-106.
- Holmes, J. M. C. (1991) Crustacean records from Lough Hyne (Ine), Co. Cork, Ireland: Part V. Bull. Ir. biogeog. Soc. 14: 73-83.
- Holmes, J. M. C. and Gotto, R. V. (1992) A list of the Poecilostomatoida (Crustacea: Copepoda) of Ireland. *Bull. Ir. biogeog. Soc.* 15: 2-33.
- Holmes, J. M. C. and Jeal, F. (1987) Some crustaceans associated with the gribble Limnoria lignorum (Rathke) in Ireland. Ir. Nat. J. 22: 317-319.
- Holmes, J. M. C. and Nunn, J. (1996) Parasitic copepod Splanchnotrophus brevipes in the nudibranch Cuthona genovae. Ir. Nat. J. 25: 186.

- Holmes, J. M. C. and O'Connor. J. P. (1988) A portable light-trap for collecting marine crustaceans. J. mar. biol. Ass. U.K. 68: 235-238.
- Holmes, J. M. C. and O'Connor, J. P. (1990) A provisional list of the Harpacticoida (Crustacea: Copepoda) of Ireland. *Bull. Ir. biogeog. Soc.* 13: 44-130.
- Horne, D. J. and Whittaker, J. E. (1985) A revision of the genus *Paradoxostoma* Fischer (Crustacea; Ostracoda) in British waters. *Zool. J. Linn. Soc.* 85: 131-203.
- Humes, A. G. and Boxshall, G. A. (1996) A revision of the lichomolgoid complex (Copepoda: Poecilostomatoida), with a recognition of six new families. J. nat. Hist. 30: 175-227.
- Humes, A. G. and Stock, J. H. (1973) A revision of the family Lichomolgidae Kossmann, 1877, cyclopoid copepods mainly associated with marine invertebrates. *Smithsonian Contrib. Zool.* 127: 1-368.
- Kitching, J. A. (1987) Ecological studies at Lough Hyne. Adv. ecol. Res. 17: 115-186.
- Krishnaswamy, S. and Jones, L. T. (1958) Donsiella limnoriae Stephensen (Copepoda, Harpacticoida), a redescription. *Ann. Mag. nat. Hist.* ser 13. 5: 301-304.
- Minchin, D. (1987a) Fishes of the Lough Hyne marine reserve. J. Fish Biol. 31: 343-352.
- Minchin, D. (1987b) Sea-water temperature and spawning behaviour in the seastar Marthasterias glacialis. Marine Biol. 95: 139-143.
- Myers, A. A. and McGrath, D. (1982) Taxonomic studies on British and Irish Amphipoda, the genus Gammaropsis. J. mar. biol. Ass. U.K. 62: 93-100.
- Renouf, L. (1931) Preliminary work of a new biological station (Lough Ine, Co.Cork, I.F.S.).

 J. Ecol. 19: 410-438.
- Spooner, G. M. (1960) The occurrence of *Ingolfiella* in the Eddystone shell gravel, with description of a new species. J. mar. biol. Ass. U.K. 39: 319-329.
- Stock, J. H. and Kleeton, G. (1963) Copépodes associés aux invertébrés des cotes de Roussillon. 2. Lichomolgidae ecto-associés d'octocoralliaires. Vie Milieu 14: 245-261.
- Wells, J. B. J. (1963) On some new and rare Crustacea from Northern Ireland. Ann. Mag. nat. Hist. ser 13. 6: 85-96.
- Wouters, K. and de Grave, S. (1992) Redekea perpusilla de Vos, 1953 (Crustacea: Ostracoda: Paradoxostomatidae), first record for the British Isles. Ir. Nat. J. 24: 23-26.