

The Copepods(Calanoida, Cyclopoida and Harpacticoida) around Cheju Island, Korea(Crustacea)

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제주도의 요각류(갑각류)

오봉철 · 고유봉 · 고방연

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The authors present systematic list of the copepods of Cheju Island that have been the literature reports and those collected from the 13 localities in Cheju Island. In the present list, the total number of species of copepods are 111 species in 28 families. Among them *Paracalanus crassirostris*, *Ctenocalanus longicornis*, *Calocalanus styliremis*, *Aetideus armatus*, *Euchaeta attenu*, *Paraeuchaeta russelli*, *Metridia pacifica*, *Centropages longicornis*, *Candacia discodata*, *Sapphirina opalina*, *S. darwini* and *S. stella* have not been reported upto now around Cheju Island waters. One hundred and eleven species occupy 61.3% of 181 species that were recorded from Korea. Twenty one species of 111 species(18.9%) were recorded only around Cheju Island, and 97 species of 111 species(87.4%) were found frequently in Kuroshio currents.

Key words : Copepods, Crustacea, Systematic list, Cheju Island

INTRODUCTION

Copepods are the most important metazoan zooplankton in coastal waters because of their numerical dominance and trophic importance. They play an important role in the marine food web, serving as a primary food source for many small carnivores and as grazers on phytoplankton(Kim *et al.*, 1993)

On the systematic study of Korean copepods, previous researcher reported on the Calanoida (Kim, 1985; Kang, 1992), Cyclopoida(Lim, 1989;Kang, 1988) and Harpacticorda(Lee, 1993).

As the result of the previous researches, 181 species of copepods were known around Korean waters, of which 111 species in 28 families were reported from Cheju Island waters. The synthetic and systematic researches of copepods

of Cheju Island were not accomplished. Thus, in the present report the authors intended to grasp overall fauna of copepods of Cheju Island based upon the present materials and the literature published for better understanding of the fauna of copepods and their geographical distribution around Cheju Island.

MATERIALS AND METHODS

The materials consist of the specimens obtained during the period of survey from March 1993 to October 1994 from the 13 localities around and the Cheju Island (Fig. 1). Moreover, the authors included literature published before the present report.

The collections were carried out by

hand net (mesh: 100 μ) on the coast. The materials were preserved in 5% formalin-seawater solution. All specimens were examined with dissecting microscope high power microscope. The authors followed Brodsky (1950)'s for the classification method on taxa above the family level.

All specimens reported are deposited in the Department of Oceanography and Marine Research Institute, Cheju National University, Korea.

SYSTEMATIC LIST

The following systematic list of the fauna includes all the species of copepods which appeared in literature and those newly examined in the present report. In this systematic list,

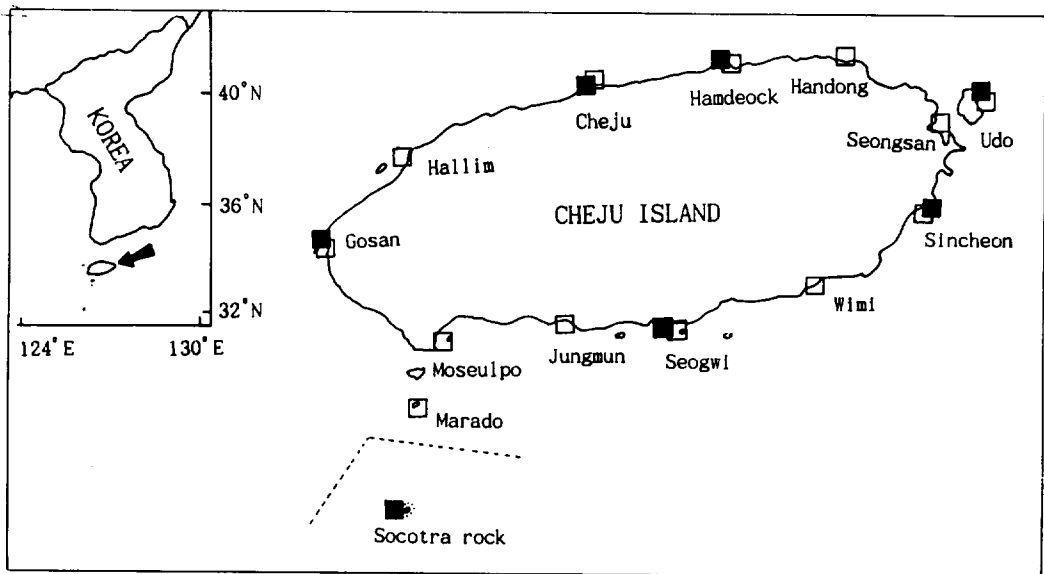


Fig. 1. Map showing localities in Cheju Island where previous and present materials were collected (□: present report; ■: literature record).

the species marked as an asterisk(*) are found only around the Cheju Island up to now. The localities under each species' name are cited from the literature records and then also is given the data of the material examined.

Phylum Arthropoda

Superclass Crustacea pennant, 1777

Class Maxillopoda Dahl, 1856

Subclass Copepoda Milne-Edwards, 1840

Order Calanoida Sars, 1903

Family Calanidae Dana, 1849

Genus Calanus Leach, 1816

1. *Calanus sinicus* Brodsky, 1962
near Socotra(Oh, 1983), Sincheon(Go, 1987, Oh, 1987:), Cheju(Go et al., 1994). Gosan(Ko, 1993: Go et al., 1994), Seogwi(Go et al. 1994)
Material examined: Socotra, 10 ♂♂, 7 ♀♀, Apr. 23, 1994: Marado, 10 ♂♂, 10 ♀♀, June 15, 1993
2. *Calanus minor* Claus, 1863
Cheju(Go et al., 1994), Seogwi(Go et al, 1994), Udo(Ko, 1993:Go et al., 1994), Gosan(Ko, 1993:Go et al., 1994)
Material examined: Socotra, 3 ♂♂, 5 ♀♀, Apr.23,1984
3. *Calanus tenicornis* Dana, 1849
Cheju(Go et al., 1994), Udo(Ko, 1993:Go et al., 1994), Gosan(Ko, 1993:Go et al., 1994)
Material examined: Handong, 2 ♂♂, 3 ♀♀, Mar. 30, 1993
4. *Calanus pauper* Giesbrecht, 1888
Cheju(Go et al., 1994), Seogwi(Go et al, 1994), Udo(Ko, 1993: Go et

al., 1994), Gosan(Ko, 1993:Go et al., 1994)

Genus Undinula A. Scott, 1909

5. *Undinula vulgaris* Dana, 1849
Sincheon(Oh, 1987), Seogwi(Go et al., 1994), Udo(Ko, 1993:Go et al., 1994), Gosan(Ko, 1993:Go et al., 1994)
Material examined: Handong, 2 ♂♂, 3 ♀♀, Mar. 30, 1993
 6. *Undinula darwini* (Lubbock), 1860
Sincheon(Oh, 1987), Seogwi(Go et al., 1994), Udo(Ko, 1993:Go et al., 1994), Gosan(Ko, 1993:Go et al., 1994)
Material examined: Handong, 3 ♂♂, 3 ♀♀, Jun. 20, 1993
- Family Eucalanidae Giesbrecht, 1892
- Genus *Eucalanus* Dana, 1852
7. *Eucalanus attenuatus* Dana, 1849
Cheju(Go et al., 1994), Seogwi(Go et al., 1994), Udo(Ko, 1993:Go et al., 1994)
Material examined: Udo, 2 ♀♀ Jul. 12, 1993: Sincheon, 2 ♀♀ Mar. 15, 1993
 8. *E. crassus* Giesbrecht, 1888
Material examined: Hallim, 3 ♂♂, 3 ♀♀, Jun. 25, 1993: Seogwi, 2 ♀♀, Apr. 12, 1994
 9. *E. subtenuis* Giesbrecht, 1888
Cheju(Go et al., 1994), Seogwi(Go et al., 1994), Udo(Ko, 1993:Go et al., 1994), Gosan(Ko, 1993:Go et al., 1994)
 10. *E. mucronatus* Giesbrecht, 1888

- Gosan(Ko, 1994:Go *et al.*, 1994),
Seogwi(Go *et al.*, 1994)
11. **E. bungii* Giesbrecht, 1892
Sincheon(Go, 1987 : Oh, 1987)
Material examined:Udo, 1 ♀, Jul. 12,
1993; Sincheon, 2 ♀ ♀, Jul. 15, 1993
- Genus *Rhincalanus* Dana, 1848
12. *Rhincalanus cornatus* Dana, 1849
Cheju(Go *et al.*, 1994), Seogwi(Go
et al., 1994), Udo(Ko, 1993:Go *et al.*,
1994), Gosan(Ko, 1993:Go *et al.*,
1994)
Material examined:Hallim, 3 ♀ ♀, Jul.
20, 1994, Moseulpo, 3 ♀ ♀, 1 ♂, Jul.
12, 1994
- Genus *Mecynocera* Thompson,
1890
13. *Mecynocera clausi* Thompson, 1890
Gosan(Ko, 1993:Go *et al.*, 1994)
Material examined:Hallim, 2 ♀ ♀, Jun.
20, 1994, Moseulpo, 2 ♀ ♀, 1 ♂, Jul.
12, 1994,
- Family Paracalanidae Gidsbrecht,
1892
- Genus *Paracalanus* Boeck, 1864
14. *Paracalanus indicus* Davis, 1950
Cheju(Go *et al.*, 1994), Seogwi(Go
et al., 1994), Udo(Ko, 1993 : Go *et al.*,
1994), Gosan(Ko, 1993:Go *et al.*,
1994)
Material examined:Jungmun, 10 ♀ ♀,
10 ♂ ♂, May 15, 1993, Wimi, 5 ♀
♀, 5 ♂ ♂, May 20, 1993.
15. *P. aculeatus* Giesbrecht, 1888
Sincheon(Oh, 1987), Cheju(Go *et*
- al.*, 1994), Udo(Ko, 1993:Go *et al.*,
1994), Gosan(Ko, 1993:Go *et al.*,
1994)
Material examined: Sincheon, 3 ♀ ♀,
1 ♂, Apr. 29, 1993
16. **P. crassirostris* Dahl, 1894
Udo(Ko, 1993)
Material examined:Moseulpo, 3 ♀ ♀,
Oct. 3, 1994
- Genus *Acrocalanus* Giesbrecht,
1888
17. *Acrocalanus longicornis* Giesbrecht.,
1888
Cheju(Go *et al.*, 1994), Seogwi(Go
et al., 1994).
Material examined: Moseulpo, 2 ♀ ♀,
Oct. 3, 1994
18. *A. gracilis* Giesbrecht, 1888
Udo(Ko, 1993: Go *et al.*, 1994)
19. *A. gibber* Giesbrecht, 1888
Seogwi(Ko, 1993)
Family Psedocalanidae Sars, 1902
Genus *Pseudocalanus* Boeck,
1872
20. *Pseudocalanus minusus* Giesbrecht, 1888
Sincheon(Go, 1987: Oh, 1987)
Material examined: Handong, 4 ♀ ♀,
May 20, 1993.
- Genus *Clausocalanus*
Giesbrecht, 1888
21. *Clausocalanus furcatus* Brady, 1883
Seogwi(Go *et al.*, 1994), Udo(Ko,
1993:Go *et al.*, 1994)
Material examined: Handong, 2 ♀ ♀,
May 20, 1993.
22. *C. pergens* Farran, 1926

Cheju (Go *et al.*, 1994), Seogwi (Go *et al.*, 1994)

Genus *Ctenocalanus* Giesbrecht, 1888

23. **Ctenocalanus longicornis* Giesbrecht, 1892
Seogwi (Go *et al.*, 1994), Udo (Ko, 1993: Go *et al.*, 1994), Gosan (Ko, 1993: Go *et al.*, 1994)

Family Calocalanidae

Genus *Calocalanus* Giesbrecht, 1888

24. *Calocalanus pavo* Dana, 1852
Seogwi (Go *et al.*, 1994), Udo (Ko, 1993: Go *et al.*, 1994), Gosan (Ko, 1993: Go *et al.*, 1994)
25. *C. Plumulosus* Farran 1936
Seogwi (Go *et al.*, 1994), Udo (Ko, 1993: Go *et al.*, 1994), Gosan (Ko, 1993: Go *et al.*, 1994)

26. **C. styliremis* Jones, 1952
Udo (Ko, 1993: Go *et al.*, 1994)
Material examined: Cheju, 3 ♀ ♀, Mar. 20, 1994

Family Aetideidae Giesbrecht, 1892

Genus *Aetideus*

27. **Aetideus armatus* (Boeck) 1872
Cheju (Go *et al.*, 1994)
Material examined: Cheju, 2 ♀ ♀, Mar. 20, 1994; Hamdeock, 2 ♀ ♀, May 12, 1994

Family Euchaetidae Giesbrecht, 1892

Genus *Euchaeta* Philippi, 1843

28. *Euchaeta marina* Prestandrea, 1833
Sincheon (Oh, 1987), Cheju (Go *et al.*, 1994), Seogwi (Go *et al.*, 1994), Gosan (Ko, 1993: Go *et al.*, 1994)
Material examined: Sincheon, 3 ♂ ♂, Jul. 19, 1994.

29. **E. attenu* Scott, 1909
Sincheon (Go, 1987; Oh, 1987)

30. *E. concinna* Dana, 1849
Cheju (Go *et al.*, 1994), Seogwi (Go *et al.*, 1994), Udo (Ko, 1993: Go *et al.*, 1994), Gosan (Ko, 1993: Go *et al.*, 1994)

31. *E. plana* Mori, 1837
Sincheon (Oh, 1987), Cheju (Go *et al.*, 1994)
Material examined: Cheju, 3 ♂ ♂, Jun. 12, 1993.

32. *E. wolfendeni* Scott A., 1909
Udo (Ko, 1993: Go *et al.*, 1994)

Family Paraeuchaetidae

Genus *Paraeuchaeta* A. Scott, 1909

33. **Paraeuchaeta russelli* Farran, 1936
Material examined: Marado, 3 ♀ ♀, 3 ♂ ♂, Apr. 29, 1993

Family Scolecithricidae Giesbrecht, 1892

Genus *Scolecithrix* Brady, 1883

34. *Scolecithrix danae* Lubbock, 1856
Sincheon (Oh, 1987), Seogwi (Go *et al.*, 1994), Udo (Ko, 1993: Go *et al.*, 1994), Gosan (Ko, 1993: Go *et al.*, 1994)
Material examined: Marado, 5 ♀ ♀, 5 ♂ ♂, Apr. 29, 1993.

35. *S. nicobarica* Sewell, 1929
Seogwi(Go *et al.*, 1994), Gosan(Ko, 1993: Go *et al.*, 1994)

Genus *Scolecithricella* Sars, 1903
36. *Scolecithricella bradyi* Giesbrecht, 1888
Material examined: Marado, 3♀♀, Apr. 29, 1993
37. *S. minor* Brady, 1883
Seogwi(Go *et al.*, 1994), Udo(Ko, 1993:Go *et al.*, 1994), Gosan(Ko, 1993:Go *et al.*, 1994)
Material examined:Marado, 2♀♀, Apr. 29, 1993; Udo, 3♀♀, May 25, 1993

Family Temoridae Giesbrecht
Genus *Temora* Baird, 1845
38. *Temora turbinata* Dana, 1849
Seogwi(Go *et al.*, 1994), Udo(Ko, 1993: Go *et al.*, 1994)
Material examined: Handong, 2♀♀, Jun. 10, 1994
39. *T. disaudata* Giesbrecht, 1889
Seogwi(Go *et al.*, 1994), Udo(Ko, 1993: Go *et al.*, 1994), Gosan(Ko, 1993: Go *et al.*, 1994)
Material examined:Sincheon, 3♀♀, Jul. 14, 1994
40. *T. stylifera* Dana, 1849
Seogwi(Go *et al.*, 1994), Udo(Ko, 1993:Go *et al.*, 1994), Gosan(Ko, 1993:Go *et al.*, 1994)
Material examined: Jungmun, 5♀♀, 3♂♂, Sep. 9, 1993

Family Metridiidae Sars, 1902
- Genus *Metridia* Boeck, 1864
41. **Metridia pacifica* Brodsky, 1950

Genus *Pleuromamma*
Giesbrecht, 1889
42. *Pleuromamma robusta* Dahl, 1893
Material examined: Marado, 2♀♀, Apr. 29, 1993

Family Centropagidae
Giesbrecht, 1892
Genus *Centropages* Kroyer, 1848
43. **Centropages longicornis* Mori, 1932
Cheju(Go *et al.*, 1994)
Material examined: Handong, 5♀♀, 5♂♂, Jun. 10, 1994
44. *C. orsini* Claus, 1863
Seogwi(Go *et al.*, 1994), Gosan(Ko, 1993: Go *et al.*, 1994)
45. *C. gracilis* (Dana) 1849
Seogwi(Go *et al.*, 1994), Gosan(Ko, 1993: Go *et al.*, 1994)
46. *C. bradyi* Wheeler, 1899
Seogwi(Go *et al.*, 1994), Gosan(Ko, 1993: Go *et al.*, 1994)
47. *C. furcatus* Dana, 1849
Seogwi(Go *et al.*, 1994), Udo(Ko, 1993: Go *et al.*, 1994), Gosan(Ko, 1993: Go *et al.*, 1994)
- Family Pseudodiaptomidae Sars, 1902
Genus *Pseudodiaptomus* Herr- ick, 1884
50. *Pseudodiaptomidus marinus* Sato, 1913
Material examined: Handong, 3♀♀, 1♂, June 25, 1994

Family Lucicutiidae Sars, 1902

Genus *Lucicutia* Giesbrecht,
1899

51. *Lucicutia ovalis* Wolfenden, 1911
Seogwi(Ko, 1993)
52. *L. flavicornis*(Claus), 1863

Family Candaciidae Giesbrecht, 1892

Genus *Candacia* Dana, 1846

53. **Candacia discodata* Scott, 1909
Seogwi(Ko, 1993)
54. *C. truncata* Dana, 1849
Seogwi(Go *et al.*, 1994), Udo(Ko,
1993:Go *et al.*, 1994), Gosan(Ko,
1993:Go *et al.*, 1994)
55. *C. pachdactyla* Dana, 1849
Seogwi(Go *et al.*, 1994), Gosan(Ko,
1993:Go *et al.*, 1994)
56. *C. curta* Dana, 1849
Cheju(Kang, 1992), Sincheon(Oh,
1987)
57. *C. bipinata* Giesbrecht, (1892)
Udo(Ko, 1993: Go *et al.*, 1994),
Gosan(Ko, 1993: Go *et al.*, 1994)
58. **C. elliptica*
Seogwi(Go *et al.*, 1994)

Family Pontellidae Dana, 1853

Genus *Labidocera* Lubbock, 1853

59. *Labidocera pavo* Giesbrecht, 1889
Cheju(Go *et al.*, 1994)
60. *L. acuta* Dana, 1849
Seogwi(Go *et al.*, 1994), Udo(Ko,
1993: Go *et al.*, 1994), Gosan(Ko,
1993: Go *et al.*, 1994)
61. *L. detruncata* (Dana) 1849
Udo(Ko, 1993: Go *et al.*, 1994),
Gosan(Ko, 1993: Go *et al.*, 1994)

Genus *Pontella* Dana, 1846

62. *Pontella longipedata* Sato, 1913
Udo(Ko, 1993: Go *et al.*, 1994)
Material examined: Wimi, ♂♂ 3
Aug. 3, 1994: Sincheon, ♂♂ 2.,
Oct. 15, 1993

Genus *Pontellina* Dana, 1853

63. **Pontellina Plumata* (Dana) 1849
Sincheon(Go, 1987: Oh, 1987)
Material examined: Wimi, 3♀♀,
Aug. 11, 1994

Genus *Pontellopsis* Brady, 1883

64. *Pontellopsis yamadae* Mori, 1937
Udo(Ko, 1993: Go *et al.*, 1994)
Material examined: Sincheon, 2♀♀,
Oct. 15, 1993

Family Acartiidae Sars, 1903

Genus *Acartia* Dana, 1846

65. *Acartia pacifica* Steuer, 1915
Cheju(Go *et al.*, 1994), Seogwi(Go
et al., 1994), Udo(Ko, 1993:Go
et al., 1994), Seongsan(Yoo *et al.*,
1991), Gosan(Ko, 1993:Go *et al.*,
1994)
66. *A. tseinsis* Esterly, 1911
Sincheon(Go, 1987: Oh, 1987)
67. *A. grandis* Dana, 1852
Sincheon(Go, 1987: Oh, 1987)
68. **A. hamata* sp. nov. Giesbrecht, 1889
Sincheon(Oh, 1987)
Material examined: Wimi, 3♀♀, 3♂
♂, Mar. 31, 1993
69. *A. bifilosa* Giesbrecht, 1881
Sincheon(Oh, 1987)
Material examined: Seongsan, 2♀♀.

- Apr. 25, 1993
70. *A. steueri* Smirnov, 1936
 Cheju(Go *et al.*, 1994), Seogwi(Go *et al.*, 1994), Seongsan(Yoo *et al.*, 1991), Udo(Ko, 1993: Go *et al.*, 1994), Gosan(Ko, 1993: Go *et al.*, 1994)
 Material examined: Cheju, 5♀♀, 5♂♂, Oct. 10, 1994
71. *A. danae* Giesbrecht, 1889
 Cheju(Go *et al.*, 1994), Seogwi(Go *et al.*, 1994), Udo(Ko, 1993: Go *et al.*, 1994), Gosan(Ko, 1993:Go *et al.*, 1994)
 Material examined: Cheju, 5♀♀, Oct. 10, 1994
72. *A. negligens* Dana, 1849
 Sincheon(Go, 1987: Oh, 1987), Seongsan(Yoo *et al.*, 1991)
73. *A. erythraea* Giesbrecht, 1889
 Udo(Ko, 1993: Go *et al.*, 1994)
74. *A. omorii* Bradford, 1976
 Cheju(Go *et al.*, 1994), Seogwi(Go *et al.*, 1994), Udo(Ko, 1993: Go *et al.*, 1994), Seongsan(Yoo *et al.*, 1991), Gosan(Ko, 1993: Go *et al.*, 1994)
 Material examined: Cheju, 3♀♀, Oct. 10, 1994
75. *A. hudsonica* Pinhey, 1926
 Sincheon(Oh, 1987), Udo(Ko, 1993: Go *et al.*, 1994)
- Order Cyclopoida
 Family Oithonidae Dana, 1853
 Genus *Oithona* Baird, 1843
76. *Oithona plumifera* Baird, 1843
 Sincheon(Oh, 1987), Cheju(Go *et al.*, 1994), Seogwi(Go *et al.*, 1994), Udo(Ko, 1993:Go *et al.*, 1994), Gosan(Ko, 1993:Go *et al.*, 1994)
77. *O. media* Claus, 1866
 Sincheon(Oh, 1987)
 Material examined: Wimi, 3♀♀
78. **O. mediteranea* Farran, 1908
 Sincheon(Oh, 1987)
 Material examined: Seogwi, 3♀♀, Jul. 17, 1994 Wimi, 3♀♀, Aug. 11, 1994
79. **O. minuta* Giesbrecht, 1902
 Sincheon(Oh, 1987)
 Material examined: Seongsan, 3♀♀, May 5, 1994 1♂♂: Sincheon, 5♀♀, May 14, 1994
80. *O. Setigera* Dana, 1849
 Sincheon(Oh, 1987), Cheju(Lim 1989: Go *et al.*, 1994), Seogwi(Go *et al.*, 1994), Udo(Ko, 1993: Go *et al.*, 1994), Gosan(Ko, 1993: Go *et al.*, 1994)
81. *O. similis* Claus, 1866
 Cheju(Go *et al.*, 1994), Seogwi(Go *et al.*, 1994), Udo(Ko, 1993: Go *et al.*, 1994)
 Material examined: Gosan, 3♀♀, Aug. 16, 1994
82. *O. tenuis* Rosendorn, 1917
 Sincheon(Oh, 1987), Cheju(Lim, 1989)
 Material examined: Hamdeock, 3♀♀, Jul. 23, 1993
83. *O. attenuata* Farran, 1913
 Cheju(Lim, 1989)
84. *O. brevicornis* Giesbrecht, 1891
 Cheju(Lim, 1989)
85. *O. decipiens* Farran, 1913

- Cheju(Lim, 1989)
86. *O. fallax* Farran, 1913
Sincheon(Go, 1987; Oh, 1987),
Cheju(Lim, 1989)
87. *O. longispina* Nishida, 1977
Cheju(Lim, 1989)
Material examined: Hamdeock, 3 ♀ ♀,
Jul. 23, 1993 ♂ ♂,
88. *O. nana* Giesbrecht, 1892
Cheju(Lim, 1989)
- Family Oncaeidae
- Genus *Oncaea* Philippi, 1843
89. *Oncaea media* Giesbrecht, 1891
Cheju(Go et al., 1994), Seogwi(Go
et al., 1994)
90. *O. venusta* Philippi, 1843
Sincheon(Go, 1987; Oh, 1987), Udo(Go
et al., 1994), Gosan(Go et al.,
1994), Seogwi(Go et al., 1994),
Cheju(Go et al., 1994)
Material examined: Hamdeock, 10 ♀ ♀,
10 ♂ ♂, May 25, 1994
- Family Sapphirinidae
- Genus *Sapphirina* Thompson,
1830
91. **Sapphirina opalina* Dana, 1849
Seogwi(Go et al., 1994), Udo(Ko,
1993; Go et al., 1994)
92. **S. darwini* Haeckel, 1864
Udo(Ko, 1993; Go et al., 1994)
93. **S. stellata* Giesbrecht, 1891
Udo(Ko, 1993; Go et al., 1994)
- Family Corycaedae Dana, 1852
- Genus *Corycaeus* Dana, 1845
94. *Corycaeus crussiusculus* Dana, 1849
- Udo(Ko, 1993; Go et al., 1994),
Gosan(Ko, 1993; Go et al., 1994),
Seogwi(Go et al., 1994), Cheju(Go
et al., 1994)
95. *C. affinis* McMurrich, 1916
Udo(Ko, 1993; Go et al., 1994),
Gosan(Ko, 1993; Go et al., 1994),
Cheju(Go et al., 1994), Seogwi(Go
et al., 1994)
Material examined: Cheju, 10 ♀ ♀, 10
♂ ♂, Sep. 9, 1994
96. *C. speciosus* Dana, 1849
Udo(Ko, 1993; Go et al., 1994),
Gosan(Ko, 1993; Go et al., 1994),
Cheju(Go et al., 1994), Seogwi(Go
et al., 1994)
97. *C. andrewisii* Farran, 1911
Udo(Ko, 1993; Go et al., 1994),
Gosan(Ko, 1993; Go et al., 1994),
Seogwi(Go et al., 1994)
98. *C. pacificus* F. Dahl, 1912
Udo(Ko, 1993; Go et al., 1994),
Gosan(Ko, 1993; Go et al., 1994),
Seogwi(Go et al., 1994)
99. *C. agilis* Dana, 1849
Gosan(Ko, 1993; Go et al., 1994),
Seogwi(Go et al., 1994)
100. *C. gibbulus* Giesbrecht, 1891
Udo(Ko, 1993; Go et al., 1994),
Gosan(Ko, 1993; Go et al., 1994),
Seogwi(Go et al., 1994)
101. *C. longistylus*
Udo(Ko, 1993; Go et al., 1994)
102. *C. catus* F. Dahl, 1894
Udo(Ko, 1993; Go et al., 1994),
Seogwi(Go et al., 1994)
- Order Harpacticoida Sars, 1903

- Family Macrosetellidae
Genus *Macrosetella* A. Scott,
1909
103. *Macrosetella gracilis* Dana, 1848
Cheju(Go *et al.*, 1994)

- Genus *Microsetella* Brady and
Robertson, 1873
104. *Microsetella norvegica* (Boeck) 1864
Udo(Ko, 1993; Go *et al.*, 1994)

- Genus *Setella* Dana, 1846
105. *Setella gracilis* Dana, 1852
Seogwi(Go *et al.*, 1994), Udo(Ko,
1993; Go *et al.*, 1994), Gosan(Ko,
1993; Go *et al.*, 1994)

- Family Harpacticidae Dana, 1846
Genus *Harpacticus* Milne-
Edwards, 1840
106. *Harpacticus nipponicus* Ito, 1976
Cheju(Lee, 1993)

- Family Thalestridae Sars, 1905
Genus *Dactylopusia* Norman,
1903
107. *Dactylopusia vulgaris* Sars, 1905
Seogwi(Lee, 1993)

- Family Diosaccidae Sars, 1906
Genus *Amonardia* Lang, 1948
108. *Amonardia normani* Brady, 1872
Seogwi(Lee, 1993)

- Family Metidae Boeck, 1872
Genus *Metis* Philippi, 1843
109. *Metis holoturiae* Edward, 1891
Cheju(Lee, 1989)

- Family Louriniidae Monard, 1927
Genus *Lourinia* Wilson, 1924
110. *Lourinia amata* Claus, 1866
Cheju(Lee, 1989)

- Family Laophotidae T. Scott,
1904
Genus *Paraalaophonte* Lang,
1948
111. *Paraalaophonte meinerti* Brady, 1899
Cheju(Lee, 1989)

DISCUSSION

One hundred and eleven species of copepods in 28 families were identified from the 13 localities around Cheju Island. *Paracalanus crassirostris*, *Ctenocalanus longicornis*, *Calocalanus styliremis*, *Aetideus armatus*, *Euchaeta attenu*, *Paraeuchaeta russelli*, *Metridia pacifica*, *Centropages longicornis*, *Candacia discodata*, *Sapphirina opalina*, *S. darwini* and *S. stella* are unrecorded species up to now around Cheju Island.

The total number of species of copepods in this systematic list are 111 species in 28 families. One hundred and eleven species occupy 61.3% of 181 species from Korean waters up to now. Twenty one species of 109 species(18.9%) are only reported from Cheju Island. Waters around Cheju Island contributes the largest number of southern form of copepods species in the four regions (Donghae Sea(Japan sea), Korea Strait, Yellow Sea and Cheju Island waters) of Korean waters. This fact indicates that

Cheju Island waters are strongly influenced by Tsushima Warm Current with high water temperature and the high salinity of the Korean waters.

REFERANCE

- Go, Y. B., 1987. Zooplankton community and biomass on the coast of Sincheon, southeastern part of Cheju Island. Bull. Mar. Res. Inst. Cheju Nat. Univ., 11:41-51.
- Go, Y. B., B. C. Oh, B. Y. Ko and T. J. Sohn, 1994. Seasonal fluctuation of pelagic copepos on the coast of Cheju Island, Korea. Bull. Mar. Res. Ins. Cheju Nat. Univ., 18:15-24(In Korean)
- Kang, Y. S., 1988. Taxonomy and distribution of Corycaeidae (Copepoda:Cyclopoida) in the Southern waters of Korea in summer, 1986. M. S. Thesis. Nat. Fish. Univ. Pusan, 62pp. (In Korean)
- Kang, Y. S., 1992. Systematics and distribution of the oceanic warm-water calanoid copepods in the Korean waters. Ph. D. Thesis. Nat. Fish. Univ. Pusan, 144pp
- Kang, Y. S. and S. S. Lee, 1990. Taxonomic re-examination and distribution of copepods known as *Acartia clausi* in the coastal waters of Korea. Bull. Korean Fish. Soc., 23:378-384.
- Kim, D. Y., 1985. Taxonomical study on Calanoid copepod(Crustacea:Copepod) in Korean waters. Ph. D. Thesis, Hayang Univ., 187p 50pls.
- Kim, W. S., J. M. Yoo and C. S. Myung, 1993. A review on the copepods in the South Sea of Korea. Bull. Korean Fish. Soc., 26(3):266-278
- Lee, W. C., 1993. A taxonomical study on the marine Harpacticoida (Crustacea:copepoda) of Korean Coastal Waters. Ph. D. Thesis, Hanyang Univ., 110pp 75pls
- Lim, D. H., 1989. Taxonomy and distribution of family Oithonidae (Copepoda, Cyclopoida) in Korean waters. M. S. Thesis. Hanyang Univ., 113pp(In Korean).
- Oh, B. C., 1987. Studies on the estimation of production and community structure of zooplankton in surrounding sea of Cheju Island. M. S. Thesis. Cheju Nat. Univ., 67p(In Korean)
- Yoo, K. I., H. K. Hue and W. C. Lee, 1991. Taxonomical revision on the Genus *Acartia*(Copepoda:Calanoida) in the Korean waters. Bull. Korean Fish. Soc., 24(4):255-265(In Korean).