



NOAA Technical Memorandum NMFS F/NWC-65

Catalogue of Cephalopods at the National Marine Mammal Laboratory

By
Clifford H. Fiscus

October 1984

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service

CATALOGUE OF CEPHALOPODS
at the
NATIONAL MARINE MAMMAL LABORATORY

Clifford H. Fiscus

October 1984

National Marine Mammal Laboratory
Northwest and Alaska Fisheries Center
National Marine Fisheries Service
National Oceanographic and Atmospheric Administration
7600 Sand Point Way N.E.
Seattle, Washington 98115

CONTENTS

	Page No.
PREFACE	v
CATALOGUE.	1
Sepioidae	1
Sepiidae	1
<u>Sepia esculenta.</u>	1
<u>S. kobensis</u>	1
<u>S. andreana</u>	1
Sepiolidae	2
<u>Rossia pacifica.</u>	2
Teuthoidae	3
Loliginidae.	3
<u>Loligo japonica.</u>	3
<u>L. opalescens.</u>	3
<u>L. pealei?</u>	8
<u>Doryteuthis bleekeri</u>	8
<u>Lolliguncula brevis.</u>	8
Enoplateuthidae.	9
<u>Abraliopsis affinis.</u>	9
<u>Aoraliopsis</u> sp.	9
<u>Watasenia scintillans.</u>	11
Octopoteuthidae.	12
<u>Octopoteuthis deleton.</u>	12
Onychoteuthidae.	13
<u>Onychoteuthis borealijaponicus</u>	13
<u>O. banksii.</u>	24
<u>moroteuthis robusta.</u>	25
Gonatidae.	28
<u>Gonatus madokai.</u>	28
<u>G. middendorffi.</u>	28
<u>G. onyx</u>	30
<u>G. tinro.</u>	32
<u>G. pyros</u>	33
<u>Gonatopsis borealis.</u>	41
<u>Berryteuthis anonychus</u>	55
<u>B. magister.</u>	58
Architeuthidae	66
<u>Architeuthis</u> sp.	66
Histoteuthidae.	68
<u>Histoteuthis dofleini</u>	68
Ommastrephidae	70
<u>Illex illecebrosus</u>	70
<u>Todarodes pacificus.</u>	71
<u>Ommastrephes bartrami</u>	72
<u>Dosidicus gigas.</u>	74
<u>Symplectoteuthis ovalansis.</u>	78

Thysanoteuthiidae	79
Thysanoteuthis rombus.	79
Chiroteuthiidae	80
Chiroteuthis calyx?	80
Mastigoteuthiidae	82
Mastigoteuthis sp.	82
Cranchiidae.	83
Cranchia scabra.	83
Taonius payo.	84
Megalocranchia sp.	85
Galiteuthis sp.	85
G. phyllura	86
Mesonychoteuthis sp.	87
Octopoda.	89
Opisthoteuthiidae	89
Opisthoteuthis californiana.	89
Bolitaenidae	90
Japetella heathi	90
Octopodiidae.	91
Octopus dofleini	91
O. bimaculatus	97
O. rubescens	97
Tremoctopodiidae.	101
Tremoctopus sp.	101
Ocythoideae	103
Ocythoe tuberculata.	103
Argonautidae	105
Argonauta pacifica	105
Allopsiidae	106
Alloposus mollis	106
Vampyromorpha.	107
Vampyroteuthiidae	107
Vampyroteuthis infernalis.	107
ACKNOWLEDGMENTS.	109
LITERATURE CITED	111
APPENDIX A - Sequential listing of catalogue numbers	113
APPENDIX B - Marine mammal predators noted in catalogue and cephalopod prey	119

PREFACE

The collection of fishes and cephalopods at the National Marine Mammal Laboratory (NMML) of the Northwest and Alaska Fisheries Center (NWAFC) was started in the late 1940s by Victor B. Scheffer, Ford Wilke, and Karl W. Kenyon. The cephalopod collection is used primarily as an aid to the identification of cephalopod remains found in the stomachs, scats, and spewings of marine mammals. As such, those parts of cephalopods which persist after the soft parts are gone are prominent in the collection (i. e., beaks, gladii, and statoliths). The size of the cephalopod collection increased dramatically in the late 1950s and 1960s with the advent of large-scale studies of the pelagic life of northern fur seals, Callorhinus ursinus. Field parties continue to collect and bring material back for the laboratory reference collection.

Specimens are classified to the lowest possible taxon. The collection presently contains cephalopods representing 22 families, 36 genera, and 41 species. Most of the material is from the eastern North Pacific Ocean and the Bering Sea; however, seven species from the western North Pacific Ocean, six from the eastern tropical Pacific Ocean, and three from the Atlantic Ocean are also represented in the collection.

Specimens in the collection have been assigned NMML numbers as listed in this catalogue. They are assigned catalogue numbers when acquired; consequently, consecutive numbering does not hold for each family. A listing by numerical order appears in Appendix A.

The following information is listed for each specimen when possible: date and location of collection; collector; name of marine mammal

from which taken (and specimen number of mammal) or method of collection; original specimen number; description of specimen; parts saved; and the identifier of specimen.

Abbreviations used in the catalogue include the following:

DML - dorsal mantle length, VML - ventral mantle length, MW - mantle width, TL - total length HL - hectocotylus length, HAL - hectocotylized arm length, LRL - lower rostral length.

Identification by scientists other than the author is indicated in each specimen description; where no credit is given, the identification was made by the author. Specimens that have been listed in published reports are footnoted and the publication is available in the NMML file or library. Classification of the collection follows that of Dr. G. L. Voss (1977).

As a working collection, it is not available for public viewing. Specialists desiring permission to work in the collection must obtain approval of the NMML Director.

The author proposes to issue an annual (or as needed) supplement to the catalogue, listing additions to the collection and changes in nomenclature or identification.

CATALOGUE

Order Sepioidea
Family Sepiidae

NMML 30. Sepiidae

Collected 18 November 1966, St. Paul Island, Alaska, by
R. J. Hajny. Washed ashore. Parts saved: 1 large cuttlebone.

NMML 31. Sepia esculenta

Collected 9 March 1950, 20 miles offshore Fukushima Prefecture,
Honshu, Japan, by F. Wilke. Parts saved: 2 cuttlebones.

NMML 32. Sepia kobeensis?

Collected 24 April 1965, Kesenuma, Miyagi Prefecture,
Honshu, Japan, by H. Kajimura. Parts saved: 1 entire specimen.

NMML 33. Sepia andreana

Collected 24 April 1965, Kesenuma, Miyagi Prefecture,
Honshu, Japan; by H. Kajimura. Parts saved: 1 entire specimen.

NMML 34. Sepia esculenta?

Collected 24 April 1965, Kesenuma, Miyagi Prefecture,
Honshu, Japan, by H. Kajimura. Parts saved: 1 entire specimen.

Order Sepioidae
Family Sepiolidae

NMML 26. Rossia pacifica

Collected (no date), Puget Sound, Washington.

Parts saved: 2 entire specimens.

NMML 27. Rossia pacifica

Collected (no date), Puget Sound, Washington.

Parts saved: 1 entire specimen.

NMML 28. Rossia pacifica

Collected 26 June 1973, lat. 55°00' N, long. 167°31' W, Bering Sea, by C. H. Fiscus. Parts saved: 1 entire specimen.

NMML 29. Rossia pacifica

Collected 24 April 1965, Kesennuma, Miyagi Prefecture, Honshu, Japan, by H. Kajimura. Parts saved: 5 entire specimens.

NMML 238. Rossia pacifica

Collected 3 November 1981, lat. 55°40', long. 168°14' W.

RV Miller Freeman, cruise 81-6, haul 38, by trawl. Depth 73

fathoms. Surface water temperature 6.5°C, trawl temperature 5.6°C.

Frozen fresh. Male, DML 45 mm, weight 29 g (in laboratory).

Parts saved: 1 entire specimen. Beaks and radula extracted and in same jar as specimen.

Order Teuthoidea
Suborder Myopsida
Family Loliginidae

NMML 36. Loligo japonica

Collected 24 April 1965, Kesenuma, Miyagi Prefecture, Honshu, Japan, by H. Kajimura. Parts saved: 3 entire specimens.

NMML 37. Loligo opalescens

Collected November 1959, Puget Sound, Washington, by T. O'Brien. By trawl. Parts saved: 12+ entire specimens - see 40 and 41 below (various sizes, not necessarily all, from same tow).

NMML 38. Loligo opalescens

Collected 19 May 1964, lat. 40°26'N, long. 124°42'W. From stomach of Callorhinus ursinus, specimen US64-253. Parts saved: 12+ entire specimens.

NMML 39. Loligo opalescens

Collected 13 April 1958, Port Orford, Oregon, by C. H. Fiscus. Surface test gill net. Parts saved: 2 entire specimens.

NMML 40. Loligo opalescens

Collected November 1959, Puget Sound, Washington, by T. O'Brien. Parts saved: 3 entire females, see 37.

NMML 41. Loligo opalescens

Collected November 1959, Puget Sound, Washington, by T. O'Brien. Parts saved: 2 entire males, see 37.

Family Loliginidae (contd.)

NMML 42. Loligo opalescens

Collected 29 January 1961, Bonella Grounds, Hecate Strait, British Columbia, by K. Niggol and J. Maddox. From trawler Sogn. Parts saved: 3 entire specimens.

NMML 43. Loligo opalescens

Collected 17 March 1966, lat. 34°26' N, long. 120°24' W, east of Pt. Conception, California, by R. K. Stroud. Water temperature 14°C. Parts saved: 17+ small entire specimens.

NMML 44. Loligo opalescens

Collected 13 February 1968, off Cape Lookout, Oregon, by R. K. Stroud. From trawler Ivanhoe. Parts saved: 6 small entire squid.

NMML 45. Loligo opalescens

Collected 23 January 1961, lat. 49°00' N, long. 125°49' W. From stomach of C. ursinus, specimen US61-1181. Parts saved: 6+ relatively entire specimens plus beaks.

NMML 46. Loligo opalescens

Collected 27 January 1961, lat. 52°33' N, long. 128°51' W. From stomach of C. ursinus, specimen US61-1194. Parts saved: beaks only.

NMML 47. Loligo opalescens

Collected 27 March 1970, lat. 45°46' N, long. 124°25' W. From stomach of C. ursinus, specimen US70-125. Parts saved: beaks only.

Family Loliginidae (contd.)

NMML 48. Loligo opalescens

Collected 17 May 1970, lat. 46° 27' N, long. 128° 35' W. From stomach of C. ursinus, specimen US70-271. Parts saved: 2 pair beaks.

NMML 49. Loligo opalescens

Collected 19 May 1970, lat. 46° 46' N, long. 128° 35' W. From stomach of C. ursinus, specimen US70-293. Parts saved: 1 pair beaks.

NMML 50. Loligo opalescens

Collected 20 May 1970, lat. 46° 43' N, long. 127° 37' W, from stomach of C. ursinus, specimen US70-303. Parts saved: 1 pair beaks.

NMML 51. Loligo opalescens

Collected (no date), Puget Sound, Washington. Parts saved: 1 small entire specimen.

NMML 52. Loligo opalescens

Collected (no date), off California? Parts saved: 2 pair beaks only - working collection.

NMML 53. Loligo opalescens

Collected (no date), off California? Parts saved: beaks only - working collection.

NMML 54. Loligo opalescens

Collected (no date). Parts saved: pens only - working collection.

Family Loliginidae (contd.)

NMML 214. Loligo opalescens

Collected 26 April 1964, lat. 38°01'N, long. 123°21'W. From stomach of *C. ursinus*, specimen US64-105. Parts saved: 1 fragment + pens and buccal masses.

NMML 228. Loligo opalescens

Collected 29 January 1982, Elliott Bay, Puget Sound, Washington, by R. W. Mercer. By light attraction at night in Lampera type net. Female, nidamental gland length 26 mm, DML 112 mm, weight 39 g. Reproductive development intermediate. Parts saved: 2 statoliths.

NMML 229. Loligo opalescens

Collected 29 January 1982, Elliott Bay, Puget Sound, Washington, by R. W. Mercer. By light attraction at night in Lampera type net. Male, DML 128 mm, weight 51 g. Reproductive development immature. Parts saved: beaks and radula.

NMML 229a. 2 statoliths of 229.

NMML 230. Loligo opalescens

Collected 29 January 1982, Elliott Bay, Puget Sound, Washington, by R. W. Mercer. By light attraction at night in Lampera type net.. Male, DML 127 mm, weight 50 g. Reproductive development immature. Parts saved: 2 statoliths.

Family Loliginidae (contd.)

NMML 231. Loligo opalescens

Collected 29 January 1982, Elliott Bay, Puget Sound, Washington, by R. W. Mercer. By light attraction at night in Lampera type net. Female, nidamental gland length 47 mm, DML 155 mm, weight 78 g. Reproductive development mature. Parts saved: beaks and radula.

NMML 231a. 2 statoliths of 231.

NMML 232. Loligo opalescens

Collected 29 January 1982, Elliott Bay, Puget Sound, Washington, by R. W. Mercer. By light attraction at night in Lampera type net. Male, DML 115 mm, weight 45 g. Reproductive development immature. Parts saved: beaks and radula.

NMML 232a. 2 statoliths of 232.

NMML 233. Loligo opalescens

Collected 29 January 1982, Elliott Bay, Puget Sound, Washington, by R. W. Mercer. By light attraction at night in Lampera type net. Female, nidamental gland length 42 mm, DML 132 mm, weight 64 g. Reproductive development mature. Parts saved: 2 statoliths.

Family Loliginidae (contd.)

FMML 234. Loligo opalescens

Collected 29 January 1982, Elliott Bay, Puget Sound, Washington, by R. W. Mercer. By light attraction at night in Lampera type net. Female, nidamental gland length 12 mm, DML 89 mm, weight 18 g. Reproductive development intermediate.

Parts saved: beaks and radula.

NMML 234a. 2 statoliths of 234.

NMML 58. Loligo pealei?

Collected (no date), Atlantic Ocean. Specimen 504315.

Parts saved: beaks only.

NMML 35. Doryteuthis bleekeri

Collected 24 April 1965, Kesenuma, Miyagi Prefecture, Honshu, Japan, by H. Kajimura. Parts saved: 4 entire specimens.

NMML 55. Lolliguncula brevis (Fitch and Brownell 1971)

Collected 7 February 1969, Uruguay, South America. From the stomach of Pontoporia blainvillei, specimen R.L.B. 465.

Parts saved: beaks only. Identification verified by

G. L. Voss (letter 19 November 1969).

Order Teuthoidea
Suborder Oegopsida
Family Eupoloteuthidae

NMML 67. Abraliopsis affinis

Collected 9 April 1968, lat. 12°51'N, long. 93°18'W, by W. Perrin.

From the stomach of Stenella graffmani, specimen CV285.

Parts saved: 1 entire specimen. Det. T. Okutani.

NMML 68. Abraliopsis sp.

Collected 9 April 1968, lat. 12°51'N, long. 93°18'W. From
the stomach of S. graffmani, specimen CV285. (Fiscus Type E)

Parts saved: body fragments and beaks.

NMML 69. Abraliopsis sp.¹

Collected 22 January 1961, lat. 34°23'N, long. 121°08'W. From the
stomach of C. ursinus, specimen US61-242. Parts saved:

2 entire specimens + 3 body fragments.

¹ Most likely A. felis.

Family Enoploteuthidae (contd.)

NMML 70. Abraliopsis sp. 1

Collected 19 March 1961, lat. 37°02' N, long. 123°16' W. From the stomach of C. ursinus, specimen US61-773. Parts saved: 24+ relatively entire specimens.

NMML 70a. Abraliopsis sp. 1

5 pens of 70.

NMML 71. Abraliopsis sp. 1

Collected 19 March 1961, lat. 37°02' N, long. 123°17' W.

From the stomach of C. ursinus, specimen US61-774.

Parts saved: 10 relatively entire specimens plus vial of beaks.

NMML 71a. Abraliopsis sp. 1

1 entire specimen of 71.

NMML 71b. Abraliopsis sp. 1

1 entire specimen of 71.

NMML 71c. Abraliopsis sp. 1

1 entire specimen of 71.

NMML 72. Abraliopsis sp. 1

Collected 21 May 1965, lat. 37°49' N, long. 123°27' W. From the stomach of C. ursinus, specimen US65-110. Parts saved: beaks only.

NMML 73. Abraliopsis sp. (see MacAskie 1971)

Collected 2 May 1970, lat. 46°38' N, long. 126°37' W. From the stomach of C. ursinus, specimen US70-209. Parts saved: 1 pair beaks.

Family Enoploteuthidae (contd.)

- NMML 74. Abraliopsis sp. (MacAskie 1971)
 Collected 17 May 1970, lat. 46°27' N, long. 128°35' W.
 From the stomach of C. ursinus, specimen US70-271.
 Parts saved: 1 pair beaks.
- NMML 75. Abraliopsis sp. (MacAskie 1971)
 Collected 19 May 1970, lat. 46°42' N, long. 129°06' W.
 From the stomach of C. ursinus, specimen US70-283.
 Parts saved: 1 dorsal beak.
- NMML 76. Abraliopsis sp. (MacAskie 1971)
 Collected 20 May 1970, lat. 46°41' N, long. 127°27' W. From the
 stomach of C. ursinus, specimen US70-308. Parts saved:
 1 pair beaks.
- NMML 77. Abraliopsis sp.
 Collected (date and location unknown). Parts saved:
 1 relatively entire specimen.
- NMML 64. Watasenia scintillans
 Collected April 1950, Miyagi Prefecture, Honshu, Japan,
 by F. Wilke. Parts saved: beaks. Det. F. Wilke.
- NMML 65. Watasenia scintillans
 Collected 15 May 1950, Hachinohe, Aomori Prefecture, Honshu,
 Japan, by F. Wilke. From the stomach of Phocoenoides
dalli. Parts saved: pens. Det. F. Wilke.
- NMML 66. Watasenia scintillans
 Collected 11 March 1965, lat. 36°50' N, long. 141°17' E, by
 H. Kajimura. From the stomach of C. ursinus. Surface
 water temperature 10°C. Parts saved: 10 entire specimens.
 Det. H. Kajimura.

Order Teuthoidea
Suborder Oegopsida
Family Octopoteuthidae

NMML 144. Octopoteuthis sp. (deleton?) (see Young 1972)

Collected 8 February 1964, off Oregon, by W. E. Percy.

MT473 0-1000 m. Specimen NH50. Parts saved: 1 pair

beaks. Det. W. E. Percy.

NMML 145. Octopoteuthis sp. (deleton?)

Collected 20 April 1967, Mukkaw Bay, Washington by

R. K. Stroud. From the stomach of stranded Grampus

griseus, specimen 3769. Parts saved: 1 pair beaks,

crown fragments.

Order Teuthoidea
Suborder Oegopsida
Family Onychoteuthidae

NMML 142. Onychoteuthis borealijaponicus

Collected 24 July 1957, south of Aleutian Islands, by
R. A. Hajny. Parts saved: 1 entire specimen, DML 343 mm.

NMML 211. Onychoteuthis borealijaponicus

Collected 2 July 1981, over Grays Canyon, approximately
40 miles west of Westport, Washington, by M. Bucy.
FV Tres Cher, by dipnet-nightlight. Female, DML 120 mm.
Identified, from whole specimen. Parts saved: beaks only.

NMML 212. Onychoteuthis borealijaponicus

Collected 2 July 1981, over Grays Canyon, approximately
40 miles west of Westport, Washington, by M. Bucy.
FV Tres Cher, by dipnet-nightlight. Male, DML 162 mm.
Identified from whole specimen. Parts saved: beaks and
radula.

NMML 213. Onychoteuthis borealijaponicus

Collected 2 July 1981, over Grays Canyon, approximately
40 miles west of Westport, Washington, by M. Bucy.
FV Tres Cher, by dipnet-nightlight. Female, DML 225 mm.
Identified from whole specimen. Parts saved: beaks and
radula.

Family Onychoteuthidae (contd.)

NMML 216. Onychoteuthis borealijaponicus

Collected 3 August 1981, lat. 47°21.2' N, long. 124°54.5' W, by R. W. Mercer (Mercer and Bucy 1983). By jigging. Surface water temperature 16.5°C. Immature female, DML 186 mm, weight 176 g. Parts saved: crown and pen.

NMML 216a. Beaks of 216.

NMML 216b. 1 statolith of 216.

NMML 217. Onychoteuthis borealijaponicus

Collected 3 August 1981, lat. 47°21.2' N, long. 124°54.5' W, by R. W. Mercer. By jigging. Surface water temperature 16.5°C. Immature male, DML 173 mm, weight 144 g. Parts saved: beaks.

NMML 217a. Two statoliths of 217.

NMML 218. Onychoteuthis borealijaponicus

Collected 3 August 1981, lat. 47°21.2' N, long. 124°54.5' W, by R. W. Mercer. By jigging. Surface water temperature 16.5°C. Immature female, DML 192 mm, weight 188 g. Parts saved: crown and pen.

NMML 218a. Beaks and radula of 218.

NMML 218b. 2 statoliths of 218.

Family Onychoteuthidae (contd.)

NMML 219. Onychoteuthis borealijaponicus

Collected 3 August 1981, lat. 47°21.2' N, long. 124°54.5' W, by R. W. Mercer. By jigging. Surface water temperature 16.5°C. Immature female, DML 192 mm, weight 198g. Parts saved: crown and pen.

NMML 219a. Beaks and radula of 219.

NMML 219b. 1 statolith of 219.

NMML 220. Onychoteuthis borealijaponicus

Collected 3 August 1981, lat. 47°21.2' N, long. 124°54.5' W, by R. W. Mercer. By jigging. Surface water temperature 16.5°C. Immature male, DML 182 mm, weight 141 g. Parts saved: beaks.

NMML 220a. Two statoliths of 220:

NMML 221. Onychoteuthis borealijaponicus

Collected 11 May 1981, lat. 47°26' N, long. 125°09.7' W, by R. W. Mercer. By jigging. Female, DML 251 mm (field measurement): Parts saved: 1 statolith.

NMML 222. Onychoteuthis borealijaponicus

Collected 27 August 1981, lat. 47°22.3' N, long. 124°56.5' W, by R. W. Mercer. By jigging. Surface water temperature 15.7°C (6.6°C at 33 m). Female, nidamental gland length 60 mm, DML 255 mm, weight 448 g. Parts saved: beaks, radula.

Family Onychoteuthidae (contd.)

NMML 222a. 2 statoliths of 222.

NMML 223. Onychoteuthis borealijaponicus

Collected 27 August 1981, lat. 47°22.3' N, long. 124°56.5' W; by R. W. Mercer. By jigging. Surface water temperature 15.7°C (6.6°C at 33 m). Female, nidamental gland length 60 mm, DML 240 mm, weight 337 g. Parts saved; beaks, radula.

NMML 223a. 2 statoliths of 223.

NMML 224. Onychoteuthis borealijaponicus

Collected. 27 August 1981, lat. 47°22.3' N, long. 124°56.5' W, by R. W. Mercer. By jigging. Surface water temperature 15.7°C. Male, mature, many sperm packets, DML 253 mm, weight 345 g. Parts saved: beaks, radula.

NMML 224a. 2 statoliths of 224.

NMML 224b. Male reproductive organs of 224.

NMML 225. Onychoteuthis borealijaponicus

Collected 27, August 1981, lat. 47°23.3' N, long. 125°56.5' W, by R. W. Mercer. By jigging., Surface water temperature 15.7°C (6.6°C at 33 m). Male, a few sperm packets present, DML 211 mm, weight 243 g. Parts saved: beaks, radula.

NMML 225a. 2 statoliths of 225.

Family Onychoteuthidae (contd.)

NMML 226. Onychoteuthis bocealijaponicus

Collected 27 August 1981, lat. 47°33;3'4., long. 125°56.5' W, by R. W. Mercer. By jigging. Surface water temperature 15.7°C (6.6°C at 33 m). Female, nidamental gland length 55 mm, DML 256 mm, weight 411 g. Parts saved: beaks, radula.

NMML 226a. 2 statoliths of 226.

NMML 227. Onychoteuthis borealijaponicus

Collected 13 September 1981, lat. 47°19.4' N, long. 125°00' W, by R. W. Mercer. By jigging. Surface water temperature 14.3°C (8.2°C at 33 mm); Frozen and thawed. Female, nidamental gland length left 93 mm, right 93 mm, DML 288 mm, weight 558 g, orange in color. Parts saved: beaks, radula.

NMML 227a. 2 statoliths of 227.

NMML 315. Onychoteuthis borealijaponicus

Collected 16 August 1966, lat. 50°15' N, long; 176°22' W, by R. D. Carlson. MV Paragon cruise 38, set 42. Water temperature 10.3°C. Parts saved: 6 pair beaks and radulas.

NMML 316. Onychoteuthis borealijaponicus

Collected (date and position not given, but probably 24 July 1967, lat. 49°45' N, long. 176°22' W, as 10 squids examined from this set): RV George Kelez, cruise 41, set probably 18. Water temperature 10.2°6. Parts saved: 7 pair beaks and radulas.

Family Onychoteuthidae (contd.)

NMML 317. Onychoteuthis borealijaponicus

Collected 10 September 1969, lat. 52°30' N, long. 160°00' W.

RV George Kelez, cruise 47, set 43. Water temperature 11.7°C. Parts saved: 3 pair beaks and radulas.

NMML 318. Onychoteuthis borealijaponicus

Collected 21 February 1961, lat. 35°18' N, long. 121°34' W.

From the stomach of C. ursinus, specimen US61-696.

Parts saved: 3 dorsal beaks, 3 lower beaks, 1 buccal mass.

NMML 319. Onychoteuthis borealijaponicus

Collected 19 May 1964, lat. 40°08' N, long. 124°39' W. From

the stomach of C. ursinus, specimen US64-258. Parts saved: 2 lower beaks.

NMML 320. Onychoteuthis borealijaponicus

Collected 22 January 1966, lat. 36°53' N, long. 122°35' W.

From the stomach of C. ursinus, specimen US66-15. Parts saved: 1 crown, including radula and beaks.

NMML 321. Onychoteuthis borealijaponicus

Collected 27 March 1970, lat. 46°27' N, long. 124°25' W.

From the stomach of C. ursinus, specimen US70-125.

Parts saved: 2 pair beaks.

NMML 322. Onychoteuthis borealijaponicus

Collected 30 March 1970, lat. 47°17' N, long. 124°58' W, From

the stomach of C. ursinus, specimen US70-135. Parts saved: 7 dorsal and 8 lower beaks.

Family Onychoteuthidae (contd.)

- NMML 323. Onychoteuthis borealijaponicus
Collected 21 April 1970, lat. 47°46' N, long. 126°01' W. From the stomach of C. ursinus, specimen US70-194. Parts saved:
14 pair beaks.
- NMML 324. Onychoteuthis borealijaponicus
Collected 2 May 1970, lat. 46°38' N, long. 126°37' W. From the stomach of C. ursinus, specimen US70-209. Parts saved:
10 dorsal beaks, 11 lower beaks.
- NMML 325. Onychoteuthis borealijaponicus
Collected 17 May 1970, lat. 46°29' N, long. 128°46' W. From the stomach of C. ursinus, specimen US70-273. Parts saved:
11 dorsal beaks, 13 lower beaks.
- NMML 326. Onychoteuthis borealijaponicus
Collected 20 May 1970, lat. 46°43' N, long. 127°38' W. From the stomach of C. ursinus, specimen US70-302. Parts saved:
1 pair beaks with buccal mass.
- NMML 327. Onychoteuthis borealijaponicus
Collected 20 May 1970, lat. 46°45' N; long. 126°58' W. From the stomach- of C. ursinus, specimen US70-318. Parts saved:
19 dorsal beaks, 20 lower beaks.
- NMML 328. Onychoteuthis borealijaponicus
Collected (no date), San Miguel Island; California, by
E. C. Jameyson. Specimen ECJ-063. Parts saved: 1 pair beaks.

Family Onychoteuthidae (contd.)

- NMML 342. Onychoteuthis borealijaponicus
 Collected 1957, North Pacific Ocean, High Sea Salmon Inventory.
 Parts saved: crown, gladius, 1 pair beaks.
- NMML 343. Onychoteuthis borealijaponicus,
 Collected 16 August 1966, lat. 50°15' N, long. 176°22' W,
 by R. D. Carlson. MV Paragon, . cruise 38; set 42.
 Parts saved: 6 gladii from fresh whole specimens.
- NMML 344. Onychoteuthis borealijaponicus
 Collected 7 October: 1965, lat. 48°22' N, long. 173°00' E.
 RV George B. Kelez, cruise 36, set 5. Parts saved: gladii
 from 6 fresh whole specimens':
- NMML 345. Onychoteuthis borealijaponicus
 Collected 12 December 1960, lat. 38°41' N, long. 124°25' W,
 by C. H. Fiscus. Night Light Station 4-61. Water temperature
 12°C. Parts saved: 5 entire specimens, DML's 74, 73, 70,
 67, 52 mm, measured 14 February 1983;
- NMML 346. Onychoteuthis borealijaponicus
 Collected 9 January 1961, lat. 38°42' N, long. 123°51' W,
 by C. H. Fiscus. Night Light Station 6-61. Water temperature
 11°C. Parts saved: 7 entire specimens, DML's of 6 - 80, 71, 70,
 65, 58, 54 mm, measured 14 February 1983.
- NMML 347. Onychoteuthis borealijaponicus
 Collected 30 January 1961, lat. 33°32' N, long. 120°48' W, by
 C. H. Fiscus. Night Light Station 12-61. Water temperature
 14°C. Parts saved: 2 entire specimens, DML's 87, 85 mm,
 measured 14 February 1983.

Family Onychoteuthidae (contd.)

NMML 348. Onychoteuthis borealijaponicus

Collected 25 January 1961; lat. 34°25'N; long. 121°08'W. From the stomach of C. ursinus, specimen US61-375. Parts saved: 3 lower and 1 dorsal beaks. Examined by E. Hochberg, 1980.

NMML 349. Onychoteuthis borealijaponicus

Collected 16 May 1970, lat. 46°24'N, long. 136°21'W. From the stomach of C. ursinus, specimen US70-252. Parts saved: 2 relatively entire specimens, DML's approximately 160 mm, 14 February 1983.

NMML 350. Onychoteuthis borealijaponicus

Collected 24 May 1970, lat. 47°38'N, long. 128°19'W. From the stomach of C. ursinus, specimen US70-325. Parts saved: 1 relatively entire specimen, DML 170 mm, beaks in same container.

NMML 355. Onychoteuthis borealijaponicus

Collected 21 January 1961, lat. 34°35'N, long. 121°05'W, by C. H. Fiscus; Night Light Station 10-61. Parts saved: 7 entire specimens, DML's 121, 112, 112, 107, 104, 72, 67 mm, measured 16 February 1983.

NMML 356. Onychoteuthis borealijaponicus

Collected 5 March 1962, lat. 42°00'N, long. 177°52'W, by R. D. Carlson. MV Bertha Ann, cruise 22, set 9. Parts saved: 1 entire specimen.

Family Onychoteuthidae (contd.)

NMML 357. Onychoteuthis borealijaponicus

Collected 5 March 1962, lat. 42°00' N, long. 177°52' W,
by R. D. Carlson. MV Bertha Ann, cruise 22, set 9.
Parts saved: 1 entire specimen.

NMML 358. Onychoteuthis borealijaponicus

Collected 30 March 1962, lat. 46°54' N, long. 154°53' W,
by R. D. Carlson. MV Bertha Ann, cruise 22, set 19.
Parts saved: 1 entire specimen.

NMML 359. Onychoteuthis borealijaponicus

Collected 1963, North Pacific, by R. Hitz.
RV John N. Cobb. Parts saved: 2 entire specimens.

NMML 360. Onychoteuthis borealijaponicus

Collected 29 June 1967, lat. 48°00' N, long. 176°21' W.
RV George B. Kelez, cruise 41, set 6. Parts saved:
1 entire specimen.

NMML 361. Onychoteuthis borealijaponicus

Collected September 1969, lat. 51°30' - 52°30' N,
long. 160°00' W, by W. Ames. RV George B. Kelez, cruise 47,
set 42 or 43. Parts saved: 3 entire specimens - 2 males,
1 female, all immature.

NMML 362. Onychoteuthis borealijaponicus

Collected 7 September 1969, lat. 51°00' N, long. 160°00' W,
by W. Ames. RV George B. Kelez, cruise 47, set 41.
Parts saved: 4 entire specimens - females.

Family Onychoteuthidae (contd.)

NMML 363. Onychoteuthis borealijaponicus

Collected 14 June 1981, lat. 41°N, long. 180°, by C. Bouchet.

Oshoro Maru research cruise, set 3, by surface gill net.

Frozen upon capture - thawed in laboratory. Measured

14 July 83. Male, DML 227 mm, weight 231 g. Parts

saved: 1 statolith.

NMML 364. Onychoteuthis borealijaponicus

Collected 14 June 1981, lat. 41°N, long. 180°, by C. Bouchet.

Oshoro Maru research cruise, set 3, by surface gill net.

Frozen upon capture - thawed in laboratory. Measured

14 July 83. Male, DML 186 mm, weight 109 g. Parts

saved: beaks and radula.

NMML 364a. 2 statoliths of 364.

NMML 371. Onychoteuthis borealijaponicus

Collected 20 July 1982, lat. 46°58', long. 177°31'W,

by P. J. Gearin. By surface gill net. Frozen upon capture,

thawed and measured in laboratory 20 July 1983. Female,

nidamental gland length 59 mm, DML 294 mm, weight 671 g.

Parts saved: beaks and radula.

NMML 371a. 2 statoliths of 371.

Family Onychoteuthidae (contd.)

NMML 331. Onychoteuthis banksii

Collected 9 April 1968, lat. 12°51'N, long. 93°18'W. From the stomach of Stenella sp., specimen CV285. Parts saved: fragments of 3 specimens, buccal masses of 4, including 4 pair beaks, and 1 pair beaks.

NMML 332. Onychoteuthis banksii

Collected 9 April 1968, lat. 12°51'N, long. 93°18'W. From the stomach of Stenella sp, specimen CV285. Loaned to C. F. E. Roper, U.S. National Museum, 18 October 1972.

NMML 143. Onychoteuthidae (Chaunoteuthis?)

Collected 20 May 1972, lat. 15°51'N, long. 105°45'W, by C. W. Oliver. MV Lois Seaver I, by dip net. Det. by C. H. Fiscus and D. Holts. Shipped to C. F. E. Roper, 18' October 1972, to verify.

NMML 208. Moroteuthis robusta

Collected 25 September 1960, off central California. From the stomach of Physeter macrocephalus, specimen Rice 287. Parts saved: 26 dorsal beaks, 22 lower beaks. Note: Three dorsal and 8 lower beaks (not paired) deposited in the collection of the Marine Biological Association of the United Kingdom Laboratory, Plymouth, England, June 1981. F12 Plymouth 81.

Family Onychoteuthidae (contd.)

NMML 241. Moroteuthis robusta

Collected 20 July 1981, lat. 50° 19.9' N, long. 174° 21.7' E, by P. J. Gearin. In surface gill net. DML 130 cm, TL 369 cm (field measurements). Parts saved: 1 pair beaks, stomach contents.

NMML 329. Moroteuthis robusta

Collected 8 September 1962, off central California. From stomach of male P. macrocephalus, specimen Rice-723. Parts saved: 1 pair beaks and radula.

NMML 330. Moroteuthis robusta

Collected 20 May 1970, lat. 46° 45' N, long. 126° 58' W. From stomach of C. ursinus, specimen US70-318. Parts saved: 1 pair beaks.

NMML 336. Moroteuthis robusta

Collected (date unknown) off west coast Vancouver Island, British Columbia, by F. Wilke. From stomach of male P. macrocephalus. Parts saved: 3 dorsal and 6 lower beaks.

NMML 337. Moroteuthis robusta

Collected 21 May 1965, lat. 37° 49' N, long. 123° 27' W. From stomach of C. ursinus, specimen US65-110. Parts saved: cartilagenous end cone of gladius and flesh.

NMML 338. Moroteuthis robusta

Collected 23 August 1959, off central California. From the stomach of a male P. macrocephalus, specimen Rice 128. Parts saved: cartilagenous end cone of gladius.

Family Onychoteuthidae (contd.)

NMML 339. Moroteuthis robusta

Collected 25 October 1965, off central California. From stomach of male P. macrocephalus, specimen Rice 1965-155. Parts saved: 1 pair beaks, radula, and cartilagenous end cone and gladius fragment.

NMML 340. Moroteuthis robusta

Collected 24 July 1969, off central California. From stomach of male P. macrocephalus, specimen Rice 1969-158. Parts saved: 3 lower beaks.

NMML 341. Moroteuthis robusta

Collected 12 May 1970, off central California. From stomach of female P. macrocephalus, specimen Rice 1970-22. Parts saved: 2 pair beaks, the smaller pair a good example of color development and for comparison with similar size O. boreali-japonicus.

NMML 351. Moroteuthis robusta

Collected 5 September 1963, off central California. From stomach of male P. macrocephalus, specimen Rice 932. Parts saved: 1 gladius fragment and cartilagenous end cone.

Family Onychoteuthidae (contd.)

NMML 352. Moroteuthis robusta

Collected 8 March 1966, lat. 35°18' N, long. 121°44' W, by R. Stroud. Picked up dead on surface. Parts saved: gladius and cartilagenous end cone (end cone 257 mm).

NMML 353. Moroteuthis robusta

Collected 1963, off Oregon-Washington. RV John N. Cobb. Parts saved: 1-entire specimen, DML 346 mm.

NMML 354. Moroteuthis robusta (Pattie 1968)

Collected January 1965, off Strait of Juan de Fuca, by B. H. Pattie. By otter trawl. Parts saved: 2 arms, gladius, radula, DML 860 mm. Cartilagenous end cone and beaks loaned to I. B. MacAskie, Fish. Res. Board of Canada, Nanaimo, B. C., 13 November 1970.

NMML 388. Moroteuthis robusta

Collected 1 November 1967, off central California. From the stomach of a female P. macrocephalus, specimen Rice 1967-234. Parts saved: 1 dorsal beak.

NMML 389. Moroteuthis robusta

Collected 24 July 1969, off central California. From the stomach of a male P. macrocephalus, specimen Rice 1969-157. Parts saved: 1 pair beaks and radula (nice example of relatively small beaks).

Order Teuthoidea
Suborder Oegopsida
Family Gonatidae

NMML 180. Gonatus madokai?

Collected (no date), North Pacific, probably
from Pacific Salmon Investigations. Parts saved: 4 entire
specimens, DML's 97, 175, 150, 180 mm.

NMML 379. Gonatus madokai

Collected 27 July 1982, lat. 52°56.8' N, long. 176°01.2' W,
by R. W. Mercer. MV Dominator, cruise 82-1, haul 70,
by midwater trawl. Depth 16 fathoms, bottom 2,000 fathoms.
Time 1235. DML 210 mm, weight 45 g. Parts saved: 1 entire
specimen. Det. K. Jefferts.

NMML 379a. Beaks and radula of 379.

NMML 179. Gonatus middendorffi

Collected 8 June 1970, lat. 51°03' N, long. 175°01' W.
RV George B. Kelez, cruise 49, set 30, by surface gill net.
Male, DML 295 mm. Parts saved: 1 entire specimen.

NMML 179a. Beaks of 179.

NMML 183. Gonatus middendorffi

Collected 15 July 1966, lat. 50°37' N, long. 176°22' W,
by R. D. Carlson. MV Paragon, cruise 38, set 16. Parts saved:
entire specimen, DML 257 mm. (tentacle club - 2 large hooks
followed by a row of small hooks). Det. T. Kubodera and
K. Jefferts, 21 March 1983.

NMML 183a. Gonatus middendorffi

Buccal mass and pen of 183 (type "B").

Family Gonatidae (contd.)

NMML 185. Gonatus middendorffi

Collected 7 August 1968, lat. 51° 34' N, long. 176° 33' W.

RV Miller Freeman, cruise 44, set 32. Parts saved:

1 entire specimen, DML 82 mm, tentacle lengths approximately 80 mm (right tentacle club; 1 large, 1 small hook). Beaks in same jar. Det. T. Kubodera and K. Jefferts, 21 March, 1983.

NMML 187. Gonatus middendorffi

Collected (no date or location). Parts saved: 2 entire specimens, DML's 62 and 53 mm (one small hook on tentacle club visible). Det. T. Kubodera and K. Jefferts, 21 March 1983.

NMML 188. Gonatus middendorffi

Collected (no date or location). Parts saved: 1 entire specimen, DML 99 mm (one tentacle club, 1 large hook, 1 smaller hook distal, 1 or more proximal hooks). Beaks in same jar. Det. T. Kubodera and K. Jefferts, 21 March 1983.

NMML 205. Gonatus middendorffi

Collected 31 July 1973, lat. 55° 58' N, long. 170° 12' W.

From stomach of C. ursinus, specimen US73-185. Parts saved: 2 entire specimens, DML's 51 and 40 mm (one hook visible on tentacle clubs). Det. T. Kubodera and K. Jefferts, 21 March 1983.

Family Gonatidae (contd.)

NMML 263. Gonatus middendorffi

Collected August 1971, between lat. 51°-52"N, long. 170°W-170°E. RV George B. Kelez, cruise 53, by surface gill net. Female, DML 322 mm, preserved weight 316 g. Parts saved: 1 entire specimen. (Note: from 2nd bag examined 16 September 1971 by C. H. Fiscus). Det. T. Kubodera and K. Jefferts 21 March 1983.

NMML 263a. Beaks and radula of 263.

NMML 410. Gonatus middendorffi

Collected 25 July 1982, lat. 58°4.3' N, long. 179°33.9' W, by R. W. Mercer. MV Dominator, cruise 82-1, haul 64, by midwater trawl. Depth 350 fathoms, bottom 1,970 fathoms. Time 0045. DML 220 mm. Parts saved: 1 entire specimen. Det. K. Jefferts and T. Kubodera.

NMML 410a. Beaks and radula of 410.

NMML 181. Gonatus onyx

Collected 9 January 1961, lat. 38°42' N, long. 123°51' W, by C. H. Fiscus. Night Light Station 6-61. Water temperature 11°C. Parts saved: 6 entire specimens DML's 63, 55, 42, 45, --, 36 mm.

NMML 181a. Lower beak of largest specimen of 181.

NMML 191. Gonatus onyx

Collected 10 January 1961, lat. 38°08' N, long. 123°35' W, by C. H. Fiscus. Night Light Station 7-61. Parts saved: 14 entire specimens. DML size range 38-55 mm.

Family Gonatidae (contd.)

NMML 191a. Gonatus onyx

Arms and tentacles of 2 specimens of 191.

NMML 191b. Gonatus onyx

Gladii of 2 specimens of 191.

NMML 191c. Gonatus onyx

Beaks of specimens of 191. Radula 5-rowed.

DML's of specimens 191a-b-c, 45 to 46 mm.

NMML 191d. Beaks of 55 mm DML specimen of 191.

NMML 196. Gonatus onyx

Collected 6 January 1961, lat. 37°41'N, long. 123°29'W,
by C. H. Fiscus. Night Light Station 5-61. Surface water
temperature 11°C. Parts saved: 2 entire specimens,
DML's 58 mm and 60 mm. Very good condition, not sexed.

NMML 197. Gonatus onyx

Collected 13 March 1961, lat. 37°31'N, long. 123°06'W, by
C. H. Fiscus. Night Light Station 20-61. Parts saved:
1 entire specimen, DML 22 mm.

NMML 405. Gonatus onyx?

Collected 13 March 1961, lat. 37°31'N, long. 123°06'W,
by C. H. Fiscus. Night Light Station 20-61. Surface water
temperature 13°C. Parts saved: 1 entire specimen. Det.
K. Jefferts. Note: Jeffert's comment, larval, no arm hooks,
alternating 3 and 2 rows of suckers on tentacular stalk.

Family Gonatidae (contd.)

NMML 411. Gonatus tinro

Collected 25 July 1984, lat. 58°4.3'N, long. 179°33.9'W, by R. W. Mercer. MV Dominator, cruise 82-1, haul 64, by midwater trawl. Depth 350 fathoms, bottom 1970 fathoms. Time 0045. Female, DML 184 mm, LRL 5mm. Parts saved: 1 entire specimen. Det. K. Jefferts and T. Kubodera.

NMML 411a. Beaks of 411.

NMML 412. Gonatus tinro

Collected 25 July 1984, lat. 58°4.3'N, long. 179°33.9'W, by R. W. Mercer. MV Dominator, cruise 82-1, haul 64, by midwater trawl. Depth 350 fathoms, bottom 1,970 fathoms. Time 0045. Sex male, DML 147 mm, LRL 4.2 mm. Parts saved: 1 entire specimen. Det. K. Jefferts and T. Kubodera.

NMML 412a. Beaks and radula of 412.

NMML 413. Gonatus tinro

Collected 1 August 1982, lat. 53°13.6'N, long. 163°50.3'W, by R. W. Mercer. MV Dominator, cruise 82-1, haul 75, by midwater trawl. Depth 372 fathoms, bottom 2,300 fathoms. Time 0031. Parts saved: 1 entire specimen. Det. K. Jefferts and T. Kubodera.

NMML 413a. Beaks and radula of 413.

NMML 413b. Spermatophores of 413. 1 spermatophore length 13 mm, 1 - 11 mm, 1 - incomplete.

Family Gonatidae (contd.)

NMML 380. Gonatus pyros

Collected 1 August 1982, lat. 53° 13; 6' N, long. 163° 50. 3' W,
by R. W. Mercer. MV Dominator, cruise 82-1; haul 75, by midwater
trawl. Depth 372 fathoms, bottom 2,300 fathoms. Time 0031.

DML 92 mm, weight 31 g. Parts saved: 1 entire specimen.

Det. K. Jefferts.

NMML 380a. Beaks and radula of 380.

NMML 407. Gonatus pyros

Collected 28 May 1964, lat. 45° 35' N, long. 124° 53. .3W.

RV Commando, by shrimp trawl. Depth 750 fathoms. Parts

saved: 1 entire specimen. Det. K. Jefferts. Note:

(Jeffert's comment) DML <35 mm, has remnants of optic photophore.

NMML 125. Gonatus sp. (fabricii type) (see footnote 4, p. 86)

Collected 26 May 1964, off central California.

From stomach of female P. macrocephalus, specimen Rice 1047.

Parts saved: 2 lower beaks, 1 dorsal beak.

NMML 126. Gonatus sp. (fabricii type)

Collected 20 April 1965, off central California. From

stomach of male P. macrocephalus, specimen Rice 1965-5.

Parts saved: 1 lower beak.

NMML 128. Gonatus sp. (fabricii type)

Collected 1 December 1966, off central California. From

stomach of female P. macrocephalus, specimen Rice

1966-180. Parts saved: 1 pair beaks, Fiscus - type "2".

Family Gonatidae (contd.)

NMML 129a. Gonatus sp. (fabricii type)

Collected 9 December 1966, off central California. From stomach of male P. macrocephalus, specimen Rice 1966-181.

Parts saved: 1 lower beak.

NMML 134. Gonatus sp. (fabricii type)

Collected 17 October 1967, off central California. From stomach of male P. macrocephalus, specimen Rice

1967-231. Parts saved: 1 lower beak (type "2").

NMML 135a. Gonatus sp. (fabricii type)

Collected 16 November 1967, off central California. From stomach of male P. macrocephalus, specimen Rice 1967-241.

Parts saved: 1 lower beak (type "2").

NMML 136. Gonatus sp. (fabricii type)

Collected 23 April 1968, off central California. From stomach of female P. macrocephalus, specimen Rice 1968-108.

Parts saved: 2 lower beaks (type "2"). F15 Plymouth 1981.

Det. M. R. Clarke.

NMML 138. Gonatus sp. (fabricii type)

Collected 13 June 1969, off central California. From stomach of female P. macrocephalus, specimen Rice 1969-137. Parts saved:

1 lower beak (type "2"). F17 Plymouth 1981. Det. M. R. Clarke.

Family Gonatidae (contd.)

- NMML 139. Gonatus sp. (fabricii type)
 Collected 25 February 1966, lat. 37°46' N, long. 123°26' W.
 From stomach of Lagenorhynchus obliquidens, specimen
 3764. Parts saved: 1 pair beaks (type "2").
- NMML 141. Gonatus sp.
 Collected (date and location unknown (Alaska?)). From stomach
 of male Eumetopias jubatus, specimen SUV-5-76. Parts saved:
 1 lower beak.
- NMML 184. Gonatus sp.
 Collected (no date or location). RV John N. Cobb.
 Specimen 1963. Parts saved: 1 gladius only. DML 180 mm,
 gladius length 170 mm.
- NMML 186. Gonatus sp.
 Collected 27 November 1966, off central California

 From the stomach of female P. macrocephalus, specimen
 Rice 1966-169. Parts saved: 1 entire specimen. Badly
 damaged, beaks dissected out (type "A").
- NMML 190. Gonatus sp.
 Collected 1963 (no location). RV John N. Cobb DML 180 mm.
 Parts saved: beaks and radula only. (type "B").
- NMML 242. Gonatus sp.
 Collected 3 November 1981, lat. 55°40' N, long. 168°14' W.
 RV Miller Freeman, cruise 81-6, haul 38, by trawl. Depth 73
 fathoms. Surface temperature 6.5°C, trawl temperature 5.6°C.
 Frozen fresh. DML 30 mm approximately. Parts saved:
 1 entire specimen (in poor shape). Det. K. Jefferts.

Family Gonatidae (contd.)

NMML 296. Gonatus sp.

Collected 29 July 1973, lat. 56°08'N, long. 171°01'W. From the stomach of C. ursinus, specimen US73-110. Parts saved: 1 pair beaks (note: does not quite match middendorffi or fabricii type; darkening on wings quite different from approximately same size middendorffi).

NMML 297. Gonatus sp.

Collected 25 August 1973, lat. 56°01'N, long. 170°07'W. From the stomach of C. ursinus, specimen US73-360. Parts saved: arms/tentacles and buccal, mass/radula and 1 pair beaks. Resembles undescribed specimen of T. Kubodera. Examined 21 March 1983 by T. Kubodera and K. Jefferts.

NMML 305. Gonatus sp. (type "B")

Collected 30 May 1970, lat. 46°13'N, long. 125°20'W. From the stomach of C. ursinus, specimen US70-351. Parts saved: 3 dorsal, 2 lower beaks.

NMML 406. Gonatus sp.

Collected 13 April 1964, lat. 35°52'N, long. 121°52'W, by C. H. Fiscus. Parts saved: 1 entire specimen. Det. K. Jefferts. Note: (Jeffert's comment) larval (about 6 mm), has 5 alternating rows of suckers on stalk. Probably onyx or californiensis.

NMML 408. Gonatus sp.

Collected 28 may 1964, lat. 45°35'N, long. 124°53.3' W. RV Commando, shrimp trawl, depth 750 fathoms. Parts saved: 1 entire specimen. Det. K. Jefferts. Note: (Jeffert's comment) not pyros, no trace of optic photophore, clubs missing.

Family Gonatidae (contd.)

Note: The following 14 numbers (275-288) were originally described by Fiscus as Gonatus sp., beak type "A", from fragmentary remains and a few relatively entire specimens with 5-rowed radulas and buccal masses with both dorsal and lower beaks. This collection was formed in 1970, with a few later additions. There is some resemblance to NMML 136, Gonatus sp. (fabricii type), although the latter are much larger. A description of these beaks will be made in the near future. Not all species from the genus Gonatus are represented in the collection at present - revisions of names should be expected.

NMML 275. Gonatus sp. (type "A")

Collected 27 March 1970, lat. 46°27' N, long. 124°25' W. From the stomach of C. ursinus, specimen US70-125. Parts saved: 2 dorsal, 1 lower beaks.

NMML 276. Gonatus sp. (type "A")

Collected 30 March 1970, lat. 47°17' N, long. 124°58' W. From the stomach of C. ursinus, specimen US70-135. Parts saved: 2 dorsal, 1 lower beaks.

NMML 277. Gonatus sp. (type "A")

Collected 2 May 1970, lat. 46°38' N, long. 126°37' W. From the stomach of C. ursinus, specimen US70-209. Parts saved: 4 dorsal, 5 lower beaks.

Family Gonatidae (cont'd.)

NMML 278. Gonatus sp. (type "A")

Collected 4 May 1970, lat. 46°08' N, long. 125°22' W. From the stomach of C. ursinus, specimen US70-225. Parts saved: 3 dorsal, 3 lower beaks.

NMML 279. Gonatus sp. (type "A")

Collected 14 May 1970, lat. 46°38' N, long. 124°51' W. From the stomach of C. ursinus, specimen US70-235. Parts saved: 1 pair beaks.

NMML 280. Gonatus sp. (type "A")

Collected 15 May 1970, lat. 46°21' N, long. 124°53' W, from the stomach of C. ursinus, specimen US70-237. Parts saved: 4 pair beaks.

NMML 281. Gonatus sp. (type "A")

Collected 20 May 1970, lat. 46°41' N, long: 127°28' W. From the stomach of C. ursinus, specimen US70-307. Parts saved: 2 pair beaks.

NMML 282. Gonatus sp. (type "A")

Collected 20 May 1970, lat. 46°41' N, long. 127°21' W. From the stomach of C. ursinus, specimen US70-310. Parts saved: 1 pair beaks in buccal mass.

NMML 283. Gonatus sp. (type "A")

Collected 24 May 1970, lat. 47°38' N, long. 128°19' W. From the stomach of C. ursinus, specimen US70-325. Parts saved: 3 pair beaks, 2 buccal masses, and crown.

Family Gonatidae (contd.)

NMML 284. Gonatus sp. (type "A")

Collected 20 May 1970, lat. 46°41'N, long. 127°27'W. From the stomach of C. ursinus, specimen US70-308. Parts saved: 1 dorsal, 2 lower beaks.

NMML 285. Gonatus sp. [type "A"]

Collected 24 May 1970, lat. 47°38'N, long. 128°27'W. From the stomach of C. ursinus; specimen US70-326. Parts saved: 4 pair beaks.

NMML 286. Gonatus sp. (type "A")

Collected 30 May 1970, lat. 46°13'N, long. 125°20'W. From the stomach of C. ursinus, specimen US70-351. Parts saved: 2 dorsal, 1 lower beak.

NMML 287. Gonatus sp. (type "A")

Collected 30 May 1970, lat. 46°13'N, long. 125°22'W. From the stomach of C. ursinus, specimen US70-352. Parts saved: 2 pair beaks.

NMML 288. Gonatus sp. (type "A")

Collected 31 July 1973, lat. 56°01'N, long. 70°12'W. From the stomach of C. ursinus, specimen US73-179. Parts saved: 9 pair beaks.

Family Gonatidae (contd.)

Note: The following 7 numbers (289-295) were originally described by Fiscus as Gonatus sp., beak type, "B", listed as Gonatus from fragmentary remains, heads and arms/tentacles, buccal masses with 5-rowed radulas and both dorsal and lower beaks. This collection was formed in 1970 by Fiscus. These beaks closely resemble several already listed in the collection as Gonatus middendorffi. A description of these beaks will be made in the near future. Not all species from the genus Gonatus are represented in the collection at present - revisions of names should be expected.

NMML 289. Gonatus sp. (type "8")

Collected 2 May 1970, lat. 46°38' N, long. 126°37' W. From the stomach of C. ursinus, specimen US70-209. Parts saved: 1 pair beaks.

NMML 290. Gonatus sp. (type "B")

Collected 17 May 1970, lat. 46°28' N, long. 128°28' W. From the stomach of C. ursinus, specimen US70-266. Parts saved: 1 head/arms/tentacles and buccal mass with 5 rowed radula and 1 pair beaks.

NMML 291. Gonatus sp. (type "B")

Collected 19 May 1970, lat. 46°46' N, long. 128°35' W. From the stomach of C. ursinus, specimen US70-293. Parts saved: 1 pair beaks.

Family Gonatidae (contd.)

- NMML 292. Gonatus sp. (type "B")
 Collected 20 May 1970, lat. 46°41' N, long. 127°27' W. From the stomach of C. ursinus, specimen US70-309. Parts saved: 1 pair beaks.
- NMML 293. Gonatus sp. (type "B")
 Collected 24 May 1970, lat. 47°29' N, long. 128°39' W. From the stomach of C. ursinus, specimen US70-328. Parts saved: 1 pair beaks.
- NMML 294. Gonatus sp. (type "B")
 Collected 24 May 1970, lat. 47°24' N, ' long; 128°40' W. From the stomach of C. ursinus, specimen US70-336. Parts saved: 1 pair beaks.
- NMML 295. Gonatus sp. (type "B")
 Collected 24 May 1970, lat. 47°24' N, long. 128°38' W. From the stomach of C. ursinus, specimen. US70-337. Parts saved: 1 pair beaks.
- NMML 157. Gonatopsis borealis
 Collected 7 February 1970, lat. 49°40' N, long. 155°00' W.
 RV George B. Kelez; cruise 48, set 5, mesh size 2".
 Parts saved: 3 entire specimens, DML 182 mm, male;
 186 mm, male; 160 mm, male?
- NMML 158. Gonatopsis borealis
 Collected 28 January 1971, lat. 50°10' N, long. 160°00' W.
 RV George B. Kelez, cruise 51, set 2, mesh size 2". Parts saved: 4 entire specimens, male, DML's 145, 162, 140, 142 mm.

Family Gonatidae (contd.)

NMML 159. Gonatopsis borealis

Collected 29 January 1971, lat. 49°30' N, long. 160°00' W.

RV George B. Kelez, cruise 51, set 3, mesh size 2".

Parts saved: 2 entire specimens.

NMML 160. Gonatopsis borealis

Collected 22 February 1970, lat. 48°25' N, long. 163°25' W.

RV George B. Kelez, cruise 48, set 10. Parts saved:

2 entire specimens, DML's 190 and 190 mm, both adult males.

NMML 161. Gonatopsis borealis

Collected 23 February 1970, lat. 49°16' N, long. 161°44' W.

RV George B. Kelez, cruise 48, set 11, mesh size 2 1/2".

Parts saved: 1 entire specimen, DML 195 mm.

NMML 162. Gonatopsis borealis

Collected 5 February 1970, lat. 51°00' N, long. 155°00' W.

RV George B. Kelez, cruise 48, set 3, mesh size 2".

Parts saved: 1 entire specimen, female.

NMML 163. Gonatopsis borealis

Collected 1 March 1970, lat. 53°30' N, long. 160°00' W.

RV George B. Kelez, cruise 48, set 16, mesh size 2".

Parts saved: 1 entire specimen, DML approximately 140 mm.

Family Gonatidae (contd.)

NMML 164. Gonatopsis borealis

Collected 1 February 1971, lat. 50°10' N, long. 165°00' W.
RV George B. Kelez, cruise 51, set 5. Female, DML 150 mm
approximately. Parts saved: 1 entire specimen.

NMML 165. Gonatopsis borealis

Collected 3 August 1972, lat. 51°00' N, long. 177°20' E.
RV George B. Kelez, cruise 54, set 15. Female, DML 145 mm
approximately. Parts saved: 1 entire specimen.

NMML 166. Gonatopsis borealis

Collected 11 September 1971, lat. 51°31' N, long. 179°21.5' E,
by T. Newby. Depth 83 fathoms. Time 0455. Parts
saved: 1 entire specimen, DML 85 mm.

NMML 167. Gonatopsis borealis

Collected (no date or location). Parts saved: 1 entire
specimen, DML 142 mm.

NMML 168. Gonatopsis borealis

Collected (no date), along 176°W longitude, probably
Pacific Salmon Investigations material. Female,
DML approximately 150 mm; male, DML approximately 130 mm.
Parts saved: 2 entire specimens.

NMML 168a. Gonatopsis borealis

Beaks of 168.

Family Gonatidae (contd.)

NMML 169. Gonatopsis borealis

Collected 28 March 1962, lat. 49° 03' N, long. 154° 54' W, by R. D. Carlson. MV Bertha Ann, set 17. Water temperature 5.6°C. Parts saved: 1 entire specimen, internal organs missing, DML 200 mm.

NMML 169a. Gonatopsis borealis

Beaks, radula and gladius of 169.

NMML 170. Gonatopsis borealis

Collected (no date), North Pacific. Parts saved:
1 head and arms, DML 157 mm.

NMML 170a. Gonatopsis borealis

Beaks of 170.

NMML 171. Gonatopsis borealis

Collected 4 February 1970, lat. 51° 30' N, long. 155° 00' W.
RV George B. Kelez, cruise 48, set 2, mesh size 2". Male,
DML 145 mm. Parts saved: 1 entire specimen.

NMML 172. Gonatopsis borealis

Collected 23 May 1969, lat. 50° 45' N, , long. 165° 00' W.
RV George B. Kelez, cruise 46, set 18. Female, DML 248 mm.
Parts saved: 1 entire specimen. Beaks in separate vial.

NMML 173. Gonatopsis borealis

Collected 8 May 1969, lat. 50° 00' N, long. 165° 00' W.
RV George B. Kelez, cruise 46, set 10. Parts saved:
2 entire specimens, females, DML's 213 and 215 mm.

Family Gonatidae (contd.)

NMML 173a. Gonatopsis borealis

Beaks of specimens 173.

NMML 174. Gonatopsis borealis

Collected 1 July 1966, lat. 50°15' N, long. 176°2' W.

MV Paragon, cruise 38, set 6. Parts saved: 1 pair beaks, gladius and radula.

NMML 175. Gonatopsis borealis

Collected (no date), North Pacific, probably from Pacific Salmon Investigations. Specimen photographed, DML 170 mm. Parts saved: 1 entire specimen.

NMML 176. Gonatopsis borealis

Collected 11 July 1966, lat. 50°30' N, long. 176°22' W.

MV Paragon, cruise 38, set 12. Parts saved: 1 entire specimen.

NMML 177. Gonatopsis borealis

Collected (no date) North Pacific. Parts saved: 4 gladii.

NMML 178. Gonatopsis borealis

Collected (no date) North Pacific. Parts saved: 1 pair beaks, DML 166 mm.

NMML 200. Gonatopsis borealis

Collected 1963, North Pacific. RV John N. Cobb (probably off Columbia River), by R. Hitz. Parts saved: 3 entire specimens, DML's 115, 75, 58 mm.

NMML 201. Gonatopsis borealis

Collected 1 July 1966, lat. 50°15' N, long. 176°22' W, by R. D. Carlson. MV Paragon, cruise 38, set 6. Parts saved: 1 entire specimen, DML 115 mm.

Family Gonatidae (contd.)

NMML 202. Gonatopsis borealis

Collected 11 July 1966, lat. 50°30' N, long. 176°22' W,
by R. D. Carlson. MV Paragon, cruise 38, set 12.
Parts saved: beaks, radula and gladius only.

NMML 203. Gonatopsis borealis

Collected 26 October 1966, off central California.
From stomach of male P. macrocephalus, specimen
Rice 1966-155. Parts saved: arms, buccal mass - beaks
dissected out.

NMML 206. Gonatopsis borealis

Collected 1 December 1966, off central California. From
stomach of male P. macrocephalus, specimen Rice 1966-173.
Parts saved: head, arms, buccal mass only. Beaks and radula
dissected out 8 May 1981. F11 Plymouth 1981.

NMML 206a. Gonatopsis borealis

Beaks and radula of 206.

NMML 209. Gonatopsis borealis

Collected 5 September 1963, off central California. From
stomach of male P. macrocephalus, specimen Rice 932.
Parts saved: 1 entire specimen (the 26.5 cm gladius from
the whole specimen). Lower beak separated and 2 gladii:
27.5 cm, 26.5 cm. F2 Plymouth 1981.

NMML 209a. Gonatopsis borealis

Lower beak of 209.

Family Gonatidae (contd.)

NMML 249. Gonatopsis borealis²

Collected 21 October 1981, lat. 54°40' N, long. 166°21' W.

RV Miller Freeman, cruise 81-6, haul 18, by trawl. Depth of trawl 100 fathoms, bottom 180 fathoms. Trawl temperature 5.0°C. Frozen upon capture - thawed in laboratory. Male, DML 124 mm, weight 82 g. Parts saved: 1 entire specimen.

NMML 249a. Beaks and radula of 249.

NMML 249b. 2 statoliths of 249.

NMML 250. Gonatopsis borealis

Collected 21 October, 1981, lat. 54°40' N, long. 166°21' W.

RV Miller Freeman, cruise 81-6, haul 18, by trawl. Depth of trawl 100 fathoms, bottom 180 fathoms. Trawl temperature 5.0°C. Frozen upon capture - thawed in laboratory. Female, DML 107 mm, weight 55 g. Parts saved: 1 entire specimen.

NMML 250a. Beaks and radula of 250.

NMML 250b. 2 statoliths of 250.

²Cruise 81-6, haul 18 contained 13 Berryteuthis (one-mantle only) and 7 Gonatopsis (one-mantle only). All Berryteuthis in much worse shape than Gonatopsis, most chromatophores gone, color white, tissue soft, many tentacles missing. Gonatopsis retained skin and chromatophores, tissue hard in comparison to Berryteuthis. Berryteuthis beaks and radulas extracted easily during examination. Gonatopsis beaks were tight to surrounding tissues and had to be extracted after a day of soaking.

Family Gonatidae (contd.)

NMML 298. Gonatopsis borealis

Collected 26 July 1959, lat. 51°31' N, long. 176°42' W.

By surface trawl. Parts saved: 15 entire specimens.

DML's 29, 30, 37, 38, 44, 45, 45, 51, 52, 54, 57, 58, 60, 67, 76 mm (measured 27 January 1983, some wear from length of time in storage).

NMML 298a. 1 gladius (60 mm), and 1 dorsal beak of 298.

NMML 299. Gonatopsis borealis

Collected 10 January 1961, lat. 38°08' N, long. 123°35' W, by C. H. Fiscus. Night Light Station 7-61. Water temperature 11°C. Parts saved: 1 entire specimen, DML approximately 30 mm (measured 25 January 1983).

NMML 300. Gonatopsis borealis

Collected 17 January 1961, lat. 35°18' N, long. 122°16' W, by C. H. Fiscus. Night Light Station 8-61. Water temperature 13°C. Parts saved: 1 entire specimen, DML 40 mm (measured 25 January 1983).

NMML 301. Gonatopsis borealis

Collected 20 January 1961, lat. 34°50' N, long. 121°40' W, by C. H. Fiscus. Night Light Station 9-61. Water temperature 13.5°C. Parts saved: 15 entire specimens, DML's 31, 32, 35, 37, 38, 39, 39, 42, 42, 45, 45, 46, 50, 53, 63 mm (measured 27 January 1983, some wear from length of time in storage).

Family Gonatidae (contd.)

NMML 301a. 2 gladius of 301.

NMML 301b. 2 pair beaks, 7 rowed radulas from additional specimens
DML 41 and 71 mm, of 301.

NMML 301c. Tentacles of specimens listed in 301a and 301b.

NMML 302. Gonatopsis borealis

Collected 31 January 1961, lat. 33°32' N, long. 120°48' W,
by C. H. Fiscus. Night Light Station 12-61, Parts saved:
1 entire specimen, DML approximately 60 mm (measured 23 January
1983).

NMML 303. Gonatopsis borealis

Collected 20 August 1964, lat. 55°57' N, long. 169°36' W,
by C. H. Fiscus. Night Light Station 7-64. Parts saved:
1 entire specimen, DML approximately 38 mm (measured
25 January 1983). Det. T. Okutani.

NMML 304. Gonatopsis borealis

Collected 30 May 1970, lat. 46°13' N, long. 125°22' W. From the
stomach of C. ursinus, specimen US70-352. Parts saved: buccal
masses from 3.

NMML 306. Gonatopsis borealis

Collected (no date), North Pacific. Parts saved: gladius,
DML 157 mm.

Family Gonatidae (contd.)

NMML 307. Gonatopsis borealis

Collected (no date), North Pacific. Parts saved:
gladius, DML 166 mm.

NMML 308. Gonatopsis borealis

Collected 12 December 1960, lat. 38°41'N, long. 124°25'W,
by C. H. Fiscus. Night Light Station 4-61. Water
temperature 12°C. Parts saved: 11 entire specimens,
DML's 55, 51, 50, 47, 47, 42, 41, 37, 37, 36, 34 mm (measured
27 January 1983, some wear due to length of time in storage).

NMML 309. Gonatopsis borealis

Collected 6 January 1961, lat. 37°41'N, long. 123°29'W,
by C. H. Fiscus. Night Light Station 5-61. Water
temperature 11°C. Parts saved: 3 entire specimens,
DML's 50, 48, 42 mm (measured 27 January 1983, some wear due to
length of time in storage).

NMML 310. Gonatopsis borealis

Collected 9 January 1961, lat. 38°42'N, long. 123°51'W,
by C. H. Fiscus. Night Light Station 6-61. Water
temperature 11°C. Parts saved: 15 entire specimens, DML's
51, 47, 43, 42, 38, 38, 37, 35, 35, 34, 32, 31, 27, 25 mm,
1 unmeasurable (measured 27 January 1983, some wear due to
length of time in storage).

Family Gonatidae (contd.)

NMML 311. Gonatopsis borealis

Collected 22 January 1961, lat. 33°51'N, long. 120°51'W, by C. H. Fiscus. Night Light Station 11-61. Water temperature 13.5°C. Parts saved: 2 entire specimens, DML's 42 and 45 mm (some wear due to length of time in storage).

NMML 312. Gonatopsis borealis

Collected 8 February 1961, lat. 35°19'N, long. 121°43'W, by C. H. Fiscus. Night Light Station 14-61. Water temperature 14°C. Parts saved: 1 entire specimen, DML 57 (some wear due to length of time in storage).

NMML 313. Gonatopsis borealis

Collected 6 June 1965, lat. 37°38'N, long. 123°14'W. From the stomach of C. ursinus, specimen US65-248. Parts saved: 1 gladius, arms, buccal mass, radula, beaks.

NMML 314. Gonatopsis borealis

Collected 20 May 1970, lat. 46°43'N, long. 127°38'W. From the stomach of C. ursinus, specimen US70-302. Parts saved: 1 head, arms, buccal mass, radula, beaks.

NMML 333. Gonatopsis borealis

Collected 12 May 1970, off central California. From the stomach of female P. macrocephalus, specimen Rice 1970-22. Parts saved: 1 relatively entire specimen, 3 lower beaks, 1 gladius fragment.

Family Gonatidae (contd.)

NML 334. Gonatopsis borealis

Collected 24 May 1970, lat. 47° 38' N, long. 128° 19' W. From the stomach of C. ursinus, specimen US70-325. Parts saved: 1 entire specimen, plus 2 arms and buccal masses - includes beaks. DML's 138, 135, 128 mm.

NMML 335. Gonatopsis borealis

Collected 10 June 1968, lat. 53° 15' N, long. 164° 50' W. From the stomach of C. ursinus, specimen US68-820. Parts saved: 23 heads, arms, buccal masses.

NMML 372. Gonatopsis borealis

Collected 24 June 1982, lat. 47° 55' N, long. 177° 39' E, by P. J. Gearin. By surface gill net. Frozen upon capture, thawed and measured in laboratory 20 July 1983.

Female, DML 262, nidamental gland length - left 109 mm, right 114 mm - weight 678 g. Mature, eggs ripe. Parts saved: beaks and radula.

NMML 372a. 1 statolith of 372.

NMML 391. Gonatopsis borealis

Collected 27 July 1982, lat. 53° 19' N, long. 176° 43.4' W, by R. W. Mercer. MV Dominator, cruise 82-1, haul 69, by midwater trawl. Depth 10 fathoms, bottom 2,000 fathoms. Time 0230. DML 39 mm, weight 3.1 g. Parts saved: 1 entire specimen, beaks separate in same vial. Det. K. Jefferts.

Family Gonatidae (contd.)

NMML 392. Gonatopsis borealis

Collected 27 July 1982, lat. 53° 19' N, long. 176° 43.4' W, by R. W. Mercer. MV Dominator, cruise 82-1, haul 69, by midwater trawl. Depth 10 fathoms, bottom 2,000 fathoms. Time 0230. DML 41 mm, weight 3.9 g. Parts saved: 1 entire specimen, beaks. separate in same vial.

NMML 393. Gonatopsis borealis

Collected 27 July 1982, lat. 53° 19' N, long. 176° 43.4' W, by R. W. Mercer. MV Dominator, cruise 82-1, haul 69, by midwater trawl. Depth 10 fathoms, bottom 2,000 fathoms. Time 0230. DML 44, weight 4.2 g. Parts saved: 1 entire specimen, beaks separate in same vial. Det. K. Jefferts.

NMML 394. Gonatopsis borealis

Collected 27 July 1982, lat. 53° 19' N, long. 176° 43.4' W, by R. W. Mercer. MV Dominator, cruise 82-1, haul 69, by midwater trawl. Depth 10 fathoms, bottom 2,000 fathoms. Time 0230. DML 45, weight 4.6 g. Parts saved: 1 entire specimen, beaks separate in same vial. Det. K. Jefferts.

NMML 395. Gonatopsis borealis

Collected 27 July 1982, lat. 53° 19' N, long. 176° 43.4' W, by R. W. Mercer. MV Dominator, cruise 82-1, haul 69, by midwater trawl. Depth 10 fathoms, bottom 2,000 fathoms. Time 0230. DML 50 mm, weight 7.7 g. Parts saved: 1 entire specimen, beaks separate in same vial. Det. K. Jefferts.

Family Gonatidae (cont'd)

NMML 396. Gonatopsis borealis

Collected 27 July 1982, lat. 53°19' N, long. 176°43.4' W, by R. W. Mercer. MV Dominator, cruise 82-1, haul. 69, by midwater trawl. Depth 10 fathoms, bottom 2,000 fathoms. Time 0230. DML 51 mm, weight 7.5 g. Parts saved: 1 entire specimen, beaks separate in same vial. Det. K. Jefferts.

NMML 397. Gonatopsis borealis

Collected 9 June 1980, lat. 49°09.6' N, long. 172°01.3' E, by W. A. Walker. Hoyo Maru 81, set 4, by 55 mm mesh surface gill net. Frozen upon capture, then placed in isopropyl alcohol. Female, DML 170 mm. Parts saved: 1 entire specimen. Measurements and dissection by C. H. Fiscus. Det. W. A. Walker.

NMML 397a. Beaks and radula of 397.

NMML 397b. Statoliths of 397.

NMML 398. Gonatopsis borealis

Collected 9 June 1980, lat. 49°09.6' N, long. 172°01.3' E, by W. A. Walker. Hoyo Maru 81, set 4, by 55 mm mesh surface gill net. Frozen upon capture, then placed in isopropyl alcohol. Female, DML 160 mm. Parts saved: beaks and radula. Measurements and dissection by C. H. Fiscus, 1 January 1984. Det. W. A. Walker.

Family Gonatidae (contd.)

NMML 409. Gonatopsis - (Type A of Kubodera and Okutani-)

Collected 28 November 1965, lat. 53° 30' N, long. 166° 38' W, Unalaska Bay, Unalaska I., by C. H. Fiscus. RV G. B. Reed, by shrimp trawl. Depth 60 fathoms. Parts-saved: 1 entire specimen. Det. K. Jefferts. Note: (Jeffert's comment, DML approximately 29 mm, tentacles reduced, strong chromatophore pattern on aboral surface.

NMML 189. Berryteuthis anonychus

Collected 1961, southwest of Columbia River. RV John N. Cobb, Station 24, Atomic Energy Commission Project. Parts saved: 14 small entire specimens. Det. K. Jefferts.

NMML 381. Berryteuthis anonychus

Collected 25 July 1982, lat. 58° 04.3' N, long. 179° 33.9' W, by R. W. Mercer. MV Dominator, cruise 82-1, haul 64, by midwater trawl. Depth 350 fathoms, bottom 1,970 fathoms. Time 0045. Female, DML 81 mm, weight 19 g. Parts saved: 1 entire specimen. Det. K. Jefferts.

NMML 381a. Beaks and radula of 381.

NMML 382. Berryteuthis anonychus

Collected 25 July 1982, lat. 58° 04.3' N, long. 179° 33.9' W, by R. W. Mercer. MV Dominator, cruise 82-1, haul 64, by midwater trawl. Depth 350 fathoms, bottom 1,970 fathoms. Time 0045. Female, DML 87 mm, weight 29 g. Parts saved: 1 entire specimen. Det. K. Jefferts.

NMML 382a. Beaks and radula of 382.

Family Gonatidae (contd.)

NMML 383. Berryteuthis anonychus

Collected 25 July 1982, lat. 58° 04.3' N, long. 179° 33.9' W,
by R. W. Mercer. MV Dominator, cruise 82-1; haul 64, by midwater
trawl. Depth 350 fathoms, bottom 1,970 fathoms. Time
0045. Female, DML 80 mm, weight 16 g. Parts saved:
1 entire specimen. Det. K. Jefferts.

NMML 383a. Beaks and radula of 383.

NMML 383b. Statoliths of 383.

NMML 399. Berryteutyhis anonychus

Collected 15 June 1980, lat. 51° 34.1' N, long. 173° 35.5' E,
by W. A. Walker. From stomach of Oncorhynchus nerka.
Hoyo Maru 81, set 9, by surface gill net. Initially in 10%
formalin, transferred to isopropyl alcohol. Female,
DML 93 mm, weight 27.7. Parts saved: 1 entire specimen.
Measurements in laboratory 1 January 1984 by C. H. Fiscus.
Det. W. A. Walker.

NMML 400. Berryteuthis anonychus

Collected 15 June 1980, lat. 54° 34.1' N, long. 173° 35.5' E,
by W. A. Walker. From stomach of O. nerka. Hoyo Maru 81,
set 9, by surface gill net. Initially in 10% formalin.
transferred to isopropyl alcohol. Female, DML 183 mm,
weight 25 g. Parts saved: 1 entire specimen. Measurements
in laboratory 1 January 1984 by C. H. Fiscus. Det. W. A.
Walker.

Family Gonatidae (contd.)

NMML 401. Berryteuthis anonychus

Collected 15 June 1980, lat. 51°34.1' N, long. 173°35.5' E, by W. A. Walker. From the stomach of O. nerka. Hoyo Maru 81, set 9, by surface gill net. Frozen on capture, transferred to isopropyl alcohol. Adult female, DML 92 mm, specimen greatly flattened. Parts saved: 1 entire specimen. Measurements and dissection by C. H. Fiscus, January 1984. Det. W. A. Walker.

NMML 401a. Beaks and radula of 401.

NMML 401b. Statoliths of 401.

NMML 402. Berryteuthis anonychus

Collected 15 June 1980, lat. 51°34.1' N, long. 173°35.5' E, by W. A. Walker. From the stomach of O. nerka. Hoyo Maru 81, set 9, by surface gill net. Frozen on capture, transferred to isopropyl alcohol. Adult male, spermatophones present. DML 75 mm+ (distorted), specimen greatly flattened. Parts saved: 1 entire specimen. Measurements and dissection by C. H. Fiscus, January 1984. Det. W. A. Walker.

NMML 402a. Beaks and radula of 402.

NMML 402b. Statoliths of 402.

Family Gonatidae (contd.)

NMML 403. Berryteuthis anonychus

Collected 15 June 1980, lat. 51°34.1' N, long. 173°35.5' E,
by W. A. Walker. From the stomach of nerka.
Hoyo Maru 81, set 9, by surface gill net. Frozen on capture,
transferred to isopropyl alcohol. Adult male, spermatophores
present. DML 70 mm, specimen greatly flattened. Parts
saved: 1 entire specimen. Measurements and dissection by
C. H. Fiscus, January 1984. Det. W. A. Walker.

NMML 403a. Beaks and radula of 403.

NMML 403b. Statoliths of 403.

NMML 404. Berryteuthis anonychus

Collected 6 August 1963, lat. 54°19' N, long. 166°29' W.
From the stomach of C. ursinus, specimen US63-411.
DML 15 mm. Parts saved: 1 entire specimen. Det. K. Jefferts.
Note: (Jeffert's comment) body shape as in anonychus, club tip
with only minute sucker buds. No enlarged suckers on club,
no arm hooks.

NMML 182. Berryteuthis magister

Collected August 1971, North Pacific. RV George B. Kelez,
cruise 53. Male, DML 152. Parts saved: 1 entire specimen.

NMML 192. Berryteuthis magister

Collected 1963, probably North Pacific. RV John N. Cobb.
Parts saved: 4 entire specimens DML's 108, 92, 132, 140 mm, plus
buccal mass of much larger specimen.

Family Gonatidae (contd.)

NMML 193.

Collected 10 April 1963, southwest of Columbia River,
by W. Pererya. RV John N. Cobb, in 325 fathoms.

DML approximately 240 mm. Parts saved: 1 entire specimen,
beaks intact.

NMML 193a. 2 entire specimens, DML's 220 and 200 mm, of 193 (same haul).

NMML 193b. 1 buccal mass of 193.

NMML 194. *Berryteuthis magister*

Collected 26 June 1973, lat. 55°00' N, long. 167°31.' W, by
C. H. Fiscus. MV Mark I, cruise 73-36, station A-1, haul 1.
Depth 160 fathoms. 29 specimens, 5 of which were sent to
Plymouth, May 1981. DML's 130, 153, 162, 154, 81, 170, 84,
150, 97, 80, 76, 79, 75, 90, 102, 95, 70, 67, 82, 66, 67,
92, 68, 72, 75, 68, 65, 64, 55 mm. Not sexed. Parts
saved: 24 entire specimens.

Family Gonatidae (contd.)

NMML 195. Berryteuthis magister

Collected 26 June 1973, lat. 55°20' N, long. 168°05' W, by

C. H. Fiscus. MV Mark I, cruise 73-36, station B-18,

haul 2. 13 specimens, listed below. Parts saved:

Buccal masses of 195 a - g.

<u>DML - mm</u>	<u>Sex</u>	<u>Weight - g.</u>	<u>Parts saved*</u>	
NMML 195a.	363	F	1525	Buccal mass
NMML 195b.	153	-	110	Buccal mass
NMML 195c.	213	F	285	Buccal mass
NMML 195d.	193	F	235	Buccal mass
NMML 195e.	85	F	20	Buccal mass
NMML 195f.	199	F	300	Buccal mass
NMML 195g.	65	-	15	Buccal mass
	148	F	120	
	175	-	180	
	195	-	300	
	158	-	165	
	96	-	35	
	58	-	15	

*The rest were discarded in field after collection.

Family Gonatidae (contd.)

NMML 198. Berryteuthis magister

Collected (no date), North Pacific. Parts saved:
several gladii.

NMML 199. Berryteuthis magister

Collected 14 February 1962, lat. 55°05.5' N, long. 167°40.5' W,
by H. Kajimura. DML 154 mm. Parts saved: beaks, gladius
and radula only.

NMML 204. Berryteuthis magister

Collected 29 August 1973, lat. 56°15' N, long. 168°35' W. From
stomach of C. ursinus, specimen US73-433. Parts saved:
1 entire specimen, DML 96 mm. Buccal mass and beaks
dissected out (good beaks).

NMML 243. Berryteuthis magister

Collected 4 November 1981, lat. 53°47.5' N, long. 164°15.2' W.
RV Miller Freeman cruise 80-6, haul 41, by trawl. Depth of
trawl on bottom 51 fathoms. Surface temperature 8°C, trawl
temperature 7.6°C. Frozen fresh. Female, DML 198 mm,
weight 224 g. Parts saved: beaks and radula.

NMML 243a. Statoliths of 243.

NMML 244. Berryteuthis magister

Collected 2 November 1981, lat. 55°20.7' N, long. 167°47.2' W.
RV Miller Freeman, cruise 81-6, haul 37, by trawl. Depth
of trawl on bottom, 96 fathoms. Surface temperature 7.3°C,
trawl temperature 5.5°C. Frozen fresh. Female, DML 290 mm,
nidamental gland length 40 mm, weight 803 g, ovary weight
145 g, egg diameter 3-4 mm. Parts saved: beaks and radula.

Family Gonatidae (contd.)

NMML 244a. Statoliths of 244.

NMML 244b. Section of tissue, etc.

NMML 247. Berryteuthis magister

Collected 20 October 1981, lat. 54°14' N, long. 166°02' W.
RV Miller Freeman, cruise 81-6, haul 17, by trawl. Depth
59 fathoms. Trawl temperature 4.4°C. Frozen upon
capture, thawed in laboratory. Male, DML 185 mm, weight
216 g, right tentacle 3/4 missing, left tentacle 265 mm.
Parts saved: 1 entire specimen.

NMML 247a. Beaks and radula of 247.

NMML 248. Berryteuthis magister

Collected 20 October 1981, lat. 54°22' N, long. 165°45' W.
RV Miller Freeman, cruise 81-6, haul 15, by trawl. Depth
64 fathoms. Trawl temperature 5.0°C. Frozen upon
capture, thawed in laboratory. Mature female, DML 273 mm,
weight 643 g, longest tentacle 385 mm, nidamental gland
length - left, 123 mm, right, 126 mm, egg diameter
2.5 - 3 mm. Parts saved: 1 entire specimen.

NMML 248a. Beaks and radula of 248.

Family Gonatidae (contd.)

NMML 251. Berryteuthis magister

Collected 20 October 1981, lat. 54°22' N, long. 165°45' W.

RV Miller Freeman, cruise 81-6, haul 15, by trawl. Depth 64 fathoms. Trawl temperature 5.0°C. Frozen upon capture, thawed in laboratory. Female, DML 273 mm, weight 687 g, longest tentacle 365 mm, approximately equal, nidamental gland length 112 mm, approximately equal. Egg diameter, 3 mm. Parts saved: 1 entire specimen.

NMML 251a. Beaks and radula of 251.

NMML 251b. Statoliths of 251.

NMML 252. Berryteuthis magister

Collected 20 October 1981, lat. 54°14' N, long. 166°02' W.

RV Miller Freeman, cruise 81-6, haul 17, by trawl. Depth 59 fathoms. Trawl temperature 4.4°C. Frozen upon capture, thawed in laboratory. Female, DML 252 mm, weight 569 g (fresh weight 601 g), nidamental gland length, 82 mm, egg diameter, 1-1.5 mm. Parts saved: 1 entire specimen - beaks extracted and in same container.

NMML 253. Berryteuthis magister

Collected 20 October 1981, lat. 54°14' N, long. 166°02' W.

RV Miller Freeman, cruise 81-6, haul 17, by trawl. Depth 59 fathoms. Trawl temperature 4.4°C. Frozen upon capture, thawed in laboratory. Female, DML 285 mm, weight 830 g (fresh weight 927 g), tentacles approximately same, 430 mm, nidamental gland length 62 mm, approximately same size. Eggs - none apparent. Ovary - very small (spent?). Parts saved: 1 entire specimen.

Family Gonatidae (contd.)

NMML 253a. Beaks and radula of 253.

NMML 253b. Statoliths of 253.

NMML 254. Berryteuthis magister

Collected 21 October 1981, lat 54°40'N, long 166°21'W.

RV Miller Freeman, cruise 81-6, haul 18, by trawl. Depth trawl 100 fathoms, bottom 180 fathoms. Trawl temperature 5.0°C. Frozen upon capture, thawed in laboratory. Male, DML 95 mm, weight 33 g. Parts saved: beaks and radula.

NMML 254a. 2 statoliths of 254.

NMML 255. Berryteuthis magister

Collected 21 October 1981, lat. 54°40'N, long. 166°21'W.

RV Miller Freeman, cruise 81-6, haul 18, by trawl. Depth trawl 100 fathoms, bottom 180 fathoms. Trawl temperature 5.0°C. Frozen upon capture, thawed in laboratory.

Male, DML 170 mm, weight 172 g. Parts saved: beaks and radula.

NMML 255a. 2 statoliths of 255.

NMML 256. Berryteuthis magister

Collected 21 October 1981, lat. 54°40'N, long. 166°21'W.

RV Miller Freeman, cruise 81-6, haul 18, by trawl. Depth trawl 100 fathoms, bottom 180 fathoms. Trawl temperature 5.0°C. Frozen upon capture, thawed in laboratory.

Male, DML 63 mm, weight 15 g. Parts saved: beaks and radula.

Family Gonatidae (contd.)

NMML 256a. 1 statolith from 256.

NMML 257. Berryteuthis magister

Collected 21 October 1981, lat. 54°40' N, long. 166°21' W.

RV Miller Freeman, cruise 81-6, haul 18, by trawl. Depth of trawl 100 fathoms, bottom 180 fathoms. Trawl temperature 5.0°C. Frozen upon capture, thawed in laboratory. Male, DML 80 mm, weight 21 g. Parts saved: beaks and radula.

NMML 257a. 2 statoliths from 257.

NMML 258. Berryteuthis magister

Collected 21 October 1981, lat. 54°40' N, long. 166°21' W.

RV Miller Freeman, cruise. 81-6, by-trawl. Depth of trawl 100 fathoms, bottom 180 fathoms. Trawl temperature 5.0°C. Frozen upon capture, thawed in laboratory. Male, DML 147 mm, weight 109 g. Parts saved: beaks and radula.

NMML 258a. 1 statolith from 258.

Order Teuthoidea
Suborder Oegopsida
Family Architeuthidae

NMML 110. Architeuthis sp. (Fiscus and Rice 1974)

Collected 16 September 1961, off central California. From stomach of male P. macrocephalus, specimen Rice 535.

Parts saved: 1 dorsal beak.

NMML 111. Architeuthis sp.

Collected 15 June 1963, off central California. From stomach of male P. macrocephalus, specimen Rice 813. Parts

saved: 1 dorsal beak.

NMML 112. Architeuthis sp.

Collected 25 November 1966, off central California. From stomach of male P. macrocephalus, specimen Rice 1966-165. Parts

saved: 1 dorsal beak.

NMML 113. Architeuthis sp.

Collected 1 December 1966, off central California. From stomach of female P. macrocephalus, specimen, Rice 1966-177.

Part saved: 1 lower beak fragment.

NMML 114. Architeuthis sp.

Collected 9 December 1966, off central California. From stomach of male P. macrocephalus, specimen Rice 1966-185. Parts

saved: 1 dorsal beak.

Family Architeuthidae (contd.)

- NMML 115. Architeuthis sp.
Collected 12 May 1967, off central California. From stomach of female P. macrocephalus, specimen Rice 1967-128. Photographed, see illustration, Fiscus and Rice (1974). Parts saved: 1 pair beaks.
- NMML 116. Architeuthis sp.
Collected 23 April 1968, off central California. From stomach of female P. macrocephalus, specimen Rice 1968-108. Parts saved: 1 dorsal beak.
- NMML 117. Architeuthis sp.
Collected 23 April 1968, off central California. From stomach of male P. macrocephalus, specimen Rice 1968-109. Parts saved: 1 dorsal beak fragment.
- NMML 118. Architeuthis sp.
Collected 13 June 1969, off central California. From stomach of female P. macrocephalus, specimen Rice 1969-143. Parts saved: 1 dorsal beak.
- NMML 119. Architeuthis sp.
Collected 19 November 1969, off central California. From stomach of male P. macrocephalus, specimen Rice 1969-201. Parts saved: 1 lower beak fragment.
- NMML 120. Architeuthis sp.
Collected 24 February 1970, off Central California. From stomach of male P. macrocephalus, specimen Rice 1970-001. Parts saved: 1 lower beak fragment. (Note: next to 115 this is best lower beak in collection).

Order Teuthoidea
Suborder Oegopsida
Family Histoteuthidae

NMML 59. Histoteuthis dofleini

Collected 1 November 1967, off central California. From stomach of female P. macrocephalus, specimen Rice 1967-234. Parts saved: body, head, arms, tentacles, buccal mass. Det. C. F. E. Roper, U. S. National Museum. Additional information and photos in file.

NMML 59a. Radula and beaks of 59.

NMML 60. Histoteuthis dofleini

Collected 23 April 1968, off central California. From stomach of male P. macrocephalus, specimen Rice 1968-109. Parts saved: arms, tentacles.

NMML 60a. Beaks of 60. F6 Plymouth 1981 (verified by M. R. Clarke).

NMML 61. Histoteuthis dofleini

Collected 27 November 1966, off central California. From stomach of female P. macrocephalus, specimen Rice 1966-170. Parts saved: head, arms, tentacles, beaks (in separate vial).

NMML 62. Histoteuthis dofleini

Collected 27 November 1966, off central California. From stomach of female P. macrocephalus, specimen Rice 1966-169. Parts saved: 1 buccal mass.

Family Histioteuthidae (contd.)

NMML 63. Histioteuthis spp.

Collected 14 May 1969, off central California. From stomach
of male P. macrocephalus, specimen Rice 1969-120.

Parts saved: 3 buccal masses.

Order Teuthoidea
Suborder Oegopsida
Family Ommastrephidae
Subfamily Illicinae

NMML 108. Illex illecebrosus

Collected spring 1970, off Newfoundland, Canada, by
M. C. Mercer. Parts saved: 16 pair beaks (in separate
vials, each containing 1 pair of beaks). DML and
sex is listed. Det. M. C. Mercer.

Family Ommastrephidae,
Subfamily Todarodinae

- NMML 78. Todarodes pacificus (Ommastrephes sloani pacificus)
Collected May 1950, Tokyo Fish Market, by F. Wilke. Det.
F. Wilke, Loaned to C. F. E. Roper, curator, U.S. National
Museum, 25 July 1967 (see notes and reprint section).
- NMML 79. Todarodes pacificus (O. s. pacificus).
Collected April 1950, off Onagawa, Japan, by F. Wilke.
From the stomach of C. ursinus 247. Det. F. Wilke. Loaned
to C. F. E. Roper, Curator, U.S. National Museum, 25 July
1967 (see notes and reprint section).
- NMML 79a. Todarodes pacificus (O. s. pacificus)
Collected April 1950, off Onagawa; Japan, by F. Wilke.
From the stomach of C. ursinus 247. Parts saved: buccal
mass and beaks only. Det. F. Wilke.
- NMML 80. Todarodes pacificus
Collected 8 November 1968, Seattle Market. Probably from
Japan. Parts saved: 2 entire specimens, DML's 222 and 232
mm, gladii lengths 213 and 225 mm.
- NMML 80a. 2 pair beaks of 80.
- NMML 80d. Suckers of 80.

Family Ommastrephidae
 Subfamily Ommastrephinae

- NMML 81. Ommastrephes bartramii
 Collected 1957, south of Aleutian Islands, by R. A. Hajny.
 Can 3. Parts saved: 1 entire specimen.
- NMML 82. Ommastrephes bartramii
 Collected 1957, south of Aleutian Islands, by R. A. Hajny.
 Parts saved: 2 entire specimens.
- NMML 84. Ommastrephes bartramii
 Collected 1957, south of Aleutian Islands, by R. A. Hajny.
 Parts saved: 1 tentacle and 1 arm.
- NMML 85. Ommastrephes bartramii
 1 pair beaks, radula, pen of 84.
- NMML 86. Ommastrephes bartramii
 Collected 13 October 1965, lat. 44°40' N, long. 178°0, 2' E,
 by R. D. Carlson. RV George B. Kelez, cruise 36, set 10.
 Parts saved: 1 head, arms, tentacles.
- NMML 86a. 1 pair beaks and radula of 86.
- NMML 210. Ommastrephes bartramii
 Collected 2 July 1981, over Grays Canyon approximately 40
 miles west of Westport, Washington, by M. Bucy.
 FV Tres Cher, by dip net-nightlight. Female, DML 404 mm,
 weight 2.051 kg. Identified from whole specimen. Parts
 saved: beaks and radula.

Family Ommastrephidae
 Subfamily Ommastrephinae (contd.)

NMML 365. Ommastrephes bartrami

Collected 14 June 1981, lat. 41°N, long. 180°, by C. Bouchet
Oshoro Maru research cruise, set 3, by surface gill net.

Frozen upon capture, thawed in laboratory. Laboratory
 measurements 14 July 1983. Female, DML 368 mm, nidamental
 gland length 49 mm, weight 1,905 g (1 fin missing).

Parts saved: 1 entire specimen.

NMML 365a. Beaks and radula of 365.

NMML 365b. 2 statoliths of 365.

NMML 366. Ommastrephes bartrami

Collected -14 June 1981, lat. 41°N, long. 180°, by C. Bouchet.
Oshoro Maru research cruise, set 3, by surface gill net.

Frozen upon capture, thawed in laboratory. Laboratory
 measurements 14 July 1983. Female, DML 392 mm, nidamental
 gland length 54 mm, weight 1,976 g. Parts saved: 1 entire
 specimen.

NMML 366a. Beaks and radula of 366.

NMML 366b. 2 statoliths of 366.

NMML 367. Ommastrephes bartrami

Collected 14 June 1981, lat. 41°N, long. 180°, by C. Bouchet.
Oshoro Maru research cruise, set 3, by surface gill net.

Frozen upon capture, thawed in laboratory.. Laboratory
 measurements 14 July 83. Female, DML 382 mm, nidamental
 gland length 44 mm, weight 1,674 g, 1 tentacle missing.

Parts saved: beaks and radula.

NMML 367a. 2 statoliths of 367.

Family Ommastrephidae
Subfamily Ommastrephinae (contd.)

- NMML 87. Dosidicus gigas³
Collected 21-22 January 1972, lat. 9°N, long. 86°20' W, by
G. M. Treinen. Specimen DH-1. DML 205 mm, weight
250 g. Parts saved: buccal mass only.
- NMML 88. Dosidicus gigas
Collected 21-22 January 1972, lat. 9°N, long. 86°20' W, by
G. M. Treinen. Specimen DH-2. Male, DML 188 mm, weight
168 g. Parts saved: buccal mass only.
- NMML 89. Dosidicus gigas
Collected 21-22 January 1972, lat. 9°N, long. 86°20' W, by
G. M. Treinen. Specimen DH-3. Male, DML 171 mm, weight
153 g. Parts saved: buccal mass only.
- NMML 90. Dosidicus gigas
Collected 20-22 January 1972, lat. 9°N, long. 86°20' W, by
G. M. Treinen. Specimen DH-4. Male, DML 167 mm, weight
127 g. Parts saved: buccal mass only.
- NMML 91. Dosidicus gigas
Collected 21-22 January 1972, lat. 9°N, long. 86°20' W, by
G. M. Treinen. Specimen DH-5. Male, DML 165 mm, weight
130 g. Parts saved: buccal mass only.

³ Determination and measurements by C. H. Fiscus and D. R. Holts. See NMML reference file, Table 1, for complete information on catalogue numbers 87-95.

Family Ommastrephidae
Subfamily Ommastrephinae (contd.)

NMML 92. Dosidicus gigas

Collected 21-22 January 1972, lat. 9°N, long. 86°20' W, by
G. M. Treinen. Specimen DH-6. Male, DML 167 mm, weight 120 g.
Parts saved: buccal mass only.

NMML 93. Dosidicus gigas

Collected 14 April 1972, lat. 9°29' N, long. 100°50' W, by
C. W. Oliver. Specimen DH-17. Female, DML 174 mm, weight
135 g. Parts saved: buccal mass only.

NMML 94. Dosidicus gigas

Collected 14 April 1972, lat. 9°29' N, long. 100°50' W, by
C. W. Oliver. Specimen DH-18. Female, DML 210 mm, weight
237 g. Parts saved: buccal mass only.

NMML 95. Dosidicus gigas

Collected 16 January 1972, lat. 7°10' N, long. 94°56' W, by
D. B. Holts. Specimen DH-19. Female, DML 185 mm, weight
230 g. Parts saved: buccal mass only.

NMML 96. Dosidicus gigas

Collected 21-22 January 1972, lat. 9°N, long. 86°20' W.
MV Eastern Pacific. Parts saved: 8 entire specimens.

Family Ommastrephi dae
 Subfamily Ommastrephi nae (contd.)

NMML 97. Dosidicus gigas

Collected 14 July 1976, Devereux Beach, Goleta, California, by C. Smith, B. Britt, and K. Rindeaub, of Santa Barbara Museum of Natural History, Santa Barbara, California.

Washed ashore. Parts saved: 1 entire specimen, DML 288 mm.

NMML 97a. Buccal mass (radula, beaks) of 97.

NMML 98. Dosidicus gigas

Collected 10 April 1968, lat. 10° 31' N, long. 92° 52' W, by W. F. Perrin. Juvenile male?, DML 378 mm, weight 495 g.

Parts saved: 1 entire specimen.

NMML 98a. Beaks of 98 -	<u>lower beak</u>	<u>dorsal beak</u>
length of rostrum	5.8 mm	6.5 mm
hood length	6.0 mm	20.0 mm
crest length	10.0 mm	24.5 mm
wing length	10.0 mm	4.5 mm

NMML 99. Dosidicus gigas

Collected 12 September 1976, Simonton Cove, San Miguel Island, California, by G. A. Antonelis. Washed ashore.

Parts saved: buccal mass (beaks and radula).

Family Ommastrephidae
Subfamily Ommastrephinae (contd.)

- NMML 100. Dosidicus gigas
Collected 12 September 1976, Simonton Cove, San Miguel Island, California, by G. A. Antonelis. Washed ashore.
Parts saved: buccal mass.
- NMML 101. Dosidicus gigas
Collected 12 September 1976, Simonton Cove, San Miguel Island, California, by G. A. Antonelis. Washed ashore.
Parts saved: buccal mass.
- NMML 102. Dosidicus gigas
Collected 21 July 1966, lat. 11°33' N, long. 91°20' W, by W. F. Perrin. MV Conte Bianco, by dip net. Time 2200.
Parts saved: 1 entire specimen. Det. by C. F. E. Roper.
- NMML 102a. Buccal mass and beaks of 102.
- NMML 103. Dosidicus gigas
Collected 17 April 1968, lat. 7°50' N, long. 92°32' W, by W. F. Perrin. MV Carol Virginia, by dip net at night.
Parts saved: 2 entire specimens. Det. by C. F. E. Roper.
- NMML 104. Dosidicus gigas
Collected 18 April 1968, lat. 8°10' N, long. 92°25' W, by W. F. Perrin. MV Carol Virginia, by dip net at night.
Parts saved: 1 entire specimen. Det. by C. F. E. Roper.

Family Ommastrephidae
Subfamily Ommastrephinae (contd.)

NMML 105. Dosidicus gigas

Collected 17 April 1968, lat. 7°, 50' N, long. 92° 32' W, by
W. F. Perrin. From the stomach of Thunnus albacares.
MV Carol Virginia. Parts saved: 3 specimens.
Det. C. F. E. Roper.

NMML 106. Symplectoteuthis oualaniensis

Collected 18 April 1968, lat. 8°10' N, long. 92° 25' W,
by W. F. Perrin. MV Carol Virginia, by dip net. Time 2000.
Parts saved: 1 entire specimen. Det. by C. F. E. Roper.

NMML 106a. Buccal mass and beaks of 106.

NMML 107. Symplectoteuthis oualaniensis

Collected 21 July 1966, lat. 11° 33' N, long. 91° 21' W, by
W. F. Perrin. By dip net. Time 2200. Parts saved: 1 entire
specimen. Det. by C. F. E. Roper.

NMML 107a. Buccal mass and beaks of 107.

Order Teuthoidea
Suborder Oegopsida
Family Thysanoteuthidae

NMML 109. Thysanoteuthis robus

Collected 15 April 1972, lat. 8°20'N, long. 102°40'W,
by C. W. Oliver. MV Lois Seaver, by dip net. Time 2000.
Parts saved: 2 entire specimens. Note: About 6 were
around the vessel, including 1 approximately 2 ft long.

Order Teuthoidea
 Suborder Oegopsida
 Family Chiroteuthidae

- NMML 146. Chiroteuthis sp. (calyx?) (See Young 1972)
 Collected 27 March 1968, lat. 49°46' N long. 176°29' W, by
 R. D. Carlson. RV George B. Kelez, cruise 43, set 5, by
 gill net (75 ft depth). Surface water temperature 3.6°C.
 Parts saved: head and arms only, tentacles, and body missing.
- NMML 146a. Beaks and radula of 146.
- NMML 147. Chiroteuthis sp.
 Collected March 1966, between latitudes 34°50' N and 36°50' N,
 off California. Remains caught on outside of stomach of
 C. ursinus, specimen US66-297. (A series number, cannot
 be assigned with certainty. All stomachs in barrel were
 taken in March 1966, between latitudes 34°50' N and 36°50' N
 off California). Parts saved: arms, tentacle (incomplete),
 buccal mass.
- NMML 147a. Beaks of 147.
- NMML 148. Chiroteuthis sp.
 Collected 20 May 1970, lat. 46°43' N, long. 127°35' W. From
 the stomach of C. ursinus, specimen US70-302. Parts
 saved: arms, tentacles (somewhat frayed), buccal mass,
 beaks.
- NMML 150. Chiroteuthis sp.
 Collected 15 May 1970, lat. 46°22' N, long. 125°03' W. From
 the stomach of C. ursinus, specimen US70-239. Parts
 saved: 1 pair beaks.

Family Chiroteuthidae (contd.)

- NMML 151. Chiroteuthis sp. (Stroud 1968)
Collected 20 April 1967, Mukkaw Bay, Washington. From stomach of stranded G. griseus, specimen 3769.
Parts saved: Beaks and fragments of 7 specimens.
- NMML 152. Chiroteuthis sp.
Collected 24 May 1970, lat. 47° 38' N, long. 128° 27' W. From the stomach of C. ursinus, specimen US70-326. Parts saved: 1 pair beaks.
- NMML 153. Chiroteuthis sp.
Collected 9 July 1976, Fort Stevens State Park, Oregon, by R. K. Stroud. From stomach of stranded Mirounga anquistrostris, specimen MM76-13. Parts saved: 1 lower beak.
- NMML 154. Chiroteuthidae
Collected 9 April 1968, lat. 12° 51' N, long. 93° 18' W, by W. F. Perrin. From the stomach of S. graffmani, specimen CV285. Parts saved: small fragments.
- NMML 155. Chiroteuthis sp.
Collected 24 May 1970, lat. 47° 38' N, long 128° 19' W. From the stomach of C. ursinus, specimen US70-325. Parts saved: 1 pair large beaks.
- NMML 156. Chiroteuthis sp.
Collected 3 May 1970, lat. 46° 24' N, long. 126° 12' W. From the stomach of C. ursinus. Specimen US70-218. Parts saved: 1 pair beaks.

Order Teuthoidea
Suborder Oegopsida
Family Mastigoteuthidae

NMML - 149 ?Mastigoteuthis sp.

Collected 25 November 1966, off central California. From the stomach of P. macrocephalus, specimen Rice 1966-165. Male.

Parts saved: 1 lower beak. Det. C. H. Fiscus and M. R.

Clarke. F-4 Plymouth, June 1981.

Order Teuthoidea
Suborder Oegopsida
Family Cranchiidae
Subfamily Cranchiinae

NMML 124. Cranchia scabra

Collected 6 February 1959, lat. 35°09' N, long. 121°35' W,
by C. H. Fiscus. From the stomach of Delphinus delphis,
specimen 3801, (Tat-2-59). Parts saved: 2 relatively
entire specimens.

Family Cranchiidae
Subfamily Taoniinae

NMML 373. Taonius pavo

Collected 25 July 1982, lat. 58°04.3N, long. 179°33.9' W,
by R. W. Mercer. MV Dominator, cruise 82-1, haul 64.4, by midwater
trawl. Depth 350 fathoms, bottom 1,970 fathoms. Time 0045.
DML's 227, 258, 272, 300 mm. Parts saved: 4 entire specimens
(crowns missing from 2). Det. K. Jefferts.

NMML 374. Taonius pavo

Collected 27 July 1982, lat. 53°24.6' N, long. 176°40.2' W,
by R. W. Merczr. MV Dominator, cruise 82-1, haul 68, by midwater
trawl. Depth 350 fathoms, bottom 2,000 fathoms. Time 0013.
DML 158 mm. Parts saved: 1 entire specimen.
Det. K. Jefferts.

NMML 375. Taonius pavo

Collected 1 August 1982, lat. 53°13.6' N, long. 163°50.3' W,
by R. W. Mercer. MV Dominator, cruise 82-1, haul 75, by midwater
trawl. Depth 372 fathoms, bottom 2,300 fathoms. Time 0031.
DML's 166, 195, 245 mm. Parts saved: 3 entire specimens
(2 + 1 body + 1 crown). Det. K. Jefferts.

NMML 122. Taonius sp.

Collected 4 September 1964, lat. 45°55' N, long. 124°55' W.
MV Commando, from 400 fathoms. Time 1600. Parts saved:
1 entire specimen.

NMML 122a. Beaks and buccal mass of 122.

Family Cranchiidae
Subfamily Taoniinae (contd.)

NMML 123. Taoniinae

Collected 28 May 1964, lat. 45°35' N, long. 124°53.3' W.

MV Commando. Parts saved: 1 entire specimen.

NMML 274. Megalocranchia (=Phasmatopsis)

Collected 13 December 1966, off central California. From the stomach of male P. macrocephalus, specimen

Rice 1966-189. Parts saved: 2 pair beaks, F5 Plymouth 1981. Det. M. R. Clarke. (note: large lower, certainly, small lower, maybe. Clarke made no judgment of upper beaks).

NMML 390. Megalocranchia sp.

Collected 16 September 1961, off central California. From the stomach of male P. macrocephalus, specimen Rice 535.

Parts saved: 1 lower beak.

NMML 127. Galiteuthis sp.

Collected 29 October 1966, off central California. From stomach of male P. macrocephalus, specimen Rice 1966-156.

Parts saved: 1 buccal mass, 7-rowed radula, head and arms fragment.

NMML 127a. Galiteuthis sp.

1 buccal mass, 7-rowed radula, head and arms fragment of 127.

Number 3 of 4 jars. Beaks, (Fiscus - type "1").

NMML 127b. Galiteuthis sp. (pacifica?)

1 buccal mass, 7-rowed radula, head and arms fragment of 127.

Number 4 of 4 jars (type "1").

Family Cranchiidae
Subfamily Taoniinae (contd.)

NMML 127c. Galiteuthis sp. (pacifica?)

1 pair of beaks of 127b. F14 Plymouth 1981. Det. C. H. Fiscus and M. R. Clarke.

NMML 132. Galiteuthis sp.

Collected 9 May 1967, off central California. From stomach of male P. macrocephalus, specimen Rice 1967-119. Parts saved: 1 lower beak.

NMML 137. Galiteuthis sp.

Collected 29 April 1968, off central California. From stomach of female P. macrocephalus, specimen Rice 1968-111. Parts saved: 1 gladius, 1 (type "1" - patch on wing stage) beak.

NMML 215. Galiteuthis sp. (probably phyllura)

Collected 23 April 1968, off central California. From the stomach of P. macrocephalus, specimen Rice 1968-108. Parts saved: 2 heads, arms, buccal mass fragments, lower beak (type "1"). F16 Plymouth 1981. Det. M. R. Clarke, Plymouth, June 1981.

NMML 215a. Beaks of 215.

NMML 376. Galiteuthis phyllura

Collected 27 July 1982, lat. 53°24.6'N, long. 176°40.2'W, by R. W. Mercer. MV Dominator, cruise 82-1, haul 68, by midwater trawl. Depth 350 fathoms, bottom 2,000 fathoms. Time 0013. DML's 104 and 105 mm. Parts saved: 2 entire specimens. Det. K. Jefferts.

Family Cranchiidae
Subfamily Taoniinae (cont'd)

NMML 121. Mesonychoteuthis sp.

Collected 19 October 1970, off central California. From stomach of male P. macrocephalus, specimen Rice 1970-43.

Parts saved: 2 pair beak fragments, lower rostral lengths 30 and 32 mm. Det. M. R. Clarke, July 1981. F-1 Plymouth 81.

NMML 125a. Cranchiidae⁴ (resembles Galiteuthis)

Collected 26 May 1964, off central California. From stomach of female P. macrocephalus, specimen Rice 1047. Parts saved: 1 lower beak.

NMML 126a. Cranchiidae (resembles Galiteuthis)

Collected 20 April 1965, off central California. From stomach of male P. macrocephalus, specimen Rice 1965-5.

Parts saved: 1 lower beak.

NMML 129. Cranchiidae (resembles Galiteuthis)

Collected 9 December 1966, off central California. From the stomach of male P. macrocephalus, specimen Rice 1966-181.

Parts saved: 1 lower beak.

NMML 130. Cranchiidae (resembles Galiteuthis)

Collected 5 April 1967, off central California. From the stomach of male P. macrocephalus, specimen Rice 1967-105.

Parts saved: 1 lower beak (type "1").

⁴ Remainder of Cranchiidae listed only to family. See Fiscus memorandum of 23 January 1983 "Review of cranchiids or beaks thought to belong to the family Cranchiidae" (NMML 125-141) in notes and reprint file.

Family Cranchiidae (contd.)

NMMML 131. Cranchiidae

Collected 5 April 1967, off central California. From the stomach of male P. macrocephalus, specimen Rice 1967-105.

Parts saved: 1 gladius (incomplete), measured 305 mm.

NMMML 133. Cranchiidae

Collected 3 June 1967, off central California. From the stomach of female P. macrocephalus, specimen Rice 1967-133.

Parts saved: 2 gladii. 1 complete gladius measured 450 mm; 1 incomplete gladius measured 350 mm.

' NMMML 135. Cranchiidae (resembles Galiteuthis.)

Collected 16 November 1967, off central California. From the stomach of male P. macrocephalus, specimen Rice 1967-241.

Parts saved: 2 lower beaks (type "1").

NMMML 136a. Cranchiidae (Galiteuthis?)

Collected 23 April 1968, off central California. From the stomach of female P. macrocephalus, specimen Rice 1968-108.

Parts saved: 1 lower beak (type "1").

NMMML 140. Cranchiidae

Collected 10 March 1966, lat. 35°08'N, long. 121°25'W. From the stomach of C. obliquidens, specimen 3218. Parts saved:

1 pair beaks.

NMMML 141a. Cranchiidae?

Collected (date and location unknown) (Alaska?). From the stomach of male r. jubatus, specimen SUV-5-76.

Parts saved: 1 beak.

Order Octopoda
Suborder Cirrata
Family Opisthoteuthidae

NMML 1. Opisthoteuthis californiana (Pereyra 1965)

Collected 11 December 1961, lat. 42° 55.9' N, long. 124° 48.1' W,
southwest of the mouth of the Columbia River.. Commando 3
S. Station 14A. In 375 fathoms. Parts saved: 1 entire
specimen.

NMML 1a. Beaks of 1.

NMML 2. Opisthoteuthis californiana (Pereyra, 1965)

Collected 17 September 1962, lat. 59° 34' N, long. 145° 45' W,
Gulf of Alaska. International Pacific Halibut Commission,
haul W208. Parts saved: 1 entire specimen.

NMML 2a. Beaks of 2.

NMML 3. Opisthoteuthis californiana (Pereyra 1965)

Collected 17 September 1962, lat. 59° 33' N, long. 145° 17' W,
Gulf of Alaska. International Pacific Halibut Commission,
haul W207. Parts saved: 1 entire specimen.

Order Octopoda
Suborder Incirrata
Family Bolitaenidae

NMML 56. Japetella heathi

Collected (no date), south of the mouth of the Columbia River, Oregon.

On loan from NWAFC Exploratory Fisheries Division; Columbia River outfall studies. Parts saved: 1 entire specimen.

Det. by W. Pearcy.

NMML 57. Japetella heathi

Collected 23-24 August 1971, lat. 50°50.' N, long. 177°19' E.

RV George B. Kelez, cruise 53. Parts saved: 1 entire specimen.

NMML 377. Japetella heathi

Collected 27 July 1982, lat. 53°24.6' N, long. 176°40.2' W,

by R. W. Mercer. MV Dominator, cruise 82-1, haul 68, by midwater trawl. Depth 350 fathoms, bottom 2,000 fathoms.

Time 0013. Parts saved: 3 entire specimens.

Det. K. Jefferts.

NMML 378. Japetella heathi

Collected 1 August 1982, lat. 53°13.6' N, long. 163°50.3' W,

by R. W. Mercer. MV Dominator, cruise 82-1, haul 75, by midwater trawl. Depth 372 fathoms, bottom 2,300 fathoms.

Time 0031. Parts saved: 6 entire specimens.

Det. K. Jefferts.

Order Octopoda
Suborder Incirrata
Family Octopodi dae

NMML 4. Octopus dofleini

Collected 18 September 1962, lat. 59°40'N, long. 145°41'W,
Gulf of Alaska. International Pacific Halibut Commission,
haul 210. Parts saved: 1 entire specimen. Det. F. G. Hochberg.

NMML 4a. Beaks and radula of 4.

NMML 5. Octopus dofleini

Collected 18 September 1962, lat. 59°40'N, long. 145°41'W,
Gulf of Alaska. International Pacific Halibut Commission,
haul 210. Parts saved: 1 entire specimen, male.
Det. F. G. Hochberg.

NMML 6. Octopus dofleini

Collected 22 June 1960, Caton Island, Alaska, by K. W. Kenyon
and T. O'Brien. Tide pool. Time 0630. Parts saved:
1 entire specimen. Det. F. G. Hochberg.

NMML 7. Octopus dofleini

Collected 10 December 1965, Naden Harbor, Graham Island, Queen
Charlotte Islands, British Columbia, Canada, by C. H. Fiscus.
Parts saved: 1 entire specimen. Det. F. G. Hochberg.

Family Octopodiidae (contd.)

NMML 235. Octopus dofleini

Collected 29 October 1981, lat. 56°40' N, long. 170°03.6' W.
RV Miller Freeman, cruise 81-6, haul 29, by trawl. Depth of
trawl and bottom, 32 fathoms. Surface water temperature
7.6°C, trawl temperature 7.7°C. Frozen fresh. DML 56 mm,
weight 30 g (in laboratory). Parts saved: 1 entire specimen.
Det. F. G. Hochberg. On permanent loan to Santa Barbara
Museum of Natural History.

NMML 235a. Beaks and radula of 235.

NMML 236. Octopus dofleini

Collected 1 November 1981, lat. 55°04.6' N, long. 166°58.6' W.
RV Miller Freeman, cruise 81-6, haul 32, by trawl. Depth 85
fathoms. Surface water temperature 7.3°C, trawl temperature
5.7°C. Frozen fresh. Female, DML 350 mm, weight 14.2 kg
in laboratory, weight of ovary 775 g. Parts saved: beaks
and radula.

NMML 236a. Statoliths of 236.

NMML 237. Octopus dofleini

Collected 27 October 1981, lat. 57°0' N, long. 169°33' W.
RV Miller Freeman, cruise 81-6, haul 24, by trawl. Depth
32 fathoms. Surface water temperature 7.6°C, trawl
temperature 7.7°C. Frozen fresh. Male, DML 340 mm,
weight 7 kg in laboratory. Parts saved: 1 entire specimen.

NMML 237a. Beaks and radula of 237.

Family Octopodidae (contd.)

NMML 239. Octopus dofleini

Collected 21 October 1981, lat. 54°50'N, long. 166°32'W.
 RV Miller Freeman, cruise 81-6, haul 19, by trawl. Depth
 100 fathoms. Surface water temperature 7.9°C, trawl
 temperature 5.0°C, Frozen fresh. Male, field weight
 13.4 kg, HL 245 mm. Parts saved: third right hectocotilized
 arm.

NMML 239a. Statoliths of 239.

NMML 239b. Beaks and radula of 239.

NMML 240. Octopus dofleini

Collected 18 October 1981, lat. 55°41'N, long. 165°49'W.
 RV Miller Freeman, cruise 81-6, haul 14, by trawl. Depth 62
 fathoms. Surface water temperature 8.7°C, trawl temperature
 5.3°C. Frozen fresh. Female (based on no hectocotilization
 on arms), DML 380 mm (organs removed in field, measurement
 approximate), field weight 18.6 kg. Parts saved: beaks
 and radula.

NMML 240a. Statoliths of 240.

NMML 245. Octopus dofleini

Collected October 1981, lat. 57°03'N, long. 140°41'W.
 RV Miller Freeman, cruise 81-6, haul 28, by trawl. Depth
 48 fathoms. Trawl temperature 7.0°C. Frozen fresh.
 Male, DML 115 mm, weight 382 g (in laboratory). Parts
 saved: 1 entire specimen. Det. F. G. Hochberg. On permanent
 loan to Santa Barbara Museum of Natural History.

NMML 245a. Beaks and radula of 245.

Family Octopodiidae (contd.)

NMML 246. Octopus dofleini

Collected 21 October 1981, lat. 54°51' N, long. 166°52' W.
 RV Miller Freeman, cruise 81-6, haul 19, by trawl. Depth
 107 fathoms. Surface water temperature 7.9°C, trawl
 temperature 5.0°C. Frozen fresh. Male, DML 120 mm,
 weight 386 g (in laboratory). Parts saved: 1 entire specimen.
 Det. F. G. Hochberg. On permanent loan to Santa Barbara
 Museum of Natural History.

NMML 246a. Beaks and radula from 246.

NMML 259. Octopus dofleini

Collected 20 October 1981, lat. 54°14' N, long. 166°02' W.
 RV Miller Freeman, cruise 81-6, haul 17, by trawl. Depth 59
 fathoms. Trawl temperature 4.4°C. Frozen fresh. Female,
 DML 43 mm, weight 18 g (fresh weight 25.2 g). Parts saved:
 1 entire specimen. Det. F. G. Hochberg. On permanent loan
 to Santa Barbara Museum of Natural History.

NMML 259a Beaks and radula of 259.

NMML 260. Octopus dofleini

Collected (no date), Bering Sea. RV Miller Freeman,
 cruise 81-6, by trawl. Frozen fresh. Female, DML 95 mm,
 weight 227 g. Parts saved: 1 entire specimen.
 Det. F. G. Hochberg. On permanent loan to Santa Barbara
 Museum of Natural History.

NMML 260a. Beaks and radula of 260.

Family Octopodi dae (contd.)

NMML 261. Octopus dofleini

Collected 4 November 1981, lat. 54°N, long. 164°34' W.

RV Miller Freeman, cruise 81-6, haul 40, by trawl. Depth 51 fathoms. Trawl temperature 7.6°C. Frozen fresh. Male, DML 240 mm, weight 5.4 kg in laboratory. Ligula 85 mm, open. Parts saved: 1 entire specimen.

NMML 261a. Beaks and radula of 261.

NMML 262. Octopus dofleini

Collected 3 November 1981, lat. 55°42' N, long. 168°39' W.

RV Miller Freeman, cruise 81-61, haul 39, by trawl. Depth 77 fathoms. Trawl temperature 7.8°C. Frozen fresh.

Female, DML 390 mm, field weight 21.7 kg. Weight of ovary 2,286 g, eggs not ripe, small, 3-4 mm. Parts saved: arm R2 (length 1,540 mm).

NMML 262a. Beaks and radula (note: radula agrees with Sasaki (1929) text, Figure 35) of 262.

NMML 262b. Statoliths of 262.

Family Octopodidae (contd.)

NMML 368. Octopus dofleini

Collected 2 October 1982, lat. 56°42' N; Long. 169°32' W, by T. R. Loughlin. RV Miller Freeman, cruise 82-3, haul 34, by trawl. Bottom depth 52 fathoms. Surface temperature 7.2° C, trawl temperature 5.8°C. Frozen fresh, thawed in laboratory. Laboratory measurements 16 July 83. Female, DML 140 mm, total length 490 mm, field weight 454 g. Suckers at web edge somewhat enlarged on 1 and 2. Parts saved:
1 entire specimen.

NMML 368a. Beaks and radula of 368.

NMML 369. Octopus dofleini

Collected 28 September 1982, lat. 55°40' N, long. 165°11' W, by T. R. Loughlin. RV Miller Freeman, cruise 82-3, haul 16, by trawl. Bottom depth 58 fathoms. Surface temperature 7.9°C, bottom 5.3°C. Frozen fresh, thawed in laboratory. Laboratory measurements 19 July 83. Male, DML 390 mm, TL 1,565 mm, field weight 22.7 kg, HAL 1170 mm, HL 240 mm, funnel length, 90 mm. Largest sucker diameter 45 to 50 mm. Gill lamella left 11 + 12, right 12 + 12. Gonad weight 446 g. Parts saved: third right arm.

NMML 369a. Beaks and radula of 369.

NMML 369b. 2 statoliths of 369.

Family Octopodidae (contd.)

NMML 370. Octopus dofleini

Collected 3 October 1982, lat. 56°20' N, long. 168°18' W, by T. R. Loughlin. RV Miller Freeman, cruise 82-3, haul 38, by trawl. Bottom 86 fathoms. Surface temperature 7.5°C, bottom 3.9°C. Frozen upon capture, thawed in laboratory. Laboratory measurements 19 July 83. Male, DML 280 mm, TL 1,425 mm, field weight 15.4 kg, HAL 825, HL 235. Largest sucker diameter 40 mm. Gill lamella left 12 + 12, right 12 + 12. Parts saved: third right arm.

NMML 370a. Beaks and radula of 370.

NMML 264. Octopus bimaculatus

Collected 4 August 1978, northshore of west end of San Miguel Island, California, by G. A. Antonelis. From Zalophus californianus scat. Original number 26A, SMI collection. Parts saved: 1 upper beak only. Det. E. G. Hochberg.

NMML 265. Octopus rubescens

Collected 31 July 1979, north shore of west end, San Miguel Island, California, by G. A. Antonelis. From Z. californianus scat. Original specimen number GAA-87, SMI collection. Parts saved: 13 lower, 18 upper beaks only. Det. E. G. Hochberg.

NMML 266. Octopus rubescens

Collected 31 July 1979, north shore of west end, San Miguel Island, California, by G. A. Antonelis. From Z. californianus scat. Original specimen number GAA-94, SMI collection. Parts saved: 16 lower, 16 upper beaks only. Det. E. G. Hochberg.

Family Octopodi dae (contd.)

NMML 267. Octopus rubescens

Collected 16 May 1979, Adams Cove, San Miguel Island, California, by G. A. Antonelis. From Z. californianus scat. Original specimen number GAA 127, SMI collection. Parts saved: 3 lower, 2 upper beaks. Det. E. G. Hochberg.

NMML 8. octopus sp.

Collected 9 July 1960, Amak Island, Alaska, by C. H. Fiscus. From stomach of Phoca vitulina, specimen 3723. Parts saved: 1 pair beaks.

NMML 9. octopus sp.

Collected 28 August 1966, Puget Sound, Washington, by H. Kajimura. Parts saved: 1 pair beaks from specimen with 8" tentacles.

NMML 10. octopus sp.

Collected 10 August 1967, Puget Sound, Washington, by H. Kajimura. Parts saved: 1 pair beaks.

NMML 11. Octopus sp.

Collected 29 January 1962, Bering Sea, by H. Kajimura. From stomach of Gadus macrocephalus. Parts saved: 2 pair beaks.

NMML 12. Octopus sp. (Kenyon 1965)

Collected 6 March 1962, St. Makerius Point, Amchitka Island, Alaska, by K.-W. Kenyon. From stomach of adult male P. vitulina, specimen KWK 62-217. Parts saved: 1 pair beaks plus 1 large fragment.

Family Octopodidae (contd.)

- NMML 13. Octopus sp. (Kenyon 1965)
Collected 6 March 1962, St. Makerius Point, Amchitka Island, Alaska, by K. W. Kenyon. From stomach of juvenile female P vitulina, specimen KWK 62-218. Parts saved: 2 pair beaks.
- NMML 14. Octopus sp. (Kerryon 1965)
Collected 26 October 1962, St. Makerius Point, Amchitka Island, Alaska, by K. W. Kenyon. From stomach of Enhydra lutris, specimen KWK 62-307. Parts saved: 1 pair beaks.
- NMML 15. Octopus sp. (Johnson et al. 1966)
Collected 22 May 1961, Point Hope, Alaska. From stomach of Erignathus barbatus, specimen M-1562. Parts saved: 5 lower, 6 dorsal beaks.
- NMML 16. Octopus sp. (Johnson et al. 1966)
Collected 20 March 1961, Point Hope, Alaska. From stomach of Phoca hispida, specimen M1223. Parts saved: 1 pair beaks.
- NMML 17. Octopus sp. (Johnson et al. 1966)
Collected 4 June 1961, Point Hope, Alaska. From stomach of P. hispida, specimen M1785. Parts saved: 2 lower, 3 dorsal beaks.
- NMML 18. octopus sp.
Collected 30 March 1970, lat. 47° 17' N, long. 124° 58' W. From stomach of C. ursinus, specimen US-70-135. Parts saved: 1 beak.

Family Octopodi dae (contd.)

NMML 25. Octopus sp. (Johnson et al. 1966)

Collected 26 April 1961, Point Hope, Alaska. From stomach of P. hispi da, specimen 1438. Parts saved: 1 dorsal beak.

NMML 207. octopus sp.

Collected 14 May 1964, off central California. .-From stomach of male P. macrocephalus, specimen Rice 1019. Parts saved: 3 pair beaks, radulas.

Order Octopoda
Suborder Incirrata
Family Tremoctopodidae

NMML 271. Tremoctopus sp.

Collected 15 April 1973, lat. 6°17' N, long. 81°25' W, by K. Sexton. MV Antonia C., set 39. Female, DML 75 mm, VML 80 mm, MW 55 mm, weight 159 g (preserved). 4 aquiferous pores present. Parts saved: 1 entire specimen.

NMML 272. Tremoctopus sp.

Collected 1973, lat. 6°00' N long. 94°00' W, by "JAY".
Set 12. Female, DML 140 mm, VML 100 mm, MW 80-90 mm, weight 381 g (preserved). 4 aquiferous pores present.
Markings on dorsal surface near pores (see Robson 1932).
(Best condition of 271-273.) Parts saved: 1 entire specimen.

NMML 272a. Beaks and radula of 272.

NMML 273. Tremoctopus sp.

Collected 27 March 1973, lat. 9°38' N, long. 95°57' W, by J. Ploeger. MV JFK 5, set 15. Time 1600. Female, DML 120 mm, VML 97 mm, MW 65 mm, weight 351 g (preserved). 4 aquiferous pores present. Parts saved: 1 entire specimen.

NMML 273a. Beaks and radula of 273.

Family Tremoctopodi dae (contd.)

NOTE: All three (271-273) specimens badly crumpled. DML, VML & MW only approximate. Arms of most specimens broken in varying degrees, as follows:

271. (1), (2) both broken off; (3) R - 100 mm, L, - 80 mm,
(4) each 110 mm.
272. (1) R - 200 mm, L - 175 mm (partial 2), (2) R - 227 mm,
L - 215 mm, (3) R - 165 mm, L broken, (4) R - 160 mm,
L - 85 mm brokeqn.
273. (1) broken off, (2) R - 300 mm, L broken, (3) R - 140 mm,
L broken, (4) broken off.

Order Octopoda
Suborder Incirrata
Family Ocythoidea

NMML 19. Ocythoe tuberculata

Collected January and February 1961, California. From the stomachs of ursinus, specimens US61. Parts saved: 23 lower, 16 dorsal beaks (beaks from several stomachs, see 1961 files and Pelagic Fur Seal report).

NMML 20. Ocythoe tuberculata

Collected 18 January 1961, lat. 35°18' N, long. 122°08' W, California. From the stomach of C. ursinus, specimen US61-105. Parts saved: 1 pair beaks.

NMML 21. Ocythoe tuberculata

Collected 18 January 1961, lat. 35°25' N, long. 122°11' W, California. From the stomach of C. ursinus, specimen US61-107. Parts saved: 1 pair beaks. Det. F. G. Hochberg.

NMML 22. Ocythoe tuberculata

Collected 22 January 1961, lat. 33°53' N, long. 122°55' W, California. From the stomach of C. ursinus, specimen US61-265. Parts saved: 1 pair beaks. Det. F. G. Hochberg.

NMML 23. Ocythoe tuberculata

Collected 25 January 1961, lat. 34°25' N, long. 121°08' W, California. From the stomach of C. ursinus, specimen US61-375. Parts saved: 1 body fragment and tentacles. Det. F. G. Hochberg.

NMML 23a. Ocythoe tuberculata

1 pair beaks of 23.

Family Ocythoidea (contd.)

NMML 24. Ocythoe tuberculata

Collected 31 January 1961, lat. 33°17' N, long. 120°18' W,

California. From the stomach of *C. ursinus*, specimen US61-425.

Parts saved: 1 body fragment, tentacles, beaks.

Order Octopoda
Suborder Incirrata
Family Argonautidae

NMML 83. Argonauta pacifica

Collected 17 March 1973, lat. 22° 21' N., long. 110° 45' W,
by J. Ploeger. MV JFK 5, SWFC. Parts saved: 1 entire
specimen.

Order Octopoda
Suborder Incirrata
Family Allopsiidae

NMML 268. Alloposus mollis

Collected 25 November 1966, off central, California. From the stomach of male P. macrocephalus, specimen Rice 1966-165.

Parts saved: 2 leer beaks. (F-3 Plymouth 81).

Det. C. H. Fiscus and M. R. Clarke.

Order Vampyromorpha
Family Vampyroteuthidae

- NMML 269. Vampyroteuthis infernalis
Collected 25 November 1966, off central California. From the stomach of male P. macrocephalus, specimen Rice 1966-165.
Parts saved: 1 lower beak. F-3 Plymouth 81.
Det. C. H. Fiscus and M. R. Clarke.
- NMML 270. Vampyroteuthis infernalis
Collected 1 December 1969, off central California. From the stomach of female P. macrocephalus, specimen Rice 1969-178.
Parts saved: 2 lower beaks. F-7 Plymouth 81.
Det. C. H. Fiscus and M. R. Clarke.
- NMML 384. Vampyroteuthis infernalis
Collected 26 May 1964, off central California. From the stomach of female P. macrocephalus, specimen Rice 1047.
Parts saved: 1 lower, 2 dorsal beaks.
- NMML 385. Vampyroteuthis infernalis
Collected 19 May 1968, off central California. From the stomach of male P. macrocephalus, specimen Rice 1968-125.
Parts saved: 1 lower, 1 dorsal beaks.
- NMML 386. Vampyroteuthis infernalis
Collected 12 May 1969, off central California. From the stomach of female P. macrocephalus, specimen Rice 1969-115.
Parts saved: 1 lower, 1 dorsal beaks.
- NMML 387. Vampyroteuthis infernalis
Collected 10 May 1969, off central California. From the stomach of female P. macrocephalus, specimen Rice 1969-107.
Parts saved: 2 lower beaks.

THIS PAGE INTENTIONALLY LEFT BLANK

ACKNOWLEDGMENTS

The author gratefully acknowledges the help of the many people who collected or identified specimens, and to others who donated specimens collected during cruises of the Pacific Salmon Investigations, and of the Resource Assessment and Conservation Engineering Division, NWAFC. These people are named in the catalogue.

The catalogue could not have been assembled without the able assistance of Muriel Wood, who cheerfully suffered through the several revisions and additions to the catalogue. Her typing and editorial assistance are most gratefully acknowledged.

THIS PAGE INTENTIONALLY LEFT BLANK

LITERATURE CITED

FISCUS, C. H.,

1974. Giant squids, Architeuthis sp., from stomachs of sperm whales captured off California. Calif. Fish Game 60(2):91-93.

FITCH, J. E., and R. L. BROWNELL, JR.

1971. Food habits of the franciscana Pontophoria blainvillei (Cetacea: Platanistidae from South America. Bull. Mar. Sci. 21:626-636.

JOHNSON, M. L., C. H. FISCUS, B. T. OSTENSON, and M. L. BARBOUR.

1966. Marine mammals. In N. J. Wilimovsky and J. N. Wolfe (editors), Environment of the Cape Thompson region, Alaska. Book 2, p. 877-924. U.S. At. Energy Comm., Energy Res. Dev. Admin., Tech. Inf. Cent., Oak Ridge, Tenn. (Available from U.S. Dep. Commer., Natl. Tech. Inf. Serv., Springfield, Va., as PNE-481.)

KENYON, K. W.

1965. Food of harbor seals at Amchitka Island, Alaska. J. Mammal. 46:123-124.

MACASKIE, I. B.

1971. A range extension for the squid Abraliopsis. J. Fish. Res. Board Can. 28:620-621.

MERCER, R. W., and M. BUCY.

- 1983'. Experimental squid jigging off the Washington coast. U.S. Natl. Mar. Fish. Serv., Mar. Fish: Rev. 45(7-8:9):56-62.

PATTIE, B. H.

1968. Notes on giant squid Moroteuthis robusta (Dall) Verrill trawled off the southwest coast of Vancouver Island, Canada. Wash. Dep. Fish., Fish. Res. Pap. 3(1):47-50.

PEREYRA, W. T.

1965. New records and observations on the flapjack devilfish, Opisthoteuthis californiana, Berry. Pac. Sci. 19:427-441.

ROBSON, G. C.

1932. A monograph of the recent Cephalopoda. Part 2, the Octopoda. Br. Museum, Nat. Hist., London, 359 p.

SASAKI, M.

1929. A monograph of the dibranchiate cephalopods of the Japanese and adjacent waters. J. Fac. Agric. Hokkaido Imp. Univ., Vol., 20 suppl. no., 357 p. plus 30 plates.

STROUD, R. K.

1968. Risso dolphin in Washington State. J. Mammal. 49:347; 3. 48.

VOSS, G. L.

1977. Appendix 2: classification of recent cephalopods. In M. Nixon and J. B. Messenger (editors), The biology of cephalopods, p. 575-579. Academic Press, London and New York. (Symposia of the Zoological Society of London, no. 38.)

YOUNG, R. E.

1972. The systematics and areal distribution of pelagic cephalopods from the seas off southern California. Smithson. Contrib. Zool. 97, 159 p.

APPENDIX A

Checklist of NMML Numbers: Cephalopod Collection (by family)

Specimens are assigned catalogue numbers as they are acquired by NMML, consequently consecutive numbering does not hold for each family.

This checklist is a sequential listing of all numbers used and the family to which the specimen is assigned.

<u>No.</u>	<u>Family</u>	<u>No.</u>	<u>Family</u>
1	Opisthoteuthidae	41	Loliginidae
2	"	42	"
3	"	43	"
4	Octopodidae	44	"
5	"	45	"
6	"	46	"
7	"	47	"
8	"	48	"
9	"	49	"
10	"	50	"
11	"	51	"
12	"	52	"
13	"	53	"
14	"	54	"
15	"	55	"
16	"	56	Bolitaenidae
17	"	57	"
18	"	58	Loliginidae
19	Ocythoidae	59	Histioteuthidae
20	"	60	"
21	"	61	"
22	"	62	"
23	"	63	"
24	"	64	Enoploteuthidae
25	Octopodidae	65	"
26	Sepiolidae	66	"
27	"	67	"
28	"	68	"
29	"	69	"
30	Sepiidae	70	"
31	"	71	"
32	"	72	"
33	"	73	"
34	"	74	"
35	Loliginidae	75	"
36	"	76	"
37	"	77	"
38	"	78	Ommastrephidae
39	"	79	"
40	"	80	"

NMML Numbers: Cephalopod Collection (contd.)

<u>No.</u>	<u>Family</u>	<u>No.</u>	<u>Family</u>
81	Ommastrephidae	131	Cranchiidae
82	"	132	"
83	Argonautidae	133	"
84	Ommastrephidae	134	"
85	"	135	"
86	"	136	"
87	"	137	"
88	"	138	"
89	"	139	"
90	"	140	"
91	"	141	"
92	"	142	Orychoteuthidae
93	"	143	"
94	"	144	Octopoteuthidae
95	"	145	"
96	"	146	Chiroteuthidae
97	"	147	"
98	"	148	"
99	"	149	Mastigoteuthidae
100	"	150	Chiroteuthidae
101	Ommastrephidae	151	"
102	"	152	"
103	"	153	"
104	"	154	"
105	"	155	"
106	"	156	"
107	"	157	Gonatidae
108	"	158	"
109	Thysanoteuthidae	159	"
110	Architeuthidae	160	"
111	"	161	"
112	"	162	"
113	"	163	"
114	"	164	"
115	"	165	"
116	"	166	"
117	"	167	"
118	"	168	"
119	"	169	"
120	"	170	"
121	Cranchiidae	171	"
122	"	172	"
123	"	173	"
124	"	174	"
125	"	175	"
126	"	176	"
127	"	177	"
128	"	178	"
129	"	179	"
130	"	180	"

NMML Numbers: Cephalopod Collection (contd.)

No.	Family	No.	Family
181	Gonatidae	231	Loliginidae
182	"	232	"
183	"	233	"
184	"	234	"
185	"	235	Octopodidae
186	"	236	"
187	"	237	"
188	"	238	Sepiolidae
189	"	239	Octopodidae
190	"	240	"
191	"	241	Onychoteuthidae
192	"	242	Gonatidae
193	"	243	"
194	"	244	"
195	"	245	Octopodidae
196	"	246	"
197	"	247	Gonatidae
198	"	248	"
199	"	249	"
200	"	250	"
201	"	251	"
202	"	252	"
203	"	253	"
204	"	254	"
205	"	255	"
206	"	256	"
207	Octopodidae	257	"
208	Onychoteuthidae	258	"
209	Gonatidae	259	Octopodidae
210	Ommastrephidae	260	"
211	Onychoteuthidae	261	"
212	"	262	"
213	"	263	Gonatidae
214	Loliginidae	264	Octopodidae
215	Cranchiidae	265	"
216	Onychoteuthidae	266	"
217	"	267	"
218	"	268	Allopsiidae
219	"	269	Vampyroteuthidae
220	"	270	"
221	"	271	Tremoctopodidae
222	"	272	"
223	"	273	"
224	"	274	Cranchiidae
225	"	275	Gonatidae
226	"	276	"
227	"	277	"
228	Loliginidae	278	"
229	"	279	"
230	"	280	"

NMML Numbers: Cephalopod Collection (contd.)

<u>No.</u>	<u>Family</u>	<u>No.</u>	<u>Family</u>
281	Gonatidae	331	Onychoteuthidae
282	"	332	"
283	"	333	Gonatidae
284	"	334	"
285	"	335	"
286	"	336	Onychoteuthidae
287	"	337	"
288	"	338	"
289	"	339	"
290	"	340	"
291	"	341	"
292	"	342	"
293	"	343	"
294	"	345	"
295	"	346	"
296	"	347	"
297	"	348	"
298	"	349	"
299	"	350	"
300	"	351	"
301	"	352	"
302	"	353	"
303	"	354	"
304	"	355	"
305	"	356	"
306	"	357	"
307	"	358	"
308	"	359	"
309	"	360	"
310	"	361	"
311	"	362	"
312	"	363	"
313	"	364	"
314	"	365	Ommastrephidae
315	Onychoteuthidae	366	"
316	"	367	"
317	"	368	Octopodidae
318	"	369	"
319	"	370	"
320	"	371	Onychoteuthidae
321	"	372	Gonatidae
322	"	373	Cranchiidae
323	"	374	"
324	"	375	"
325	"	376	"
326	"	377	Bolitaenidae
327	"	378	"
328	"	379	Gonatidae
329	"	380	"
330	"		

NMML Numbers: Cephalopod Collection (contd.)

<u>No.</u>	<u>Family</u>
381	Gonatidae
382	"
383	"
384	Vampyroteuthidae
385	"
386	"
387	"
388	Onychoteuthidae
389	"
390	Cranchiidae
391	Gonatidae
392	"
393	"
394	"
395	"
396	"
397	"
398	"
399	"
400	"
401	"
402	"
403	"
404	"
405	"
406	"
407	"
408	"
409	"
410	"
411	"
412	"
413	"

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX B

Marine Mammal Predators Noted in Catalogue and Cephalopod Prey

<u>MARINE MAMMAL</u>	<u>CEPHALOPOD PREY</u>
<u>Zalophus californianus</u>	<u>Octopus rubescens</u> <u>Octopus bimaculatus</u>
<u>Eumetopias jubatus</u>	<u>Gonatus</u> sp.
<u>Callorhinus ursinus</u>	<u>Loligo opalescens</u> <u>Abraliopsis</u> sp. <u>Watasenia scintillans</u> <u>Onychoteuthis borealijaponicus</u> <u>Moroteuthis robusta</u> <u>Gonatus middendorffi</u> <u>Gonatus</u> sp. ("A") <u>Gonatus</u> sp. ("B") <u>Gonatopsis borealis</u> <u>Berryteuthis magister</u> <u>Todarodus pacificus</u> <u>Chiroteuthis</u> sp. <u>Ocythoe tuberculata</u>
<u>Enhydra lutris</u>	<u>Octopus</u> sp.
<u>Phoca vitulina</u>	<u>Octopus dofleini</u>
<u>Erignathus barbatus</u>	<u>Octopus</u> sp.
<u>Mirounga angustirostris</u>	<u>Chiroteuthis</u> sp.
<u>Pontoporia blainvillei</u>	<u>Lolliguncula brevis</u>
<u>Stenella</u> sp.	<u>Onychoteuthis banksii</u>
<u>Stenella graffmani</u>	<u>Abraliopsis affinis</u> <u>Chiroteuthidae</u>
<u>Delphinus delphis</u>	<u>Cranchia scabra</u>
<u>Lagenorhynchus obliquidens</u>	<u>Gonatus</u> sp.
<u>Grampus griseus</u>	<u>Octopoteuthis</u> sp. (deletron?) <u>Chiroteuthis</u> sp.
<u>Phocoenoides dalli</u>	<u>Watasenia scintillans</u>

Marine Mammal Predators and Cephalopod Prey (contd.)

MARINE MAMMALPhyseter macrocephalusCEPHALPOD PREY

Moroteuthis robusta
Gonatus sp. (fabricii type)
Gonatus sp.
Gonatopsis borealis
Architeuthis sp.
Histioteuthis dofleini
Histioteuthis sp.
Mastigoteuthis sp.
Megalocranchia SP.
Galiteuthis sp.
Galiteuthis pacifica?
Mesonychoteuthis sp.
Cranchiidae
Octopus sp.
Alloposus mollis
Vampyroteuthis infernalis