



NOAA Technical Memorandum NMFS-AFSC-16

Catalogue of Cephalopods at the National Marine Mammal Laboratory

by
Clifford H. Fiscus

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

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U.S. DEPARTMENT OF COMMERCE
Ronald H. Brown, Secretary
National Oceanic and Atmospheric Administration
Diana Josephson, Deputy Under Secretary

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PREFACE

The collection of fishes and cephalopods at the National Marine Mammal Laboratory (NMML) of the Alaska Fisheries Science Center (AFSC) 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 in the identification of cephalopod remains found in the stomachs, scats, and spewings of marine mammals. As such, the parts of cephalopods which persist after the soft parts are gone are prominent in the collection (i.e., beaks, gladii, and statoliths). See Fiscus (1991) for additional information on collection, preparation, and storage of reference materials. The size of the cephalopod collection increased dramatically in the late 1950s and 1960s with the advent of large-scale NMML 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, 41 genera, and 58 species. Most of the material is from the eastern North Pacific Ocean and the Bering Sea; however, 10 species from the western North Pacific Ocean, 9 from the eastern tropical Pacific Ocean, 3 from the Atlantic Ocean, 1 from the sub-Antarctic, and 2 from the southwest Pacific 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 sample was 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; HCL - hectocotylus length; HAL - hectocotylyzed arm length; LRL - lower rostral length; HL - hood length; and CL - crest 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 from the NMML. Classification of the collection follows that of Clarke and Truman (1988). Sweeney et al. (1992) should be consulted for recent nomenclature changes and geographical distribution.

As a working collection, it is not available for public viewing. Specialists desiring permission to work with the

collection must obtain approval from the NMML's Division Director.

The catalogue was first published in 1984 (Tech. Memo. NMFS F/NWC-65). This edition of the catalogue incorporates recent nomenclatural changes in names, identifies some specimens previously identified only to the family or genus level, to species and includes additional measurements of specimens already in the collection. An additional 110 new specimens have been added to the collection since 1984. Included in the appendices are revisions of identifications of cephalopods from earlier published papers and recent identifications of cephalopod species from marine mammal stomachs not published elsewhere.

CATALOGUE

Order Sepiida
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, Kesennuma, Miyagi
 Prefecture, Honshu, Japan, by H. Kajimura. Parts
 saved: 1 entire specimen.
- NMML 33. Sepia andreana
 Collected 24 April 1965, Kesennuma, Miyagi
 Prefecture, Honshu, Japan, by H. Kajimura. Parts
 saved: 1 entire specimen.
- NMML 34. Sepia esculenta?
 Collected 24 April 1965, Kesennuma, Miyagi
 Prefecture, Honshu, Japan, by H. Kajimura. Parts
 saved: 1 entire specimen.

Order Sepiolida
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'N,
 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.

Family Sepiolidae (Cont.).

NMML 471. Rossia pacifica

Collected 29 March 1981, lat. 59°46'N,
long. 170°18'E. South of Cape Olyutorskiy, Bering
Sea. By G. A. Antonelis. From the stomach of
Eriqnathus barbatus. Specimen ZV-8-81. Parts
saved: 1 pair beaks. Det. C. H. Fiscus.

Order Teuthida
Suborder Myopsida
Family Loliginidae

- NMML 36. Loligo japonica
 Collected 24 April 1965, Kesennuma, 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 US 64-
 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 NMML
 37.
- NMML 41. Loligo opalescens
 Collected November 1959, Puget Sound, Washington, by
 T. O'Brien. Parts saved: 2 entire males; see NMML 37.

Family Loliginidae (Cont.).

- NMML 42. Loligo opalescens
Collected 29 January 1961, Borella 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.

Family Loliginidae (Cont.).

- 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.
- 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.

Family Loliginidae (Cont.).

- NMML 54. Loligo opalescens
 Collected (no date). Parts saved: pens only.
- 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.

Family Loliginidae (Cont.)

- 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.
- 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 (Cont.).

- NMML 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 414. Loligo opalescens
Collected 10 December 1983 off Redondo, Puget Sound, Washington, by R. Lauzon and R. W. Mercer, by light attraction at night in Lampera-type net. Male, DML 206 mm, weight 142 g. Reproductive development mature - spermatophores present. Parts saved: 1 entire specimen.
- NMML 414a. Beaks and radula of 414.
- NMML 414b. 2 statoliths of 414.
- NMML 415. Loligo opalescens
Collected 10 December 1983 off Redondo, Puget Sound, Washington, by R. Lauzon and R. W. Mercer, by light attraction at night in Lampera-type net. Male, DML 192 mm, weight 136 g. Reproductive development mature - spermatophores present. Parts saved: 1 entire specimen.
- NMML 415a. Beaks and radula of 415.

Family Loliginidae (Cont.).

NMML 415b. 2 statoliths of 415.

NMML 416. Loligo opalescens

Collected 10 December 1983 off Redondo, Puget Sound, Washington, by R. Lauzon and R. W. Mercer, by light attraction at night in Lampera-type net. Male, DML 182 mm, weight 112 g. Reproductive development immature. Parts saved: 1 entire specimen.

NMML 416a. Beaks and radula of 416.

NMML 416b. 1 statolith of 416.

NMML 417. Loligo opalescens

Collected 10 December 1983 off Redondo, Puget Sound, Washington, by R. Lauzon and R. W. Mercer, by light attraction at night in Lampera-type net. Male, DML 180 mm, weight 111 g. Reproductive development immature. Parts saved: 1 entire specimen.

NMML 417a. Beaks and radula of 417.

NMML 417b. 1 statolith of 417.

NMML 418. Loligo opalescens

Collected 10 December 1983 off Redondo, Puget Sound, Washington, by R. Lauzon and R. W. Mercer, by light attraction at night in Lampera-type net. Male, DML 180 mm, weight 117 g. Reproductive development immature. Parts saved: 1 entire specimen.

NMML 418a. Beaks and radula of 418.

NMML 418b. 2 statoliths of 418.

Family Loliginidae (Cont.).

NMML 419. Loligo opalescens

Collected 10 December 1983 off Redondo, Puget Sound, Washington, by R. Lauzon and R. W. Mercer, by light attraction at night in Lampera-type net. Male, DML 183 mm, weight 103 g. Reproductive development mature - spermatophores present. Parts saved: 1 entire specimen.

NMML 419a. Beaks and radula of 419.

NMML 419b. 2 statoliths of 419.

NMML 420. Loligo opalescens

Collected 10 December 1983 off Redondo, Puget Sound, Washington, by R. Lauzon and R. W. Mercer, by light attraction at night in Lampera-type net. Male, DML 189 mm, weight 129 g. Reproductive development mature - spermatophores present. Parts saved: 1 entire specimen.

NMML 420a. Beaks and radula of 420.

NMML 4210b. 1 statolith of 420.

NMML 421. Loligo opalescens

Collected 10 December 1983 off Redondo, Puget Sound, Washington, by R. Lauzon and R. W. Mercer, by light attraction at night in Lampera-type net. Male, DML 180 mm, weight 125 g. Reproductive development mature - spermatophores present. Parts saved: 1 entire specimen.

Family Loliginidae (Cont.).

NMML 421a. Beaks and radula of 421.

NMML 421b. 2 statoliths of 421.

NMML 422 Loligo opalescens

Collected 10 December 1983 off Redondo, Puget Sound, Washington, by R. Lauzon and R. W. Mercer, by light attraction at night in Lampera-type net. Male DML 192 mm, weight 137 g. Reproductive development mature - spermatophores present. Parts saved: 1 entire specimen.

NMML 422a. Beaks and radula of 422

NMML 422b. 2 statoliths of 422.

NMML 423. Loligo opalescens

Collected 11 January 1984 (1945-2100 hrs.) at Edmonds, Puget Sound, Washington, by R. W. Mercer, by jigging off fishing pier. Female, DML 170 mm. Reproductive development mature - eggs. Parts saved: Buccal mass. Det. by R. W. Mercer and S. Maupin.

NMML 423a. 2 statoliths of 423.

NMML 424. Loligo opalescens

Collected 11 January 1984 (1945-2100 hrs.) at Edmonds, Puget Sound, Washington, by R. W. Mercer, by jigging off fishing pier. Male, DML 175 mm. Reproductive development mature. Parts saved: Buccal mass. Det. by R. W. Mercer and S. Maupin.

Family Loliginidae (Cont.).

NMML 424a. 2 statoliths of 424.

NMML 425. Loligo opalescens

Collected 11 January 1984 (1945-2100 hrs.) at Edmonds, Puget Sound, Washington, by R. W. Mercer, by jigging off fishing pier. Male, DML 170 mm. Reproductive development mature. Parts saved: Buccal mass. Det. by R. W. Mercer and S. Maupin.

NMML 425a. 2 statoliths of 425.

NMML 426. Loligo opalescens

Collected 11 January 1984 (1945-2100 hrs.) at Edmonds, Puget Sound, Washington, by R. W. Mercer, by jigging off fishing pier. Male, DML 160 mm. Reproductive development mature. Parts saved: Buccal mass. Det. by R. W. Mercer and S. Maupin.

NMML 426a. 2 statoliths of 426.

NMML 454. Loligo opalescens

Collected 4 May 1984, lat. 57°37.5'N, long. 136°23.0'W, Salisbury Sound, Alaska by R. W. Mercer. NOAA ship Chapman Cruise CH-84-03 by bottom trawl. Depth 69 fathoms. Water temp. on bottom 6.9°C. Time: 1224 hrs. Reproductive development - (Maturity): females 95%, males 60%. Parts saved: 58 entire specimens. Det. R. W. Mercer. (See Wing and Mercer 1990 - west of Myriad Islands specimens.)

Family Loliginidae (Cont.).

NMML 457. Loligo opalescens

Collected 18 December 1987, Elliott Bay, Puget Sound, Washington, by H. Kajimura, by jigging under lights at night. Sex, length, and weight of 15 specimens.

No.	Sex	Length (mm)	Weight (g)
1.	M	190	145
2.	M	178	130
3.	M	177	130
4.	M	35	43
5.	M	176	120
6.	F	170	85
7.	M	178	133
8.	M	181	135
9.	M	196	155
10.	M	181	120
11.	F	168	80
12.	M	202	165
13.	M	177	120
14.	M	197	155
15.	F	153	90

Parts saved: 15 pairs beaks.

NMML 519. Loligo opalescens

Collected 4 August 1990, lat. 44°38'N, long. 124°31'W, by jig 60 m., V37H5-1 U.S.-Japan Cooperative Survey. Frozen upon capture, thawed in laboratory. Lab measurements. Male, DML 127 mm, weight 60 g. Parts saved: entire specimen.

NMML 519a. Beaks and radula of 519. LRL 1.5 mm.

NMML 519b. 2 statoliths of 519.

Family Loliginidae (Cont.).

- NMML 520. Loligo opalescens
 Collected 4 August 1990, lat. 44°38'N,
 long. 124°31'W, by jig 60 m., V37H5-2 U.S.-Japan
 Cooperative Survey. Frozen upon capture, thawed in
 laboratory. Lab measurements. Male, DML 108 mm,
 weight 50 g. Parts saved: entire specimen.
- NMML 520a. Beaks and radula of 520. LRL 1.5 mm.
- NMML 520b. 2 statoliths of 520.
- NMML 58. Loligo pealei?
 Collected (no date), Atlantic Ocean. Specimen
 504315. Parts saved: beaks only.
- NMML 456. Loligo pealei
 Collected lat. 29°57.0'N, long. 86°45.0'W, by R. W.
 Mercer. Depth 75 fathoms. Male, DML 297 mm. Parts
 saved: statoliths. Det. R. W. Mercer.
- NMML 35. Doryteuthis bleekeri
 Collected 24 April 1965, Kesennuma, Miyagi
 Prefecture, Honshu, Japan, by H. Kajimura. Parts
 saved: 4 entire specimens.
- NMML 55. Lolliquncula brevis (Fitch and Brownell 1971)
 Collected 7 February 1969, Uruguay, South America.
 From the stomach of Pontophoria blainvillei,
 specimen R.L.B. 465. Parts saved: beaks only.
 Identification verified by G. L. Voss (letter 19
 November 1969).

Family Loliginidae (Cont.).

NMML 473. Loliguncula brevis

Collected 20 January 1964, Pens Bay, Newfoundland,
Canada, by Frederick Aldrich. Parts saved: 2 entire
specimens. DML 44 and 41 mm.

Order Teuthida
 Suborder Oegopsida
 Family Enoploteuthidae

- 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.
 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.
- 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.

¹Most likely A. felis.

Family Enoploteuthidae (Cont.).

- 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.
- 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 US 70-271.
Parts saved: 1 pair beaks.

Family Enoploteuthidae (Cont.).

- 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 US 70-283.
Parts saved: 1 upper 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 Teuthida
Suborder Oegopsida
Family Enoploteuthidae
Subfamily Pyroteuthinae

NMML 436. ? Pterygioteuthis giardi (gemmata - Jefferts 1983)

Collected 18 August 1984, Guadalupe Island, Mexico,
by R. L. DeLong, from the scat of Arctocephalus
townsendi, specimen At84-13a. Parts saved: 1 upper
beak.

Order Teuthida
Suborder Oegopsida
Family Octopoteuthidae

- NMML 144. Octopoteuthis sp. (deletron?) (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 deletron
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.
- NMML 437. Octopoteuthis deletron
Collected 29 April 1984, San Miguel Island, California, by G. A. Antonelis, by lavage from stomach of Mirounga angustirostris, specimen A-27. Parts saved: 1 lower beak.
- NMML 474. Octopoteuthis deletron
Collected 11 June 1964, off central California. From stomach of male P. macrocephalus, specimen Rice 1964-1054. Parts saved: 1 upper beak, 1 lower beak. LRL 9.0 mm.
- NMML 475. Octopoteuthis deletron
Collected 3 May 1967, off central California. From stomach of female P. macrocephalus, specimen Rice 1967-114. Parts saved: 1 lower beak. LRL 7.5 mm.

Family Octopoteuthidae (Cont.).

- NMML 476. Octopoteuthis deletron
Collected 23 April 1968, off central California.
From stomach of female P. macrocephalus, specimen
Rice 1968-108. Parts saved: 2 upper beaks, 2 lower
beaks. LRL 7.0 and 7.0 mm.
- NMML 477. Octopoteuthis deletron
Collected 29 April 1968, off central California.
From stomach of female P. macrocephalus, specimen
Rice 1968-111. Parts saved: 1 upper beak, 2 lower
beaks. LRL 7.0 and 7.2 mm.
- NMML 478. Taningia danae
Collected 25 November 1966, off central California.
From stomach of male P. macrocephalus, specimen Rice
1966-165. Parts saved: lower beak. LRL 12.2 mm.
- NMML 491. Taningia danae
Collected 19 July 1990, West Cove, San Miguel
Island, California. From stomach of male Mirounga
angustirostris by lavage. Specimen Y1991/1992.
Parts saved: 2 lower beaks. LRL 15.0 and 8.0 mm,
and 3 upper beaks.
- NMML 492. Taningia danae
Collected 7 July 1989, San Miguel Island,
California. From stomach of male Mirounga
angustirostris by lavage. Specimen TX750. Parts
saved: 3 pairs? beaks. LRLs 16.0, 12.5, and
11.2 mm.

Order Teuthida
Suborder Oegopsida
Family Onychoteuthidae

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 432. Onychoteuthis banksii

Collected 18 August 1984, Guadalupe Island, Mexico,

by R. L. DeLong, from the scat of Arctocephalus townsendi, specimen At-84-34a. Parts saved:

12 upper and 12 lower beaks.

NMML 142. Onychoteuthis borealijaponica

Collected 24 July 1957, south of Aleutian Islands,

by R. A. Hajny. Parts saved: 1 entire specimen,

DML 343 mm.

Family Onychoteuthidae (Cont.).

- NMML 211. Onychoteuthis borealijaponica
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 borealijaponica
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 borealijaponica
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.
- NMML 216. Onychoteuthis borealijaponica
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.

Family Onychoteuthidae (Cont.).

- NMML 217. Onychoteuthis borealijaponica
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. 2 statoliths of 217.
- NMML 218. Onychoteuthis borealijaponica
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.
- NMML 219. Onychoteuthis borealijaponica
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 198 g. Parts saved: crown and
pen.
- NMML 219a. Beaks and radula of 219.
- NMML 219b. 1 statolith of 219.
- NMML 220. Onychoteuthis borealijaponica
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 132 mm, weight 141 g. Parts saved: beaks.

Family Onychoteuthidae (Cont.).

NMML 220a. 2 statoliths of 220.

NMML 221. Onychoteuthis borealijaponica

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 borealijaponica

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 33m).
Female, nidamental gland length 60 mm, DML 255 mm,
weight 448 g. Parts saved: beaks, radula.

NMML 222a 2 statoliths of 222.

NMML 223. Onychoteuthis borealijaponica

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°at 33m).
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 borealijaponica

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.

Family Onychoteuthidae (Cont.).

NMML 224a. 2 statoliths of 224.

NMML 224b. Male reproductive organs of 224.

NMML 225. Onychoteuthis borealijaponica

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.

NMML 226. Onychoteuthis borealijaponica

Collected 27 August 1981, lat. 47°33.3'N,
long. 125°56.6'W, by R. W. Mercer. By jigging.
Surface water temperature 15.7°C (6.6°C at 33m).
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 borealijaponica

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.

Family Onychoteuthidae (Cont.).

- NMML 315. Onychoteuthis borealijaponica
Collected 16 August 1966, lat. 50°15'N,
long. 176°22'W, by R. D. Carlson. MV Paraon cruise
38, set 42. Water temperature 10.3°C. Parts saved:
6 pair beaks and radulas.
- NMML 316. Onychoteuthis borealijaponica
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°C. Parts saved: 7 pair beaks and radulas.
- NMML 317. Onychoteuthis borealijaponica
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 borealijaponica
Collected 21 February 1961, lat. 35°18'N,
long. 121°34'W. From the stomach of C. ursinus,
specimen US61-696. Parts saved: 3 upper beaks,
3 lower beaks, 1 buccal mass.
- NMML 319. Onychoteuthis borealijaponica
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.

Family Onychoteuthidae (Cont.).

- NMML 320. Onychoteuthis borealijaponica
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 borealijaponica
Collected 27 March 1970, lat. 46°27'N,
long. 124°25'W. From the stomach of C. ursinus,
specimen US 70-125. Parts saved: 2 pair beaks.
- NMML 322. Onychoteuthis borealijaponica
Collected 30 March 1970, lat. 47°17'N,
long. 124°58'W. From the stomach of C. ursinus,
specimen US70-135. Parts saved: 7 upper and 8 lower
beaks.
- NMML 323. Onychoteuthis borealijaponica
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 borealijaponica
Collected 2 May 1970, lat. 46°38'N, long. 126°37'W.
From the stomach of C. ursinus, specimen US70-209.
Parts saved: 10 upper beaks, 11 lower beaks.
- NMML 325. Onychoteuthis borealijaponica
Collected 17 May 1970, lat. 46°29'N, long. 128°46'W.
From the stomach of C. ursinus, specimen US70-273.
Parts saved: 11 upper beaks, 13 lower beaks.

Family Onychoteuthidae (Cont.).

- NMML 326. Onychoteuthis borealijaponica
Collected 20 May 1970, lat. 46°43'N, long. 127°38'W.
From the stomach of C. ursinus, specimen US 70-302.
Parts saved: 1 pair beaks with buccal mass.
- NMML 327. Onychoteuthis borealijaponica
Collected 20 May 1970, lat. 46°45'N, long. 126°58'W.
From the stomach of C. ursinus, specimen US70-318.
Parts saved: 19 upper beaks, 20 lower beaks.
- NMML 328. Onychoteuthis borealijaponica
Collected (no date), San Miguel Island, California,
by E. C. Jameyson. Specimen ECJ-063. Parts saved:
1 pair beaks.
- NMML 342. Onychoteuthis borealijaponica
Collected 1957, North Pacific Ocean, High Sea Salmon
Inventory. Parts saved: crown, gladius, 1 pair
beaks.
- NMML 343. Onychoteuthis borealijaponica
Collected 16 August 1966, lat. 50°15'N,
long. 176°22'W, by R. D. Carlson. MV Paraqon,
cruise 38, set 42. Parts saved: 6 gladii from fresh
whole specimens.
- NMML 344. Onychoteuthis borealijaponica
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.

Family Onychoteuthidae (Cont.).

- NMML 345. Onychoteuthis borealijaponica
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, DMLs 74, 73, 70, 67, and 52 mm,
measured 14 February 1983.
- NMML 346. Onychoteuthis borealijaponica
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, DMLs of 6 - 80, 71, 70, 65, 58,
and 54 mm, measured 14 February 1983.
- NMML 347. Onychoteuthis borealijaponica
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, DMLs 87 and 85 mm,
measured 14 February 1983.
- NMML 348. Onychoteuthis borealijaponica
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 upper
beaks. Examined by E. Hochberg, 1980.

Family Onychoteuthidae (Cont.).

- NMML 349. Onychoteuthis borealijaponica
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, DMLs
approximately 160 mm, measured 14 February 1983.
- NMML 350. Onychoteuthis borealijaponica
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 borealijaponica
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,
DMLs 121, 112, 112, 107, 104, 72, and 67 mm, measured
16 February 1983.
- NMML 356. Onychoteuthis borealijaponica
Collected 5 March 1962, lat. 42°00'N,
long. 177°52'W, by R. D. Carlson. MV Bertha Ann,
cruise 22, set. 9, measured 29 April 1992. Female,
DML 370 mm, nidamental gland length 84 mm. Parts
saved: 1 entire specimen.

Family Onychoteuthidae (Cont.).

- NMML 357. Onychoteuthis borealijaponica
Collected 5 March 1962, lat. 42°00'N,
long. 177°52'W, by R. D. Carlson. MV Bertha Ann,
cruise 22, set 9, measured 29 April 1992. Male?
DML 250 mm. Parts saved: 1 entire specimen.
- NMML 358. Onychoteuthis borealijaponica
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 borealijaponica
Collected 1963, North Pacific, by R. Hitz. RV John
N. Cobb. Parts saved: 2 entire specimens.
- NMML 360. Onychoteuthis borealijaponica
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 borealijaponica
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 borealijaponica
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 (Cont.).

- NMML 363. Onychoteuthis borealijaponica
Collected 14 June 1981, lat. 41°N, long. 180°, by C. Bouchet. RV Oshoro Maru research cruise, set 3, by surface gill net. Frozen upon capture - thawed in laboratory. Measured 14 July 1983. Male, DML 227 mm, weight 231 g. Parts saved: 1 statolith.
- NMML 364. Onychoteuthis borealijaponica
Collected 14 June 1981, lat. 41°N, long. 180°, by C. Bouchet. RV Oshoro Maru research cruise, set 3, by surface gill net. 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 borealijaponica
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 (Cont.).

- NMML 502. Onychoteuthis borealijaponica
Collected 14 August 1990, lat. 42°52'N,
long. 125°44'W, by jig 90 m, V37H15-1, U.S.-Japan
Cooperative Survey. Frozen upon capture, thawed in
laboratory. Lab measurements, female, DML 307 mm,
weight 600 g. Nidamental gland length 38 mm. Parts
saved: entire specimen.
- NMML 502a. Beaks and radula of 502. LRL 5.8 mm.
- NMML 502b. 1 statolith of 502.
- NMML 503. Onychoteuthis borealijaponica
Collected 19 August 1990, lat. 44°13'N,
long. 125°21'W, by jig 130 m, V68H19-3, U.S.-Japan
Cooperative Survey. Frozen upon capture, thawed in
laboratory. Lab measurements, female, DML 322 mm,
weight 880 g. Nidamental gland length 79 mm. Parts
saved: entire specimen.
- NMML 503a. Beaks and radula of 503. LRL 6.0 mm.
- NMML 503b. 2 statoliths of 503.
- NMML 504. Onychoteuthis borealijaponica
Collected 19 August 1990, lat. 44°13'N,
long. 125°21'W, by jig 130 m, V68H19-4, U.S.-Japan
Cooperative Survey. Frozen upon capture, thawed in
laboratory. Lab measurements, female, DML 308 mm,
weight 730 g. Nidamental gland length 54 mm. Parts
saved: entire specimen.
- NMML 504a. Beaks and radula of 504. LRL 5.6 mm.
- NMML 504b. 2 statoliths of 504.

Family Onychoteuthidae (Cont.).

- NMML 505. Onychoteuthis borealijaponica
Collected 19 August 1990, lat. 44°13'N,
long. 125°21'W, by jig 130 m, V68H19-5, U.S.-Japan
Cooperative Survey. Frozen upon capture, thawed in
laboratory. Lab measurements female, DML 297 mm,
weight 570 g. Nidamental gland length 40 mm. Parts
saved: entire specimen.
- NMML 505a. Beaks and radula of 505. LRL 6.0 mm.
- NMML 505b. 2 statoliths of 505.
- NMML 506. Onychoteuthis borealijaponica
Collected 8 August 1990, lat. 46°29'N,
long. 125°51'W, by jig 60 m, V37H9-3, U.S.-Japan
Cooperative Survey. Frozen upon capture, thawed in
laboratory. Lab measurements male, DML 165 mm,
weight 130 g. Parts saved: entire specimen.
- NMML 506a. Beaks and radula of 506. LRL not measureable.
- NMML 506b. 1 statolith of 506.
- NMML 507. Onychoteuthis borealijaponica
Collected 9 August 1990, lat. 45°49'N,
long. 124°36'W, by jig 60 m, V37H10-1, U.S.-Japan
Cooperative Survey. Frozen upon capture, thawed in
laboratory. Lab measurements male, DML 276 mm,
weight 260 g. Parts saved: entire specimen.
- NMML 507a. Beaks and radula of 507. LRL 5.0 mm.
- NMML 507b. 2 statoliths of 507.

Family Onychoteuthidae (Cont.).

- NMML 508. Onychoteuthis borealijaponica
 Collected 24 August 1990, lat. 46°23'N,
 long. 126°30'W, by jig 90 m, V37H25-2, U.S.-Japan
 Cooperative Survey. Frozen upon capture, thawed in
 laboratory. Lab measurements male, DML 233 mm,
 weight 280 g. Parts saved: entire specimen.
- NMML508a. Beaks and radula of 508. LRL 5.2 mm.
- NMML508b. 2 statoliths of 508.
- NMML 509. Onychoteuthis borealijaponica
 U.S.-Japan Cooperative Survey 1990. Spermiduct and
 related organs - various stages of development,
 spermatophores.
- a. V58H19-2 - Collected 19 August 1990,
 lat. 44°12'N, long. 124°54'W. Male, DML 239 mm,
 weight 320 g. Gonad weight 19.62 g.
- b. V63H4-1 - Collected 4 August 1990,
 lat. 44°56'N, long. 124°52'W. Male, DML 207 mm,
 weight 200 g. Gonad weight 7.1 g.
- c. V37H1-4 - Collected 1 August 1990,
 lat. 42°57'N, long. 124°57'W. Male, DML 228 mm,
 weight 270 g. Gonad weight 8.24 g.
- 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.

Family Onychoteuthidae (Cont.).

- NMML 208. Moroteuthis robusta
Collected 25 September 1960, off central California.
From the stomach of Physeter macrocephalus, specimen
Rice 287. Parts saved: 26 upper beaks, 22 lower
beaks. LRLs 12.0, 11.5, 11.5, 11.0, 11.0, 11.0,
10.5, 10.5, 10.5, 10.5, 10.0, 9.5, 9.0, and 8.0 mm.
Note: Three upper and 8 lower beaks (not paired)
deposited in the collection of the Marine Biological
Association of the United Kingdom, Plymouth,
England, June 1981. F12 Plymouth 81.
- 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.
LRL 7.5 mm.
- 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.

Family Onychoteuthidae (Cont.).

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 upper 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.

NMML 339. Moroteuthis robusta

Collected 25 October 1965, off central California. From stomach of male P. macrocephalus, specimen Rice 1966-155. Parts saved: 1 pair beaks, radula, and cartilagenous end cone and gladius fragment.
LRL 9.0 mm.

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. LRLs 7.5, 11.0, and 12.5 mm.

Family Onychoteuthidae (Cont.).

- 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 (larger pair LRL 12.5 mm) the smaller pair a good example of color development and for comparison with similar size O. borealijaponica.
- 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.
- 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.

Family Onychoteuthidae (Cont.).

- 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 upper 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).
LRL 6.0 mm.
- NMML 513. Moroteuthis robusta
Collected 24 August 1990, lat. 46°23'N,
long. 126°30'W, by jig, 90 M, V37H25-1, U.S.-Japan
Cooperative Survey. Frozen upon capture, thawed in
laboratory. Lab measurements female DML 478 mm,
weight 1,460 g. Nidamental gland length 63.0 mm.
Parts saved: entire specimen.
- NMML 513a. Beaks and radula of 513. LRL 6.8 mm.
- NMML 513b. 2 statoliths of 513.
- NMML 514. Moroteuthis robusta
Collected 31 August 1990, lat. 44°05'N,
long. 126°56'W, by jig, 90 m, V37H32-1, U.S.-Japan
Cooperative Survey. Frozen upon capture, thawed in
laboratory. Lab measurements male, DML 694 mm,
weight 3,780 g. Parts saved: entire specimen.

Family Onychoteuthidae (Cont.).

NMML 514a. Beaks and radula of 514. LRL 8.0 mm.

NMML 514b. 1 statolith of 514.

NMML 515. Moroteuthis robusta

Collected 17 August 1990, lat. 43°08'N,
long. 125°38'W, by jig, 100 m, V58-H17-1, U.S.-Japan
Cooperative Survey. Frozen upon capture, thawed in
laboratory. Lab measurements female, DML 490 mm,
weight 720 g. Nidamental gland length 59.0 mm.
Parts saved: crown (head, arms, tentacles).

NMML 515a. Beaks and radula of 515. LRL 6.5 mm.

NMML 515b. 1 statolith of 515.

NMML 516. Moroteuthis robusta

Collected 12 August 1990, lat. 42°15'N,
long. 126°32'W, by jig, 55 m, V68H12-1, U.S.-Japan
Cooperative Survey. Frozen upon capture, thawed in
laboratory. Lab measurements female, DML 440 mm,
weight 1,300 g. Nidamental gland length 46.0 mm.
Gonad weight 1.76 g. Parts saved: 1 tentacle,
1 arm, gladius.

NMML 516a. Beaks and radula of 516. LRL 5.2 mm.

NMML 516b. 2 statoliths of 516.

Family Onychoteuthidae (Cont.).

NMML 517. Moroteuthis robusta

Collected 24 August 1990, lat. 46°23'N,
long. 126°30'W, by jig, 90 m. V37H25, U.S.-Japan
Cooperative Survey. Frozen upon capture, thawed in
laboratory. Lab measurements female, DML 810 mm,
weight 6,080 g. Nidamental gland length 120 mm.
Parts saved: entire specimen.

NMML 517a. Beaks and radula of 517. LRL 9.0 mm.

NMML 517b. 2 statoliths of 517.

NMML 518. Moroteuthis robusta

Collected 24 August 1990, lat. 46°23'N,
long. 126°30'W, by jig, 90 m. V37H25, U.S.-Japan
Cooperative Survey. Frozen upon capture, thawed in
laboratory. Lab measurements female, DML 1,080 mm,
weight 13,140 g. Nidamental gland length 222 mm.
Parts saved: crown (head, arms, tentacles).

NMML 518a. Beaks and radula of 518. LRL 11.5 mm.

Order Teuthida
Suborder Oegopsida
Family Gonatidae

Listing of genera and species follows that of Okutani et al.,
1988

- NMML 305. Gonatus cf. berryi
 Collected 30 May 1970, lat. 46°13'N, long. 125°20'W.
 From the stomach of C. ursinus, specimen US70-351.
 Parts saved: 3 upper, 2 lower beaks.
- NMML 439 Gonatus cf. berryi
 Collected 28 April 1984, San Miguel Island,
 California, by G. A. Antonelis, by lavage from
 stomach of Mirounga angustirostris, specimen A-21.
 Parts saved: 1 lower beak. Det. by F. G. Hochberg
 and C. H. Fiscus.
- NMML 440. Gonatus cf. berryi
 Collected 30 April 1984, San Miguel Island,
 California, by G. A. Antonelis, by lavage from
 stomach of M. angustirostris, specimen A-42. Parts
 saved: 2 lower beaks, 1 upper beak. Det. by F. G.
 Hochberg and C. H. Fiscus.
- NMML 441. Gonatus cf. berryi
 Collected 30 April 1984, San Miguel Island,
 California, by G. A. Antonelis, by lavage from
 stomach of M. angustirostris, specimen A-43 . Parts
 saved: 2 lower beaks.

Family Gonatidae (Cont.).

- NMML 289. Gonatus madokai²
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 madokai
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 madokai
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.
- NMML 292. Gonatus madokai
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 madokai
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.

² Note No. 289-295 identified 1 August 1987 C. H. Fiscus

Family Gonatidae (Cont.).

- NMML 294. Gonatus madokai
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. (Note - good match with
NMML 379a.)
- NMML 295. Gonatus madokai
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 296. Gonatus madokai
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.
- 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 hrs.
DML 210 mm, weight 45 g. Parts saved: 1 entire
specimen. Det. K. Jefferts.
- NMML 379a. Beaks and radula of 379. LRL 6.0 mm, HL 6.0 mm,
CL 13.0+ mm.

Family Gonatidae (Cont.).

- NMML 427. Gonatus madokai
Collected 15 July 1981, lat. 51°19'N,
long. 173°27'E, by P. J. Gearin. From the stomach
of Fratercula cirrhata. Gearin 82TP, by surface
gillnet. DML not measurable - small 30-40 mm.
Parts saved: 10 entire small specimens. Det. by
K. Jefferts.
- NMML 427a. Beaks, radula, and fragment of 427.
- NMML 180. Gonatus madokai?
Collected (no date), North Pacific, probably from
Pacific Salmon Investigations. Parts saved: 4
entire specimens, DMLs 97, 175, 150, and 180 mm.
- 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. Buccal mass and pen of 183.

Family Gonatidae (Cont.).

- 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, DMLs 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,
DMLs 51 and 40 mm (one hook visible on tentacle
clubs). Det. T. Kubodera and K. Jefferts, 21 March
1983.

Family Gonatidae (Cont.).

- NMML 263. Gonatus middendorffi
 Collected August 1971, between lat. 51° and 52°N,
 long. 170°W and 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 second 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 hrs.
 DML 220 mm. Parts saved: 1 entire specimen.
 Det. K. Jefferts and T. Kubodera.
- NMML 410a. Beaks and radula of 410. LRL 4.5 mm, HL 5.0 mm,
 CL 9.0 + mm.
- NMML 141 Gonatus middendorffi or G. madokai
 Collected (date and location unknown (Alaskan
 waters?)) From stomach of male Eumetopias jubatus,
 specimen SUV-5-76. Either G. middendorffi or
G. madokai. Parts saved: 1 lower beak.

Family Gonatidae (Cont.).

- 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 DMLs 63, 55, 42, 45, --, and
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.
- 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. DMLs of
specimens 191 a-b-c range from 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, DMLs 58 mm and 60
mm. Very good condition, not sexed.

Family Gonatidae (Cont.).

- 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.
- NMML 275. Gonatus onyx
Collected 27 March 1970, lat. 46°27'N,
long. 124°25'W. From the stomach of C. ursinus,
specimen US70-125. Parts saved: 2 upper, 1 lower
beaks. (identified 9 Aug. 1987 - C. H. Fiscus)
- NMML 276. Gonatus onyx
Collected 30 March 1970, lat. 47°17'N,
long. 124°58'W. From the stomach of C. ursinus,
specimen US70-135. Parts saved: 2 upper, 1 lower
beaks. (identified 2 Aug. 1987 - C. H. Fiscus)

Family Gonatidae (Cont.).

NMML 277. Gonatus onyx

Collected 2 May 1970, lat. 46°38'N, long. 126°37'W.
From the stomach of C. ursinus, specimen US70-209.
Parts saved: 4 upper, 5 lower beaks. (identified
9 Aug. 1987 - C. H. Fiscus)

NMML 438. Gonatus onyx

Collected 1 May 1984, San Miguel Island, California,
by G. A. Antonelis, by lavage from stomach
M. angustirostris, specimen A-48. Parts saved:
1 lower, 1 upper beak.

NMML 462. Gonatus onyx

Collected 16 April 1985, lat. 48°00'N,
long. 125°20'W. By E. Hacker, NOAA Platforms of
Opportunity Program Survey, Haul 62. By
"NorEastern" bottom trawl (non-closing). Depth
249 fathoms. DMLs 75, 70, 70, 65, and 64 mm. Parts
saved: 5 pair beaks. Det. E. Hacker.

NMML 463. Gonatus onyx

Collected 16 April 1985, lat. 47°58'N,
long. 125°18'W. By E. Hacker, NOAA Platforms of
Opportunity Program Survey, Haul 63. By
"NorEastern" bottom trawl (non-closing). Depth
227 fathoms. DML 65 mm. Parts saved: beaks. Det.
E. Hacker.

Family Gonatidae (Cont.).

- NMML 464. Gonatus onyx
Collected 30 April 1985, lat. 47°20'N,
long. 124°28'W. By E. Hacker, NOAA Platforms of
Opportunity Program Survey, Haul 100. By
"NorEastern" bottom trawl (non-closing). Depth
221 fathoms. DML 80 mm. Parts saved: beaks. Det.
E. Hacker.
- NMML 465. Gonatus onyx
Collected 2 May 1985, lat. 47°49'N, long. 125°12'W.
By E. Hacker, NOAA Platforms of Opportunity Program
Survey, Haul 110. By "NorEastern" bottom trawl
(non-closing). Depth 245 fathoms. DMLs 63, 54, 53,
and 52 mm. Parts saved: 3 pair beaks. Det. E.
Hacker.
- NMML 466. Gonatus onyx
Collected 2 May 1985, lat. 47°48'N, long. 125°10'W.
By E. Hacker, NOAA Platforms of Opportunity Program
Survey, Haul 111. By "NorEastern" bottom trawl
(non-closing). Depth 243 fathoms. DML 60 mm.
Parts saved: beaks. Det. E. Hacker.
- NMML 467. Gonatus onyx
Collected 21 May 1985, lat. 45°16'N, long. 124°24'W.
By E. Hacker, NOAA Platforms of Opportunity Program
Survey, Haul 201. By "NorEastern" bottom trawl
(non-closing). Depth 209 fathoms. DMLs 75 and
40 mm. Parts saved: 2 pair beaks. Det. E. Hacker.

Family Gonatidae (Cont.).

- NMML 468. Gonatus onyx
Collected 21 May 1985, lat. 45°14'N, long. 124°21'W.
By E. Hacker, NOAA Platforms of Opportunity Program
Survey, Haul 202. By "NorEastern" bottom trawl
(non-closing). Depth 202 fathoms. DMLs 75 and
50 mm. Parts saved: 2 pair beaks. Det. E. Hacker.
- 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 hrs.
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 281. Gonatus pyros
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. (identified 2 Aug. 1987
- C. H. Fiscus)

Family Gonatidae (Cont.).

- NMML 282. Gonatus sp. (type "A") (G. pyros? 2 Aug. 1987 - C. H. Fiscus). 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 284. Gonatus sp. (type "A") (G. pyros? 2 Aug. 1987 - C. H. Fiscus). Collected 20 May 1970, lat. 46°41'N, long. 127°27'W. From the stomach of C. ursinus, specimen US70-308. Parts saved: 1 upper, 2 lower beaks.
- NMML 285. Gonatus pyros
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. (identified 2 Aug. 1987 - C. H. Fiscus)
- NMML 286. Gonatus pyros
Collected 30 May 1970, lat. 46°13'N, long. 125°20'W. From the stomach of C. ursinus, specimen US70-351. Parts saved: 2 upper, 1 lower beak. (identified 2 Aug. 1987 - C. H. Fiscus)
- NMML 287. Gonatus pyros?
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. (identified 2 Aug. 1987 - C. H. Fiscus)

Family Gonatidae (Cont.).

- NMML 125. Gonatus sp. (fabricii type)³
Collected 26 May 1964, off central California. From stomach of female P. macrocephalus, specimen Rice 1047. Parts saved: 2 lower beaks, 1 upper beak. LRL 8.0 and 8.0 mm.
- 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. LRL 7.5 mm.
- 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. LRL 8.0 mm.
- 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. LRL 8.5 mm.
- 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"). LRL 8.5 mm.

³G. fabricii has not been identified from the North Pacific or its adjacent seas. Beaks similar to this species have been reported from marine mammal stomachs from the California Current System. See Fiscus et al. 1989, p. 5 for discussion of Gonatus sp. (cf. G. fabricii)

Family Gonatidae (Cont.).

- 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: 1 pair beaks
(type "2"). LRL 7.5 mm. 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"). LRL 8.8 mm. F17 Plymouth 1981. Det.
M. R. Clarke.
- 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. LRL 9.0 mm.
- NMML 447. Gonatus sp. (fabricii type)
Collected 30 April 1984, San Miguel Island,
California, by G. A. Antonelis, by lavage from
stomach of M. angustirostris, specimen A-43. Parts
saved: 1 lower beak. LRL 6 mm.
- 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.

Family Gonatitae (Cont.).

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"). (Note: On permanent loan to Oregon State University.)

NMML 190. Gonatus sp.

Collected 1963 (no location). RV John C. 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.

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.

Family Gonatidae (Cont.)

- 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 G.
onyx or G. 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 G.
pyros, no trace of optic photophore, clubs missing.
- NMML 278. Gonatus sp. (type "A") (G. onyx? G. californiensis.)
 Collected 4 May 1970, lat. 46°08'N, long. 125°22'W.
 From the stomach of C. ursinus, specimen US70-225.
 Parts saved: 3 upper, 3 lower beaks. (2 Aug. 1987 -
 C. H. Fiscus)
- NMML 279. Gonatus sp. (type "A") (G. californiensis?)
 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. (2 Aug. 1987 - C. H.
 Fiscus)

Family Gonatidae (Cont.)

- NMML 280. Gonatus sp. (type "A") (G. onyx?)
 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. (2 Aug. 1987 - C. H.
 Fiscus)
- NMML 283. Gonatus sp. (type "A") (1 beak and buccal mass G.
pyros?, 1 buccal mass G. onyx)
 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. (2 Aug. 1987 - C. H. Fiscus)
- NMML 288. Gonatus sp. (type "A") G. onyx plus one other
 species
 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. (9 Aug. 1987 - C. H.
 Fiscus)
- NMML 521. Gonatus sp.
 Collected 6 August 1990, lat. 47°19'N,
 long. 125°23'W, by jig 60 m, V37H7-1. U.S.-Japan
 Cooperative Survey. Frozen upon capture, thawed in
 laboratory. Lab measurements. Male, DML 123 mm,
 weight 33.0 g. Radula 5-row. Parts saved: entire
 specimen.
- NMML 521a. Beaks and radula of 521. LRL 2.8 mm.

Family Gonatidae (Cont.).

- NMML 411. Eogonatus tinro (see Okutani et al. 1988)
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 hrs.
Female, DML 184 mm, LRL 5 mm. Parts saved: 1 entire
specimen. Det. K. Jefferts and T. Kubodera.
- NMML 411a. Beaks of 411.
- NMML 412. Eogonatus 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 hrs.
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. Eogonatus 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 hrs.
Parts saved: 1 entire specimen. Det. K. Jefferts
and T. Kubodera.
- NMML 413a. Beaks and radula of 413.

Family Gonatidae (Cont.)

- NMML 413b. Spermatophores of 413. 1 spermatophore length 13 mm, 1 - 11 mm, 1 - incomplete.
- 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 inches. Parts saved: 3 entire specimens, DMLs 182 mm, male; 186 mm, male; and 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 inches. Parts saved: 4 entire specimens, male, DMLs 145, 162, 140, and 142 mm.
- 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 inches. 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, DMLs 190 and 190 mm, both adult males.

Family Gonatidae (Cont.)

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

Family Gonatidae (Cont.).

- 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 hrs. 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 long., 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.
- 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.

Family Gonatidae (Cont.).

- 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 inches. 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, DMLs 213 and 215 mm.
- NMML 173a. Gonatopsis borealis
Beaks of specimens 173.
- NMML 174. Gonatopsis borealis
Collected 1 July 1966, lat. 50°15'N, long. 176°22'W.
MV Paragon, cruise 38, set 6. Parts saved: 1 pair
beaks, gladius, and radula.

Family Gonatidae (Cont.).

- 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, DMLs 115, 75, and 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 (Cont.).

- 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. LRL 9.0 mm.
- 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. LRL 8.0 mm.
- 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. LRL 7.5 mm.

Family Gonatidae (Cont.).

NMML 249. Gonatopsis borealis⁴

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.

⁴Cruise 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 were extracted after a day of soaking.

Family Gonatidae (Cont.).

NMML 298. Gonatopsis borealis

Collected 26 July 1959, lat. 51°31'N,
long. 176°42'W. By surface trawl. Parts saved:
15 entire specimens. DMLs 29, 30, 37, 38, 44, 45,
45, 51, 52, 54, 57, 58, 60, 67, and 76 mm (measured
27 January 1983, some wear from length of time in
storage).

NMML 298a. 1 gladius (60 mm) and 1 upper 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).

Family Gonatidae (Cont.).

- 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, DMLs 31, 32, 35, 37, 38,
39, 39, 42, 42, 45, 45, 46, 50, 53, and 63 mm
(measured 27 January 1983, some wear from length of
time in storage).
- NMML 301a. 2 gladius of 301.
- NMML 301b. 2 pair beaks, 7 rowed radulas from additional
specimens DMLs 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.

Family Gonatidae (Cont.).

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.

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, DMLs 55, 51, 50, 47, 47, 42,
41, 37, 37, 36, and 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, DMLs 50, 48, and 42 mm (measured
27 January 1983, some wear due to length of time in
storage).

Family Gonatidae (Cont.).

- 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, DMLs 51, 47, 43, 42, 38, 38,
37, 35, 35, 34, 32, 31, 27, and 25 mm; 1
unmeasurable (measured 27 January 1983, some wear
due to length of time in storage).
- 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, DMLs 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.

Family Gonatidae (Cont.).

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, DML 202 mm, LRL 8.0 mm, 3 lower beaks, LRL
8.8, 8.5, and 8.2 mm, 1 gladius fragment.

NMML 334. Gonatopsis borealis

Collected 24 May 1970, lat. 47°38'N, long. 128°19'W.
From the stomach of C. ursinus, specimen US 70-325.
Parts saved: 1 entire specimen, plus 2 arms and
buccal masses - includes beaks. DMLs 138, 135, and
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.

Family Gonatidae (Cont.).

- 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 mm,
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 hrs.
DML 39 mm, weight 3.1 g. Parts saved: 1 entire
specimen, beaks separate in same vial. Det. K.
Jefferts.
- NMML 392. Gonatopsis borealis
Collected 27 June 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 hrs.
DML 41 mm, weight 3.9 g. Parts saved: 1 entire
specimen, beaks separate in same vial. Det. K.
Jefferts.

Family Gonatidae (Cont.).

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 hrs.
DML 44 cm., 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 hrs.
DML 45 cm., 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 hrs.
DML 50 mm, weight 7.7 g. Parts saved: 1 entire
specimen, beaks separate in same vial. Det. K.
Jefferts.

Family Gonatidae (Cont.).

- 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 hrs.
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 (Cont.).

- NMML 510. Gonatopsis borealis
Collected 26 August 1990, lat. 45°59'N,
long. 126°17'W, by jig 90 m, V37 H27-1 U.S.-Japan
Cooperative Survey. Frozen upon capture, thawed in
laboratory. Lab measurements, male, DML 318 mm,
weight 860 g. Parts saved: entire specimen.
- NMML 510a. Beaks and radula of 510. LRL not measurable.
- NMML 510b. 2 statoliths of 510.
- NMML 511. Gonatopsis borealis
Collected 14 August 1990, lat. 43°26'N,
long. 125°26'W, by jig 50 m, V68 H14-1 U.S.-Japan
Cooperative Survey. Frozen upon capture, thawed in
laboratory. Measurements, female, DML 284 mm,
weight 660 g. Nidamental gland length 57.0 mm.
Parts saved: entire specimen.
- NMML 511a. Beaks and radula of 511. LRL not measurable.
- NMML 511b. 2 statoliths of 511.
- NMML 512. Gonatopsis borealis
Collected 14 August 1990, lat. 43°26'N,
long. 125°26'W, by jig 50 m, V68 H14-2 U.S.-Japan
Cooperative Survey. Frozen upon capture, thawed in
laboratory. Lab measurements, male, DML 261 mm,
weight 500 g. Parts saved: entire specimen.
- NMML 512a. Beaks and radula of 512. LRL not measurable.
- NMML 512b. 2 statoliths of 512.

Family Gonatidae (Cont.).

- NMML 523. Gonatopsis makko
Collected 26 March 1959, from stomach of Ziphius cavirostris. Amchitka Island, Alaska, by K. Kenyon.
Parts saved: 1 lower beak damaged and worn, LRL 6.5 mm.
- NMML 524. Gonatopsis makko
Collected 26 March 1959, from stomach of Ziphius cavirostris, Amchitka Island, Alaska, by K. Kenyon.
Parts saved: 3 lower beaks, LRLs 8.5, 7.0, and 7.0 mm.
- NMML 409. Gonatopsis - (Type A Kubodera)
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 R. Cobb, Station 24, Atomic Energy Commission Project. Parts saved: 14 small entire specimens. Det. K. Jefferts.

Family Gonatidae (Cont.).

- 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 hrs.
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 hrs.
Female, DML 87 mm, weight 29 g. Parts saved:
1 entire specimen. Det. K. Jefferts.
- NMML 382a. Beaks and radula of 382.
- 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 hrs.
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.

Family Gonatidae (Cont.).

- NMML 399. Berryteuthis 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 g. 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.
- 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.

Family Gonatidae (Cont.).

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, spermatophores 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.

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 O. 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.

Family Gonatidae (Cont.).

- 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 B. 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 mm. Parts saved: 1
 entire specimen.
- NMML 192. Berryteuthis magister
 Collected 1963, probably North Pacific. RV John N.
Cobb. Parts saved: 4 entire specimens DMLs 108,
 92, 132, and 140 mm, plus buccal mass of much larger
 specimen.
- NMML 193. Berryteuthis magister
 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, DMLs 220 and 200 mm, of 193
 haul).
- NMML 193b. 1 buccal mass of 193.

Family Gonatidae (Cont.).

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. DMLs 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, and 55 mm. Not sexed.
 Parts saved: 24 entire specimens.

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.

	DML (mm)	Sex	Weight (g)	Parts saved*
NMML 195a.	363	F	1,525	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 the field after collection.

Family Gonatidae (Cont.).

- NMML 198. Berryteuthis magister
Collected (no date), North Pacific. Parts saved:
several gladii.
- NMML199. 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.

Family Gonatidae (Cont.).

- 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.
- 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.

Family Gonatidae (Cont.).

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.

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.

Family Gonatidae (Cont.).

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.

NMML 253a. Beaks and radula of 253.

NMML 253b. Statoliths of 253.

Family Gonatidae (Cont.).

- 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 of 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 of 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 of 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.
- NMML 256a. 1 statolith from 256.

Family Gonatidae (Cont.).

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,
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 147 mm, weight 109 g. Parts saved: beaks and
radula.

NMML 258a. 1 statolith from 258.

NMML 455. Berryteuthis magister

Collected 15 July 1984, lat. 55°05'N,
long. 166°40'W. By special deep haul, depth
188 fathoms. By R. W. Mercer. Sex unknown, DML 250
mm, weight 439 g. Parts saved: statoliths. Det. R.
W. Mercer.

Family Gonatidae (Cont.).

- NMML 452. Berryteuthis magister
Collected 24 March 1986, lat. 54°34.3'N,
long. 167°32.3'W. By bottom trawl. Depth 350 to
400 fathoms. Time: 2100 hrs. Male, DML 263, weight
645.8 g. Reproductive development mature --
spermatophores present. Parts saved: statoliths.
Det. W. Walker and E. Hacker.
- NMML 453. Berryteuthis magister
Collected 24 March 1986, lat. 54°34.3'N,
long. 167°32.3'W. By bottom trawl. Depth 350 to
400 fathoms. Time: 2100 hrs. Male, DML 223, weight
378.8 g. Reproductive development mature --
spermatophores present. Parts saved: statoliths.
Det. W. Walker and E. Hacker.
- NMML 472. Berryteuthis magister
Collected 7 February 1990, in Port Susan, Puget
Sound, Washington, lat. 48°08.1'N, long. 122°23.9'W.
By R. L. DeLong. NOAA ship Miller Freeman. By
bottom trawl. Depth 64 fathoms (117 m). Time not
reported. Female, DML 238 mm, weight 665 g.
Reproductive development mature -- egg diameter
3-4 mm. Nidamental gland length 100 mm.
approximately equal. Left tentacle length 230 mm.
Right tentacle broken off near base. Fin length
120 mm. Arm lengths, 1 - 100, 2 - 150, 3 - 115, and
4 - 120 mm. Parts saved: entire specimen. Det. C.
H. Fiscus.

Family Gonatidae (Cont.).

NMML 472a. Beaks and radula of 472. LRL 6.7 mm.

NMML 472b. 2 statoliths

Order Teuthida
Suborder Oegopsida
Family Architeuthidae

- NMML 110. Architeuthis japonica⁵
 Collected 16 September 1961, off central California.
 From stomach of male P. macrocephalus, specimen Rice
 535. Parts saved: 1 upper beak.
- NMML 111. Architeuthis japonica
 Collected 15 June 1963, off central California.
 From stomach of male P. macrocephalus, specimen Rice
 813. Parts saved: 1 upper beak.
- NMML 112. Architeuthis japonica
 Collected 25 November 1966, off central California.
 From stomach of male P. macrocephalus, specimen Rice
 1966-165. Parts saved: 1 upper beak.
- NMML 113. Architeuthis japonica
 Collected 1 December 1966, off central California.
 From stomach of female P. macrocephalus, specimen
 Rice 1966-177. Parts saved: 1 lower beak fragment.
- NMML 114. Architeuthis japonica
 Collected 9 December 1966, off central California.
 From stomach of male P. macrocephalus, specimen Rice
 1966-185. Parts saved: 1 upper beak.

⁵Note: (F. G. Hochberg, Santa Barbara Natural History
Museum, Santa Barbara, CA 93105) pers. commun. 24 Aug. 1987
Architeuthis from around the Pacific Rim - California to Japan
can be attributed to the species A. japonica.

Family Architeuthidae (Cont.).

- NMML 115. Architeuthis japonica
Collected 12 May 1967, off central California. From stomach of female P. macrocephalus, specimen Rice 1967-128. Photographed; see illustration in Fiscus and Rice (1974). Parts saved: 1 pair beaks, lower beak-patch on wing stage. LRL 11.0 mm.
- NMML 116. Architeuthis japonica
Collected 23 April 1968, off central California. From stomach of female P. macrocephalus, specimen Rice 1968-108. Parts saved: 1 upper beak.
- NMML 117. Architeuthis japonica
Collected 23 April 1968, off central California. From stomach of male P. macrocephalus, specimen Rice 1968-109. Parts saved: 1 upper beak fragment.
- NMML 118. Architeuthis japonica
Collected 13 June 1969, off central California. From stomach of female P. macrocephalus, specimen Rice 1969-143. Parts saved: 1 upper beak.
- NMML 119. Architeuthis japonica
Collected 19 November 1969, off central California. From stomach of male P. macrocephalus, specimen Rice 1969-201. Parts saved: 1 lower beak fragment.
LRL 12.0 mm.

Family Architeuthidae (Cont.).

NMML 120. Architeuthis japonica

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). LRL 12.5 mm.

NMML 486. Architeuthis japonica

Collected 19 July 1990, West Cove, San Miguel
Island, California. From stomach of male Mirounga
angustirostris by lavage, specimen Y1991/1992.
Parts saved: 1 lower beak, patch on wing stage,
LRL 10.3 mm.

Order Teuthida
Suborder Oegopsida
Family Histioteuthidae

- NMML 59. Histioteuthis 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, LRL 5.0 mm.
- NMML 60. Histioteuthis 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, LRL 6.0 mm. F6 Plymouth 1981 (verified
by M. R. Clarke).
- NMML 61. Histioteuthis dofleini
Collected 27 November 1966, off central California.
From stomach of female P. macrocephalus, specimen
Rice 1966-170. Parts saved: head, arms, tentacles.
- NMML 61a. Beaks of 61. LRL 5.0 mm.
- NMML 62. Histioteuthis dofleini
Collected 27 November 1966, off central California.
From stomach of female P. macrocephalus, specimen
Rice 1966-169. Parts saved: 1 pair beaks. LRL
6.0 mm.

Family Histioteuthidae (Cont.).

- NMML 63. Histioteuthis dofleini (identified 9 Aug. 1987 - C. H. Fiscus) Collected 14 May 1969, off central California. From stomach of male P. macrocephalus, specimen Rice 1969-120. Parts saved: 3 buccal masses. LRLs 5.0, 5.2, and 6.0 mm.
- NMML 433. Histioteuthis dofleini
Collected 18 August 1984, Guadalupe Island, Mexico, by R. L. DeLong, from the scat of A. townsendi, specimen At-84-34a. Parts saved: 1 pair? beaks.
- NMML 442. Histioteuthis dofleini
Collected 30 April 1984, San Miguel Island, California, by G. A. Antonelis, by lavage from stomach of M. angustirostris, specimen A-43. Parts saved: 2 lower beaks. Det. F. G. Hochberg and C. H. Fiscus.
- NMML 479. Histioteuthis dofleini
Collected 14 June 1966, off central California. From stomach of male P. macrocephalus, specimen Rice 1966-51. Parts saved: 1 lower beak. LRL 4.2 mm.
- NMML 443. Histioteuthis heteropsis
Collected 30 April 1984, San Miguel Island, California, by G. A. Antonelis, by lavage from stomach of M. angustirostris, specimen A-43. Parts saved: 5 lower beaks. Det. F. G. Hochberg and C. H. Fiscus.

Family Histioteuthidae (Cont.).

NMML 480. Histioteuthis heteropsis

Collected 19 May 1968, off central California. From
stomach of male P. macrocephalus, specimen Rice
1968-226. Parts saved: 1 lower beak. LRL 3.0 mm.

Order Teuthida
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.

NMML 522. Illex argentinus

Collected summer 1990, from Japanese squid fishery vicinity of Falkland Islands, South Atlantic Ocean, by jig, Wakashio Maru No. 68. Obtained by observer B. Bradley. Frozen upon capture, thawed in laboratory. Lab measurements: female, DML 350 mm, weight 1,070 g. Nidamental gland length 96.5 mm. Parts saved: entire specimen.

NMML 522a. Beaks and radula of 522. LRL 5.5 mm.

NMML 522b. 2 statoliths of 522.

NMML 522 c. Club end of a tentacle - from same package as 522 but not from 522.

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, U. S. National
Museum, 25 July 1967 (see notes and reprint
section). In Nat'l. Museum Collection
- 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 Public Market.
Probably from Japan. Parts saved: 2 entire
specimens, DMLs 222 and 232 mm, gladii lengths
213 and 225 mm.
- NMML 80a. 2 pair beaks of 80.
- NMML 80b. Suckers of 80.

Family Ommastrephidae (Cont.).
Subfamily Todarodinae

- NMML 428. Nototodarus gouldi⁶
Collected 1 August 1983, lat. 40°55.5'S,
long. 173°24'E, 1138 hrs, by R. H. Matlin, 1 Jan.
1983 (1.1.0 no. 18), by trawl, depth 45 m. Female,
DML 310 mm, weight 930 g. Parts saved: beaks. Det.
by R. H. Mattlin, New Zealand Fish. Res. Div. Note:
see footnote this page.
- NMML 429. Nototodarus gouldi
Collected 1 August 1983, lat. 40°55.5'S,
long. 173°24'E, 1138 hrs, by R. H. Mattlin, 1 Jan.
1983 (1.1.0 no. 32), by trawl, depth 45 m. Male,
DML 220 mm, weight 405 g. Parts saved: beaks. Det.
R. H. Mattlin, New Zealand Fish. Res. Div. Note:
see footnote this page.
- NMML 430. Nototodarus sloani
Collected 1 November 1983, lat. 44°40'S,
long. 172°17.8'E, 1620 hrs, by R. H. Mattlin,
14 Jan. 1983 (4.5.0 no. 4), by trawl, depth 53 m.
Male, DML 303 mm, weight 720 g. Parts saved: beaks.
Det. by R. H. Mattlin, New Zealand Fish. Res. Div.
Note: see footnote this page.

⁶Note: Nototodarus gouldi is found north of subtropical convergence. Nototodarus sloani is found south of subtropical convergence. See Smith, et al. 1987 for additional information.

Family Ommastrephidae (Cont.).
Subfamily Todarodinae

NMML 431. Nototodarus sloani

Collected 1 December 1983, lat. 46°01.2'S,
long. 170°29.5'E, 0713 hrs, by R. H. Mattlin,
15 Jan. 1983 (5.1.0 no. 4), by trawl, depth 50 m.
Male, DML 210 mm, weight 200 g. Parts saved: beaks.
Det. by R. H. Mattlin, New Zealand Fish. Res. Div.
Note: see footnote 6.

Family Ommastrephidae
Subfamily Ommastrephinae

- NMML 81. Ommastrephes bartrami
 Collected 1957, south of Aleutian Islands, by R. A.
 Hajny. Can 3. Parts saved: 1 entire specimen.
- NMML 82. Ommastrephes bartrami
 Collected 1957, south of Aleutian Islands, by R. A.
 Hajny. Parts saved: 2 entire specimens.
- NMML 84. Ommastrephes bartrami
 Collected 1957, south of Aleutian Islands, by R. A.
 Hajny. Parts saved: 1 tentacle and 1 arm.
- NMML 85. Ommastrephes bartrami
 1 pair beaks, radula, pen of 84.
- NMML 86. Ommastrephes bartrami
 Collected 13 October 1965, lat. 44°40'N,
 long. 178°02'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.
- NNML 210. Ommastrephes bartrami
 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.
 LRL 9.5 mm.

Family Ommastrephidae
Subfamily Ommastrephinae (Cont.).

NMML 365. Ommastrephes bartrami

Collected 14 June 1981, lat. 41°N, long. 180°, by C. Bouchet. RV 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. RV 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. LRL 10.0 mm.

NMML 366b. 2 statoliths of 366.

Family Ommastrephidae
Subfamily Ommastrephinae (Cont.).

- NMML 367. Ommastrephes bartrami
Collected 14 June 1981, lat. 41°N, long. 180°. by
C. Bouchet. RV Oshoro Maru research cruise, set 3,
by surface gill net. Frozen upon capture, thawed in
laboratory. Laboratory measurements 14 July 1983.
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.
- NMML 494. Ommastrephes bartrami
Collected 27 August 1990, lat. 45°10'N,
long. 126°43'W, by jig 80 m, V37H28-2, U.S.-Japan
Cooperative Survey. Frozen upon capture, thawed in
laboratory. Lab measurements, male, DML 300 mm,
weight 810 g. Parts saved: entire specimen.
- NMML 494a. Beaks and radula of 494. LRL 6.8 mm.
- NMML 494b. 2 statoliths of 494.
- NMML 495. Ommastrephes bartrami
Collected 13 August 1990, lat. 42°12.5'N,
long. 124°54'W, by jig 100 m, V63H13-3, U.S.-Japan
Cooperative Survey. Frozen upon capture, thawed in
laboratory. Lab measurements, female, DML 345 mm,
weight 1,100 g. Parts saved: entire specimen.
- NMML 495a. Beaks and radula of 495. LRL 7.1 mm.
- NMML 495b. 2 statoliths of 495.

Family Ommastrephidae
Subfamily Ommastrephinae (Cont.).

- NMML 496. Ommastrephes bartrami
Collected 26 August 1990, lat. 46°18'N,
long. 128°18'W, by jig 120 m, V58H26-3, U.S.-Japan
Cooperative Survey. Frozen upon capture, thawed in
laboratory. Lab measurements, female, DML 298 mm,
weight 740 g. Parts saved: entire specimen.
- NMML 496a. Beaks and radula of 496. LRL 7.0 mm.
- NMML 496b. 2 statoliths of 496.
- NMML 497. Ommastrephes bartrami
Collected 26 August 1990, lat. 46°35'N,
long. 128°29'W, by jig 100 m, V63H26-4, U.S.-Japan
Cooperative Survey. Frozen upon capture, thawed in
laboratory. Lab measurements, male, DML 348 mm,
weight 1,310 g. Parts saved: entire specimen.
- NMML 497a. Beaks and radula of 497. LRL not measurable.
- NMML 497b. 2 statoliths of 497.
- NMML 498. Ommastrephes bartrami
Collected 22 August 1990, lat. 45°15'N,
long. 126°44'W, by jig 120 m, V58H22-1, U.S.-Japan
Cooperative Survey. Frozen upon capture, thawed in
laboratory. Lab measurements, female, DML 488 mm,
weight 3,360 g. Parts saved: entire specimen.
- NMML 498a. Beaks and radula of 498. LRL 11.0 mm.
- NMML 498b. 2 statoliths of 498.

Family Ommastrephidae
 Subfamily Ommastrephinae (Cont.).

- NMML 499. Ommastrephes bartrami
 Collected 25 August 1990, lat. 47°34'N,
 long. 126°38'W, by jig 90 m, V37H26-3, U.S.-Japan
 Cooperative Survey. Frozen upon capture, thawed in
 laboratory. Lab measurements, female, DML 480 mm,
 weight 3,030 g. Parts saved: entire specimen.
- NMML 499a. Beaks and radula of 499. LRL 9.5 mm.
- NMML 499b. 2 statoliths of 499.
- NMML 500. Ommastrephes bartrami
 Collected 25 August 1990, lat. 47°34'N,
 long. 126°38'W, by jig 90 m, V37H26-5, U.S.-Japan
 Cooperative Survey. Frozen upon capture, thawed in
 laboratory. Lab measurements, male, DML 342 mm,
 weight 1,200 g. Parts saved: entire specimen.
- NMML 500a. Beaks and radula of 500. LRL 7.2 mm.
- NMML 500b. 2 statoliths of 500.
- NMML 501. Ommastrephes bartrami
 U.S.-Japan Cooperative Survey, 1990. Spermiduct and
 related organs - various stages of development,
 spermatophores.
- a. V37H23-3. Collected 22 August 1990,
 lat. 44°25'N, long. 126°44'W. Male, DML 373 mm,
 weight 1,520 g, gonad weight 26 g, spermiduct weight
 43.7 g.

Family Ommastrephidae
 Subfamily Ommastrephinae (Cont.).

b. V37H29-3. Collected 28 August 1990,
 lat. 44°45'N, long. 127°20'W. Male, DML 310 mm,
 weight 780 g, gonad weight 11.94 g.

c. V63H30-3. Collected 30 August 1990,
 lat. 44°29'N, long. 126°49'W. Male, DML 390 mm,
 weight 1,800 g, gonad weight 33.31 g.

d. V63H32-1. Collected 1 September 1990,
 lat. 44°22'N, long. 126°28'W. Male, DML 325 mm,
 weight 1,260 g, gonad weight 20.31 g.

NMML 87. Dosidicus gigas⁷
 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.

⁷Determination 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 (Cont.).

- 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.
- 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. LRL 3.5 mm.
- 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.

Family Ommastrephidae
Subfamily Ommastrephinae (Cont.).

- 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.
- 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.

Family Ommastrephidae
 Subfamily Ommastrephinae (Cont.).

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>upper 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). LRL 8.0 mm.

NMML 100. Dosidicus gigas

Collected 12 September 1976, Simonton Cove, San
 Miguel Island, California, by G. A. Antonelis.
 Washed ashore. Parts saved: buccal mass.
 LRL 9.5 mm.

NMML 101. Dosidicus gigas

Collected 12 September 1976, Simonton Cove, San
 Miguel Island, California, by G. A. Antonelis.
 Washed ashore. Parts saved: buccal mass.
 LRL 8.5 mm.

Family Ommastrephidae
Subfamily Ommastrephinae (Cont.).

- 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 hrs. Parts saved: 1 entire specimen.
Det. by C. F. E. Roper.
- NMML 102a. Buccal mass of 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. C. F.
E. Roper.
- 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 434. Dosidicus gigas
Collected 18 August 1984, Guadalupe Island, Mexico
by R. L. DeLong, from the scat of A. townsendi,
specimen AT-84-6. Parts saved: 2 upper and 2 lower
beaks.

Family Ommastrephidae
Subfamily Ommastrephinae (Cont.).

- NMML 106. Sthenoteuthis (Symplectoteuthis) oualaniensis⁸
 Collected 18 April 1968, lat. 8°10'N, long. 92°25'W,
 by W. F. Perrin. MV Carol Virginia, by dip net.
 Time: 2,000 hrs. Parts saved: 1 entire specimen.
 Det. by C. F. E. Roper.
- NMML 106a. Buccal mass and beaks of 106.
- NMML 107. Sthenoteuthis (Symplectoteuthis) oualaniensis
 Collected 21 July 1966, lat. 11°33'N, long. 91°21'W,
 by W. F. Perrin. By dip net. Time: 2200 hrs.
 Parts saved: 1 entire specimen. Det. C. F. E.
 Roper.
- NMML 107a. Buccal mass and beaks of 107.
- NMML 435. Eucleoteuthis (Symplectoteuthis) luminosa
 Collected 18 August 1984, Guadalupe Island, Mexico,
 by R. L. DeLong, from the scat of A. townsendi,
 specimen A-84-1. Parts saved: 4 upper and 5 lower
 beaks.

⁸See Roeleveld, M. A. (1982), p. 253 footnote.

Order Teuthida
Suborder Oegopsida
Family Thysanoteuthidae

NMML 109. Thysanoteuthis rombus

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

Order Teuthida
Suborder Oegopsida
Family Chiroteuthidae

- NMML 146. Chiroteuthis calyx (See Young 1972 and Jefferts 1983). 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.

Family Chiroteuthidae (Cont.).

- 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.
- NMML 151. Chiroteuthis calyx (see Stroud 1968)
Collected 20 April 1967, Mukkaw Bay, Washington.
From the stomach of stranded Grampus 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 angustirostris, 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 Stenella
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.

Family Chiroteuthidae (Cont.).

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.

NMML 444. Chiroteuthis calyx

Collected 29 April 1985, San Miguel Island,

California, by G. A. Antonelis, by lavage from

stomach of M. angustirostris, specimen A-26. Parts

saved: 2 lower beaks.

NMML 445. Chiroteuthis calyx

Collected 29 April 1984, San Miguel Island,

California, by G. A. Antonelis, by lavage from

stomach of M. angustirostris, specimen A-34. Parts

saved: 3 lower beaks.

Order Teuthida
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.

LRL 8.0 mm, HL 8.0 mm, CL 15.0 mm, wings dark. Det.
C. H. Fiscus and M. R. Clarke. F-4 Plymouth, June
1981.

Order Teuthida
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, (Tac-2-59).
Parts saved: 2 relatively entire specimens.

NMML 446. Cranchia scabra

Collected 29 April 1984, San Miguel Island,
California, by G. A. Antonelis, by lavage from
stomach of M. angustirostris, specimen A-28. Parts
saved: 2 lower beaks, 1 upper beak.

NMML 487. Cranchia scabra

Collected 8 May 1986, Adams Cove, San Miguel Island,
California. From stomach of female
M. angustirostris by lavage, specimen E912. Parts
saved: 1 lower beak, LRL 2.5 mm.

Order Teuthida
 Suborder Oegopsida
 Family Cranchiidae
 Subfamily Taoniinae

NMML 373. Taonius pavo⁹

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

NMML 373a. 1 entire specimen, DML 227 mm.

NMML 273b. Beaks and radula, DML 300 mm, LRL 6.0 mm.

NMML 374. Taonius pavo

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 hrs.
 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 hrs.
 DMLs 166, 195, and 245 mm. Parts saved: 3 entire
 specimens (2 + 1 body + crown). Det. K. Jefferts.

⁹Note: NMML Nos. 373, 374, 375, 122, 122a, 123 loaned to N. Voss 13 April 1987.

Family Cranchiidae
Subfamily Taoniinae (Cont.).

NMML 274a. Taonius pavo

Collected 13 December 1966, off central California.
From the stomach of male, P. macrocephalus, specimen
Rice 1966-189. Parts saved: 1 lower beak,
LRL 8.5mm.

NMML 122. Taonius sp.

Collected 4 September 1964, lat. 45°55'N,
long. 124°55'W. MV Commando, depth 400 fathoms.
Time: 1600 hrs. Parts saved: 1 entire specimen.
Somewhat distorted, DML 185 mm.

NMML 122a. Beaks and buccal mass of 122. LRL 5.5 mm.

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 upper, 1 lower beaks,
LRL 15 mm, F5 Plymouth 1981. Det. M. R. Clarke.

Family Cranchiidae
Subfamily Taoniinae (Cont.).

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, LRL 14.5 mm.

NMML 481. Megalocranchia sp.

Collected 14 June 1966, off central California.
From the stomach of male P. macrocephalus, specimen
Rice 1966-51. Parts saved: 1 lower beak,
LRL 7.5 mm.

NMML 482. Megalocranchia sp.

Collected 9 December 1966, off central California.
From the stomach of female P. macrocephalus,
specimen Rice 1966-184. Parts saved: 1 upper beak,
1 lower beak, LRL 6.5 mm.

NMML 483. Megalocranchia sp.

Collected 12 May 1967, off central California. From
the stomach of male P. macrocephalus, specimen Rice
1967-131. Parts saved: 1 upper beak, 1 lower beak,
LRL 13.5 mm.

NMML 484. Megalocranchia sp.

Collected 15 May 1968, off central California. From
stomach of male P. macrocephalus, specimen Rice
1968-120. Parts saved: 1 upper beak.

Family Cranchiidae
Subfamily Taoniinae (Cont.).

- NMML 126a. Galiteuthis sp.
Collected 20 April 1965, off central California.
From the stomach of male P. macrocephalus, specimen
Rice 1965-5. Parts saved: 1 lower beak.
- NMML 127. Galiteuthis sp.
Collected 29 October 1966, off central California.
From the stomach of male P. macrocephalus, specimen
Rice 1966-156. Parts saved: 1 pair beaks.
- NMML 127a. Galiteuthis sp.
1 buccal mass, 7-rowed radula, head and arms
fragment of 127. Number 3 of 4 jars. Beaks,
LRL 5.0 mm (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 (Fiscus -
type "1"). Beaks, LRL 5.5 mm.
- 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
the stomach of male P. macrocephalus, specimen Rice
1967-119. Parts saved: 1 lower beak.

Family Cranchiidae
Subfamily Taoniinae (Cont.).

NMML 137. Galiteuthis sp.

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

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 (Fiscus - 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 hrs.
DMLs 104 and 105 mm. Parts saved: 2 entire
specimens. Det. K. Jefferts.

NMML 448. Galiteuthis sp.

Collected 30 April 1984, San Miguel Island,
California, by G. A. Antonelis, by lavage from
stomach of M. angustirostris, specimen A-38. Parts
saved: 2 lower beaks. Det. F. G. Hochberg and C. H.
Fiscus.

Family Cranchiidae
Subfamily Taoniinae (Cont.).

NMML 449. Galiteuthis sp.

Collected 30 April 1984, San Miguel Island,
California, by G. A. Antonelis, by lavage from
stomach of M. angustirostris, specimen A-42. Parts
saved: 1 lower beak, 1 upper beak. Det. F. G.
Hochberg and C. H. Fiscus.

NMML 450. Galiteuthis sp.

Collected 28 April 1984, San Miguel Island,
California, by G. A. Antonelis, by lavage from
stomach of M. angustirostris, specimen A-21. Parts
saved: 1 lower beak, LRL 5.5 mm. Det. F. G.
Hochberg and C. H. Fiscus.

NMML 126a. Galiteuthis sp.

Collected 20 April 1965, off central California.
From the stomach of male P. macrocephalus, specimen
Rice 1965-5. Parts saved: 1 lower beak.

NMML 129. Galiteuthis sp.

Collected 9 December 1966, off central California.
From the stomach of male P. macrocephalus, specimen
Rice 1966-181. Parts saved: 1 lower beak,
LRL 6.0 mm.

Family Cranchiidae
Subfamily Taoniinae (Cont.).

NMML 135. Galiteuthis sp.

Collected 16 November 1967, off central California.
From the stomach of male P. macrocephalus, specimen
Rice 1967-241. Parts saved: 2 lower beaks (Fiscus -
type "1"), LRL 5.0 mm (patch on wing stage), LRL 6.0
mm (wing dark same as NMML 129).

NMML 135a. Galiteuthis sp.

Collected 16 November 1967, off central California.
From the stomach of male P. macrocephalus, specimen
Rice 1967-241. Parts saved: 1 lower beak (Fiscus -
type "2"), LRL 5.5 mm.

NMML 136a. Galiteuthis sp.

Collected 23 April 1968, off central California.
From the stomach of female P. macrocephalus,
specimen Rice 1968-108. Parts saved: 1 lower beak
(Fiscus - type "1").

NMML 121. Mesonychoteuthis sp.

Collected 19 October 1970, off central California.
From the stomach of male P. macrocephalus, specimen
Rice 1970-43. Parts saved: 2 pair beak fragments,
LRLs 30 and 32 mm. Det. M. R. Clarke, July 1981.
F-1 Plymouth 81.

Family Cranchiidae
 Subfamily Taoniinae (Cont.).

- NMML 125a Cranchiidae¹⁰ (resembles Galiteuthis)
 Collected 26 May 1964, off central California. From
 the stomach of female P. macrocephalus, specimen
 Rice 1047. 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 (Fiscus -
 type "1").
- NMML 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.
- NMML 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.

¹⁰Remainder 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
Subfamily Taoniinae (Cont.)

- NMML 140. Cranchiidae
Collected 10 March 1966, lat. 35 °08'N,
long. 121°25'W. From the stomach of L. obliquidens,
specimen 3218. Parts saved: 1 pair beaks.
- NMML 141a. Cranchiidae?
Collected (date and location unknown) (Alaska?).
From the stomach of male Eumetopias jubatus,
specimen SUV-5-76. Parts saved: 1 beak.

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, HL 13 mm.
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: 3 lower beaks,
HL 14, 13.5, 11 mm. 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, HL 12.5 mm, 2
upper 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, HL 11.0 mm, 1 upper
beaks.

Family Vampyroteuthidae

- 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, HL 14.0 mm, 1 upper 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, HL 11.5 and 9.0 mm.
- NMML 451 Vampyroteuthis infernalis
Collected 28 April 1984, San Miguel Island, California, by G. A. Antonelis, by lavage from the stomach of M. angustirostris, specimen A-24. Parts saved: 1 lower beak, HL 7.0 mm; 1 upper 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. MV 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 AFSC, RACE, 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 hrs. Parts saved: 3 entire specimens. Det. K. Jefferts.

NMML 377a. Beaks of 1 specimen with DML approximately 60 mm.

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 hrs. Parts saved: 6 entire specimens. Det. K. Jefferts.

Family Bolitaenidae (Cont.).

NMML 488. Japetella sp.

Collected 24 April 1985, San Miguel Island,
California, from stomach of female

M. angustirostris, specimen A90. Parts saved:

1 pair beaks.

NMML 489. Japetella sp.

Collected 12 May 1986, San Miguel Island,

California, from stomach of male M. angustirostris

by lavage, specimen E-980. Parts saved: 2 pair
beaks.

Order Octopoda
Suborder Incirrata
Family Octopodidae

- 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 hrs. 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 Octopodidae (Cont.).

NMML 207. Octopus dofleini

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

<u>Lower Beaks</u>	<u>Hood Length</u>	<u>Crest Length</u>
1	18.0 mm	41.5 mm
2	16.2 mm	37.8 mm
3	16.0 mm	37.8 mm

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.

Family Octopodidae (Cont.).

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°. Frozen
fresh. Male, DML 340 mm, weight 7 kg in laboratory.
Parts saved: 1 entire specimen.

NMML 237a. Beaks and radula of 237.

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.

Family Octopodidae (Cont.).

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 Octopodidae (Cont.).

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.

Family Octopodidae (Cont.).

NMML 260a. Beaks and radula of 260.

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 81-6,
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, Fig. 35) of 262.

NMML 262b. Statoliths of 262.

Family Octopodidae (Cont.).

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 1983. Female, DML 140 mm, total length 490 mm, field weight 454 g. Suckers at web edge somewhat enlarged on arms 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 1983. 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 (Cont.).

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 1983. Male,
DML 280 mm, TL 1,425 mm, field weight 15.4 kg,
HAL 825 mm, HL 235 mm. 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 459. Octopus dofleini

Collected 26 June 1973, lat. 55°20'N,
long. 168°05'W, by C. H. Fiscus. MV Mark I, cruise
73-36, Sta. B 18, haul 2, by bottom trawl. Depth
142 fathoms (259 m). Water temperature, surface
7.2°C, bottom 4.0°C. Female, DML 70 mm. Parts
saved: entire specimen. Det. F. G. Hochberg.

NMML 469. Octopus dofleini

Collected 26 June 1973, lat. 55°00'N,
long. 167°31'W, by C. H. Fiscus. MV Mark I, cruise
73-36, Sta. A-6, haul 1, by bottom trawl. Depth not
recorded. Water temperature, surface not recorded,
bottom not recorded. Male, DML not measured. Parts
saved: entire specimen. Det. F. G. Hochberg.

Family Octopodidae (Cont.).

NMML 470. Octopus dofleini

Collected 26 June 1973, lat. 55°00'N,
long. 167°31'W, by C. H. Fiscus. MV Mark I, cruise
73-36 Sta. A-1, haul 1, by bottom trawl. Depth not
recorded. Water temperature, surface not recorded, bottom not
recorded. Female, DML not measured. Parts saved:
entire specimen. Det. F. G. Hochberg.

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. F. 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. F. G. Hochberg.

Family Octopodidae (Cont.).

- 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. F. G. Hochberg.
- 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. F. 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 inch tentacles.
- NMML 10. Octopus sp.
Collected 10 August 1967, Puget Sound, Washington, by H. Kajimura. Parts saved: 1 pair beaks.

Family Octopodidae (Cont.).

- 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.
- 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. (Kenyon 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 Eriqnathus barbatus, specimen M-1562.
 Parts saved: 5 lower, 7 upper beaks. (4 O. dofleini, 1 Benthoctopus? - 27 Jan. 1988.)

Family Octopodidae (Cont.).

- 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. (O. dofleini - 27 Jan. 1988.)
- 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 upper beaks. (O. dofleini - 27 Jan.
 1988.)
- 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.
- NMML 25. Octopus sp.
 Collected 26 April 1961, Point Hope, Alaska. From
 stomach of P. hispida, specimen 1438. Parts saved:
 1 upper beak.
- NMML 493. Octopus sp.
 Collected 17 December 1987, Elliott Bay (Seattle,
 WA), by H. Kajimura. By squid jig. DML 29 mm
 (preserved), weight 10.8 g (preserved). Parts
 saved: entire specimen.

Family Octopodidae (Cont.).

NMML 458. Benthoctopus sp. A.

Collected 26 June 1973, lat. 55°20'N,
long. 168°05'W, by C. H. Fiscus. MV Mark I, cruise
73-36, Sta. B18, haul 2, by bottom trawl. Depth
142 fathoms (259 m). Water temperature, surface
7.2°C, bottom 4.0°C. Male, DML 35 mm. Parts saved:
entire specimen - beaks separate. Det. F. G.
Hochberg.

NMML 460. Benthoctopus sp. A.

Collected 26 June 1973, lat. 55°20'N,
long. 168°05'W, by C. H. Fiscus. MV Mark I, cruise
73-76, Sta. B18, haul 2, by bottom trawl. Depth
142 fathoms (259 m). Water temperature, surface
7.2°C, bottom 4.0°C. Female, DML 56 mm. Parts
saved: entire specimen - beaks separate. Det. F. G.
Hochberg.

NMML 461. Benthoctopus sp. A.

Collected 26 June 1973, lat. 55°20'N,
long. 168°05'W, by C. H. Fiscus. MV Mark I, cruise
73-36, Sta. B18, haul 2, by bottom trawl. Depth
142 fathoms (259 m). Water temperature, surface
7.2°C, bottom 4.0°C. Female, DML 25 mm. Parts
saved: entire specimen - beaks separate. Det. F. G.
Hochberg.

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 hrs.
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 Tremoctopodidae (Cont.).

- NOTE: All three (271-273) specimens badly crumpled. DML, VML, and 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 broken.
273. (1) broken off, (2) R - 300 mm, L broken, (3) R - 140 mm, L broken, (4) broken off.

Order Octopoda
Suborder Incirrata
Family Ocythoidae

NMML 19. Ocythoe tuberculata

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

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. 120°55'W, California. From the stomach of
C. ursinus, specimen US61-265. Parts saved: 1 pair
beaks. Det. F. G. Hochberg.

Family Ocythoidae (Cont.).

- 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. 1 pair beaks of 23.
- 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.
- NMML 490. Ocythoe tuberculata
Collected 7 July 1989, San Miguel Island,
California. From stomach of male Mirounga
angustirostris by lavage, specimen Tx 750. Parts
saved: 1 lower and 2 upper 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, Southwest
Fisheries Center. Parts saved: 1 entire specimen.

Order Octopoda
Suborder Incirrata
Family Allopsidae

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 lower beaks.

HL 13 mm, CL 27 mm (F-3 Plymouth 81). Det. C. H.

Fiscus and M. R. Clarke.

NMML 485. Alloposus mollis

Collected 16 September 1961, off central California.

From stomach of male P. macrocephalus, specimen Rice

1961-535. Parts saved: 1 lower beak. HL 13.0 mm,

CL 25.0 mm damaged.

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CITATIONS

CLARKE, M. R., and E. R. TRUMAN

1988. Introduction (to the Mollusca Vol. 12) Chap. I, pp 1-10. Table 1. Classifications of the Genera of Recent Cephalopods. Academic Press.

FISCUS, C. H.

1984. Catalogue of Cephalopods at the National Marine Mammal Laboratory, NOAA Tech. Memo NMFS F/NWC 65.

FISCUS, C. H.

1991. Notes on North Pacific Gonatids: Identification of body fragments and beaks from marine mammal stomachs. West. Soc. Malacol. Ann. Rpt. 23:2-6.

FISCUS, C. H., and D. W. RICE.

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

FISCUS, C. H., D. W. RICE, and A. A. WOLMAN.

1989. Cephalopods from the stomachs of sperm whales taken off California. U.S. Dep. Commer., NOAA Tech. Rep. NMFS 83, 12 p.

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.

JEFFERTS, K.

1983. Zoogeography and systematics of cephalopods of the northeastern Pacific Ocean. Ph.D. Diss., Oregon State University, Corvallis, Oregon, 291 p.

- 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. Atomic 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. Nat. Mar. Fish. Serv., Mar. Fish. Rev. 45(7-8-
9):56-62.
- OKUTANI, T., T. KUBODERA, and K. JEFFERTS.
1988. Diversity, distribution and ecology of gonatid
squids in the subarctic Pacific: A review. Bull. Ocean
Res. Inst., University of Tokyo, no. 26 (Part 1),
159-192.
- PATTIE, B. H.
1968. Notes on giant squid Moroteuthis robusta (Dall)
Verrill, trawled off the southwest coast of Vancouver
Island, Canada. Wash. Dept. 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, Natl. Hist., London, 359 p.

ROELEVELD, M. A.

1982. Interpretation of tentacular club structure in Sthenoteuthis oualaniensis (Lesson 1830) and Ommastrephes bartramii (Lesueur 1821) (Cephalopoda, Ommastrephidae). Ann. S. Afr. Mus. 89(4)1982:249-264, 6 Figs.

SASAKI, M.

1929. A monograph of the dibranchiate cephalopods of the Japanese and adjacent waters. J. Fac. Agri. Hokkaido Univ., vol. 20 supplementary number, 357 p. plus 30 plates.

SMITH, P. J., R. H. MATTLIN, M. A. ROELEVELD, and T. OKUTANI

1987. Arrow squids of the genus Nototodorus in New Zealand waters: systematics, biology and fisheries. N. Z. J. Mar. Freshwater Res., no. 121:315-326.

STROUD, R. K.

1968. Risso dolphin in Washington state. J. Mammal. 49:347-348.

SWEENEY, M. J., C. F. E. ROPER, K. M. MANGOLD, M. R. CLARKE, and
S. V. BOLETZKY (editors).

1992. "Larval" and juvenile cephalopods: A manual for
their identification. *Smithson. Contrib. Zoology*, 513, 282 p.

WING, B., and R. W. MERCER

1990. Temporary northern range extension of the squid
Loligo opalescens in southeast Alaska. *Veliger*
33(3):238-240.

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.

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

NMML Numbers: Cephalopod Collection (Cont.).

No.	Family	No.	Family
75	Enoploteuthidae	122	Cranchiidae
76	"	123	"
77	"	124	"
78	Ommastrephidae	125	"
79	"	126	"
80	"	127	"
81	"	128	"
82	"	129	"
83	Argonautidae	130	"
84	Ommastrephidae	131	"
85	"	132	"
86	"	133	"
87	"	134	"
88	"	135	"
89	"	136	"
90	"	137	"
91	"	138	"
92	"	139	"
93	"	140	"
94	"	141	"
95	"	142	Onychoteuthidae
96	"	143	"
97	"	144	Octopouthidae
98	"	145	"
99	"	146	Chiroteuthidae
100	"	147	"
101	"	148	"
102	"	149	Mastigoteuthidae
103	"	150	Chiroteuthidae
104	"	151	"
105	"	152	"
106	"	153	"
107	"	154	"
108	"	155	"
109	Thysanoteuthidae	156	"
110	Architeuthidae	157	Gonatidae
111	"	158	"
112	"	159	"
113	"	160	"
114	"	161	"
115	"	162	"
116	"	163	"
117	"	164	"
118	"	165	"
119	"	166	"
120	"	167	"
121	Cranchiidae	168	"

NMML Numbers: Cephalopod Collection (Cont.).

No.	Family	No.	Family
169	Gonatidae	216	Onychoteuthidae
170	"	217	"
171	"	218	"
172	"	219	"
173	"	220	"
174	"	221	"
175	"	222	"
176	"	223	"
177	"	224	"
178	"	225	"
179	"	226	"
180	"	227	"
181	"	228	Loliginidae
182	"	229	"
183	"	230	"
184	"	231	"
185	"	232	"
186	"	233	"
187	"	234	"
188	"	235	Octopodidae
189	"	236	"
190	"	237	"
191	"	238	Sepiolidae
192	"	239	Octopodidae
193	"	240	"
194	"	241	Onychoteuthidae
195	"	242	Gonatidae
196	"	243	"
197	"	244	"
198	"	245	Octopodidae
199	"	246	"
200	"	247	Gonatidae
201	"	248	"
202	"	249	"
203	"	250	"
204	"	251	"
205	"	252	"
206	"	253	"
207	Octopodidae	254	"
208	Onychoteuthidae	255	"
209	Gonatidae	256	"
210	Ommastrephidae	257	"
211	Onychoteuthidae	258	"
212	"	259	Octopodidae
213	"	260	"
214	Loliginidae	261	"
215	Cranchiidae	262	"

NMML Numbers: Cephalopod Collection (Cont.).

No.	Family	No.	Family
263	Gonatidae	310	Gonatidae
264	Octopodidae	311	"
265	"	312	"
266	"	313	"
267	"	314	"
268	Alloposidae	315	Onychoteuthidae
269	Vampyroteuthidae	316	"
270	"	317	"
271	Tremoctopodidae	318	"
272	"	319	"
273	"	320	"
274	Cranchiidae	321	"
275	Gonatidae	322	"
276	"	323	"
277	"	324	"
278	"	325	"
279	"	326	"
280	"	327	"
281	"	328	"
282	"	329	"
283	"	330	"
284	"	331	"
285	"	332	"
286	"	333	Gonatidae
287	"	334	"
288	"	335	"
289	"	336	Onychoteuthidae
290	"	337	"
291	"	338	"
292	"	339	"
293	"	340	"
294	"	341	"
295	"	342	"
296	"	343	"
297	"	344	"
298	"	345	"
299	"	346	"
300	"	347	"
301	"	348	"
302	"	349	"
303	"	350	"
304	"	351	"
305	"	352	"
306	"	353	"
307	"	354	"
308	"	355	"
309	"	356	"

NMML Numbers: Cephalopod Collection (Cont.).

No.	Family	No.	Family
357	Onychoteuthidae	404	Gonatidae
358	"	405	"
359	"	406	"
360	"	407	"
361	"	408	"
362	"	409	"
363	"	410	"
364	"	411	"
365	Ommastrephidae	412	"
366	"	413	"
367		414	Loliginidae
368	Octopodidae	415	"
369	"	416	"
370	"	417	"
371	Onychoteuthidae	418	"
372	Gonatidae	419	"
373	Cranchiidae	420	"
374	"	421	"
375	"	422	"
376	"	423	"
377	Bolitaenidae	424	"
378	"	425	"
379	Gonatidae	426	"
380	"	427	Gonatidae
381	"	428	Ommastrephidae
382	"	429	"
383	"	430	"
384	Vampyroteuthidae	431	"
385	"	432	Onychoteuthidae
386	"	433	Histioteuthidae
387	"	434	Ommastrephidae
388	Onychoteuthidae	435	"
389	"	436	Enoploteuthidae
390	Cranchiidae	437	Octopoteuthidae
391	Gonatidae	438	Gonatidae
392	"	439	"
393	"	440	"
394	"	441	"
395	"	442	Histioteuthidae
396	"	443	"
397	"	444	Chiroteuthidae
398	"	445	"
399	"	446	Cranchiidae
400	"	447	"
401	"	448	"
402	"	449	"
403	"	450	"

NMML Numbers: Cephalopod Collection (Cont.).

No.	Family	No.	Family
451	Vampyroteuthidae	498	Ommastrephidae
452	Gonatidae	499	"
453	"	500	"
454	Loliginidae	501	"
455	Gonatidae	502	Onychoteuthidae
456	Loliginidae	503	"
457	"	504	"
458	Octopodidae	505	"
459	"	506	"
460	"	507	"
461	"	508	"
462	Gonatidae	509	"
463	"	510	Gonatidae
464	"	511	"
465	"	512	"
466	"	513	Onychoteuthidae
467	"	514	"
468	"	515	"
469	Octopodidae	516	"
470	"	517	"
471	Sepiolidae	518	"
472	Gonatidae	519	Loliginidae
473	Loliginidae	520	"
474	Octopoteuthidae	521	Gonatidae
475	"	522	Ommastrephidae
476	"	523	Gonatidae
477	"	524	"
478	"		
479	Histioteuthidae		
480	"		
481	Cranchiidae		
482	"		
483	"		
484	"		
485	Alloposidae		
486	Architeuthidae		
487	Cranchiidae		
488	Bolitaenidae		
489	"		
490	Ocythoidae		
491	Octopoteuthidae		
492	"		
493	Octopodidae		
494	Ommastrephiade		
495	"		
496	"		
497	"		

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. Cranciidae
<u>Callorhinus ursinus</u>	<u>Loligo opalescens</u> <u>Abraliopsis</u> sp. <u>Watasenia scintillans</u> <u>Onychoteuthis borealijaponica</u> <u>Moroteuthis robusta</u> <u>Gonatus berryi</u> <u>Gonatus madokai</u> <u>Gonatus middendorffi</u> <u>Gonatus onyx</u> <u>Gonatus pyros</u> <u>Gonatus</u> sp. <u>Gonatopsis borealis</u> <u>Berryteuthis anonychus</u> <u>Berryteuthis magister</u> <u>Todarodus pacificus</u> <u>Chiroteuthis</u> sp. <u>Octopus</u> sp. <u>Ocythoe tuberculata</u>
<u>Arctocephalus townsendi</u>	<u>Onychoteuthis banksii</u> <u>Histioteuthis dofleini</u> <u>Dosidicus gigas</u> <u>Eucleoteuthis luminosa</u> <u>?Pterygioteuthis giardi</u>
<u>Enhydra lutris</u>	<u>Octopus</u> sp.
<u>Phoca vitulina</u>	<u>Octopus dofleini</u>
<u>Phoca hispida</u>	<u>Octopus</u> sp.
<u>Eriqnathus barbatus</u>	<u>Octopus</u> sp. <u>Rossia pacifica</u>

Marine Mammal Predators Notes in Catalogue and Cephalopod Prey
(Cont.).

MARINE MAMMALCEPHALOPOD PREYMirounga angustirostris

Octopoteuthis deletron
Taningia danae
Gonatus berryi
Gonatus onyx
Gonatus sp. (fabricii type)
Architeuthis japonica
Histioteuthis dofleini
Histioteuthis heteropsis
Chiroteuthis calyx
Cranica scabra
Taonius pavo
Galiteuthis sp.
Vampyroteuthis infernalis
Japetella sp.
Ocythoe tuberculata

Pontoporia blainvilleiLolliguncula brevisStenella graffmani

Abraliopsis affinis
 Chiroteuthidae

Stenella sp.Onychoteuthis banksiiDelphinus delphisCranchia scabraLagenorhynchus obliquidens

Gonatus sp. (fabricii type)
 Cranchiidae

Grampus griseus

Octopoteuthis deletron
Chiroteuthis calyx

Phocoenoides dalliWatasenia scintillans

Marine Mammal Predators Noted in Catalogue and Cephalopod Prey
(Cont.).

MARINE MAMMAL

Physeter macrocephalus

CEPHALOPOD PREY

Octopoteuthis deletron
Moroteuthis robusta
Gonatus sp. (fabricii type)
Gonatus sp.
Gonatopsis borealis
Architeuthis japonica
Histioteuthis dofleini
Histioteuthis heteropsis
Mastigoteuthis sp.
Taonius pavo
Megalocranchia
Galiteuthis sp.
Galiteuthis pacifica?
Mesonychoteuthis sp.
Cranchiidae
Vampyroteuthis internalis
Octopus dofleini
Alloposus mollis

APPENDIX C

Reexamination of cephalopod beaks from the stomach of Grampus griseus MMBL No. 3769.
 Published by R.K. Stroud - Risso dolphin in Washington State, J. Mammal. 49(2) 347-348.
 Original examination of beaks by Fiscus in 1967 - reexamined 8-11 October 1987.

Table 2. Stroud stomach contents of Grampus griseus (MMBL No. 3769)

<u>Original I D</u>	<u>Number</u>	<u>8-11 October 1987 ID</u>	<u>Number</u>
<u>Onychoteuthis banksii</u>	1	<u>Onychoteuthis borealijaponica</u>	¹ 1 pair beaks
<u>Octopodoteuthis sicula</u>	1	<u>Octopoteuthis deletron</u> In NMMML Coll. #145	¹ 1 pair beaks
<u>Chiroteuthis veranyi</u>	16	<u>Chiroteuthis calyx</u> In NMMML Coll. #151	¹ 13 lower beaks 8 upper beaks
<u>Gonatus fabricii</u>	4	<u>Gonatus pyros</u>	4 pair beaks
Gonatidae - form A ²	7	<u>Taonius pavo</u>	14 pair ? beaks
Gonatidae - form B ²	13	<u>Taonius pavo</u>	
Unidentified beaks	2	<u>Chiroteuthis calyx</u> (very small) unidentified (very small)	1 pair beaks 1 lower beak

¹ Nomenclature change.

² On reexamination, difference between A and B attributed to wear on lower beaks.

APPENDIX D

Examination of cephalopod beaks from the stomach of a Kogia sp.

Collected 30 December 1969, by R. L. DeLong

Location: stranded on beach at 16-17th Avenue, Santa Cruz, Santa Cruz County, California.

Specimens - no assigned numbers - 1 jar labelled Kogia Coll. R. L. DeLong

Species	Number Beaks		
<u>Moroteuthis robusta</u>	1	lower beak	LRL 13.5 mm.
<u>Ommastrephes bartrami</u>	1	pair beaks	LRL 13.0 mm.
<u>Histioteuthis dofleini</u>	3	lower beaks	
<u>Gonatus pyros</u>	2	pair ? beaks	
<u>Gonatus</u> sp.	2	lower beak fragments	
unidentified beaks			
upper beaks (Histioteuthis/Cranchiid)	4		
upper beaks	1	fragment	
upper beaks <u>Gonatopsis</u> ?	1	fragment	
lower beaks <u>Moroteuthis</u> ?	1	fragment	

Note. All beaks much darkened and worn from long stay in stomach.

Examination of cephalopod beaks from the stomach of a Kogia breviceps.

Collected 5 October 1977, by J. Rozdilsky

Location: stranded, freshly dead, on beach 13 km north of Oak Harbor, Whidbey Island, Puget Sound, Washington. Lat. 48°38'W. Long. 122°17'W. Skeletal remains in Burke Museum, University of Washington, Seattle.

Cephalopod specimens CC-6: 11 vials, NMML voucher collection.

Original examination of beaks by Fiscus, 4 October 1978, reexamined 7 July 1992.

<u>Original I D</u>	<u>Number</u>	<u>7 July 1992</u>	<u>Number</u>
<u>1st Chamber</u> stomach			
<u>Octopoteuthis</u> sp.	1	<u>Octopoteuthis deletron?</u>	1 upper beak
<u>2nd Chamber</u> stomach			
<u>Histioteuthis</u> sp. lower beaks	4	<u>Histioteuthis</u> sp.	5 lower beaks
upper beaks	8		
<u>Octopoteuthis</u> sp. lower beaks	17	<u>Octopoteuthis deletron</u>	17 lower beaks
upper beaks	22		22 upper beaks
Gonatidae		<u>Gon/Berry</u> ¹	
most likely <u>Gonatopsis</u> lower bks	18		17 lower beaks
<u>borealis</u> upper bks	13		15 upper beaks
<u>Onychoteuthis borealijaponicus</u>		<u>Onychoteuthis borealijaponica</u> ²	
lower beaks	5		6 lower beaks
upper beaks	6		2 upper beaks
Cranchidae		<u>Taonius pavo</u>	7 lower beaks
beaks pair	1	<u>Galiteuthis</u> sp.	5 lower beaks
		<u>Gonatus</u> sp. (fab. type) ³	1 lower beak
		Gonatidae	1 lower beak
Unidentified beaks		Unidentified beaks	
<u>Gonatus</u> sp.? lower beaks	14	Types 1	6 upper beaks
upper beaks	2	includes 2	5 upper beaks
		<u>Histioteuthis</u> sp. 3	3 upper beaks
Unident. beaks small & fragments		<u>Taonius</u> sp. 4	1 upper beak
lower beaks	1	<u>Galiteuthis</u> sp. 5	1 upper beak
upper beaks	4	6	1 upper beak
<u>3rd Chamber</u> stomach			
<u>Octopoteuthis</u> sp. upper beaks	2	<u>Octopoteuthis deletron</u>	2 upper beaks
<u>Histioteuthis</u> sp. lower beaks	1	<u>Histioteuthis dofleini</u>	1 lower beak
unidentified upper beaks	1	Gonatidae	1 upper beak

¹ Gon/Berry - Gonatopsis borealis or Berryteuthis magister.

² Nomenclature change.

³ See Note 3 Catalogue of Cephalopods.

Examination of cephalopod beaks from the stomach of a Kogia.

Collected January 1966 by W. J. Houck

Location: stranded on beach in Big Lagoon, Arcata, California. Skeletal remains in Museum, Humboldt State College, Arcata, California.

Cephalopod specimens CC-8:- 6 vials, NMML voucher collection.

Original examination by Fiscus, 8 August 1966, reexamined 7 July 1992.

<u>Original I D</u>			<u>7 July 1992</u>	
		<u>Number</u>		
<u>Onychoteuthis banksii</u>	lower beaks	3	<u>Onychoteuthis boreali-</u>	2 lower beaks
	upper beak	1	<u>japonica</u> ¹	1 upper beak
			<u>Histioteuthis dofleini</u>	1 lower beak
<u>Chroteuthis veranyi</u> ?	lower beak	1	<u>Chroteuthis calyx</u> ¹	1 lower beak
<u>Octopodoteuthis sicula</u>	lower beaks	5	<u>Octopoteuthis deletron</u> ¹	5 lower beaks
	upper beaks	3		3 upper beaks
Gonatidae	lower beaks	2	<u>Gonatus madokai</u> ?	2 lower beaks
	upper beak	1		1 upper beak
Unidentified	upper beak	1	Gonatidae	1 upper beak

¹ Nomenclature change.

Cephalopod specimens CC-7 - 1 vial from stomach of Delphinus delphis.

Collected 1968 by W. J. Houck, Humboldt State University, Arcata, California.

<u>Original I D</u>			<u>7 July 1992</u>		
<u>Octopoteuthis</u> sp.	lower beaks	3	<u>Octopoteuthis deletron</u>	3 lower beaks	
	upper beaks	4		3 upper beaks	
<u>Onychoteuthis</u> sp. ?			<u>Onychoteuthis borealijaponica</u>	1 lower beak	
				1 upper beak	
<u>Chiroteuthis</u> sp.	lower beak	1	<u>Taonius pavo</u>	3 lower beaks	
	upper beaks	2			
unidentified beaks			<u>Gonatus berrvi</u> ?	3 lower beaks	
			unidentified beaks	2 upper beaks	

Cephalopod specimens CC-10 - 3 vials from stomach of Mirounga angustirostris

Collected 9 July 1976 by R. K. Stroud, Oregon State University, Corvallis, Oregon.

Location: stranded, Fort Stevens State Park, Oregon. Stroud MM 76-13.

<u>Original I D</u>			<u>8 July 1992</u>		
<u>Entosphenus tridentatus</u>		1			
<u>Histioteuthis</u> sp.	pairs beaks	7	<u>Histioteuthis dofleini</u>	7 pairs beaks	
<u>Onychoteuthis borealijaponicus</u>	pair beaks	1	<u>Onychoteuthis borealijaponica</u>	1 pair beaks	
<u>Octopoteuthis</u> sp.	lower beaks	10	<u>Octopoteuthis deletron</u>	9 lower beaks	
	upper beaks	7		7 upper beaks	
<u>Chiroteuthis</u> sp.	lower beak	1	vial No. 4 not found		
Gonatidae	lower beaks	6	vial No. 4 not found		
	upper beaks	4	vial No. 4 not found		
<u>Gonatus</u> sp.	lower beak	1	vial No. 4 not found		
<u>Gonatopsis</u> or <u>Berryteuthis</u>	lower beaks	13	vial No. 4 not found		
	upper beaks	7	vial No. 4 not found		

Cephalopod specimens CC-11 - 1 vial from stomach of Delphinus delphis male.

Collected 6 March 1976 by R. K. Stroud, Oregon State University, Corvallis, Oregon.

Location: stranded, 1/4 mile north of Netarts Bay, Oregon. Stroud MM 76-3.

<u>Original I D</u>			<u>8 July 1992</u>		
<u>Chiroteuthis</u> sp.	upper beak	1			
<u>Abraliopsis</u> sp.	lower beak	1	<u>Abraliopsis</u> sp.	1 upper beak	
unidentified beaks	pairs ?	4		1 lower beak	
			<u>Rossia pacifica</u>	4 lower beaks	
				3 upper beaks	
			Gonatidae ?	1 upper beak	

Cephalopod specimens CC-12 - 1 vial from stomach of Mirounga angustirostris.

Collected 28 February 1975 by R. K. Stroud, Oregon State University, Corvallis, Oregon.
Location: stranded, Depoe Bay, Oregon. Stroud MM 75-2.

8 July 1992	1st examination
<u>Gonatus pyros</u> ?	1 lower beak
	2 upper beaks

Cephalopod specimens CC-13 - 1 vial from stomach of Delphinus delphis.

Collected January 1975 by R. K. Stroud, Oregon State University, Corvallis, Oregon.
Location: stranded, Neskowin, Oregon. Stroud MM 74-19.

8 July 1992	1st examination
<u>Loligo opalescens</u>	1 lower beak
	13 upper beaks
<u>Onychoteuthis borealijaponica</u>	10 lower beaks
	10 upper beaks
<u>Gonatus pyros</u>	3 upper beaks
	3 upper beaks ?
<u>Gon/Berry</u>	1 lower beak
<u>Histioteuthis</u> sp.	3 lower beaks
	2 upper beaks
<u>Taonius pavo</u>	1 lower beak
unidentified beaks	5 upper beaks

Cephalopod specimens CC-15 - 1 vial from stomach of Physeter macrocephalus.

Collected 19 August 1959, collector unknown.
Location: taken off west coast of Vancouver Island, Canada.

8 July 1992	1st examination
<u>Onychoteuthis borealijaponica</u>	6 lower beaks
	3 upper beaks
<u>Gonatus</u> sp.	1 lower beak
<u>Chiroteuthis calyx</u>	4 lower beaks
<u>Taonius pavo</u>	15 lower beaks
<u>Galliteuthis</u> sp.	1 lower beak
unidentified beaks	12 upper beaks

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AFSC-

- 15 KINOSHITA, R. K., A. GREIG, L. E. QUEIROLO, and J. M. TERRY. 1993. Economic status of the groundfish fisheries off Alaska, 1991, 94 p. NTIS No. PB93-197861.
- 14 PEREZ, M. A., and W. B. MCALISTER. 1993. Estimates of food consumption by marine mammals in the Eastern Bering Sea, 36 p. NTIS No. PB93-191195.
- 13 BERGER, J. D. 1993. Comparisons between observed and reported catches of retained and discarded groundfish in the Bering Sea and the Gulf of Alaska, 89 p. NTIS No. PB93-184711.
- 12 HARRISON, R.C. 1993. Data report: 1991 bottom trawl survey of the Aleutian Islands area, 144 p. NTIS No. PB93-186237.
- 11 LIVINGSTON, P. A., A. WARD, G. M. LANG, and M-S. YANG. 1993. Groundfish food habits and predation on commercially important prey species in the eastern Bering Sea from 1987 to 1989, 192 p. NTIS No. PB93-184703.
- 10 KINOSHITA, R. K., and J. M. TERRY. 1993. Oregon, Washington, and Alaska exports of edible fishery products, 1991, 47 p. NTIS No. PB93-159101.
- 9 KARINEN, J. F., M. M. BABCOCK, D. W. BROWN, W. D. MACLEOD, JR., L. S. RAMOS, and J.W. SHORT. 1993. Hydrocarbons in intertidal sediments and mussels from Prince William Sound, Alaska, 1977-1980: Characterization and probable sources, 69 p. NTIS No. PB93-159093.
- 8 WING, B. L. 1993. Winter oceanographic conditions in the eastern Gulf of Alaska, January-February 1986, 53 p. NTIS No. PB93-158335.
- 7 ARMISTEAD, C. E., and D. G. NICHOL. 1993. 1990 bottom trawl survey of the eastern Bering Sea and continental shelf, 190 p. NTIS No. PB93-156677.
- 6 WOLOTIRA, R. J., JR., T. M. SAMPLE, S. F. NOEL, and C. R. ITEN. 1993. Geographic and bathymetric distributions for many commercially important fishes and shellfishes off the West Coast of North America, based on research survey and commercial catch data, 1912-84, 184 p. NTIS No. PB93-167682.
- 5 GUTTORMSEN, M., R. NARITA, J. GHARRETT, G. TROMBLE, and J. BERGER. 1992. Summary of observer sampling of domestic groundfish fisheries in the northeast Pacific Ocean and Eastern Bering Sea, 1990, 281 p. NTIS No. PB93-159085.
- 4 GUTTORMSEN, M., R. NARITA, and J. BERGER. 1992. Summary of U. S. observer sampling of joint venture fisheries in the northeast Pacific Ocean and Eastern Bering Sea, 1990, 78 p. NTIS No. PB93-127546.
- 3 JOHNSON, P. A., S. D. RICE, and M. M. BABCOCK (compilers). 1992. Impacts of oil pollution and Prince William Sound studies: Bibliography of 1960-91 publications and reports, Auke Bay Laboratory, 98 p. NTIS No. PB93-114064.
- 2 KAJIMURA, H., and E. SINCLAIR. 1992. Fur seal investigations, 1990, 192 p. NTIS No. PB93-109080.