

A Bibliography of Literature Pertaining to the
Planktonic Ecosystem in the Gulf of Maine and
Nearby Waters, Including Life Histories and
Ecology of Certain Important Species
(Revised and expanded to September 1981)

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by

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INTRODUCTION

A great number of marine and estuarine species, including many economically important ones, spend a portion of their lives as members of the planktonic community. Others feed upon and live among the plankton as adults or juveniles. The planktonic ecosystem, therefore, plays an important role in the recruitment process and the ultimate year class strength of various fish and invertebrates.

This bibliography lists references to studies which relate in some way to the ecology, life history, growth, survival, reproduction of various members of the planktonic community, especially the larvae of important fish and invertebrates. Obviously, not all members are of equal importance, either in relation to the community, or in terms of human interest. For that reason only a few selected taxonomic categories have been included: fish, crustaceans, polychaetes, molluscs, etc. in general and a limited number of particular species which are economically important, especially abundant or conspicuous; or, serve as food, competitor or predator for those species. In addition to references dealing with the organisms themselves, there are others that deal with the habitat and environmental factors that affect the organisms.

The geographic area of particular concern is the Gulf of Maine and contiguous waters, but because some species and ecological problems are identical or very similar to those in other parts of the world, other geographic areas are included where appropriate.

The list of taxonomic, ecologic or other categories dealt with is given in Table 1. These are descriptions or key words, one or more of

which describes the subject matter of every bibliographic entry. Each has a code number consisting of an identifier (from 1 to 126), a location number (from 9-26) for use with the OS-6 IBM Word Processor. The code number alone can be used to locate visually any reference dealing with that subject from the lists in Table 2. Each bibliographic entry has an identifying number appearing near the left hand margin. This number is in decimal form so that new entries can be added in proper sequence.

To locate bibliographic references on a particular subject, select the species or other more general taxonomic group, and the appropriate code numbers for supplementary information - geographic area of interest, life history stage, scientific discipline, etc., from Table 1 - and either using Table 2, or the OS-6 Word Processor, obtain a list of all reference numbers dealing with that particular combination of topics. These references will be found in numerical order in the bibliography; they are also in alphabetical order by author. Due to limitations in the storage capacity of the OS-6, in many cases it has not been possible to file both the general and more specific taxonomic category of the various organisms covered. All are filed under the most specific category indicated by the title; but more general categories are filed only when machine capacity permits. Therefore, to ensure obtaining all titles for a general category such as fish, use not only the code word or number for "fish" (75), but also those for various particular fish.

Table 1. Subject categories of bibliographic entries. First number is the code number for that category; second number is the field location in the IBM OS-6 Word Processor.

TOPICS

- 1 - 12 Artificial culture
- 2 - 12 Assessment and management
- 3 - 11 Behavior
- 4 - 17 Bibliography
- 5 - 12 Biochemistry, biophysics and physiology
- 6 - 21 Calorimetry and food value data
- 7 - 15 Climatic changes
- 8 - 21 Distribution and field observations
- 9 - 12 Ecosystem theory
- 10 - 15 Environmental factors and effects
- 11 - 13 Estuaries
- 12 - 11 Fecal pellets
- 13 - 20 Feeding
- 14 - 17 General treatises
- 15 - 16 Geology
- 16 - 17 Glossaries
- 17 - 11 Growth and development
- 18 - 20 Life history
- 19 - 20 Metabolites and pheromones
- 20 - 12 Methods
- 21 - 20 Migration
- 22 - 21 Morphology
- 23 - 11 Mortality
- 24 - 16 Oceanography
- 25 - 11 Organic particulates and aggregates
- 26 - 11 Parasitism and commensalism
- 27 - 21 Population dynamics
- 28 - 20 Predation
- 29 - 24 Primary production and dissolved nutrients
- 30 - 16 Regional surveys and descriptions
- 31 - 20 Reproduction
- 32 - 11 RNA-DNA ratio
- 33 - 13 Salt marshes
- 34 - 15 Sedimentation
- 35 - 21 Taxonomy and identification
- 36 - 24 Toxic substances and pollution
- 37 - 15 Transport mechanisms
- 38 - 20 Trophic levels and food web

GEOGRAPHIC AREAS

- 39 - 14 Asia
- 40 - 23 Canadian Atlantic
- 41 - 14 Europe
- 42 - 14 Georges Bank
- 43 - 23 Gulf of Maine
- 44 - 23 Middle Atlantic Coast
- 45 - 23 Pacific Coast
- 46 - 14 South Atlantic and Gulf of Mexico
- 47 - 14 Southern New England

TAXONOMIC CATEGORIES

48 - 18	<u>Acartia</u>
49 - 9	Anchovy
50 - 18	Appendicularians
51 -	<u>Arctica</u>
52 - 9	Ascidians
53 - 9	Bacteria
54 - 18	Barnacles
55 - 9	Benthic invertebrates
56 - 9	Bivalves
57 - 9	Bluefish
58 - 18	Bryozoans
59 - 9	Butterfish
60 - 18	<u>Calanus</u>
61 - 18	<u>Centropages</u>
62 - 18	Chaetognaths
63 - 9	Cladocerans
64 - 18	Cod
65 - 9	Crab
66 - 9	Crustacean (Benthic)
67 - 9	Decapods
68 - 18	Diatoms
69 - 9	Dinoflagellates
70 - 9	Echinoderms
71 - 9	Eels
72 - 10	Eggs
73 - 9	<u>Eurytemora</u>
74 - 18	Euphausiids
75 - 9	Fish
76 - 18	Flounders
77 - 9	Goosefish
78 - 18	Haddock
79 - 9	Hake
80 - 18	Herring
81 - 19	Larvae and post larvae (fry)
82 - 9	<u>Limnoria</u>
83 - 9	Liparids
84 - 18	Lobsters
85 - 18	Lumpfish
86 - 9	Mackerel
87 - 9	<u>Macoma</u>
88 - 9	Medusae and ctenophores
89 - 9	Menhaden
90 - 9	<u>Menidia</u>
91 - 9	<u>Mercenaria</u>
92 - 18	<u>Microsetella</u>
93 - 18	<u>Modiolus</u>
94 - 18	Mummichog
95 - 9	Mysids
96 - 9	<u>Mya</u>
97 - 18	<u>Mytilus</u>
98 - 18	Nudibranchs

99 - 9 Ocean pout
100 - 18 Oithona
101 - 18 Pandalus
102 - 9 Placopecten
103 - 9 Pollack
104 - 9 Polychaetes
105 - 18 Protozoa
106 - 18 Pseudocalanus
107 - 9 Redfish
108 - 9 "Red water" organisms
109 - 9 Rock gunnel
110 - 9 Rotifers
111 - 9 Sand lance
112 - 9 Sculpin
113 - 18 Sea urchins
114 - 18 Shrimp
115 - 18 Smelt
116 - 18 Squid
117 - 18 Temora
118 - 18 Tomcod
119 - 18 Oysters
120 - 18 Zooplankton
121 - 9 Phytoplankton
122 - 9 Ocean quahog
123 - 18 Copepods
124 - 18 Gastropods
125 - 9 Sea raven
126 - 18 Cunner

Table 2. List of identifying numbers of bibliographic entries dealing with each subject category. For description of categories, find code number in Table 1.

1	2	3	3	4	5	5	7	8	8	8
1.03	1.015	1.011		1.10	2.22		1.0515	1.01	10.04	19.04
1.095	3.076	1.026		2.591	2.245		3.16	1.13	10.05	19.041
1.10	4.155	1.041		4.2001	2.64		3.368	2.01	10.08	19.0415
2.087	8.27	1.042		5.02	3.0501		4.2112	2.02	11.02	19.12
2.185	8.28	2.036		9.015	3.28		4.212	2.03	11.13	19.125
2.36	12.0407	2.125		11.03	3.35		4.2116	2.035	11.14	19.1701
2.588	19.497	2.215		12.301	4.16		8.075	2.06	12.0006	19.1703
5.04	19.675	2.225		13.231	5.012		19.5015	2.52	12.2101	19.1704
6.19		2.42		13.378	7.06		20.05	2.525	12.211	19.192
7.018		2.425		13.528	7.07			2.53	12.35	19.22
7.058		3.0503		18.035	8.154			2.304	13.10	19.29
7.09		3.144		9.21	8.155			2.54	13.11	19.30
7.21005		3.145		19.235	8.18			2.59	13.12	19.31
7.231		3.3415		19.4341	8.287			2.66	13.13	19.32
8.13		4.072		20.20	8.3001			3.078	13.151	19.33
8.26		4.156		23.222	8.31			3.14	13.16	19.34
12.231		4.2201			10.025			3.162	13.17	19.351
13.001		4.2318			10.091			3.171	13.27	19.5015
13.3805		5.069			10.14			3.22	13.285	19.551
14.001		6.15			11.028			3.23	13.322	19.571
16.011		7.022			11.155			4.02	13.3753	20.05
16.0201		7.20			12.05			4.06	13.38	20.071
19.05		8.231			12.315			4.08	13.4101	20.09
19.2207		9.0005			12.33			4.20	13.4115	20.035
19.503		10.024			12.34			4.21	13.43	20.10
20.18		11.028			12.343			4.2318	13.49	20.16
19.27		12.0405			13.003			4.2401	13.521	20.17
		13.014			13.20			5.07	13.561	23.01
		13.141			13.494			6.02	14.005	23.06
		13.401			13.495			6.022	14.01	23.13
		13.411		6	16.001			7.13	14.02	23.135
		14.005		2.074	16.1202			7.14	14.0401	23.1415
		14.04		12.09	16.12059			7.15	14.0402	23.15
		14.0402		12.314	16.1313			7.1501	14.12	23.24
		15.05		13.56	16.21			7.16	14.13	23.2811
		16.12019		16.14	16.211			7.17	14.14	23.2812
		18.25		16.15	18.065			7.22	14.16	23.282
		18.29		18.10	18.09			7.29	16.062	
		18.30		19.66	19.066			8.07	16.101	
		18.42		20.0805	19.43			8.075	16.1201	
		19.13			19.5005			8.095	16.17	
		19.1801			19.668			8.21	18.01	
		19.421			19.685			8.223	18.07	
		19.465			19.686			8.24	18.11	
		19.665			22.052			8.24001	18.13	
		20.071			22.06			8.265	18.233	
		22.045			22.068			8.35	18.35	
		22.0605			22.0725			8.36	18.41	
		22.072			23.171			8.38	18.42	
					23.287			10.03	19.01	

8	9	10	10	10	10	10	11	11		
3.29011	1.044	4.03	11.023	18.46			2.09	13.49		
3.29015	1.05	4.04	11.028	19.053			2.131	14.171		
7.0205	1.0515	4.09	11.10	19.061			2.21	15.015		
8.337	1.061	4.125	11.128	19.065			2.305	16.07		
8.40	1.11	4.127	11.22	19.066			2.49	16.1201		
11.113	1.12	4.13	12.02	19.09			2.591	16.275		
11.165	2.071	4.135	12.03	19.13			2.661	18.261		
12.04005	2.077	4.14006	12.04	19.16			3.09	19.02		
12.302	2.085	4.161	12.0405	19.1702			3.10	19.1704		
12.358	2.09	4.18	12.10	19.20			3.169	19.171		
13.04	2.11	4.201	12.101	19.254			3.17	19.221		
13.288	2.121	4.204	12.213	19.37			3.29018	19.255		
16.061	2.175	4.2313	12.23	19.377			3.31	19.641		
16.063	2.182	4.24	12.24	19.44			3.341	20.035		
16.071	2.2701	4.26	12.283	19.48			4.05	20.215		
16.08	2.28	5.067	12.29	19.52			4.131	20.22		
16.1323	2.29	6.052	12.32005	19.5502			7.20	20.225		
18.211	2.30	7.0201	12.321	19.675			4.21	21.02		
19.391	2.3001	7.05	12.327	19.68			4.211	21.029		
19.435	2.304	7.08	12.36	20.035			4.2115	21.03		
19.575	2.33	7.155	12.361	20.07			5.07	23.05		
19.662	2.35	7.23	12.37	20.082			6.063	23.14		
	2.425	7.235	13.06	22.061			6.12	23.251		
	2.431	8.032	13.16	22.065			7.001	23.288		
	2.44	8.04	13.23	22.07			7.01			
	2.55	8.178	13.2401	23.02			7.12			
	2.62	8.179	13.33	23.045			8.015			
	2.665	8.20	13.333	23.085			8.02			
	2.69	8.222	13.335	23.081			8.035			
	2.555	8.23	13.47	23.103			8.09			
	3.011	8.2301	13.5001	23.224			9.014			
	3.018	8.231	13.538	23.287			10.011			
	3.025	8.24001	13.57				10.02			
	3.061	8.265	14.0401				10.04			
	3.062	8.288	14.11				10.05			
	3.063	8.29	14.17				10.06			
	3.078	8.30	15.03				11.04			
	3.1025	8.311	15.041				11.05			
	3.13	8.32	16.04				11.06			
	3.1405	8.3201	16.12052				11.1208			
	3.18	8.323	16.18				11.164			
	3.29011	8.391	17.01				12.04015			
	3.29013	8.392	18.035				12.11			
	3.29015	8.394	18.24				12.301			
	3.29018	10.03	18.25				13.06			
	3.2923	10.1001	18.26				13.16			
	3.32	10.11	18.27				13.18			
	3.325	10.12	18.34				13.279			
	3.34	10.15	18.345				13.2805			
	4.005	11.011	18.38				13.285			

12	13	13	13	13	13	14	17	17	17	18
5.01	1.02	7.035	13.538	19.5516		12.04078	1.0205	18.005		1.011
10.09	1.022	7.11	13.55	19.5517		16.1315	1.0206	18.345		1.015
13.48	1.024	8.037	13.57	19.62		22.052	2.075	18.352		1.0605
16.021	1.0501	8.14	13.58	19.63		23.10205	2.12	18.38		1.08
20.23	1.0511	8.25	14.0403	19.6601			2.18	19.065		2.11
	1.09	8.225	14.041	19.666			2.5905	19.64		2.13
	2.05	8.2603	14.061	19.667			2.60	19.6608		2.15
	2.20	8.3206	14.09	19.69			2.64	19.67		2.31
	2.215	8.385	14.175	20.02			3.1013	20.216		2.37
	2.22	8.39	15.008	20.12			3.13	23.045		3.3005
	2.235	8.395	15.011	20.19			3.2304	23.071		3.306
	2.24	8.41	15.02	22.01			3.29013	23.081		3.301
	2.3002	9.001	16.02	23.045			3.294	23.102		4.051
	2.301	9.04	16.021	23.1022			4.07	23.142		4.26
	2.34	9.041	16.05	23.11			4.135	23.152		5.015
	2.35	9.05	16.092	23.125			4.18	23.224		6.0701
	2.41	10.024	16.09	23.18			4.22	23.281		6.215
	2.565	10.102	16.12	23.185			4.24			7.045
	2.581	10.11	16.12011	23.22			6.052			7.181
	2.61	11.131	16.12016	23.271			6.215			8.07
	2.62	12.0105	16.12018	23.29			7.241			8.15
	2.621	12.011	16.12015	23.142			8.003			8.19
	3.085	12.0408	16.1203	23.1021			8.121			8.233
	3.10	12.041	16.20	22.065			8.1215			8.301
	3.161	12.05	16.201			15	8.122			10.10011
	3.25	12.06	16.202			6.063	8.178			10.16
	3.26	12.07	16.203			6.12	8.179			11.125
	3.2901	12.071	16.204			10.101	8.238			11.17
	3.30	12.072	18.005				8.26			13.215
	3.351	12.073	18.14				8.3206			13.376
	4.001	12.08	18.1401				8.323			13.3805
	4.14005	12.091	18.1402				8.395			13.4605
	4.14006	12.12	18.141				10.1001			14.03
	4.141	12.121	18.16				11.023			14.05
	4.156	12.14	18.235				12.08			14.06
	4.17	12.2115	18.271				12.095			14.19
	4.207	12.23	18.272				12.10			14.20
	4.2315	12.30	18.205				12.102			15.021
	4.232	13.01	18.31				12.101			16.12015
	4.241	13.012	18.446				12.221			16.206
	5.05	13.052	19.001				12.355			18.105
	5.063	13.08	19.055				13.141			18.1418
	6.1301	13.09	19.042				13.33			19.03
	6.16	13.19	19.1707				13.3301			19.11
	6.191	13.20	19.26				13.331			19.24
	6.20	13.24	19.35			16	13.333			19.25
	6.22	13.261	19.36			7.002	13.4101			19.42
	7.003	13.435	19.40				13.57			19.47
	7.021	13.50	19.497				16.12052			19.471
	7.022	13.53	19.5501				16.258			19.503

18	19	20	21	22	23	24	24	25	26	27
21.04	4.156	2.53	1.026	3.3005	2.475	1.06	18.02	1.02	1.0435	2.036
23.04	8.154	3.161	2.125	4.22	3.005	1.07	18.03	1.022	2.51	2.474
23.09	8.155	3.171	2.16	6.035	3.05005	2.085	18.07	1.023	4.221	3.076
	12.33	5.068	2.425	6.036	3.17	2.19	18.12	2.08	6.11003	7.26
	12.34	7.2201	2.643	6.052	3.18	2.56	19.18	2.17	10.01	8.13
	19.07	8.232	3.3415	6.067	4.005	2.6401	19.221	3.10	16.131	8.27
	19.39	8.41	5.069	7.20	4.141	2.6402	19.65	4.05	18.281	8.28
	20.01	11.01	7.23	8.07	4.2205	2.6405	19.674	6.14	19.6505	10.13
	23.1705	11.191	8.05	8.1215	6.03	2.641	20.212	7.082	23.115	11.028
	23.171	12.102	8.233	8.24	6.04	3.08	22.03	8.131		12.07
	23.31	12.325	12.02	8.261	7.09	3.101	23.08	8.14		13.464
		13.003	12.31	8.319	8.003	3.1011	23.171	9.013		14.04023
		13.01	18.181	11.045	8.24	3.102	23.288	10.1007		19.286
		13.021	19.23	12.04013	8.382	3.21		13.021		19.4305
		13.571	19.5515	13.375	9.05	3.2902		13.261		20.03
		14.057	23.083	19.36	11.025	4.112		16.171		20.181
		15.008	1	20.02	12.07	4.211		18.21		22.062
		15.027		22.0725	13.125	6.063		18.22		23.1518
		18.205			13.15	6.11		18.23		
		18.44			13.25	6.112		18.272		
		19.281			16.03	6.131		19.28		
		19.434			18.40	6.201		19.281		
		19.49			19.067	7.10		19.5517		
		19.501			19.651	7.115		19.70		
		19.53			23.071	7.17		23.051		
		19.54			23.086	8.001		23.06		
		19.55			23.113	8.002				
		19.552				8.02				
		20.03				8.09				
						8.313				
						8.315				
						8.3901				
						9.014				
						11.04				
						11.05				
						11.071				
						11.1205				
						11.195				
						12.0102				
						12.25				
						13.003				
						13.2805				
						13.3802				
						13.412				
						13.528				
						13.535				
						15.015				
						16.04				
						16.095				
						16.275				

28	29	30	31	31	31	32	34	35	36	36
1.065	2.68	2.131	1.0211	7.02	20.055	2.075	2.21	1.0206	1.021	18.36
2.225	4.15	2.305	1.044	7.03	20.183	2.64	5.041	2.211	1.04	19.025
2.585	4.2313	2.47	1.052	7.04	23.07		6.12	2.212	2.005	19.053
2.61	7.01	8.01	1.095	7.041	23.109		10.02	2.265	2.215	19.45
4.2305	7.051	8.015	2.003	7.151	23.111		13.002	2.31	2.221	19.455
5.011	7.25	8.02	2.10	7.239	23.298		13.21	2.6205	2.270	19.55
5.071	8.035	8.08	2.14	7.27			18.142	3.07	2.305	19.55005
7.18	8.37	8.10	2.142	8.12			19.70	3.20	2.38	19.5518
7.212	8.381	8.11	2.32	8.121				3.215	2.63	19.59
7.221	9.03	10.011	2.43	8.2401				3.2925	2.67	19.60
7.24	9.05	10.081	2.45	8.241				4.10	2.68	20.11
8.25	11.07	12.04078	2.46	9.01				5.0115	2.69	21.015
8.3125	11.08	12.11	2.462	11.035				5.0116	3.02	22.052
12.151	11.09	13.279	2.48	12.0006				6.01	3.03	22.071
12.26	12.25	13.28	2.50	12.2111				7.211	3.04	22.08
13.442	13.18	13.281	2.555	12.318				7.28	3.045	23.10
13.462	13.21	14.10	2.561	12.319				8.055	3.0502	23.101
15.001	13.2805	14.12	2.57	12.32				8.1214	3.2305	23.19
13.463	14.068	14.13	2.58	12.32006				8.34	3.29	23.20
16.121	16.12059	14.14	2.642	12.327		33		12.0005	3.33	
20.081	18.02	14.15	3.01	13.30		4.15		12.171	4.12	
20.211	19.56	14.16	3.062	13.31		8.035		12.3201	4.128	
22.073	20.06	14.17	3.076	13.32		14.068		13.07	5.02	
23.27	22.02	14.171	3.1015	13.3805		14.07		13.215	5.03	
		18.11	3.11	13.39		14.11		13.48	6.06	
		19.641	3.12	13.44		16.12059		14.057	6.11	
		21.02	3.121	13.46		16.16		15.027	8.23005	
		21.029	3.1405	13.468		20.225		18.143	8.33	
		21.03	3.15	14.042		21.01		18.255	10.07	
		21.015	3.23	15.0201		23.1518		19.21	10.1002	
			3.294	15.03				19.431	11.12	
			3.31	16.133				19.61	11.164	
			3.32	16.19				19.6665	11.175	
			3.355	18.08				20.08	11.18	
			3.36	18.276				22.035	11.19	
			4.011	18.28				22.04	11.1905	
			4.111	18.38				21.012	11.195	
			4.12	18.40				23.152	12.281	
			4.14	18.45					12.283	
			4.1401	18.46					13.03	
			4.2001	19.06					13.305	
			4.23	19.069					13.41	
			4.245	19.20					13.45	
			5.066	19.34					14.18	
			6.061	19.41					15.02005	
			6.062	19.411					18.275	
			6.1012	19.4308					18.305	
			6.1101	19.502					18.32	
			6.068	19.55008					18.33	
			6.217	19.55155					18.34	

37	38	39	40	40	41	42	43	43	43	43
1.025	2.61	8.262	1.01		1.07	2.52	1.06	7.10	13.38	23.08
2.09	2.621	20.01	2.011		2.06	2.525	2.01	7.115	13.3802	23.14
2.28	3.051	23.2811	2.48		2.24	2.6402	2.02	7.12	13.412	23.141
2.49	3.27	23.1812	2.49		2.3002	2.641	2.03	7.13	13.417	23.285
2.6405	3.2901		2.591		2.301	3.102	2.19	7.15	13.495	23.286
3.06	3.29011		2.6205		2.50	3.14	2.26	7.1501	13.521	23.288
3.1011	3.308		3.011		4.021	3.162	2.27	7.16	13.528	23.30
7.115	6.20		3.21		4.25	3.21	2.31	7.17	13.535	
7.12	8.131		3.22		7.155	3.22	2.32	7.29	13.54	
8.394	9.02		3.29		7.27	3.23	2.525	8.01	16.132	
9.014	11.173		4.02		8.075	4.112	2.54	9.02	16.095	
11.1208	12.0108		5.066		8.181	7.14	2.305	8.03	16.205	
13.17	10.126		6.022		11.191	12.245	2.36	8.09	18.02	
13.40	13.05		6.13		12.072	13.08	2.6401	8.10	18.11	
13.49	13.14		6.201		12.073	18.07	2.6402	8.11	18.12	
14.04023	13.571		8.002		12.15		6.6405	8.301	18.13	
16.1205	16.0201		8.25		12.17		2.66	8.315	18.1415	
18.261	16.06		9.01		12.2101		3.08	8.381	18.233	
18.408	16.13		11.121		12.30		3.09	8.394	19.18	
19.14	16.1327		11.14		13.401		3.101	9.013	19.192	
19.1703	16.161		11.15		13.464		3.1011	10.011	19.221	
19.17035	16.162		13.31		16.04		3.12	10.102	19.255	
19.255	18.08		13.32		16.18		3.14	10.081	19.29	
19.392	18.142		13.37		18.04		3.1615	10.101	19.30	
19.6602	19.283		16.133		18.051		3.21	11.02	19.31	
19.674	19.57		16.1401		18.06		3.22	11.071	19.32	
20.15	19.662		16.206		18.235		3.23	11.08	19.33	
20.22	19.6614		18.1413		18.408		2.2902	11.09	19.34	
22.032	23.108		19.01		18.41		3.31	11.1205	19.35	
23.03			19.03		18.45		4.06	11.13	19.47	
23.083			19.04		19.08		4.07	12.0005	19.58	
23.221			19.041		19.26		4.08	12.0006	19.61	
23.225			19.0415		19.48		4.112	12.04075	19.641	
23.251			19.12		19.5015		4.20	12.04078	19.65	
			19.125		20.13		4.21	12.0408	19.674	
			19.19				4.2115	12.2111	19.685	
			19.511				5.07	12.2115	19.686	
			19.55008				6.063	12.245	20.035	
			19.674				6.08	12.27	20.16	
			20.11				6.09	12.28	20.17	
							6.10	12.319	20.212	
							6.101	13.002	20.215	
							6.103	13.08	21.015	
							6.112	13.09	21.02	
							6.12	13.27	21.03	
							6.131	13.28	21.029	
							6.18	13.2805	22.02	
							6.23	13.281	22.03	
							7.01	13.279	23.01	
							7.051	13.35	23.06	

55	55	55	55	55	56	56	57	59	61	63
8.2301	13.30	18.42	20.181		2.07	18.275	4.19	3.19	10.12	2.04
8.231	13.35	18.45	20.183		2.14	18.276	7.18		20.19	12.2101
8.232	13.36	18.46	22.034		2.18	18.28				15.021
8.24	13.37	19.05	22.04		2.181	19.17035				16.1401
8.2401	13.381	19.06	22.05		2.182	19.181				
8.241	13.39	19.061	22.061		2.585	19.392				
8.25	13.40	19.12	23.081		2.69	19.6665				
8.26	13.401	19.125	23.09		2.175	23.09				
8.2605	13.41	19.13	23.10		3.01	23.225				
8.261	13.4101	19.141	23.101		3.018					
8.391	13.4102	19.15	23.102		3.02					
8.392	13.411	19.16	23.103		3.025					
9.015	13.4115	19.17	23.13		3.03					
10.011	13.44	19.1701	23.1415		3.04					
10.07	13.47	19.1702	23.142		3.0503					
10.091	13.49	19.1703	23.151		3.075					
10.1002	13.5001	19.1704	23.16		3.1025					
11.10	13.51	19.181			3.342					
11.11	13.52	19.33			4.128					
11.121	13.521	19.342			4.13					
11.13	13.53	19.41			4.131					
11.17	14.021	19.4101			8.055					
12.0006	14.04	19.411			8.2301					
12.04	14.0401	19.42			8.231		58	60	62	
12.0405	14.0402	19.431			8.232		7.19	3.13	6.16	
12.04001	14.05	19.432			10.011		12.36	6.191	16.12015	
12.0401	14.06	19.44			12.04001		14.06	6.22	16.12016	
12.0402	14.14	19.47			12.20		18.425	8.032	18.13	
12.16	14.15	19.49			12.213			13.55	18.14	
12.171	15.0201	19.5502			12.32			22.062	19.03	
12.18	16.03	19.55155			12.3201				19.34	
12.19	16.09	19.62			12.321				19.667	
12.20	16.12019	19.63			12.327					
12.21	16.1202	19.64			13.003					
12.213	16.1204	19.6505			13.06					
12.29	16.1205	19.6601			13.16					
12.31	16.1325	19.6607			13.37					
12.315	16.19	19.6608			13.38					
12.32	16.25	19.661			13.381					
12.3201	16.28	19.665			13.4115					
12.321	18.04	19.67			13.49					
12.35	18.05	20.04			13.5001					
12.36	18.06	20.07			13.521					
12.37	18.143	20.071			14.04					
13.001	18.181	20.11			14.0401					
13.003	18.182	20.12			14.0402					
13.052	18.24	20.13			14.15					
13.06	18.25	20.14			16.1205					
13.16	18.28	20.15			16.19					
13.29	18.39	20.18			18.182					

72	72	72	75	75	75	75	75	75	75	75
1.044	15.02005		1.01	3.063	6.071	10.011	13.08	16.1206	19.27	23.26
1.11	15.04		1.0206	3.07	6.103	10.07	13.09	16.1313	19.283	23.27
1.12	16.11		1.095	3.09	6.1101	10.10	13.10	16.133	19.286	23.271
1.13	16.12051		1.10	3.141	6.132	10.10011	13.11	16.206	19.35	23.282
2.005	16.12052		1.11	3.161	6.215	10.1001	13.125	16.26	19.36	23.29
2.077	16.1313		1.13	3.169	7.018	10.102	13.12	16.27	19.40	
2.087	16.18		2.005	3.17	7.081	10.11	13.141	17.01	19.434	
2.265	16.26		2.041	3.171	7.12	10.13	13.15	18.035	19.4341	
2.40	16.27		2.05	3.18	7.13	10.16	13.19	18.065	19.435	
2.431	18.27		2.06	3.20	7.14	11.02	13.215	18.07	19.45	
2.018	18.35		2.077	3.215	7.15	11.03	13.231	18.11	19.46	
3.19	18.40		2.15	3.22	7.1501	11.10	13.25	18.1413	19.465	
3.20	18.411		2.185	3.23	7.18	11.11	13.31	18.15	19.48	
3.22	19.20		2.23	3.2304	7.26	11.12	13.32	18.16	19.511	
3.29013	19.434		2.235	3.30	8.003	11.131	13.322	18.17	19.53	
3.325	19.4341		2.24	3.301	8.041	11.14	13.288	18.18	19.54	
3.3405	19.455		2.265	3.308	8.10	11.15	13.235	18.26	19.55	
4.005	19.5518		2.28	3.355	8.11	11.16	13.3753	18.281	19.58	
4.01	19.61		2.29	3.3405	8.12	11.172	13.38	18.29	19.651	
4.02	19.6505		2.30	3.36	8.16	11.173	13.417	18.30	19.69	
4.11	19.6608		2.3002	4.005	8.165	11.18	13.42	18.305	20.02	
4.111	19.668		2.301	4.02	8.18	11.19	13.43	18.31	20.03	
4.125	20.012		2.304	4.021	8.20	11.20	13.435	18.32	20.035	
4.25	20.21		2.33	4.03	8.015	11.21	13.46	18.33	20.081	
5.0115	21.04		2.34	4.04	8.222	11.22	13.50	18.34	20.082	
5.0116	22.07		2.35	4.06	8.21	12.06	13.501	18.35	20.16	
6.067	23.071		2.36	4.07	8.223	12.073	13.538	18.351	20.17	
6.071	23.081		2.37	4.075	8.23	12.071	14.005	18.352	20.20	
8.165	23.1015		2.38	4.1401	8.232	12.072	14.03	18.40	20.21	
8.175	23.26		2.39	4.141	8.233	12.07	14.04023	18.41	21.012	
8.21			2.40	4.155	8.27	12.08	14.042	18.411	22.035	
8.222			2.401	4.161	8.28	12.091	14.08	19.001	22.065	
8.232			2.41	4.17	8.287	12.095	14.09	19.02	22.068	
8.238			2.42	4.18	8.288	12.10	14.12	19.04	22.071	
8.287			2.43	4.19	8.30	12.102	14.16	19.05	22.072	
8.288			2.431	4.20	8.3001	12.11	14.19	19.07	22.08	
8.29			2.475	4.2001	8.32	12.12	15.001	19.08	23.03	
10.1001			2.50	4.22	8.24001	12.121	15.01	19.09	23.05	
11.023			2.52	4.232	8.321	12.13	15.02	19.11	23.07	
11.14			2.565	4.241	8.3206	12.151	15.0202	19.14	23.071	
11.155			2.57	4.25	8.382	12.22	15.027	19.1801	23.102	
11.19			2.58	5.011	8.385	12.23	15.04	19.19	23.113	
12.283			2.588	5.03	8.39	12.24	15.05	19.20	23.12	
13.07			2.59	5.05	8.395	12.26	16.01	19.21	23.14	
13.10			2.62	5.07	8.41	12.281	16.10	19.23	23.1416	
13.11			2.64	6.022	9.0005	12.30	16.101	19.24	23.19	
13.12			2.65	6.03	9.01	12.31	16.11	19.25	23.20	
13.215			3.005	6.05	9.04	13.011	16.12	19.254	23.221	
13.3301			3.045	6.052	9.041	13.02	16.1201	19.255	23.222	
13.3753			3.05005	6.068	9.05	13.07	16.1203	19.26	23.24	
								19.0415		
								19.61		

75	76	76	77	80	80	80	81	81	81	81
	1.0205		7.045	2.036	11.023		1.01	2.52	4.04	7.12
	2.003		12.151	2.235	11.12		1.04	2.555	4.06	7.13
	2.265		16.258	2.24	11.16		1.0206	2.565	4.07	7.14
	2.57			2.3002	12.13		1.041	2.588	4.075	7.15
	3.063			2.31	12.2115		1.051	2.65	4.11	7.1501
	4.18			2.33	12.245		1.11	3.005	4.125	7.151
	5.012			2.34	12.281		1.12	3.01	4.127	7.155
	8.323			2.35	12.30		1.13	3.011	4.128	7.235
	11.125			2.36	12.378		1.10	3.018	4.13	7.241
	11.1905			2.38	13.19		1.0511	3.02	4.131	7.26
	12.04073			2.39	13.378		2.036	3.03	4.14	7.28
	12.091		78	2.40	13.38		2.041	3.04	4.141	8.003
	12.22		3.078	2.401	14.057		2.05	3.05005	4.155	8.004
	13.02		8.12	2.42	15.02005		2.06	3.0501	4.156	8.0041
	14.042		8.233	2.43	16.12011		2.077	3.0502	4.161	8.005
	15.04		12.08	2.50	16.21		2.11	3.0503	4.17	8.041
	16.0		12.10	2.52	18.17		2.121	3.061	4.18	8.055
	16.101		12.101	2.555	18.281		2.14	3.062	4.19	8.10
	16.11		13.08	2.65	18.29		2.18	3.075	4.20	8.11
	16.12		13.43	3.045	18.30		2.181	3.078	4.202	8.122
	16.133		14.03	3.085	18.305		2.175	3.085	4.22	8.16
	16.206		15.02	3.161	18.31		2.182	3.09	4.2201	8.165
	18.26		18.07	4.06	18.32		2.185	3.1013	4.2205	8.1214
	18.351		19.08	4.07	18.33		2.235	3.1025	4.2318	8.1215
	19.02		20.21	4.135	19.04		2.24	3.144	4.25	8.178
	19.20		23.03	4.1401	19.055		2.2701	3.145	5.0115	8.179
	19.4308			4.156	19.1707		2.271	3.161	5.0116	8.18
	19.45			4.161	19.07		2.28	3.169	5.05	8.20
	19.46			4.22	19.23		2.29	3.17	5.0408	8.21
	19.465			4.2205	19.35		2.292	3.171	5.065	8.222
	20.20			4.2318	19.55008		2.30	3.18	5.067	8.223
	20.211			4.25	20.16		2.3002	3.19	5.07	8.23005
	22.035			6.132	20.17		2.301	3.20	6.022	8.2301
	22.08			7.12	20.216		2.32	3.215	6.03	8.231
	23.1015			7.13	22.045		2.33	3.22	6.035	8.232
				7.14	22.068		2.34	3.2305	6.036	8.238
			79	7.15	22.071		2.35	3.231	6.06	8.24
			6.05	7.1501	22.072		2.36	3.2423	6.061	8.2605
			13.42	7.155	22.0725		2.37	3.243	6.062	8.261
			2.142	8.178	22.073		2.38	3.30	6.07	8.287
			3.306	8.18	23.1021		2.39	3.301	6.102	8.288
			14.19	8.29	23.1022		2.40	3.308	6.103	8.29
			14.069	8.30	23.108		2.401	3.33	6.11003	8.3001
			23.12	8.3001	23.14		2.41	3.34	6.132	8.32
				8.3201	23.20		2.42	3.3405	6.15	8.3201
				8.393	23.24		2.431	3.3415	6.171	8.3206
				8.395			2.44	4.005	6.21	8.323
				9.01			2.475	4.02	7.03	8.382
				10.102			2.49	4.021	7.09	8.385
				10.11			2.50	4.03	7.018	8.39

81	81	81	81	81	81	81	81	82	84	84
8.391	12.16	13.40	18.07	19.1707	20.071	23.20		8.19	2.643	
8.392	12.171	13.401	18.1413	19.1704	20.081	23.225			3.011	
9.05	12.172	13.41	18.143	19.17035	20.082	23.27			3.0501	
10.011	12.18	13.4101	18.15	19.1707	20.12	23.271			3.0502	
10.10	12.19	13.4102	18.17	19.1801	20.13	23.282			3.144	
10.1002	12.20	13.411	18.18	19.181	20.14	23.29			3.145	
10.13	12.213	13.4115	18.181	19.19	20.15				5.067	
11.011	12.22	13.417	18.182	19.192	20.16				5.068	
11.02	12.231	13.43	18.233	19.21	20.17				5.071	
11.025	12.245	13.435	18.235	19.23	20.18			83	6.035	
11.03	12.26	13.44	18.24	19.254	20.21			1.011	6.036	
11.035	12.281	13.442	18.25	19.255	20.211				6.11003	
11.095	12.29	13.50	18.259	19.26	20.216				7.09	
11.12	12.30	13.51	18.26	19.283	21.012				7.235	
11.125	12.314	13.521	18.275	19.286	22.035				8.005	
11.13	12.315	13.53	18.281	19.33	22.04				8.221	
11.131	12.32005	14.005	18.29	19.35	22.041				8.2605	
11.14	12.3201	14.021	18.30	19.36	22.05				8.261	
11.15	12.321	14.04	18.305	19.392	22.0605				8.391	
11.16	12.343	14.04023	18.31	19.41	22.068				8.392	
11.17	12.35	14.0401	18.32	19.4101	22.071				12.314	
11.172	12.355	14.0402	18.33	19.4308	22.072				12.315	
11.173	12.36	14.08	18.34	19.431	22.0725			85	12.35	
11.18	12.361	14.057	18.345	19.432	22.073				13.001	
11.19	12.37	14.09	18.39	19.434	22.08			3.301	13.442	
11.1905	13.001	14.12	18.41	19.4341	23.03			6.217	14.14	
11.20	13.003	14.15	18.411	19.435	23.045			13.46	16.12051	
11.21	13.06	15.008	18.42	19.44	23.05			23.295	16.12052	
11.22	13.07	15.02	18.425	19.45	23.071				16.1315	
12.0005	13.08	15.05	18.45	19.455	23.081				18.259	
12.0006	13.09	16.01	19.001	19.46	23.085				19.066	
12.04	13.10	16.011	19.04	19.465	23.086				19.067	
12.0405	13.11	16.0201	19.045	19.48	23.10				19.12	
12.04073	13.12	16.09	19.05	19.49	23.101				19.125	
12.06	13.125	16.042	19.061	19.503	23.1015				19.13	
12.07	13.15	16.10	19.066	19.55008	23.102				19.33	
12.071	13.19	16.101	19.067	19.5502	23.1022				19.432	
12.072	13.215	16.12	19.069	19.651	23.1021				19.55005	
12.073	13.231	16.1202	19.08	19.6601	23.103				19.665	
12.08	13.25	16.1204	19.09	19.6608	23.113				20.07	
12.091	13.288	16.1205	19.10	19.661	23.14				20.071	
12.095	13.29	16.1206	19.12	19.665	23.1415				23.10	
12.10	13.30	16.1325	19.125	19.666	23.1416				23.101	
12.102	13.35	16.26	19.13	19.6665	23.142					
12.101	13.36	16.258	19.14	19.67	23.151					
12.11	13.37	16.27	19.15	19.69	23.16					
12.12	13.3753	16.28	19.16	20.02	23.165					
12.121	13.375	17.01	19.17	20.03	23.17					
12.13	13.38	18.005	19.1701	20.04	23.185					
12.151	13.381	18.05	19.1702	20.07	23.19					

117	120	120	120	120	120	120	120	121	121	121
2.22	1.022	6.02	11.13	15.021	20.19			1.021	8.38	19.38
	1.025	6.04	11.191	16.011	20.215			1.03	8.381	19.43
	1.026	6.08	12.001	16.02	20.23			1.042	9.013	19.4305
	1.0435	6.09	12.0108	16.0201	21.04			1.043	10.14	19.431
	1.0501	6.10	12.011	16.05	22.01			2.01	10.15	19.49
	1.061	6.101	12.02	16.12015	22.062			2.011	12.01	19.5005
	1.065	6.151	12.03	16.12018	23.11			2.02	12.15	19.501
118	2.036	6.16	12.04	16.1401	23.15			2.03	12.17	19.551
2.45	2.04	6.17	12.0409	16.20	23.18			2.035	12.27	19.5515
7.11	2.041	6.191	12.041	16.201	23.21			2.071	12.28	19.571
8.321	2.071	6.22	12.05	16.202	23.22			2.26	13.001	19.60
16.1206	2.074	7.001	12.09	16.203	23.251			2.27	13.021	19.68
	2.075	7.003	12.14	18.09	23.27			2.54	13.03	20.06
	2.09	7.021	12.2101	18.10	23.28			2.66	13.13	20.09
	2.16	7.022	12.211	18.13	23.2811			3.06	13.151	20.10
	2.20	7.035	12.2115	18.14	23.2812			3.1615	13.18	20.215
	2.22	7.05	12.221	18.1401	23.31			3.35	13.21	20.225
119	2.26	7.08	12.26	18.1402				4.08	13.22	22.06
3.02	2.51	7.2101	12.29	18.141				4.09	13.27	23.04
3.03	2.53	7.211	12.325	18.255				4.21	13.45	23.11
3.1025	2.61	7.212	12.358	18.2605				4.2313	13.495	23.1705
4.13	3.0505	7.22	13.01	18.261				4.24	13.56	23.21
4.127	3.051	7.23	13.012	18.271				4.2401	13.561	23.22
4.128	3.06	7.24	13.17	18.446				5.04	13.494	23.23
7.0205	3.10	8.035	13.20	19.03				6.11	15.041	23.287
8.23005	3.12	8.04	13.23	19.025				6.18	16.001	23.31
8.2301	3.13	8.041	13.24	19.041				6.19	16.062	
8.231	3.14	8.05	13.26	19.042				6.20	16.07	
8.232	3.1615	8.06	13.2601	19.171				7.001	16.08	
12.319	3.162	8.061	13.261	19.22				7.02	16.17	
12.32	3.24	8.095	13.33	19.28				7.05	16.21	
13.003	3.25	8.13	13.3301	19.283				7.051	16.211	
13.06	3.26	8.14	13.331	19.29				7.06	16.22	
13.16	3.27	8.15	13.335	19.30				7.07	16.23	
13.37	3.28	8.181	13.35	19.31				7.16	16.24	
14.0401	3.29	8.262	13.461	19.32				7.17	18.01	
14.0402	3.29011	8.301	13.55	19.34				7.25	18.19	
16.1205	3.291	8.33	13.561	19.351				8.04	18.20	
18.275	3.29.25	9.001	13.57	19.421				8.05	18.43	
23.045	3.351	10.01	13.58	19.431				8.07	18.44	
23.185	4.001	10.03	14.001	19.545				8.15	18.446	
	4.10	10.04	14.01	19.502				8.154	19.01	
	4.14005	10.05	14.02	19.503				8.155	19.041	
	4.14006	10.06	14.0403	19.51				8.31	19.053	
	4.16	10.07	14.041	19.52				8.311	19.07	
	4.20	10.08	14.043	19.5517				8.312	19.171	
	4.201	10.11	14.061	19.552				8.34	19.28	
	4.2305	10.12	14.13	19.571				8.35	19.281	
	5.068	11.028	15.001	19.67				8.36	19.283	
	6.01	11.06	15.011	20.081				8.37	19.37	
				19.0415						

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