A hook selectivity study for Atlantic mackerel (*Scomber scombrus* L.) caught in St. Georges Bay, Nova Scotia, in October 2005

R. Heighton and F. Grégoire

Department of Fisheries and Oceans
Sciences Branch
Maurice Lamontagne Institute
P.O. Box 1000, 850 Route de la Mer
Mont-Joli (Québec)
G5H 3Z4

2006

Canadian Industry Report of Fisheries and Aquatic Sciences 278

Pêches et Océans
Fisheries and Oceans
Canada

Canadian Industry Report of
Fisheries and Aquatic Sciences

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Canadian Industry Report of

Fisheries and Aquatic Sciences 278

2006

A HOOK SELECTIVITY STUDY FOR ATLANTIC MACKEREL (*Scomber scombrus* L.) CAUGHT IN ST. GEORGES BAY, NOVA SCOTIA, IN OCTOBER 2005

Ronald Heighton[1] and François Grégoire

Department of Fisheries and Oceans
Sciences Branch
Maurice Lamontagne Institute
P.O. Box 1000, 850 Route de la Mer
Mont-Joli (Québec)
G5H 3Z4

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[1] President, Northumberland Fishermen's Association, R.R. #4, 44 River John Rd., River John, Pictou, NS, B0K 1N0

Cat. No. Fs 97-14/278E ISSN 1488-5409

This publication should be cited as follows:

Heighton, R., and F. Grégoire. 2006. A hook selectivity study for Atlantic mackerel (*Scomber scombrus* L.) caught in St. Georges Bay, Nova Scotia, in October 2005. Can. Ind. Rep. Fish. Aquat. Sci. 278: vii + 50 p.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

ABSTRACT

Heighton, R., and F. Grégoire. 2006. A hook selectivity study for Atlantic mackerel (*Scomber scombrus* L.) caught in St. Georges Bay, Nova Scotia, in October 2005. Can. Ind. Rep. Fish. Aquat. Sci. 278: vii + 50 p.

Following a proposal by the Northumberland Fishermen's Association, a study was conducted in the fall of 2005 on the selectivity of hooks used in the Atlantic mackerel commercial fishery. The study lasted six days in St. Georges Bay, Nova Scotia. Two lines equipped with around forty hooks each were used for each fishing trip. One of the lines, called the "control" line and used during every trip, had number 10 sized hooks; the other lines had 2/0 or 4/0 sized hooks. The length distribution frequency of Atlantic mackerel caught by these hooks is characterized by two main modes: the main one around 300 mm and the other around 350 mm. The latter mode is associated with catches made using the 4/0 hooks. These results encourage to continue this study in order to determine a more selective hook shape and size that might help catch larger individuals while reducing the number of smaller Atlantic mackerel caught, which will reduce the mortality of small fish by discards at sea.

RÉSUMÉ

Heighton, R., et F. Grégoire. 2006. A hook selectivity study for Atlantic mackerel (*Scomber scombrus* L.) caught in St. Georges Bay, Nova Scotia, in October 2005. Can. Ind. Rep. Fish. Aquat. Sci. 278: vii + 50 p.

À l'initiative de la Northumberland Fishermen's Association, une étude a été entreprise à l'automne 2005 sur la sélectivité des hameçons utilisés dans la pêche commerciale du maquereau. L'étude s'est déroulée pendant six jours dans la baie St-Georges en Nouvelle-Écosse. Deux lignes munies d'une quarantaine d'hameçons chacune ont été utilisées lors de chaque voyage de pêche. L'une des lignes, dite "témoin", utilisée à chacun des voyages, comportait des hameçons de grosseur numéro 10 et l'autre, des hameçons de grosseur 2/0 ou 4/0. La distribution de fréquences de longueur des maquereaux capturés par ces hameçons est caractérisée par la présence de deux modes principaux, un premier plus important situé vers 300 mm et un second, vers 350 mm. Ce deuxième mode est associé aux captures réalisées avec les hameçons de grosseur 4/0. Les résultats obtenus nous incitent à poursuivre cette étude afin de déterminer la forme et la grosseur d'un hameçon plus sélectif qui permettrait la capture d'individus de grande taille tout en réduisant les prises de petits maquereaux et, par le fait même, la mortalité qui résulte de leurs rejets en mer.

1.0 INTRODUCTION

In the southern Gulf of St. Lawrence, Atlantic mackerel (*Scomber scombrus* L.) is caught using lines in late summer and in the fall. Fishermen use a rod, a manual jigger or an automatic jigger system. Hooks of different sizes and shapes are used along with bright coloured natural or synthetic feathers or hair (red, yellow and green). In certain cases, only a rubber tube is placed around the hook's shank. From 1995 to 2005, annual landings for fishermen in the southern Gulf of St. Lawrence varied between 2,220 t and 13,660 t, for an annual average of 7,170 t (F. Grégoire, unpublished data). This fishery is increasingly popular given the growing market interest in mackerel.

Over the last two years (2004 and 2005), a troubling observation has been reported to the Department of Fisheries and Oceans (DFO) concerning large-scale discards at sea of small mackerel with lengths below the minimum legal catch size (250 mm) or below the industry's preferred size. These discards obviously represent a significant mortality that is difficult to quantify but is probably high since there are a large number of mackerel fishermen in the southern Gulf of St. Lawrence.

The issue of discards at sea and the related mortality has raised a lot of concern at DFO and with fishermen associations such as the Nova Scotia Northumberland Fishermen's Association. To further understand the issue, fishermen from this association submitted a research project to DFO in the fall of 2005. The objective of this project consisted in evaluating the size of the fish caught using different sized hooks in order to determine whether it was possible to significantly reduce the number of smaller mackerel being caught and thus lessen the mortality caused by discards at sea. It is important to note that there are very few studies on hook selectivity for catching marine fish (Sparre and Venema, 1996; Jennings et al. 2003) and none in terms of fishing for mackerel in the southern Gulf of St. Lawrence.

The objective of the current document is to describe the results obtained during the hook selectivity study conducted in the fall of 2005 in the southern Gulf of St. Lawrence. These results could eventually be used as a basis for a more comprehensive study that could be conducted over a more extensive period, at different fishing sites, and using a wider variety of hooks.

2.0 MATERIALS AND METHODS

St. Georges Bay, Nova Scotia (Figure 1), was chosen as the fishing site for the hook selectivity study because of the high number of fishermen fishing there. The study was conducted using a fishing boat, and all data collection and fish sampling activities were done by the captain (R. Heighton) and his crew. Two fishing lines with around forty hooks each were used for every fishing trip. The "control" line was equipped with number 10 sized hooks; the second had 2/0 or 4/0 sized hooks (Appendix 1). These lines were used simultaneously so as to fish the same concentrations of mackerel. For every fishing trip, the first 100 fish caught with each line were kept for laboratory analysis. Samples were transferred from the Baxters Cove home port

(Figure 1) to DFO's Maurice Lamontagne Institute by DFO's Commercial Sampling Programme (Mr. Hugues Benoît, Moncton, and Mr. Sylvain Hurtubise, Mont-Joli).

At the laboratory, the biological characteristics of the sampled fish were described by measuring the following variables: (1) fork length (± 1mm), (2) total weight (± 0.1 g), and (3) gonad weight (± 0.01 g). These variables were used to calculate the gonadosomatic index (GSI) and the Fulton condition factor (K) (Ricker, 1980) in the following way:

$$GSI = \left[\frac{Gonad\ Weight\ (g)}{Total\ \ Weight\ (g)} \right] x\,100$$

$$K\ = \left[\frac{\left(Total\ Weight\ (g) - Gonad\ Weight\ (g)\right)}{Fork\ \ Length^{3}\ (cm)} \right] x\,100$$

Sexual maturity was determined by external examination of gonads, and otoliths were collected and used to determine age.

Descriptive statistics were calculated on the length, total weight, gonad weight, gonadosomatic index and condition factor for all the data and for data sorted by fishing trip and by hook size. The age composition of catches was studied as well as the maturity and sex ratios. For example, the gonadosomatic index and condition factor as well as the average length and weight at age measured during the current study were compared with data from commercial samples collected between 1973 and 2005 (F. Grégoire, unpublished data).

3.0 RESULTS

3.1 Total catches per fishing trip

The hook selectivity study was conducted from 17 through 24 October 2005. Six fishing trips with an average duration of 8 hours were carried out during this period (Table 1). Catches totalled 6,214 kg, for an average of 1,036 kg per fishing trip. The largest catches were made during the last three trips, in areas located in the southernmost part of St. Georges Bay. A total of 1,197 mackerel were frozen for laboratory analysis. Their biological characteristics are presented in Appendix 2.

3.2 Catch description

3.2.1 Fork length and total weight

The average length of all the fish sampled during the study was 301.9 mm and the average weight was 313.7 g (Table 2). Per fishing trip and per hook size, the average length varied from 293.9 mm to 312.8 mm and the average weight from 277.0 g to 365.4 g (Table 3). These average lengths and weights are statistically different (ANOVA; length: $F=8.58$, $p<0.0001$; weight: $F=12.05$, $p<0.0001$).

Per fishing trip, the average length varied from 294.5 mm to 308.5 mm and the average weight from 282.1 g to 345.2 g (Table 4). These average lengths and weights are statistically different one from the other (ANOVA; length: $F=14.67$, $p<0.0001$; weight: $F=19.62$, $p<0.0001$).

For the 2/0 sized hooks, the average length of fish sampled was 298.9 mm compared to 300.6 mm and 307.5 mm for the number 10 and 4/0 sized hooks respectively (Table 5). These average lengths are statistically different (ANOVA, $F=14.71$, $p<0.0001$). However, the Tukey's a posteriori test indicates there are no differences between the fish caught by hook sizes number 10 and 2/0. The average weight of fish caught using the 2/0 hook was 300.7 g compared to 307.8 g and 338.2 g for those caught using the number 10 and 4/0 sized hooks respectively. These average weights are statistically different (ANOVA, $F=18.99$, $p<0.0001$), and the Tukey's test indicates that this difference is due to the average weight of fish captured by the 4/0 hook size.

3.2.2 Gonad weight, gonadosomatic index, and condition factor

The average weight of sampled gonads was 1.53 g, with minimum and maximum values of 0.12 g and 7.36 g (Table 2). The average values of the gonadosomatic index and condition factor are 0.47 and 1.12 respectively. The gonadosomatic index varies from 0 to 1.87, and the condition factor from 0.43 to 2.43. This latter value is associated with a fish whose length and weight was only 186 mm and 159.1 g.

Per fishing trip and per hook size, the average weight of gonads varied from 1.15 g to 1.77 g (ANOVA, $F=2.42$, $p<0.01$) (Table 3). The average value of the gonadosomatic index varies from 0.41 to 0.52 (ANOVA, $F=1.22$, $P>0.05$), and the condition factor from 1.07 to 1.16 (ANOVA, $F=9.54$, $p<0.0001$).

Per fishing trip, the average weight of gonads varied from 1.22 g to 1.71 g (ANOVA, $F=3.46$, $p<0.01$) (Table 4), the average value of the gonadosomatic index from 0.42 to 0.48 (ANOVA, $F=0.83$, $P>0.05$), and the condition factor from 1.09 to 1.15 (ANOVA, $F=13.79$, $p<0.0001$). The average values of the gonadosomatic index and condition factor are similar to those calculated using the commercial samples collected in October from 1973 to 2005 in the southern Gulf of St. Lawrence (F. Grégoire, unpublished data) (Figures 2A and 2B).

For the data per hook size, the average gonad weight varied from 1.45 g to 1.72 g (ANOVA, $F=4.30$, $p<0.05$), the average value of the gonadosomatic index from 0.45 to 0.49 (ANOVA, $F=1.36$, $p>0.05$), and the condition factor from 1.11 to 1.14 (ANOVA, $F=9.85$, $p<0.0001$) (Table 5). According to the Tukey's test, the significant differences measured between the average weight of gonads and the average values of the condition factor are due to the 4/0 hook size.

3.2.3 Age, maturity, and sex ratio

The samples collected were dominated by fish from age groups of 2 and 3 years (Table 6). Per fishing trip and per hook size, the average age varied from 2.06 years to 3.01 years (ANOVA, $F=9.17$, $p<0.0001$) and per fishing trip, from 2.06 years and 2.77 years (ANOVA, $F=16.57$, $p<0.0001$) (Figures 3A and 3B). The highest average ages were observed during the first two fishing trips. The average age of mackerel caught using number 10 hooks was 2.37 years, compared with 2.20 years and 2.71 years for those caught using 2/0 and 4/0 hooks respectively (Figure 3C). These ages are significantly different (ANOVA, $F=19.20$, $p<0.0001$). The Tukey's test indicates that this difference is due to the 4/0 hook size.

Aside from the age groups of 7 and/or 8 years, the average lengths (Figure 4A) and weights (Figure 4B) at age calculated during the current study were similar to those from commercial samples collected in the southern Gulf of St. Lawrence in October 2005. However, these average lengths and weights at age are inferior to those calculated between 1973 and 2004.

The collected samples were also dominated by fish with maturity stages of 2 (immature) and 8 (spent) (Table 7). For the entire study, a total of 548 females and 622 males were sampled, leading to a sex ratio significantly different from 1:1 (Chi-square, $p<0.05$) (27 fish could not be sexed). Per fishing trip and per hook size, the percentage of females present in the samples varied from 38.8% to 55.6%, per fishing trip from 43.9% to 50%, and by hook size from 44.2% to 49.7% (Table 8). A sex ratio different from 1:1 was measured only with the number 10 hook size (Chi-square, $p<0.01$).

3.3 Median lengths

Per fishing trip and per hook size, the median lengths varied from 293 mm to 308 mm, which represents a significant difference (Kruskal Wallis, $p< 0.0001$). For the number 10 hook size used during each of the fishing trips, median lengths were above 300 mm for the first two trips and below 300 mm for the others (Figure 5), again representing a significant difference (Kruskal Wallis, $p< 0.0001$).

The median lengths calculated per fishing trip were also significantly different (Kruskal Wallis, $p< 0.0001$), with the highest values for the first two trips (Figure 6A). Median lengths were 297 mm for number 10 hooks, 296 mm for 2/0 hooks, and 302 mm for 4/0 hooks. These median lengths are significantly different (Kruskal Wallis, $p<0.0001$) (Figure 6B).

3.4 Length frequency distribution

Fish of similar sizes were caught using the three hook sizes. The length frequency distribution presents two main modes, with the stronger peak at 300 mm and the secondary one at 350 mm (Figures 7A and 7B). This latter mode is associated with catches made using the 4/0 hooks (Figure 8).

4.0 CONCLUSION

The results obtained do not lead to any direct link between the sizes of the hooks used and the sizes of fish caught, although certain observations indicate trends. In fact, larger fish were caught with the 4/0 size hook, but smaller mackerel were still caught with these hooks. We believe that the current study was hindered by its too short duration and limited coverage (thus possibly sampling a single concentration of fish).

However, these results encourage further study to determine a more selective hook preferentially shape and size that might catch larger individuals while reducing the number of smaller Atlantic mackerel caught. The protocol should therefore be adapted so that the study is conducted over a longer period of time and in different fishing areas in order to sample different schools of fish using hooks of different sizes and shapes. The precise fishing effort should be measured in order to calculate and compare the catch rates associated with each hook used. An assessment of the number of discards at sea could also be made for the hook currently used by the commercial fishery. The position where the hook is anchored should also be noted in order to study how the fish is caught.

Furthermore, during the current study, discards mortality rate was not evaluated. This mortality rate could be assessed by placing fish in specially designed traps placed on the fishing grounds. At regular intervals, these traps could be raised and the number of mortalities counted.

Considering the heavy fishing effort by hooks and lines fishermen in the southern Gulf of St. Lawrence, we assume that this fishery has a significant level of unaccounted mortality for smaller mackerel. The selectivity study conducted in the fall of 2005 has raised a lot of interest from members of the Northumberland Fishermen’s Association. This interest in conserving and protecting this species is much appreciated. It is important that research continues with the aim of reducing the fishery’s inadvertent adverse impacts on the sustainability of this resource.

5.0 ACKNOWLEDGEMENTS

We would like to thank the members of the Northumberland Fishermen's Association who showed a great interest in this study. Gratitude is extended to Mr. Raynald Gosselin, Acting Senior Advisor – Pelagic Fish and Marine Mammals, DFO-Quebec, and Mr. Dario Lemelin, Senior Advisor – Groundfish, DFO-Quebec, for their assistance in revising this report. We thank Mr. Hugues Benoît, DFO-Moncton, and Mr. Sylvain Hurtubise, DFO-Mont-Joli, who heads the Commercial Sampling Programme, for providing valuable assistance in transporting samples to the Maurice Lamontagne Institute.

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Table 1. Description of fishing and sampling activities during the hook selectivity study for Atlantic mackerel.

SAMPLING DATE (yyyy-mm-dd)	FISHING LOCATION[1] Latitude °N (degrees minutes)	Longitude °W (degrees minutes)	BOTTOM DEPTH (fathom)	HOOK SIZE 10[2]	2/0	4/0	FISHING TRIP DURATION (hr)	CATCH (kg)
2005-10-17	45° 52.756	61° 37.810	100	✓		✓	8	181
2005-10-18	45° 51.343	61° 46.061	120	✓		✓	10	590
2005-10-19	45° 55.577	61° 57.193	100	✓	✓		9	907
2005-10-22	45° 43.759	61° 33.467	85	✓	✓		6	1,179
2005-10-23	45° 46.938	61° 33.240	75	✓		✓	7	1,633
2005-10-24	45° 46.307	61° 44.107	95	✓	✓		8	1,724
AVERAGE:							8	1,036
TOTAL:							48	6,214

[1] See Figure 1
[2] Control

Table 2. Descriptive statistics of the biological characteristics of Atlantic mackerel sampled during the hook selectivity study.

STATISTIC	LENGTH (mm)	WEIGHT (g) Total	Gonad	GONADOSOMATIC INDEX % (GSI)	FULTON CONDITION FACTOR (K)
Mean	301.9	313.7	1.53	0.47	1.12
SD	21.1	82.5	1.28	0.32	0.09
Minimum	186	143.1	0.12	0.00	0.43
Maximum	398	655.8	7.36	1.87	2.43
Range	212	512.7	7.24	1.87	2.00
n	1197	1197	1081	1082	1082

Table 3. Descriptive statistics calculated per fishing trip and per hook size for the biological characteristics of Atlantic mackerel sampled during the hook selectivity study.

VARIABLE	STATISTIC	DAY-MONTH (HOOK SIZE)											
		17-10 (10)	17-10 (4/0)	18-10 (10)	18-10 (4/0)	19-10 (10)	19-10 (2/0)	22-10 (10)	22-10 (2/0)	23-10 (10)	23-10 (4/0)	24-10 (10)	24-10 (2/0)
LENGTH	Mean	304.2	312.8	310.4	305.4	297.9	297.0	299.1	304.8	298.3	304.2	293.9	295.0
(mm)	SD	21.8	24.1	20.5	27.6	18.5	17.1	21.5	19.3	18.1	21.8	16.3	15.3
	Minimum	252	262	270	186	248	250	254	262	260	260	256	255
	Maximum	377	365	365	398	373	336	371	366	368	369	357	361
	Range	125	103	95	212	125	86	117	104	108	109	101	106
	n	100	100	100	100	100	99	100	99	100	100	99	100
WEIGHT	Mean	325.0	365.4	350.1	324.6	295.6	287.1	308.6	328.0	290.5	324.6	277.0	287.2
(g)	SD	89.7	98.3	85.6	94.9	67.4	59.7	85.8	74.7	69.1	82.7	61.1	60.5
	Minimum	156.1	216.9	198.0	143.1	148.6	157.8	160.0	186.5	168.8	193.5	177.7	157.9
	Maximum	655.8	628.9	571.9	615.0	566.0	454.4	625.8	576.0	620.4	556.9	557.4	584.2
	Range	499.7	412.0	373.9	471.9	417.4	296.6	465.8	389.5	451.6	363.4	379.7	426.3
	n	100	100	100	100	100	99	100	99	100	100	99	100
GONAD	Mean	1.77	1.66	1.57	1.76	1.47	1.46	1.41	1.72	1.35	1.74	1.15	1.29
WEIGHT	SD	1.36	1.41	1.39	1.39	1.28	1.08	1.10	1.26	1.26	1.61	0.83	1.06
(g)	Minimum	0.27	0.21	0.18	0.16	0.17	0.16	0.15	0.29	0.17	0.22	0.12	0.21
	Maximum	6.23	5.82	7.36	6.03	7.09	5.09	6.48	5.50	6.52	6.78	3.58	5.96
	Range	5.96	5.61	7.18	5.87	6.92	4.93	6.33	5.21	6.35	6.56	3.46	5.75
	n	89	93	96	94	75	78	93	92	90	99	89	93
GSI	Mean	0.51	0.44	0.43	0.52	0.46	0.48	0.45	0.51	0.45	0.50	0.41	0.43
	SD	0.30	0.31	0.32	0.35	0.31	0.29	0.31	0.31	0.33	0.38	0.29	0.29
	Minimum	0.00	0.06	0.06	0.06	0.06	0.07	0.06	0.10	0.05	0.08	0.05	0.08
	Maximum	1.15	1.11	1.29	1.87	1.25	1.24	1.25	1.12	1.26	1.27	1.25	1.02
	Range	1.15	1.05	1.23	1.82	1.19	1.18	1.19	1.03	1.21	1.19	1.20	0.94
	n	90	93	96	94	75	78	93	92	90	99	89	93
K	Mean	1.13	1.16	1.15	1.12	1.10	1.08	1.13	1.14	1.07	1.13	1.08	1.10
	SD	0.08	0.08	0.07	0.19	0.08	0.07	0.08	0.06	0.07	0.08	0.08	0.08
	Minimum	0.96	0.96	0.95	0.43	0.94	0.95	0.96	0.99	0.85	0.84	0.82	0.87
	Maximum	1.31	1.36	1.35	2.43	1.29	1.24	1.36	1.29	1.26	1.35	1.31	1.39
	Range	0.35	0.40	0.41	2.00	0.36	0.29	0.39	0.30	0.41	0.52	0.49	0.52
	n	90	93	96	94	75	78	93	92	90	99	89	93

Table 4. Descriptive statistics calculated per fishing trip for the biological characteristics of Atlantic mackerel sampled during the hook selectivity study.

VARIABLE	STATISTIC	DAY-MONTH					
		17-10	**18-10**	**19-10**	**22-10**	**23-10**	**24-10**
LENGTH (mm)	Mean	308.5	307.9	297.4	301.9	301.2	294.5
	SD	23.3	24.4	17.8	20.6	20.2	15.8
	Minimum	252	186	248	254	260	255
	Maximum	377	398	373	371	369	361
	Range	125	212	125	117	109	106
	n	200	200	199	199	200	199
WEIGHT (g)	Mean	345.2	337.3	291.4	318.3	307.5	282.1
	SD	96.0	91.0	63.6	80.9	77.9	60.9
	Minimum	156.1	143.1	148.6	160.0	168.8	157.9
	Maximum	655.8	615.0	566.0	625.8	620.4	584.2
	Range	499.7	471.9	417.4	465.8	451.6	426.3
	n	200	200	199	199	200	199
GONAD WEIGHT (g)	Mean	1.71	1.67	1.46	1.56	1.55	1.22
	SD	1.38	1.39	1.18	1.19	1.46	0.96
	Minimum	0.21	0.16	0.16	0.15	0.17	0.12
	Maximum	6.23	7.36	7.09	6.48	6.78	5.96
	Range	6.02	7.20	6.93	6.33	6.61	5.84
	n	182	190	153	185	189	182
GSI	Mean	0.47	0.48	0.47	0.48	0.48	0.42
	SD	0.31	0.34	0.30	0.31	0.36	0.29
	Minimum	0.00	0.06	0.06	0.06	0.05	0.05
	Maximum	1.15	1.87	1.25	1.25	1.27	1.25
	Range	1.15	1.82	1.19	1.19	1.21	1.20
	n	183	190	153	185	189	182
K	Mean	1.15	1.13	1.09	1.13	1.10	1.09
	SD	0.08	0.14	0.07	0.07	0.08	0.08
	Minimum	0.96	0.43	0.94	0.96	0.84	0.82
	Maximum	1.36	2.43	1.29	1.36	1.35	1.39
	Range	0.40	2.00	0.36	0.39	0.52	0.58
	n	183	190	153	185	189	182

Table 5. Descriptive statistics calculated per hook size for the biological characteristics of Atlantic mackerel sampled during the hook selectivity study.

VARIABLE	STATISTIC	HOOK SIZE		
		10	**2/0**	**4/0**
LENGTH (mm)	Mean	300.6	298.9	307.5
	SD	20.2	17.8	24.8
	Minimum	248	250	186
	Maximum	377	366	398
	Range	129	116	212
	n	599	298	300
WEIGHT (g)	Mean	307.8	300.7	338.2
	STD	80.6	67.9	93.9
	Minimum	148.6	157.8	143.1
	Maximum	655.8	584.2	628.9
	RANGE	507.2	426.4	485.8
	n	599	298	300
GONAD WEIGHT (g)	Mean	1.45	1.49	1.72
	STD	1.23	1.15	1.47
	Minimum	0.12	0.16	0.16
	Maximum	7.36	5.96	6.78
	RANGE	7.24	5.80	6.62
	n	532	263	286
GSI	Mean	0.45	0.47	0.49
	STD	0.31	0.30	0.35
	Minimum	0.00	0.07	0.06
	Maximum	1.29	1.24	1.87
	RANGE	1.29	1.18	1.82
	n	533	263	286
K	Mean	1.11	1.11	1.14
	STD	0.08	0.08	0.12
	Minimum	0.82	0.87	0.43
	Maximum	1.36	1.39	2.43
	RANGE	0.54	0.52	2.00
	n	533	263	286

Table 6. Relative frequency distribution (%) of fish age per fishing trip and per hook size.

AGE	DAY-MONTH (HOOK SIZE)												
	17-10 (10)	17-10 (4/0)	18-10 (10)	18-10 (4/0)	19-10 (10)	19-10 (2/0)	22-10 (10)	22-10 (2/0)	23-10 (10)	23-10 (4/0)	24-10 (10)	24-10 (2/0)	TOTAL
1	3.1	1.0	1.0	5.1	7.0	7.4	8.2	3.1	3.0	2.0	6.3	5.2	4.3
2	62.2	46.5	62.6	61.2	74.0	77.9	70.4	68.8	81.0	70.4	87.5	88.5	70.8
3	25.5	29.3	17.2	17.4	15.0	10.5	11.2	20.8	13.0	17.4	4.2	3.1	15.4
4	3.1	9.1	5.1	5.1	1.0	4.2	5.1	2.1	0.0	6.1	0.0	2.1	3.6
5	3.1	2.0	2.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	0.0	0.0	0.9
6	3.1	12.1	9.1	10.2	2.0	0.0	5.1	4.2	2.0	3.1	2.1	1.0	4.5
7	0.0	0.0	2.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
8	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1

AGE	DAY-MONTH					
	17-10	18-10	19-10	22-10	23-10	24-10
1	2.0	3.1	7.2	5.7	2.5	5.7
2	54.3	61.9	75.9	69.6	75.8	88.0
3	27.4	17.3	12.8	16.0	15.2	3.7
4	6.1	5.1	2.6	3.6	3.0	1.0
5	2.5	1.0	0.0	0.5	1.0	0.0
6	7.6	9.6	1.0	4.6	2.5	1.6
7	0.0	1.5	0.5	0.0	0.0	0.0
8	0.0	0.5	0.0	0.0	0.0	0.0

AGE	HOOK SIZE		
	10	2/0	4/0
1	4.7	5.2	2.7
2	72.9	78.4	59.3
3	14.4	11.5	21.4
4	2.4	2.8	6.8
5	1.0	0.4	1.0
6	3.9	1.7	8.5
7	0.5	0.0	0.3
8	0.2	0.0	0.0

Table 7. Relative frequency distribution (%) of maturity stages per fishing trip and per hook size. Maturity codes are as follows: 1= immature; 2= maturing; 3= recovering; 4= developing; 5= gravid; 6= beginning of spawning; 7= end of spawning; 8= spent.

MATURITY	DAY-MONTH (HOOK SIZE)												
STAGE	17-10 (10)	17-10 (4/0)	18-10 (10)	18-10 (4/0)	19-10 (10)	19-10 (2/0)	22-10 (10)	22-10 (2/0)	23-10 (10)	23-10 (4/0)	24-10 (10)	24-10 (2/0)	TOTAL
1	2.2	1.0	0.0	0.0	2.1	2.2	4.1	0.0	0.0	0.0	1.1	0.0	1.1
2	55.9	49.0	43.9	53.6	40.4	69.6	40.8	58.8	69.9	63.0	83.9	86.2	59.4
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0	0.1
8	41.9	50.0	56.1	46.4	57.5	28.3	55.1	41.2	29.0	37.0	15.1	13.8	39.5

MATURITY	DAY-MONTH					
STAGE	17-10	18-10	19-10	22-10	23-10	24-10
1	1.6	0.0	2.2	2.1	0.0	0.5
2	52.4	48.7	54.8	49.7	66.3	85.0
7	0.0	0.0	0.0	0.0	0.5	0.0
8	46.0	51.3	43.0	48.2	33.2	14.4

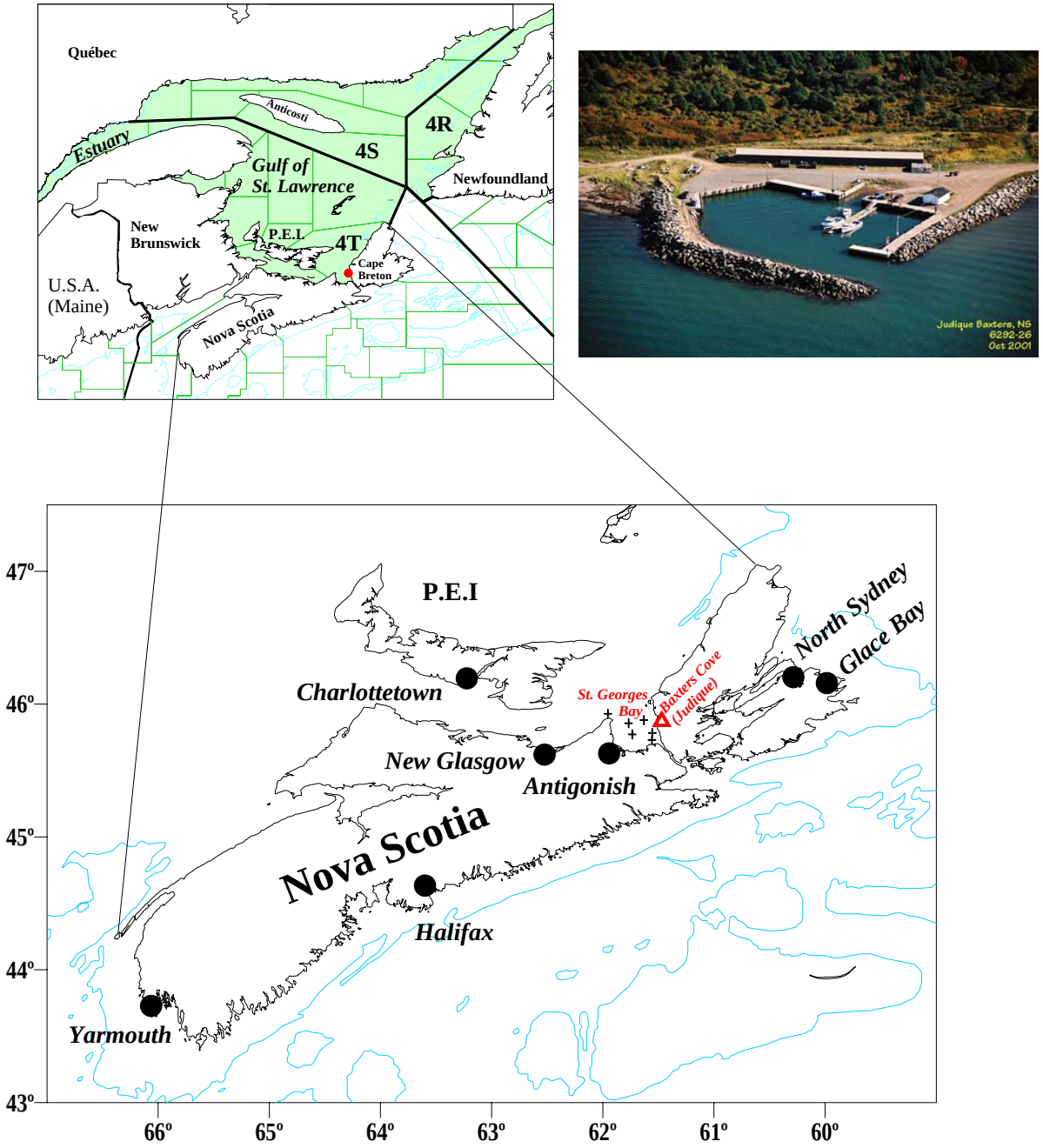
MATURITY	HOOK SIZE		
STAGE	10	2/0	4/0
1	1.6	0.7	0.3
2	55.5	71.4	55.3
7	0.2	0.0	0.0
8	42.7	27.9	44.4

Table 8. Relative frequency distribution (%) of the number of females and males per fishing trip and per hook size.

	DAY-MONTH (HOOK SIZE)												
	17-10 (10)	**17-10 (4/0)**	**18-10 (10)**	**18-10 (4/0)**	**19-10 (10)**	**19-10 (2/0)**	**22-10 (10)**	**22-10 (2/0)**	**23-10 (10)**	**23-10 (4/0)**	**24-10 (10)**	**24-10 (2/0)**	**TOTAL**
MALE	44.7	56.3	59.0	44.4	57.6	51.6	53.0	47.0	61.2	51.0	59.0	52.6	53.1
FEMALE	55.3	43.8	41.0	55.6	42.4	48.4	47.0	53.0	38.8	49.0	41.1	47.4	46.9

	DAY-MONTH					
	17-10	**18-10**	**19-10**	**22-10**	**23-10**	**24-10**
MALE	50.5	51.8	54.6	50.0	56.1	55.8
FEMALE	49.5	48.2	45.4	50.0	43.9	44.2

	HOOK SIZE		
	10	**2/0**	**4/0**
MALE	55.8	50.3	50.5
FEMALE	44.2	49.7	49.5



(Source: http://www.dfo-mpo.gc.ca/sch/p_e.html?c=1139)

Figure 1. Maps of the Gulf of St. Lawrence, of NAFO Divisions 4RST and of St. Georges Bay in Nova Scotia where the hook selectivity study took place. Insert: a photo of the port of Baxters Cove.

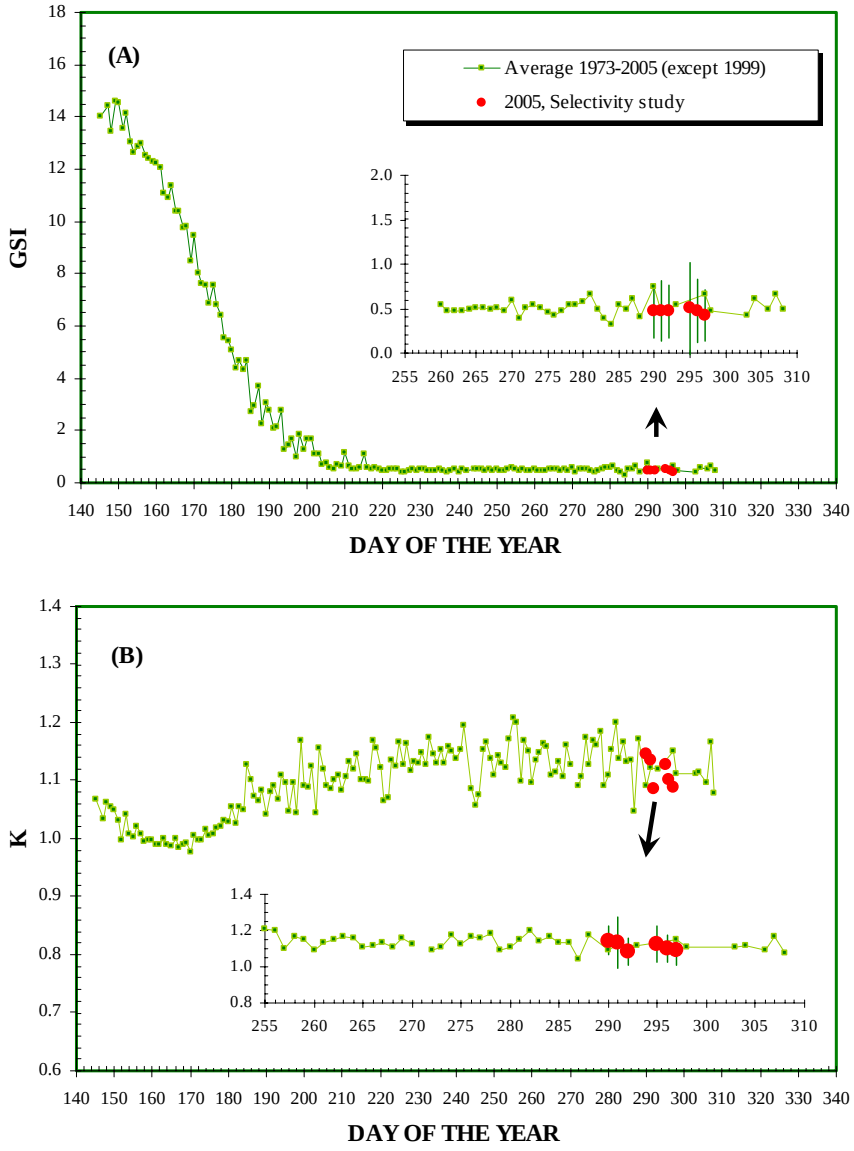


Figure 2. Average daily values of the gonadosomatic index (GSI) and condition factor (K) of Atlantic mackerel sampled in the southern Gulf of St. Lawrence from 1973 to 2005 (October) (F. Grégoire, unpublished data) and during the hook selectivity study.

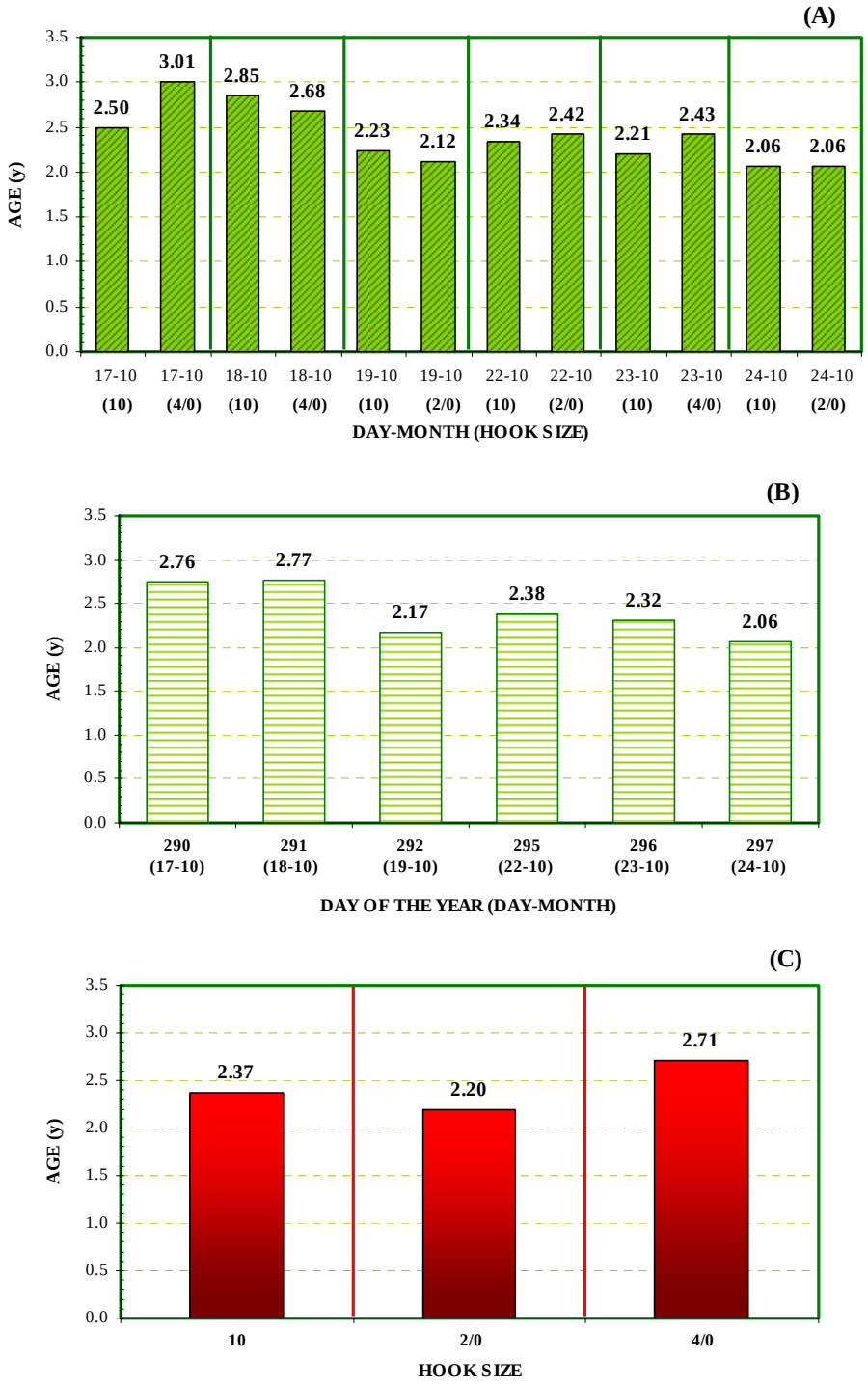


Figure 3. Average age of catches calculated per fishing trip and hook size (A), per fishing trip (B), and per hook size (C).

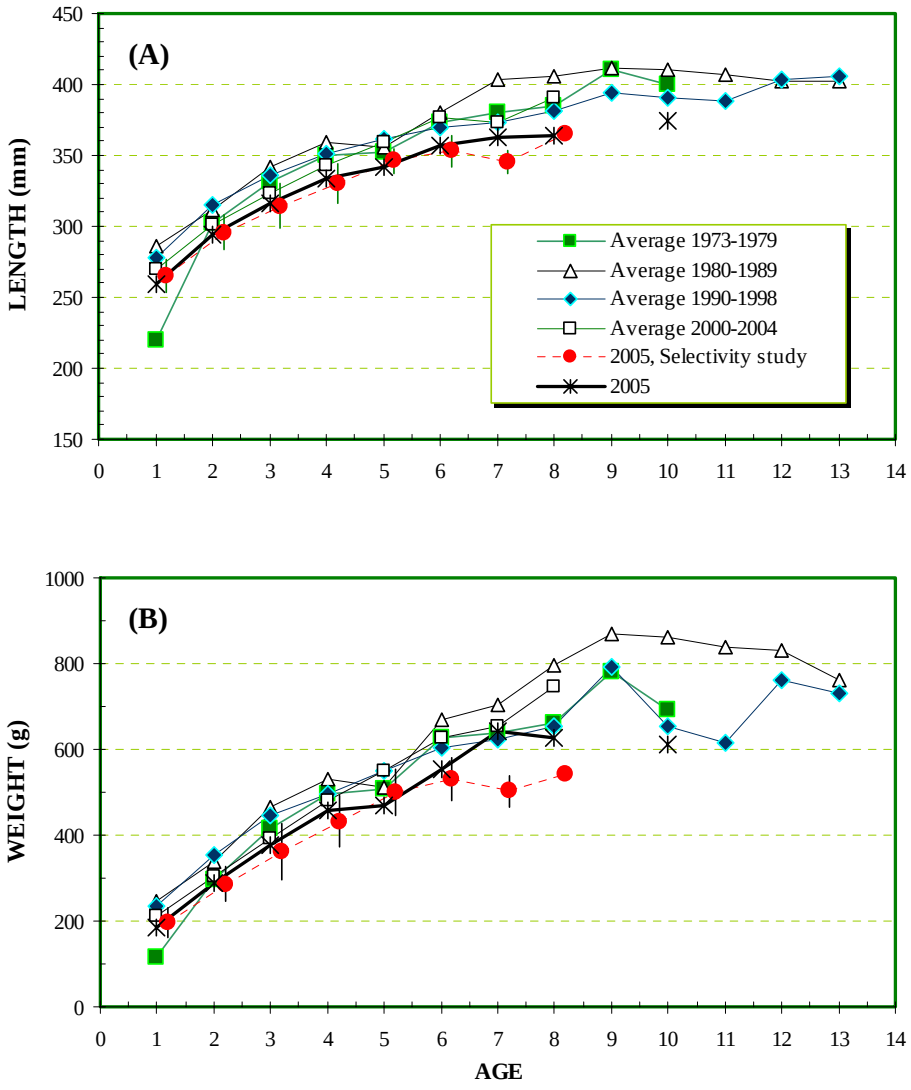


Figure 4. Average length (mm) (A) and weight (g) (B) at age for Atlantic mackerel sampled in the southern Gulf of St. Lawrence from 1973 to 2005 (October) (F. Grégoire, unpublished data) and during the hook selectivity study.

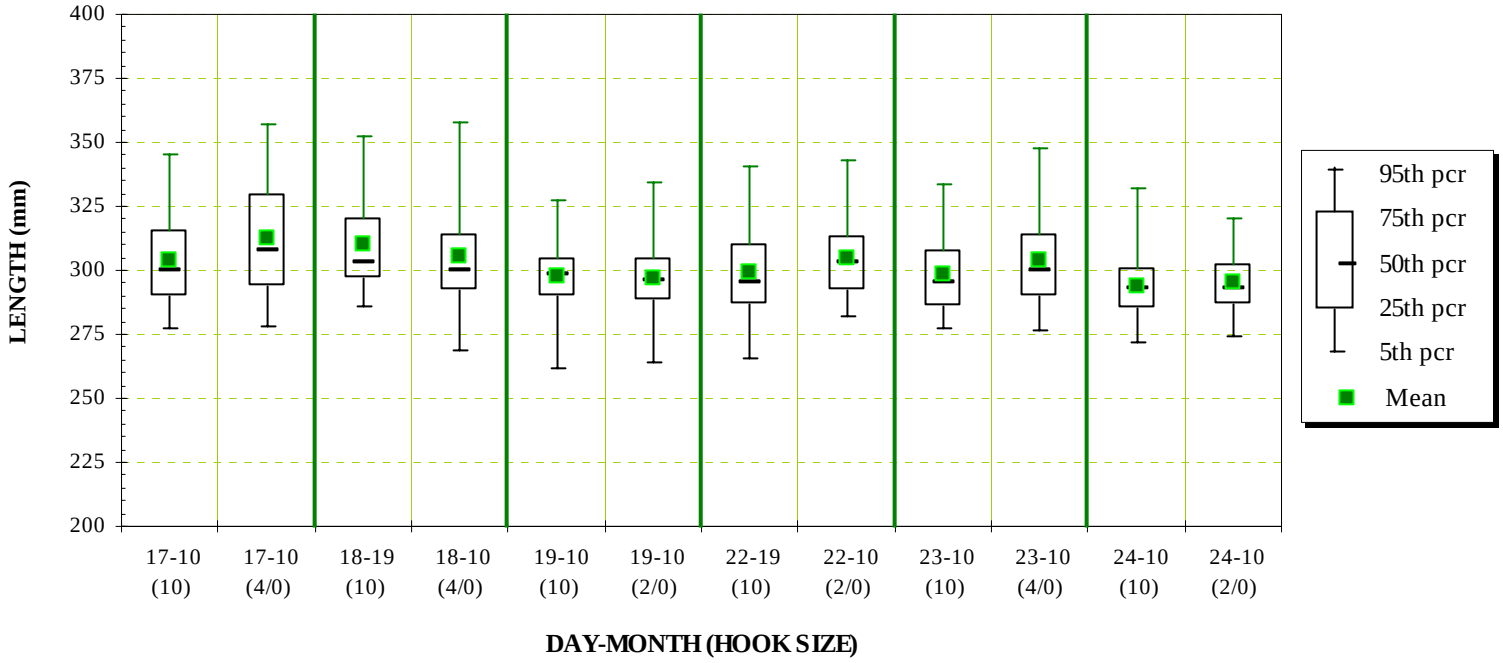


Figure 5. Boxplots of the lengths of Atlantic mackerel catches per fishing trip and hook size.

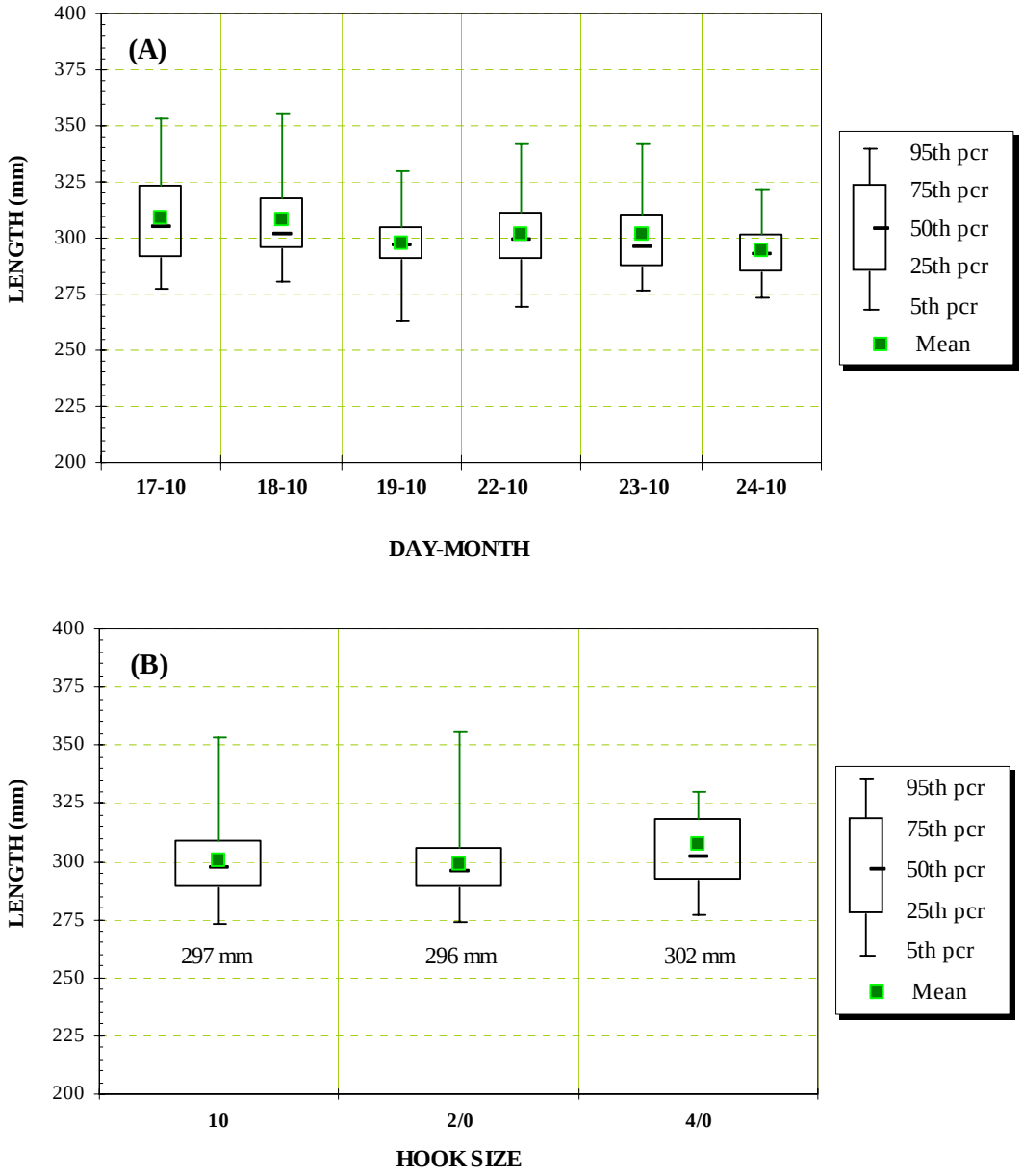


Figure 6. Boxplots of the lengths of Atlantic mackerel catches per fishing trip (A) and hook size (B).

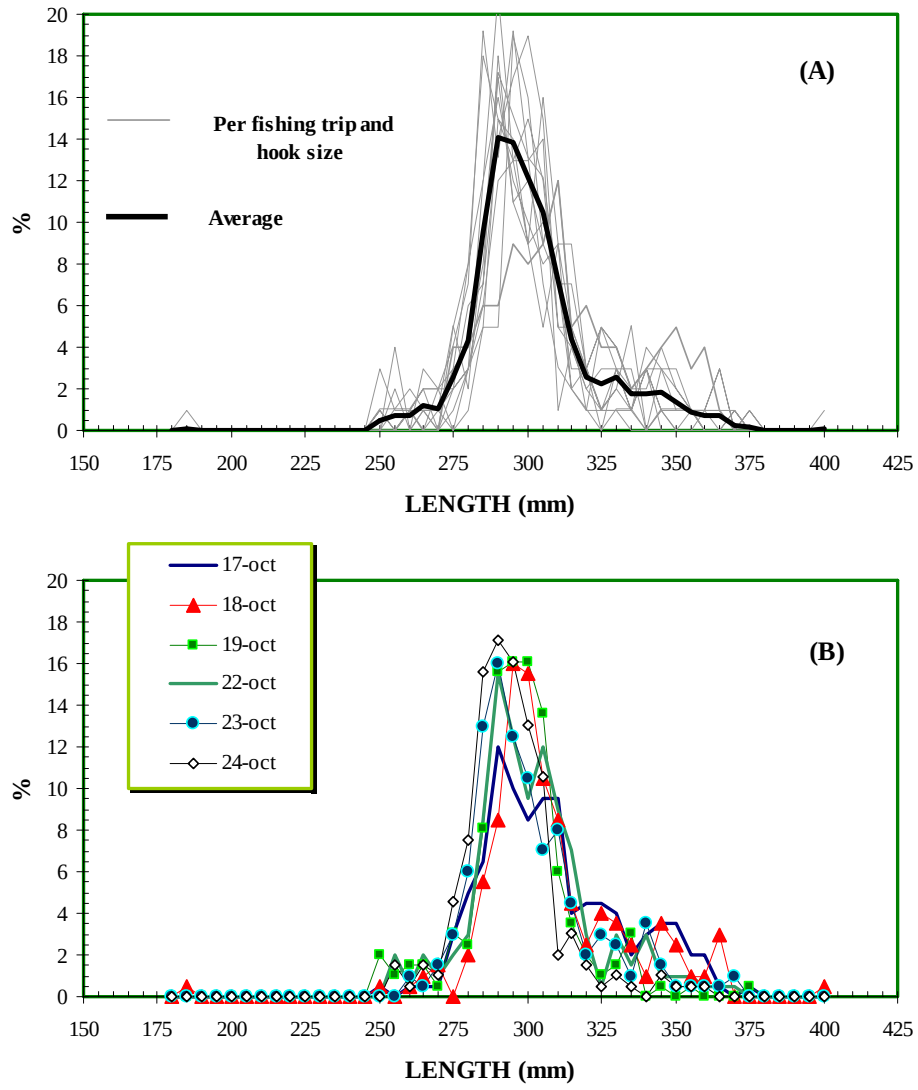


Figure 7. Relative frequency (%) of captured fish lengths per fishing trip and hook size (A) and per fishing trip (B).

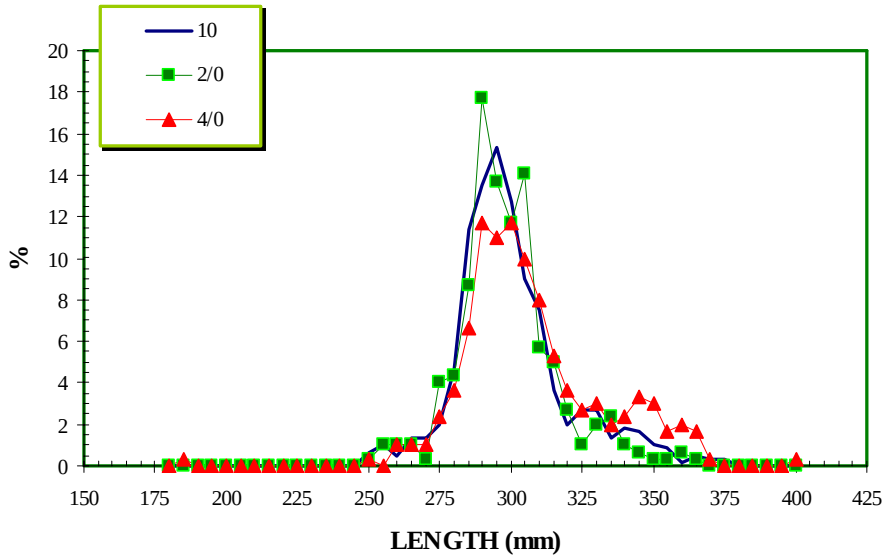


Figure 8. Relative frequency (%) of captured fish lengths per hook size.

Appendix 1. Hooks used during the Atlantic mackerel selectivity study conducted in the fall of 2005 in St. Georges Bay, Nova Scotia.

Appendix 2. Biological characteristics of Atlantic mackerel sampled during the hook selectivity study conducted in the fall of 2005 in St. Georges Bay, Nova Scotia (n.d.=not determined). Sex codes are as follows: 1=male; 2=female. Maturity codes are as follows: 1= immature; 2= maturing; 3= recovering; 4= developing; 5= gravid; 6= beginning of spawning; 7= end of spawning; 8= spent.

MONTH	DAY	HOOK SIZE	LENGTH (mm)	WEIGHT (g)			SEX	MATURITY	GONADO-SOMATIC INDEX	CONDITION FACTOR	AGE (y)
				Total	Somatic[1]	Gonad					
10	17	10	294	304.1	303.7	0.42	1	2	0.14	1.20	2
10	17	10	296	323.4	322.7	0.68	1	2	0.21	1.24	2
10	17	10	351	502.4	501.5	0.89	1	8	0.18	1.16	5
10	17	10	307	351.8	351.0	0.85	1	2	0.24	1.21	2
10	17	10	304	286.2	285.9	0.33	1	2	0.12	1.02	2
10	17	10	285	283.1	281.6	1.53	2	2	0.54	1.22	2
10	17	10	303	332.8	329.9	2.92	2	8	0.88	1.19	2
10	17	10	290	264.3	262.0	2.33	2	2	0.88	1.07	2
10	17	10	311	350.3	348.2	2.12	2	8	0.61	1.16	2
10	17	10	300	312.9	310.9	2.00	2	8	0.64	1.15	2
10	17	10	278	225.2	223.5	1.73	2	2	0.77	1.04	1
10	17	10	276	226.7	225.2	1.52	2	2	0.67	1.07	2
10	17	10	280	231.3	230.7	0.63	1	2	0.27	1.05	2
10	17	10	326	452.9	449.1	3.77	2	8	0.83	1.30	3
10	17	10	290	297.2	294.6	2.56	2	2	0.86	1.21	2
10	17	10	294	293.7	n.d.	n.d.	1	n.d.	n.d.	n.d.	3
10	17	10	272	197.9	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	2
10	17	10	308	328.7	326.1	2.57	2	8	0.78	1.12	2
10	17	10	284	233.5	232.2	1.26	2	2	0.54	1.01	2
10	17	10	310	360.3	359.2	1.10	1	8	0.31	1.21	2
10	17	10	332	481.7	477.7	3.96	2	8	0.82	1.31	3
10	17	10	292	272.2	271.5	0.68	1	2	0.25	1.09	2
10	17	10	280	256.3	254.8	1.55	2	2	0.60	1.16	3
10	17	10	283	249.4	248.2	1.25	2	2	0.50	1.09	2
10	17	10	285	225.5	224.9	0.58	1	2	0.26	0.97	n.d.
10	17	10	287	257.7	255.7	2.03	2	2	0.79	1.08	2
10	17	10	252	156.1	n.d.	n.d.	1	1	n.d.	n.d.	1
10	17	10	273	192.7	n.d.	n.d.	1	1	n.d.	n.d.	2
10	17	10	288	288.4	286.1	2.34	2	2	0.81	1.20	3
10	17	10	339	493.4	491.5	1.86	1	8	0.38	1.26	5
10	17	10	298	305.5	305.0	0.50	1	2	0.16	1.15	2
10	17	10	348	470.4	469.2	1.18	1	8	0.25	1.11	6
10	17	10	291	290.4	288.6	1.82	2	2	0.63	1.17	2
10	17	10	290	274.3	n.d.	n.d.	1	2	n.d.	n.d.	2
10	17	10	307	346.8	344.3	2.50	2	8	0.72	1.19	3
10	17	10	326	393.2	389.6	3.58	2	8	0.91	1.12	3
10	17	10	264	185.7	184.9	0.79	2	2	0.43	1.00	1
10	17	10	293	256.2	n.d.	n.d.	1	2	n.d.	n.d.	3
10	17	10	295	263.9	262.1	1.84	2	2	0.70	1.02	2
10	17	10	290	272.2	271.7	0.51	1	8	0.19	1.11	2
10	17	10	300	301.1	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	2
10	17	10	292	289.3	287.6	1.75	2	2	0.60	1.15	3
10	17	10	346	541.7	535.5	6.23	2	8	1.15	1.29	6
10	17	10	297	296.2	294.1	2.15	2	2	0.73	1.12	2
10	17	10	297	277.9	276.2	1.66	2	2	0.60	1.05	3

[1] Total weight - gonad weight

MONTH	DAY	HOOK SIZE	LENGTH (mm)	WEIGHT (g)			SEX	MATURITY	GONADO-SOMATIC INDEX	CONDITION FACTOR	AGE (y)
				Total	Somatic	Gonad					
10	17	10	292	273.6	273.1	0.49	1	2	0.18	1.10	2
10	17	10	344	470.2	466.1	4.13	2	8	0.88	1.14	5
10	17	10	305	316.4	314.6	1.85	2	8	0.58	1.11	2
10	17	10	334	421.9	418.1	3.76	2	8	0.89	1.12	3
10	17	10	331	455.3	451.4	3.94	2	8	0.87	1.24	3
10	17	10	299	315.4	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	2
10	17	10	323	389.7	388.9	0.84	1	8	0.22	1.15	4
10	17	10	280	253.0	251.4	1.63	2	2	0.64	1.15	2
10	17	10	281	225.2	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	2
10	17	10	300	284.3	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	3
10	17	10	341	506.6	501.8	4.84	2	8	0.96	1.27	3
10	17	10	292	310.4	309.9	0.53	1	2	0.17	1.24	2
10	17	10	289	288.7	286.5	2.20	2	2	0.76	1.19	2
10	17	10	304	326.8	326.4	0.36	1	8	0.11	1.16	2
10	17	10	296	269.9	268.2	1.70	2	2	0.63	1.03	3
10	17	10	279	225.8	225.5	0.27	1	2	0.12	1.04	2
10	17	10	301	295.2	292.9	2.26	2	2	0.77	1.07	2
10	17	10	288	238.8	238.4	0.36	1	2	0.15	1.00	2
10	17	10	320	362.6	362.2	0.42	1	8	0.12	1.11	3
10	17	10	289	240.4	238.4	1.99	2	2	0.83	0.99	2
10	17	10	311	321.0	320.4	0.59	1	8	0.18	1.07	2
10	17	10	290	293.8	291.7	2.08	2	2	0.71	1.20	2
10	17	10	332	410.0	408.9	1.11	1	8	0.27	1.12	3
10	17	10	297	264.5	263.9	0.58	1	2	0.22	1.01	2
10	17	10	292	280.8	279.1	1.71	2	2	0.61	1.12	3
10	17	10	312	313.6	313.1	0.52	1	2	0.17	1.03	2
10	17	10	306	303.7	302.0	1.74	2	8	0.57	1.05	2
10	17	10	303	293.6	292.2	1.39	2	2	0.47	1.05	2
10	17	10	345	451.4	447.6	3.85	2	8	0.85	1.09	4
10	17	10	320	405.5	404.7	0.81	1	2	0.20	1.24	3
10	17	10	301	308.0	305.6	2.41	2	8	0.78	1.12	3
10	17	10	324	411.5	410.8	0.70	1	8	0.17	1.21	3
10	17	10	287	244.0	242.4	1.60	2	2	0.66	1.03	2
10	17	10	310	338.8	338.2	0.58	1	2	0.17	1.14	2
10	17	10	315	361.6	359.4	2.23	2	8	0.62	1.15	4
10	17	10	377	655.8	649.7	6.11	2	8	0.93	1.21	n.d.
10	17	10	296	322.3	320.1	2.24	2	8	0.70	1.23	2
10	17	10	306	296.8	296.1	0.70	1	2	0.24	1.03	2
10	17	10	306	284.5	283.1	1.44	2	2	0.51	0.99	2
10	17	10	355	570.9	565.9	5.03	2	8	0.88	1.26	6
10	17	10	340	490.0	485.0	4.96	2	8	1.01	1.23	3
10	17	10	294	287.9	287.5	0.39	1	2	0.14	1.13	2
10	17	10	290	246.6	246.2	0.38	1	2	0.15	1.01	2
10	17	10	322	358.3	356.0	2.34	2	8	0.65	1.07	2
10	17	10	330	404.8	404.3	0.52	1	8	0.13	1.12	3

MONTH	DAY	HOOK SIZE	LENGTH (mm)	WEIGHT (g)			SEX	MATURITY	GONADO-SOMATIC INDEX	CONDITION FACTOR	AGE (y)
				Total	Somatic	Gonad					
10	17	10	312	325.3	322.2	3.13	2	8	0.96	1.06	2
10	17	10	333	416.0	415.4	0.65	1	8	0.16	1.12	3
10	17	10	290	234.8	234.4	0.38	1	2	0.16	0.96	2
10	17	10	287	289.2	286.3	2.89	2	2	1.00	1.21	2
10	17	10	315	346.4	346.0	0.43	1	8	0.12	1.11	2
10	17	10	323	430.5	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	3
10	17	10	301	317.3	316.5	0.76	1	2	0.24	1.16	2
10	17	10	300	314.0	313.4	0.61	1	2	0.19	1.16	2
10	17	10	317	384.2	381.7	2.49	2	8	0.65	1.20	2
10	17	10	291	251.8	251.4	0.43	1	2	0.17	1.02	2
10	17	4/0	302	305.5	n.d.	n.d.	1	2	n.d.	n.d.	3
10	17	4/0	294	283.0	281.5	1.46	2	2	0.52	1.11	2
10	17	4/0	308	373.9	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	3
10	17	4/0	297	294.4	292.8	1.56	2	2	0.53	1.12	2
10	17	4/0	302	336.6	334.3	2.30	2	2	0.68	1.21	2
10	17	4/0	345	474.9	474.2	0.68	1	8	0.14	1.15	6
10	17	4/0	280	263.7	263.3	0.39	1	2	0.15	1.20	2
10	17	4/0	317	389.0	385.9	3.09	2	8	0.79	1.21	4
10	17	4/0	321	393.5	389.8	3.70	2	8	0.94	1.18	3
10	17	4/0	343	508.1	507.6	0.55	1	8	0.11	1.26	6
10	17	4/0	315	354.6	354.1	0.48	1	8	0.14	1.13	3
10	17	4/0	308	325.5	323.7	1.78	2	2	0.55	1.11	2
10	17	4/0	359	628.9	627.5	1.40	1	8	0.22	1.36	6
10	17	4/0	356	594.7	589.8	4.93	2	8	0.83	1.31	5
10	17	4/0	287	277.2	276.9	0.33	1	2	0.12	1.17	3
10	17	4/0	325	427.7	427.1	0.63	1	8	0.15	1.24	n.d.
10	17	4/0	316	338.3	338.1	0.21	1	2	0.06	1.07	3
10	17	4/0	321	386.6	385.8	0.76	1	8	0.20	1.17	4
10	17	4/0	341	443.7	442.9	0.85	1	8	0.19	1.12	3
10	17	4/0	289	249.1	247.2	1.95	2	2	0.78	1.02	2
10	17	4/0	318	373.1	371.1	2.02	2	8	0.54	1.15	2
10	17	4/0	344	478.8	478.1	0.72	1	8	0.15	1.17	6
10	17	4/0	349	486.1	485.2	0.91	1	8	0.19	1.14	6
10	17	4/0	310	362.7	359.7	2.99	2	8	0.82	1.21	3
10	17	4/0	301	310.5	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	3
10	17	4/0	305	304.4	303.4	1.01	1	2	0.33	1.07	2
10	17	4/0	318	402.3	401.6	0.73	1	8	0.18	1.25	3
10	17	4/0	309	330.4	328.0	2.38	2	8	0.72	1.11	3
10	17	4/0	295	314.4	313.8	0.57	1	2	0.18	1.22	2
10	17	4/0	332	457.7	456.7	1.03	1	8	0.23	1.25	3
10	17	4/0	311	345.5	343.6	1.92	2	8	0.56	1.14	3
10	17	4/0	310	341.4	338.9	2.51	2	8	0.74	1.14	2
10	17	4/0	296	270.8	270.4	0.36	1	2	0.13	1.04	2
10	17	4/0	307	342.3	341.8	0.54	1	8	0.16	1.18	2
10	17	4/0	292	281.8	280.1	1.73	2	2	0.61	1.12	2

MONTH	DAY	HOOK SIZE	LENGTH (mm)	WEIGHT (g)			SEX	MATURITY	GONADO-SOMATIC INDEX	CONDITION FACTOR	AGE (y)
				Total	Somatic	Gonad					
10	17	4/0	283	250.2	248.5	1.68	2	2	0.67	1.10	2
10	17	4/0	277	225.5	n.d.	n.d.	1	1	n.d.	n.d.	2
10	17	4/0	361	575.2	574.1	1.15	1	8	0.20	1.22	4
10	17	4/0	322	421.1	420.1	1.02	1	8	0.24	1.26	3
10	17	4/0	349	512.3	511.1	1.21	1	8	0.24	1.20	6
10	17	4/0	291	293.2	292.8	0.36	1	2	0.12	1.19	3
10	17	4/0	333	422.9	422.3	0.63	1	8	0.15	1.14	4
10	17	4/0	355	595.4	589.6	5.82	2	8	0.98	1.32	4
10	17	4/0	289	278.9	278.5	0.40	1	2	0.14	1.15	2
10	17	4/0	287	260.4	259.9	0.50	1	2	0.19	1.10	2
10	17	4/0	300	309.2	307.3	1.93	2	2	0.62	1.14	2
10	17	4/0	306	350.2	n.d.	n.d.	1	2	n.d.	n.d.	2
10	17	4/0	355	540.3	535.1	5.24	2	8	0.97	1.20	6
10	17	4/0	325	412.9	412.2	0.74	1	8	0.18	1.20	4
10	17	4/0	306	383.5	380.3	3.23	2	2	0.84	1.33	3
10	17	4/0	303	315.1	313.0	2.15	2	2	0.68	1.12	2
10	17	4/0	281	234.7	232.8	1.88	2	2	0.80	1.05	2
10	17	4/0	306	344.8	343.4	1.42	2	2	0.41	1.20	2
10	17	4/0	302	311.2	310.5	0.67	1	2	0.22	1.13	2
10	17	4/0	291	278.1	277.7	0.37	1	2	0.13	1.13	3
10	17	4/0	290	286.6	283.9	2.71	2	2	0.95	1.16	3
10	17	4/0	350	566.8	565.6	1.17	1	8	0.21	1.32	5
10	17	4/0	313	396.4	395.8	0.57	1	2	0.14	1.29	3
10	17	4/0	340	472.7	469.1	3.58	2	8	0.76	1.19	3
10	17	4/0	280	235.6	235.3	0.28	1	2	0.12	1.07	2
10	17	4/0	285	253.8	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	2
10	17	4/0	294	274.9	273.4	1.52	2	2	0.55	1.08	2
10	17	4/0	297	327.7	326.9	0.78	1	2	0.24	1.25	2
10	17	4/0	342	471.5	466.8	4.69	2	8	0.99	1.17	3
10	17	4/0	359	517.7	512.0	5.74	2	8	1.11	1.11	6
10	17	4/0	307	335.0	332.4	2.56	2	8	0.76	1.15	4
10	17	4/0	330	407.2	404.2	3.05	2	8	0.75	1.12	3
10	17	4/0	299	299.4	298.9	0.54	1	2	0.18	1.12	2
10	17	4/0	277	242.6	242.2	0.39	1	2	0.16	1.14	2
10	17	4/0	301	316.9	316.2	0.69	1	2	0.22	1.16	2
10	17	4/0	293	293.6	293.1	0.52	1	2	0.18	1.17	2
10	17	4/0	302	330.6	330.1	0.50	1	2	0.15	1.20	2
10	17	4/0	358	527.7	526.6	1.07	1	8	0.20	1.15	6
10	17	4/0	347	539.4	538.1	1.27	1	8	0.24	1.29	6
10	17	4/0	286	265.6	263.8	1.81	2	2	0.68	1.13	2
10	17	4/0	305	315.8	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	2
10	17	4/0	312	363.9	361.9	2.05	2	2	0.56	1.19	2
10	17	4/0	308	355.5	354.4	1.10	1	2	0.31	1.21	2
10	17	4/0	326	416.2	415.6	0.59	1	8	0.14	1.20	3
10	17	4/0	308	324.6	322.7	1.91	2	8	0.59	1.10	2

MONTH	DAY	HOOK SIZE	LENGTH (mm)	WEIGHT (g)			SEX	MATURITY	GONADO-SOMATIC INDEX	CONDITION FACTOR	AGE (y)
				Total	Somatic	Gonad					
10	17	4/0	287	275.2	273.5	1.67	2	2	0.61	1.16	2
10	17	4/0	309	314.3	312.1	2.17	2	2	0.69	1.06	2
10	17	4/0	350	534.3	532.8	1.48	1	8	0.28	1.24	4
10	17	4/0	294	273.7	273.2	0.46	1	2	0.17	1.08	2
10	17	4/0	332	431.7	427.2	4.48	2	8	1.04	1.17	4
10	17	4/0	322	380.9	380.1	0.84	1	8	0.22	1.14	3
10	17	4/0	275	250.6	250.3	0.34	1	2	0.14	1.20	2
10	17	4/0	329	392.0	391.4	0.63	1	8	0.16	1.10	2
10	17	4/0	294	289.6	287.3	2.31	2	2	0.80	1.13	2
10	17	4/0	311	351.8	349.4	2.37	2	8	0.67	1.16	3
10	17	4/0	304	354.5	353.9	0.60	1	8	0.17	1.26	3
10	17	4/0	325	370.6	369.7	0.88	1	8	0.24	1.08	3
10	17	4/0	280	216.9	216.7	0.21	1	2	0.10	0.99	2
10	17	4/0	310	320.7	318.0	2.67	2	2	0.83	1.07	2
10	17	4/0	262	228.2	227.1	1.09	2	2	0.48	1.26	1
10	17	4/0	313	350.2	349.5	0.74	1	8	0.21	1.14	3
10	17	4/0	365	470.3	466.3	3.97	2	8	0.84	0.96	6
10	17	4/0	352	551.0	545.3	5.71	2	8	1.04	1.25	6
10	17	4/0	277	225.2	224.5	0.71	1	2	0.32	1.06	2
10	17	4/0	334	459.2	454.4	4.85	2	8	1.06	1.22	3
10	18	4/0	281	243.0	241.8	1.16	2	2	0.48	1.09	2
10	18	4/0	252	169.9	169.2	0.73	2	2	0.43	1.06	1
10	18	4/0	313	328.6	327.0	1.59	2	8	0.48	1.07	2
10	18	4/0	329	395.1	393.9	1.19	1	8	0.30	1.11	3
10	18	4/0	292	278.1	277.9	0.22	1	2	0.08	1.12	2
10	18	4/0	287	255.1	253.9	1.18	2	8	0.46	1.07	2
10	18	4/0	305	334.3	333.9	0.43	1	8	0.13	1.18	n.d.
10	18	4/0	299	294.2	293.5	0.66	1	2	0.22	1.10	2
10	18	4/0	267	208.1	207.8	0.33	1	2	0.16	1.09	1
10	18	4/0	285	253.8	253.3	0.53	1	2	0.21	1.09	2
10	18	4/0	307	285.6	283.6	2.05	2	8	0.72	0.98	2
10	18	4/0	366	588.8	587.4	1.37	1	8	0.23	1.20	6
10	18	4/0	297	269.8	268.4	1.44	2	8	0.53	1.02	2
10	18	4/0	300	313.2	312.9	0.32	1	2	0.10	1.16	3
10	18	4/0	296	279.7	277.5	2.22	2	8	0.79	1.07	2
10	18	4/0	290	291.2	290.4	0.80	1	2	0.27	1.19	3
10	18	4/0	290	252.0	n.d.	n.d.	1	2	n.d.	n.d.	2
10	18	4/0	303	335.7	335.1	0.62	1	2	0.18	1.20	2
10	18	4/0	296	314.1	313.6	0.46	1	8	0.15	1.21	2
10	18	4/0	292	276.7	276.3	0.39	1	2	0.14	1.11	2
10	18	4/0	292	276.0	275.8	0.16	1	2	0.06	1.11	2
10	18	4/0	335	452.2	448.4	3.81	2	8	0.84	1.19	3
10	18	4/0	267	184.2	183.6	0.60	2	2	0.33	0.96	1
10	18	4/0	316	357.0	353.3	3.69	2	8	1.03	1.12	2
10	18	4/0	297	266.1	264.4	1.73	2	8	0.65	1.01	2

MONTH	DAY	HOOK SIZE	LENGTH (mm)	WEIGHT (g)			SEX	MATURITY	GONADO-SOMATIC INDEX	CONDITION FACTOR	AGE (y)
				Total	Somatic	Gonad					
10	18	4/0	352	560.1	555.1	5.05	2	8	0.90	1.27	6
10	18	4/0	293	231.4	229.8	1.57	2	2	0.68	0.91	2
10	18	4/0	318	411.4	408.2	3.19	2	8	0.78	1.27	4
10	18	4/0	306	308.0	306.0	2.01	2	8	0.65	1.07	2
10	18	4/0	295	262.0	260.4	1.61	2	8	0.61	1.01	2
10	18	4/0	289	289.0	287.6	1.42	2	2	0.49	1.19	2
10	18	4/0	326	440.1	437.0	3.14	2	8	0.71	1.26	3
10	18	4/0	305	316.9	315.0	1.90	2	8	0.60	1.11	2
10	18	4/0	348	520.3	519.4	0.90	1	8	0.17	1.23	4
10	18	4/0	311	328.0	325.8	2.23	2	8	0.68	1.08	3
10	18	4/0	290	240.7	240.3	0.40	1	2	0.17	0.99	2
10	18	4/0	296	289.2	287.0	2.16	2	8	0.75	1.11	2
10	18	4/0	367	559.7	553.7	6.03	2	8	1.08	1.12	6
10	18	4/0	284	250.5	248.9	1.62	2	2	0.65	1.09	2
10	18	4/0	296	288.0	287.5	0.47	1	2	0.16	1.11	2
10	18	4/0	186	159.1	156.7	2.45	2	2	1.54	2.43	2
10	18	4/0	300	299.0	297.5	1.48	2	8	0.49	1.10	3
10	18	4/0	270	203.4	n.d.	n.d.	1	n.d.	n.d.	n.d.	1
10	18	4/0	292	287.5	285.9	1.57	2	2	0.55	1.15	3
10	18	4/0	301	311.3	310.5	0.79	1	2	0.25	1.14	3
10	18	4/0	307	343.3	340.7	2.61	2	8	0.76	1.18	2
10	18	4/0	295	329.1	327.1	2.04	2	8	0.62	1.27	2
10	18	4/0	292	295.0	293.1	1.86	2	2	0.63	1.18	2
10	18	4/0	281	275.7	273.9	1.85	2	2	0.67	1.23	2
10	18	4/0	303	305.0	302.7	2.26	2	8	0.74	1.09	2
10	18	4/0	356	546.8	541.2	5.60	2	8	1.02	1.20	6
10	18	4/0	297	293.8	293.3	0.47	1	2	0.16	1.12	2
10	18	4/0	344	470.5	465.9	4.65	2	8	0.99	1.14	6
10	18	4/0	289	269.1	267.7	1.42	2	2	0.53	1.11	2
10	18	4/0	302	299.4	298.8	0.61	1	2	0.20	1.08	2
10	18	4/0	327	402.3	401.9	0.38	1	8	0.09	1.15	3
10	18	4/0	300	322.2	319.8	2.41	2	8	0.75	1.18	2
10	18	4/0	262	174.9	174.7	0.24	1	2	0.14	0.97	1
10	18	4/0	307	333.2	331.0	2.18	2	8	0.65	1.14	3
10	18	4/0	271	244.6	243.9	0.69	1	2	0.28	1.23	2
10	18	4/0	285	272.4	271.9	0.48	1	2	0.18	1.17	2
10	18	4/0	299	273.9	273.5	0.43	1	2	0.16	1.02	2
10	18	4/0	314	322.2	318.6	3.57	2	8	1.11	1.03	3
10	18	4/0	360	551.3	546.2	5.11	2	8	0.93	1.17	6
10	18	4/0	333	435.2	430.1	5.15	2	8	1.18	1.16	4
10	18	4/0	314	333.4	332.3	1.11	1	8	0.33	1.07	3
10	18	4/0	336	458.4	457.1	1.26	1	8	0.27	1.21	7
10	18	4/0	310	272.0	270.3	1.73	2	2	0.64	0.91	2
10	18	4/0	292	271.2	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	2
10	18	4/0	285	274.8	273.4	1.37	2	2	0.50	1.18	2

MONTH	DAY	HOOK SIZE	LENGTH (mm)	WEIGHT (g)			SEX	MATURITY	GONADO-SOMATIC INDEX	CONDITION FACTOR	AGE (y)
				Total	Somatic	Gonad					
10	18	4/0	299	309.2	307.2	1.96	2	2	0.63	1.15	2
10	18	4/0	300	299.1	296.8	2.32	2	2	0.78	1.10	2
10	18	4/0	306	308.9	308.5	0.37	1	2	0.12	1.08	2
10	18	4/0	308	328.1	327.6	0.48	1	2	0.15	1.12	2
10	18	4/0	331	397.1	394.1	2.97	2	8	0.75	1.09	4
10	18	4/0	300	269.3	269.0	0.30	1	2	0.11	1.00	2
10	18	4/0	295	276.1	274.6	1.54	2	2	0.56	1.07	2
10	18	4/0	303	330.2	329.6	0.57	1	2	0.17	1.18	2
10	18	4/0	300	331.0	330.5	0.49	1	2	0.15	1.22	2
10	18	4/0	298	272.4	270.8	1.63	2	2	0.60	1.02	2
10	18	4/0	285	249.0	246.6	2.37	2	2	0.95	1.07	2
10	18	4/0	325	401.8	397.9	3.95	2	2	0.98	1.16	4
10	18	4/0	290	250.2	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	2
10	18	4/0	311	143.1	140.4	2.68	2	2	1.87	0.47	n.d.
10	18	4/0	300	301.9	300.3	1.58	2	2	0.52	1.11	2
10	18	4/0	345	456.6	455.6	1.04	1	8	0.23	1.11	6
10	18	4/0	366	615.0	609.1	5.87	2	8	0.95	1.24	6
10	18	4/0	298	300.2	299.6	0.62	1	2	0.21	1.13	3
10	18	4/0	328	413.2	409.7	3.53	2	8	0.85	1.16	3
10	18	4/0	302	332.2	331.6	0.65	1	2	0.20	1.20	2
10	18	4/0	347	464.5	463.4	1.15	1	8	0.25	1.11	6
10	18	4/0	281	263.7	n.d.	n.d.	1	2	n.d.	n.d.	2
10	18	4/0	350	520.7	519.0	1.73	1	8	0.33	1.21	6
10	18	4/0	322	395.5	392.6	2.88	1	8	0.73	1.18	3
10	18	4/0	304	277.9	277.4	0.48	1	2	0.17	0.99	2
10	18	4/0	306	315.1	n.d.	n.d.	1	8	n.d.	n.d.	2
10	18	4/0	398	272.7	270.8	1.92	2	2	0.70	0.43	2
10	18	4/0	296	307.0	304.4	2.63	2	2	0.86	1.17	2
10	18	4/0	312	325.3	322.9	2.44	2	8	0.75	1.06	3
10	18	4/0	296	304.5	304.0	0.49	1	2	0.16	1.17	2
10	18	10	294	295.8	295.4	0.39	1	2	0.13	1.16	3
10	18	10	270	198.0	197.7	0.30	1	2	0.15	1.00	1
10	18	10	293	256.0	n.d.	n.d.	1	2	n.d.	n.d.	2
10	18	10	303	336.0	333.5	2.49	2	8	0.74	1.20	2
10	18	10	308	336.5	336.0	0.48	1	8	0.14	1.15	3
10	18	10	302	297.1	295.9	1.19	2	2	0.40	1.07	2
10	18	10	304	317.3	316.8	0.53	1	8	0.17	1.13	2
10	18	10	310	333.6	331.4	2.19	2	8	0.66	1.11	2
10	18	10	299	280.2	279.9	0.28	1	2	0.10	1.05	2
10	18	10	286	258.7	258.3	0.45	1	2	0.17	1.10	2
10	18	10	295	248.1	245.8	2.30	2	2	0.93	0.96	2
10	18	10	297	308.2	307.7	0.55	1	2	0.18	1.17	2
10	18	10	312	369.7	369.1	0.63	1	8	0.17	1.22	2
10	18	10	364	563.7	557.4	6.32	2	8	1.12	1.16	6
10	18	10	286	259.7	259.2	0.48	1	8	0.18	1.11	2

MONTH	DAY	HOOK SIZE	LENGTH (mm)	WEIGHT (g)			SEX	MATURITY	GONADO-SOMATIC INDEX	CONDITION FACTOR	AGE (y)
				Total	Somatic	Gonad					
10	18	1/0	327	427.3	424.9	2.44	2	8	0.57	1.22	2
10	18	1/0	292	313.3	312.9	0.44	1	2	0.14	1.26	2
10	18	1/0	365	543.1	541.6	1.55	1	8	0.29	1.11	8
10	18	1/0	330	488.0	486.4	1.57	1	8	0.32	1.35	6
10	18	1/0	310	361.1	360.5	0.62	1	8	0.17	1.21	2
10	18	1/0	293	289.1	286.9	2.18	2	8	0.75	1.14	2
10	18	1/0	296	297.5	294.9	2.60	2	8	0.87	1.14	3
10	18	1/0	328	430.0	425.9	4.14	2	8	0.96	1.21	3
10	18	1/0	299	278.4	276.5	1.92	2	2	0.69	1.03	2
10	18	1/0	305	308.8	307.1	1.74	2	8	0.56	1.08	2
10	18	1/0	287	272.7	n.d.	n.d.	1	n.d.	n.d.	n.d.	2
10	18	1/0	310	303.3	n.d.	n.d.	1	n.d.	n.d.	n.d.	2
10	18	1/0	312	364.3	363.7	0.56	1	8	0.15	1.20	3
10	18	1/0	342	451.9	450.6	1.27	1	8	0.28	1.13	5
10	18	1/0	349	535.9	534.7	1.17	1	8	0.22	1.26	6
10	18	1/0	296	289.8	289.6	0.18	1	2	0.06	1.12	2
10	18	1/0	291	274.3	273.8	0.51	1	2	0.19	1.11	2
10	18	1/0	305	269.2	268.9	0.35	1	8	0.13	0.95	2
10	18	1/0	297	297.6	297.2	0.45	1	8	0.15	1.13	2
10	18	1/0	320	372.3	369.2	3.07	2	8	0.82	1.13	4
10	18	1/0	333	432.0	428.4	3.56	2	8	0.82	1.16	4
10	18	1/0	332	474.4	473.6	0.85	1	8	0.18	1.29	5
10	18	1/0	362	571.9	564.5	7.36	2	8	1.29	1.19	6
10	18	1/0	345	510.8	509.6	1.19	1	8	0.23	1.24	6
10	18	1/0	297	297.0	296.5	0.46	1	8	0.15	1.13	2
10	18	1/0	298	325.8	325.2	0.62	1	8	0.19	1.23	2
10	18	1/0	307	339.7	337.0	2.70	2	8	0.79	1.16	2
10	18	1/0	293	280.5	279.0	1.55	2	2	0.55	1.11	2
10	18	1/0	318	382.1	381.5	0.65	1	8	0.17	1.19	4
10	18	1/0	347	533.8	528.6	5.22	2	8	0.98	1.27	6
10	18	1/0	317	352.8	352.3	0.50	1	8	0.14	1.11	3
10	18	1/0	294	286.7	286.4	0.27	1	2	0.09	1.13	2
10	18	1/0	365	534.0	532.8	1.24	1	8	0.23	1.10	6
10	18	1/0	297	294.2	293.8	0.44	1	2	0.15	1.12	2
10	18	1/0	336	401.0	396.3	4.73	2	8	1.18	1.04	3
10	18	1/0	299	283.1	281.7	1.39	2	2	0.49	1.05	2
10	18	1/0	306	320.9	318.9	2.00	2	8	0.62	1.11	2
10	18	1/0	303	293.9	291.9	1.96	2	8	0.67	1.05	2
10	18	1/0	301	298.1	297.6	0.49	1	2	0.16	1.09	2
10	18	1/0	297	281.0	280.7	0.32	1	2	0.11	1.07	2
10	18	1/0	300	344.7	343.8	0.93	1	8	0.27	1.27	2
10	18	1/0	316	341.6	341.2	0.45	1	8	0.13	1.08	3
10	18	1/0	316	356.2	353.2	2.96	2	8	0.83	1.12	3
10	18	1/0	295	274.4	274.1	0.28	1	2	0.10	1.07	2
10	18	1/0	326	424.4	423.5	0.91	1	8	0.21	1.22	3

MONTH	DAY	HOOK SIZE	LENGTH (mm)	WEIGHT (g)			SEX	MATURITY	GONADO-SOMATIC INDEX	CONDITION FACTOR	AGE (y)
				Total	Somatic	Gonad					
10	18	10	300	302.0	301.6	0.39	1	8	0.13	1.12	2
10	18	10	308	325.4	324.9	0.55	1	8	0.17	1.11	2
10	18	10	311	337.6	335.1	2.53	2	8	0.75	1.11	2
10	18	10	294	275.6	273.4	2.24	2	8	0.81	1.08	2
10	18	10	326	383.2	379.5	3.73	2	8	0.97	1.10	3
10	18	10	298	304.9	303.1	1.81	2	8	0.59	1.15	3
10	18	10	290	276.4	274.0	2.39	2	2	0.86	1.12	2
10	18	10	283	250.4	248.6	1.82	2	2	0.73	1.10	2
10	18	10	295	269.5	269.0	0.48	1	2	0.18	1.05	2
10	18	10	329	457.7	456.8	0.92	1	8	0.20	1.28	3
10	18	10	303	314.7	314.2	0.47	1	2	0.15	1.13	2
10	18	10	302	308.6	306.5	2.08	2	2	0.67	1.11	2
10	18	10	290	294.4	294.0	0.38	1	2	0.13	1.21	2
10	18	10	300	291.1	290.8	0.32	1	2	0.11	1.08	2
10	18	10	286	268.8	268.3	0.48	1	2	0.18	1.15	2
10	18	10	297	291.3	290.6	0.71	1	2	0.24	1.11	3
10	18	10	299	313.4	n.d.	n.d.	1	2	n.d.	n.d.	2
10	18	10	321	380.0	377.3	2.73	2	2	0.72	1.14	3
10	18	10	298	303.1	301.0	2.15	2	2	0.71	1.14	2
10	18	10	347	495.7	494.4	1.26	1	8	0.25	1.18	7
10	18	10	323	412.9	411.3	1.57	1	8	0.38	1.22	4
10	18	10	308	355.3	354.6	0.66	1	8	0.19	1.21	3
10	18	10	305	348.9	346.7	2.24	2	2	0.64	1.22	2
10	18	10	311	340.2	339.4	0.78	1	2	0.23	1.13	2
10	18	10	324	426.0	422.4	3.59	2	8	0.84	1.24	3
10	18	10	300	327.1	324.7	2.45	2	2	0.75	1.20	2
10	18	10	280	264.7	262.7	2.02	2	2	0.76	1.20	2
10	18	10	342	509.5	508.4	1.10	1	8	0.22	1.27	7
10	18	10	311	338.3	337.8	0.47	1	8	0.14	1.12	2
10	18	10	296	310.6	310.3	0.30	1	2	0.10	1.20	2
10	18	10	343	470.6	465.4	5.21	2	8	1.11	1.15	4
10	18	10	310	312.1	310.0	2.12	2	2	0.68	1.04	2
10	18	10	297	315.1	313.4	1.75	2	2	0.56	1.20	2
10	18	10	317	364.4	363.8	0.64	1	2	0.18	1.14	2
10	18	10	292	291.7	291.3	0.40	1	2	0.14	1.17	2
10	18	10	316	342.7	340.2	2.46	2	2	0.72	1.08	n.d.
10	18	10	356	560.8	559.7	1.14	1	8	0.20	1.24	6
10	18	10	300	338.0	335.7	2.26	2	2	0.67	1.24	2
10	18	10	349	543.6	542.4	1.25	1	8	0.23	1.28	6
10	18	10	302	328.0	325.5	2.54	2	2	0.77	1.18	2
10	19	10	305	276.9	274.9	2.00	2	2	0.72	0.97	2
10	19	10	283	266.5	266.0	0.50	1	2	0.19	1.17	2
10	19	10	330	437.3	436.3	1.00	1	8	0.23	1.21	3
10	19	10	296	313.4	311.6	1.80	2	8	0.57	1.20	2
10	19	10	301	263.9	n.d.	n.d.	1	n.d.	n.d.	n.d.	2

MONTH	DAY	HOOK SIZE	LENGTH (mm)	WEIGHT (g)			SEX	MATURITY	GONADO-SOMATIC INDEX	CONDITION FACTOR	AGE (y)
				Total	Somatic	Gonad					
10	19	10	302	303.1	302.4	0.73	1	8	0.24	1.10	2
10	19	10	282	213.6	212.2	1.40	2	2	0.66	0.95	2
10	19	10	309	312.3	310.2	2.07	2	8	0.66	1.05	2
10	19	10	291	278.6	276.9	1.75	2	8	0.63	1.12	2
10	19	10	285	255.0	n.d.	n.d.	1	8	n.d.	n.d.	2
10	19	10	306	304.4	303.7	0.71	1	8	0.23	1.06	2
10	19	10	304	287.6	n.d.	n.d.	1	8	n.d.	n.d.	2
10	19	10	292	258.6	n.d.	n.d.	1	8	n.d.	n.d.	3
10	19	10	290	277.2	276.9	0.30	1	8	0.11	1.14	2
10	19	10	286	222.2	219.9	2.29	2	2	1.03	0.94	2
10	19	10	300	294.9	294.3	0.62	1	8	0.21	1.09	2
10	19	10	249	168.3	167.6	0.74	2	2	0.44	1.09	1
10	19	10	301	314.6	312.2	2.39	2	8	0.76	1.14	2
10	19	10	315	372.9	371.7	1.21	1	8	0.32	1.19	3
10	19	10	294	288.8	288.3	0.49	1	8	0.17	1.13	2
10	19	10	314	350.8	349.9	0.91	1	8	0.26	1.13	2
10	19	10	302	306.9	306.5	0.44	1	8	0.14	1.11	2
10	19	10	280	219.1	218.8	0.30	1	2	0.14	1.00	2
10	19	10	283	224.9	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	2
10	19	10	292	280.0	n.d.	n.d.	1	n.d.	n.d.	n.d.	2
10	19	10	265	202.9	n.d.	n.d.	1	n.d.	n.d.	n.d.	1
10	19	10	309	297.8	295.5	2.27	2	8	0.76	1.00	2
10	19	10	317	415.9	412.1	3.83	2	8	0.92	1.29	4
10	19	10	260	165.0	164.4	0.61	2	2	0.37	0.94	1
10	19	10	301	281.0	278.7	2.31	2	8	0.82	1.02	2
10	19	10	307	297.8	297.2	0.61	1	8	0.20	1.03	2
10	19	10	298	252.2	n.d.	n.d.	1	8	n.d.	n.d.	2
10	19	10	309	306.3	306.0	0.27	1	8	0.09	1.04	2
10	19	10	282	222.9	221.4	1.50	2	2	0.67	0.99	2
10	19	10	291	266.9	266.5	0.40	1	8	0.15	1.08	2
10	19	10	314	330.3	328.0	2.29	2	8	0.69	1.06	3
10	19	10	294	298.1	n.d.	n.d.	1	8	n.d.	n.d.	2
10	19	10	275	242.7	242.3	0.36	1	2	0.15	1.17	2
10	19	10	302	343.9	n.d.	n.d.	1	8	n.d.	n.d.	2
10	19	10	287	265.5	264.9	0.59	1	8	0.22	1.12	2
10	19	10	302	300.3	298.2	2.13	2	8	0.71	1.08	2
10	19	10	304	309.4	308.9	0.48	1	8	0.16	1.10	2
10	19	10	309	356.2	355.6	0.65	1	8	0.18	1.21	2
10	19	10	296	270.5	268.8	1.68	2	8	0.62	1.04	2
10	19	10	302	290.9	288.5	2.37	2	8	0.81	1.05	2
10	19	10	299	300.1	297.7	2.36	2	8	0.79	1.11	2
10	19	10	305	274.6	272.7	1.88	2	8	0.68	0.96	2
10	19	10	355	548.6	544.5	4.14	2	8	0.75	1.22	7
10	19	10	290	266.0	n.d.	n.d.	1	n.d.	n.d.	n.d.	2
10	19	10	248	148.6	148.0	0.65	2	2	0.44	0.97	1

MONTH	DAY	HOOK SIZE	LENGTH (mm)	WEIGHT (g)			SEX	MATURITY	GONADO-SOMATIC INDEX	CONDITION FACTOR	AGE (y)
				Total	Somatic	Gonad					
10	19	10	294	271.0	n.d.	n.d.	1	8	n.d.	n.d.	3
10	19	10	294	274.8	274.3	0.54	1	8	0.20	1.08	2
10	19	10	300	291.8	289.6	2.19	2	8	0.75	1.07	2
10	19	10	290	277.1	276.3	0.83	1	8	0.30	1.13	2
10	19	10	305	306.1	303.0	3.08	2	8	1.01	1.07	3
10	19	10	286	344.8	n.d.	n.d.	1	8	n.d.	n.d.	2
10	19	10	251	162.1	n.d.	n.d.	1	1	n.d.	n.d.	1
10	19	10	256	158.5	n.d.	n.d.	1	1	n.d.	n.d.	1
10	19	10	295	272.3	271.7	0.58	1	8	0.21	1.06	3
10	19	10	305	305.3	n.d.	n.d.	1	n.d.	n.d.	n.d.	2
10	19	10	290	258.3	256.7	1.62	2	8	0.63	1.05	2
10	19	10	287	252.6	251.2	1.37	2	8	0.54	1.06	3
10	19	10	297	280.3	279.6	0.75	1	8	0.27	1.07	2
10	19	10	306	304.0	n.d.	n.d.	2	8	n.d.	n.d.	3
10	19	10	304	316.2	314.2	1.98	2	2	0.63	1.12	2
10	19	10	290	277.1	n.d.	n.d.	1	2	n.d.	n.d.	2
10	19	10	292	285.3	283.9	1.45	2	2	0.51	1.14	2
10	19	10	322	409.2	n.d.	n.d.	1	8	n.d.	n.d.	3
10	19	10	290	267.9	267.2	0.66	1	2	0.25	1.10	2
10	19	10	295	312.5	312.1	0.36	1	2	0.12	1.22	2
10	19	10	304	315.1	314.7	0.44	1	2	0.14	1.12	3
10	19	10	295	290.4	290.2	0.17	1	2	0.06	1.13	2
10	19	10	302	301.4	300.9	0.49	1	2	0.16	1.09	2
10	19	10	302	335.9	333.7	2.25	2	2	0.67	1.21	3
10	19	10	314	346.7	343.7	2.99	2	8	0.86	1.11	2
10	19	10	288	265.6	265.2	0.40	1	2	0.15	1.11	2
10	19	10	306	337.2	334.3	2.94	2	8	0.87	1.17	2
10	19	10	303	332.1	n.d.	n.d.	1	8	n.d.	n.d.	2
10	19	10	297	312.0	311.5	0.48	1	2	0.15	1.19	3
10	19	10	324	388.6	387.2	1.41	1	8	0.36	1.14	3
10	19	10	302	321.1	320.3	0.77	1	2	0.24	1.16	2
10	19	10	295	284.2	282.4	1.79	2	2	0.63	1.10	2
10	19	10	301	312.1	n.d.	n.d.	1	2	n.d.	n.d.	2
10	19	10	297	291.2	290.5	0.70	1	2	0.24	1.11	2
10	19	10	305	339.5	338.6	0.93	1	2	0.27	1.19	2
10	19	10	295	262.9	261.2	1.73	2	2	0.66	1.02	2
10	19	10	292	251.9	n.d.	n.d.	2	2	n.d.	n.d.	2
10	19	10	294	304.5	304.3	0.22	1	2	0.07	1.20	2
10	19	10	336	422.0	417.8	4.21	2	8	1.00	1.10	3
10	19	10	293	259.9	259.7	0.20	2	2	0.08	1.03	2
10	19	10	307	302.7	302.0	0.67	1	2	0.22	1.04	2
10	19	10	301	300.6	298.5	2.10	2	2	0.70	1.09	2
10	19	10	294	266.4	264.4	2.00	2	2	0.75	1.04	2
10	19	10	299	311.9	311.3	0.58	1	2	0.19	1.16	2
10	19	10	312	323.2	n.d.	n.d.	2	2	n.d.	n.d.	2

MONTH	DAY	HOOK SIZE	LENGTH (mm)	WEIGHT (g)			SEX	MATURITY	GONADO-SOMATIC INDEX	CONDITION FACTOR	AGE (y)
				Total	Somatic	Gonad					
10	19	10	263	190.9	190.0	0.92	2	2	0.48	1.04	1
10	19	10	288	257.3	n.d.	n.d.	1	2	n.d.	n.d.	2
10	19	10	343	490.5	484.6	5.94	2	8	1.21	1.20	6
10	19	10	373	566.0	558.9	7.09	2	8	1.25	1.08	6
10	19	10	301	318.5	n.d.	n.d.	1	2	n.d.	n.d.	2
10	19	2/0	275	210.3	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	1
10	19	2/0	306	313.2	312.7	0.55	1	8	0.18	1.09	2
10	19	2/0	287	259.0	258.6	0.37	1	2	0.14	1.09	2
10	19	2/0	285	252.0	251.7	0.28	1	2	0.11	1.09	2
10	19	2/0	297	265.3	264.8	0.54	1	2	0.20	1.01	2
10	19	2/0	262	182.7	181.8	0.90	2	2	0.49	1.01	1
10	19	2/0	305	296.6	294.6	2.00	2	8	0.67	1.04	2
10	19	2/0	285	246.2	244.4	1.78	2	2	0.72	1.06	2
10	19	2/0	300	311.0	310.3	0.70	1	8	0.23	1.15	2
10	19	2/0	291	284.7	282.5	2.23	2	2	0.78	1.15	2
10	19	2/0	308	289.9	288.3	1.59	2	8	0.55	0.99	2
10	19	2/0	290	262.6	262.1	0.54	1	2	0.21	1.07	2
10	19	2/0	316	321.8	320.7	1.10	2	2	0.34	1.02	2
10	19	2/0	297	269.0	n.d.	n.d.	1	2	n.d.	n.d.	2
10	19	2/0	285	223.4	222.0	1.45	2	2	0.65	0.96	2
10	19	2/0	301	293.0	292.4	0.60	1	2	0.20	1.07	2
10	19	2/0	296	257.3	257.0	0.34	1	2	0.13	0.99	2
10	19	2/0	286	239.5	237.8	1.69	2	2	0.71	1.02	2
10	19	2/0	309	347.6	345.0	2.59	2	8	0.75	1.17	2
10	19	2/0	295	283.4	283.0	0.45	1	2	0.16	1.10	2
10	19	2/0	336	423.8	423.0	0.81	1	8	0.19	1.12	4
10	19	2/0	303	287.1	n.d.	n.d.	1	n.d.	n.d.	n.d.	3
10	19	2/0	334	454.4	451.4	3.01	2	8	0.66	1.21	3
10	19	2/0	312	334.8	334.3	0.55	1	8	0.16	1.10	3
10	19	2/0	283	252.6	251.9	0.70	1	2	0.28	1.11	2
10	19	2/0	299	273.4	271.6	1.82	2	2	0.67	1.02	2
10	19	2/0	313	327.5	324.9	2.64	2	8	0.81	1.06	2
10	19	2/0	274	218.7	218.0	0.69	1	2	0.32	1.06	1
10	19	2/0	288	239.8	238.0	1.84	2	2	0.77	1.00	2
10	19	2/0	300	301.6	n.d.	n.d.	1	n.d.	n.d.	n.d.	2
10	19	2/0	295	255.0	253.3	1.73	2	2	0.68	0.99	2
10	19	2/0	290	252.4	251.0	1.42	2	2	0.56	1.03	2
10	19	2/0	336	450.5	446.7	3.82	2	8	0.85	1.18	3
10	19	2/0	288	254.4	253.1	1.30	2	2	0.51	1.06	2
10	19	2/0	292	275.9	275.7	0.19	1	2	0.07	1.11	2
10	19	2/0	312	334.2	332.0	2.20	2	8	0.66	1.09	2
10	19	2/0	292	278.9	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
10	19	2/0	296	266.4	264.5	1.88	2	2	0.71	1.02	n.d.
10	19	2/0	295	306.1	305.4	0.71	1	8	0.23	1.19	2
10	19	2/0	250	157.8	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	2

MONTH	DAY	HOOK SIZE	LENGTH (mm)	WEIGHT (g)			SEX	MATURITY	GONADO-SOMATIC INDEX	CONDITION FACTOR	AGE (y)
				Total	Somatic	Gonad					
10	19	2/0	302	318.0	317.6	0.40	1	2	0.13	1.15	1
10	19	2/0	300	277.6	275.2	2.37	2	2	0.85	1.02	2
10	19	2/0	257	167.8	167.2	0.61	2	2	0.36	0.98	2
10	19	2/0	301	271.6	n.d.	n.d.	1	n.d.	n.d.	n.d.	1
10	19	2/0	336	453.3	449.6	3.73	2	8	0.82	1.19	2
10	19	2/0	303	316.2	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	3
10	19	2/0	306	291.5	290.9	0.60	1	8	0.21	1.02	2
10	19	2/0	271	211.0	209.6	1.39	2	2	0.66	1.05	2
10	19	2/0	299	282.1	280.5	1.60	2	2	0.57	1.05	2
10	19	2/0	305	299.0	296.3	2.69	2	8	0.90	1.04	2
10	19	2/0	305	293.5	292.8	0.71	1	2	0.24	1.03	2
10	19	2/0	292	248.0	247.7	0.34	1	2	0.14	0.99	2
10	19	2/0	288	248.0	246.3	1.75	2	2	0.71	1.03	2
10	19	2/0	298	321.0	320.5	0.52	1	2	0.16	1.21	2
10	19	2/0	293	248.3	246.3	1.96	2	2	0.79	0.98	3
10	19	2/0	293	242.1	241.9	0.16	1	2	0.07	0.96	2
10	19	2/0	306	288.5	286.4	2.10	2	8	0.73	1.00	2
10	19	2/0	289	267.0	266.5	0.49	1	2	0.18	1.10	3
10	19	2/0	292	265.3	263.7	1.58	2	2	0.60	1.06	2
10	19	2/0	293	271.3	270.3	0.97	1	2	0.36	1.07	2
10	19	2/0	305	274.3	273.6	0.71	1	8	0.26	0.96	n.d.
10	19	2/0	320	409.3	404.2	5.09	2	8	1.24	1.23	2
10	19	2/0	290	276.6	n.d.	n.d.	1	2	n.d.	n.d.	4
10	19	2/0	274	218.1	217.8	0.33	1	2	0.15	1.06	2
10	19	2/0	301	278.0	277.7	0.33	1	2	0.12	1.02	2
10	19	2/0	299	309.9	309.5	0.38	1	2	0.12	1.16	2
10	19	2/0	264	191.5	n.d.	n.d.	1	2	n.d.	n.d.	2
10	19	2/0	301	323.9	323.5	0.38	1	2	0.12	1.19	1
10	19	2/0	279	236.7	n.d.	n.d.	1	2	n.d.	n.d.	2
10	19	2/0	283	242.2	241.8	0.43	1	2	0.18	1.07	2
10	19	2/0	312	312.5	311.4	1.08	2	2	0.35	1.03	2
10	19	2/0	305	304.4	302.4	1.98	2	2	0.65	1.07	2
10	19	2/0	330	431.6	430.7	0.93	1	8	0.22	1.20	4
10	19	2/0	290	277.5	276.4	1.09	2	2	0.39	1.13	2
10	19	2/0	327	408.5	404.8	3.72	2	8	0.91	1.16	n.d.
10	19	2/0	330	389.6	386.9	2.68	2	8	0.69	1.08	3
10	19	2/0	281	232.7	n.d.	n.d.	1	1	n.d.	n.d.	2
10	19	2/0	300	273.7	271.4	2.28	2	2	0.83	1.01	2
10	19	2/0	289	279.7	n.d.	n.d.	1	2	n.d.	n.d.	2
10	19	2/0	260	192.1	n.d.	n.d.	1	1	n.d.	n.d.	1
10	19	2/0	310	372.5	369.6	2.92	2	8	0.78	1.24	3
10	19	2/0	297	310.3	310.0	0.32	1	2	0.10	1.18	2
10	19	2/0	310	341.6	339.3	2.30	2	2	0.67	1.14	2
10	19	2/0	287	251.2	249.7	1.48	2	2	0.59	1.06	3
10	19	2/0	322	318.7	316.7	1.97	2	8	0.62	0.95	2

MONTH	DAY	HOOK SIZE	LENGTH (mm)	WEIGHT (g)			SEX	MATURITY	GONADO-SOMATIC INDEX	CONDITION FACTOR	AGE (y)
				Total	Somatic	Gonad					
10	19	2/0	289	277.0	n.d.	n.d.	1	2	n.d.	n.d.	2
10	19	2/0	289	269.1	268.8	0.30	1	2	0.11	1.11	2
10	19	2/0	305	302.5	301.3	1.19	2	2	0.39	1.06	2
10	19	2/0	318	375.8	373.2	2.64	2	8	0.70	1.16	2
10	19	2/0	306	317.2	314.9	2.33	2	8	0.73	1.10	2
10	19	2/0	290	267.1	265.4	1.66	2	2	0.62	1.09	2
10	19	2/0	294	260.1	258.3	1.79	2	2	0.69	1.02	2
10	19	2/0	294	261.8	n.d.	n.d.	1	2	n.d.	n.d.	2
10	19	2/0	336	422.1	417.3	4.81	2	8	1.14	1.10	4
10	19	2/0	283	246.1	n.d.	n.d.	1	2	n.d.	n.d.	2
10	19	2/0	295	286.6	n.d.	n.d.	1	2	n.d.	n.d.	2
10	19	2/0	275	227.0	n.d.	n.d.	1	2	n.d.	n.d.	2
10	19	2/0	295	289.2	n.d.	n.d.	1	2	n.d.	n.d.	2
10	19	2/0	273	231.8	n.d.	n.d.	1	2	n.d.	n.d.	2
10	22	10	299	301.7	299.6	2.12	2	8	0.70	1.12	2
10	22	10	273	219.0	218.6	0.40	1	2	0.18	1.07	2
10	22	10	302	322.4	319.6	2.77	2	8	0.86	1.16	2
10	22	10	283	252.2	252.0	0.16	1	2	0.06	1.11	2
10	22	10	292	250.0	247.9	2.11	2	8	0.84	1.00	2
10	22	10	293	289.1	288.6	0.50	1	8	0.17	1.15	2
10	22	10	285	252.2	250.4	1.80	2	8	0.71	1.08	2
10	22	10	311	329.5	326.9	2.59	2	8	0.79	1.09	2
10	22	10	302	275.5	273.5	2.00	2	8	0.73	0.99	2
10	22	10	310	355.5	353.2	2.35	2	8	0.66	1.19	2
10	22	10	257	179.2	178.3	0.92	2	2	0.51	1.05	1
10	22	10	291	272.0	271.6	0.42	1	2	0.15	1.10	2
10	22	10	313	344.9	344.6	0.35	1	2	0.10	1.12	2
10	22	10	292	260.9	258.7	2.20	2	2	0.84	1.04	2
10	22	10	294	284.4	282.9	1.54	2	8	0.54	1.11	2
10	22	10	331	423.4	420.1	3.31	2	8	0.78	1.16	3
10	22	10	290	264.0	263.6	0.40	1	2	0.15	1.08	3
10	22	10	295	264.7	264.4	0.29	1	8	0.11	1.03	3
10	22	10	286	276.2	275.9	0.32	1	8	0.12	1.18	2
10	22	10	290	264.5	262.8	1.67	2	2	0.63	1.08	2
10	22	10	296	300.4	300.1	0.34	1	2	0.11	1.16	2
10	22	10	291	254.5	254.4	0.15	1	2	0.06	1.03	2
10	22	10	316	373.4	369.7	3.75	2	8	1.00	1.17	3
10	22	10	304	307.8	307.4	0.40	1	8	0.13	1.09	2
10	22	10	293	266.3	266.1	0.24	1	8	0.09	1.06	2
10	22	10	292	264.0	262.9	1.15	2	2	0.44	1.06	2
10	22	10	292	254.4	252.5	1.95	2	8	0.77	1.01	2
10	22	10	352	543.0	541.4	1.62	1	8	0.30	1.24	6
10	22	10	289	272.0	271.7	0.33	1	2	0.12	1.13	2
10	22	10	309	340.8	338.4	2.43	2	8	0.71	1.15	2
10	22	10	290	282.1	281.7	0.45	1	2	0.16	1.15	2

MONTH	DAY	HOOK SIZE	LENGTH (mm)	WEIGHT (g)			SEX	MATURITY	GONADO-SOMATIC INDEX	CONDITION FACTOR	AGE (y)
				Total	Somatic	Gonad					
10	22	10	319	421.2	418.3	2.92	2	8	0.69	1.29	2
10	22	10	295	324.5	321.9	2.63	2	8	0.81	1.25	2
10	22	10	285	263.8	261.8	1.98	2	8	0.75	1.13	2
10	22	10	305	343.7	341.6	2.08	2	8	0.61	1.20	2
10	22	10	295	311.5	309.2	2.32	2	8	0.74	1.20	2
10	22	10	275	239.5	239.2	0.30	1	2	0.13	1.15	2
10	22	10	307	309.7	307.5	2.22	2	8	0.72	1.06	2
10	22	10	287	245.5	243.6	1.91	2	8	0.78	1.03	2
10	22	10	301	323.7	323.3	0.45	1	8	0.14	1.19	2
10	22	10	320	380.5	377.2	3.32	2	8	0.87	1.15	2
10	22	10	281	233.3	231.3	1.97	2	8	0.84	1.04	2
10	22	10	281	251.9	251.7	0.23	1	8	0.09	1.13	2
10	22	10	299	306.4	306.0	0.36	1	8	0.12	1.14	2
10	22	10	254	160.0	n.d.	n.d.	1	1	n.d.	n.d.	1
10	22	10	285	261.0	260.6	0.39	1	2	0.15	1.13	2
10	22	10	311	362.8	359.7	3.08	2	8	0.85	1.20	2
10	22	10	300	320.5	320.0	0.54	1	8	0.17	1.19	2
10	22	10	339	435.9	435.4	0.49	1	8	0.11	1.12	4
10	22	10	316	382.3	378.8	3.54	2	8	0.93	1.20	n.d.
10	22	10	265	196.0	194.9	1.15	2	2	0.59	1.05	1
10	22	10	321	410.5	409.8	0.70	1	8	0.17	1.24	4
10	22	10	281	243.9	n.d.	n.d.	1		n.d.	n.d.	2
10	22	10	293	268.7	268.0	0.69	1	8	0.26	1.07	2
10	22	10	303	285.7	283.6	2.14	2	8	0.75	1.02	2
10	22	10	371	625.8	624.6	1.23	1	8	0.20	1.22	6
10	22	10	286	251.4	249.7	1.67	2	2	0.66	1.07	2
10	22	10	311	334.2	332.0	2.17	2	8	0.65	1.10	2
10	22	10	266	180.9	n.d.	n.d.	1	1	n.d.	n.d.	1
10	22	10	256	169.1	n.d.	n.d.	1	1	n.d.	n.d.	1
10	22	10	291	281.8	n.d.	n.d.	2	n.d.	n.d.	n.d.	2
10	22	10	295	300.5	298.6	1.95	2	8	0.65	1.16	2
10	22	10	290	263.7	261.9	1.76	2	8	0.67	1.07	2
10	22	10	267	198.0	196.1	1.90	2	8	0.96	1.03	1
10	22	10	357	517.3	510.8	6.48	2	8	1.25	1.12	6
10	22	10	332	435.4	434.4	0.96	1	8	0.22	1.19	4
10	22	10	296	297.8	297.4	0.42	1	2	0.14	1.15	2
10	22	10	294	276.3	274.5	1.81	2	2	0.66	1.08	2
10	22	10	268	195.4	195.0	0.41	2	2	0.21	1.01	1
10	22	10	270	208.3	207.0	1.27	2	2	0.61	1.05	2
10	22	10	317	414.2	413.5	0.69	1	8	0.17	1.30	3
10	22	10	337	487.1	486.0	1.10	1	8	0.23	1.27	4
10	22	10	310	341.3	340.7	0.64	1	8	0.19	1.14	2
10	22	10	338	508.3	507.5	0.85	1	8	0.17	1.31	4
10	22	10	304	316.4	316.0	0.39	1	2	0.12	1.12	2
10	22	10	342	473.9	472.9	1.03	1	8	0.22	1.18	6

MONTH	DAY	HOOK SIZE	LENGTH (mm)	WEIGHT (g)			SEX	MATURITY	GONADO-SOMATIC INDEX	CONDITION FACTOR	AGE (y)
				Total	Somatic	Gonad					
10	22	10	311	335.3	334.6	0.67	1	8	0.20	1.11	3
10	22	10	299	318.2	316.3	1.92	2	2	0.60	1.18	3
10	22	10	292	275.6	275.2	0.42	1	2	0.15	1.11	2
10	22	10	288	289.6	289.1	0.52	1	2	0.18	1.21	2
10	22	10	287	265.5	265.2	0.33	1	2	0.12	1.12	2
10	22	10	285	273.3	n.d.	n.d.	1	2	n.d.	n.d.	2
10	22	10	305	330.5	329.4	1.09	1	2	0.33	1.16	2
10	22	10	300	279.4	277.5	1.86	2	2	0.67	1.03	2
10	22	10	314	397.4	396.8	0.65	1	8	0.16	1.28	3
10	22	10	346	562.9	561.6	1.28	1	2	0.23	1.36	6
10	22	10	309	329.4	328.2	1.22	1	2	0.37	1.11	2
10	22	10	299	331.8	331.2	0.57	1	2	0.17	1.24	3
10	22	10	302	290.0	287.3	2.67	2	8	0.92	1.04	3
10	22	10	289	234.5	232.5	2.01	2	2	0.86	0.96	n.d.
10	22	10	303	325.7	325.3	0.41	1	2	0.13	1.17	2
10	22	10	297	277.1	274.9	2.17	2	2	0.78	1.05	2
10	22	10	312	342.9	340.6	2.29	2	8	0.67	1.12	2
10	22	10	256	169.9	n.d.	n.d.	1	1	n.d.	n.d.	1
10	22	10	285	235.2	233.5	1.75	2	2	0.74	1.01	2
10	22	10	285	252.5	252.0	0.50	1	2	0.20	1.09	2
10	22	10	287	276.7	276.2	0.53	1	2	0.19	1.17	2
10	22	10	305	324.4	323.9	0.50	1	2	0.15	1.14	2
10	22	10	290	264.1	263.7	0.45	1	2	0.17	1.08	2
10	22	10	330	383.0	379.2	3.76	2	8	0.98	1.06	3
10	22	2/0	342	494.4	489.5	4.88	2	8	0.99	1.22	3
10	22	2/0	307	322.4	322.0	0.39	1	8	0.12	1.11	3
10	22	2/0	311	314.8	314.0	0.81	1	2	0.26	1.04	2
10	22	2/0	283	254.7	252.9	1.78	2	2	0.70	1.12	2
10	22	2/0	262	209.9	209.1	0.78	2	2	0.37	1.16	1
10	22	2/0	290	271.4	269.5	1.95	2	2	0.72	1.10	2
10	22	2/0	312	356.0	355.5	0.55	1	2	0.15	1.17	2
10	22	2/0	298	298.2	297.7	0.49	1	2	0.16	1.12	2
10	22	2/0	290	297.9	295.5	2.39	2	2	0.80	1.21	2
10	22	2/0	310	375.0	373.1	1.90	2	8	0.51	1.25	2
10	22	2/0	299	335.9	333.1	2.81	2	2	0.84	1.25	2
10	22	2/0	284	266.5	265.1	1.43	2	2	0.54	1.16	2
10	22	2/0	297	308.4	307.7	0.75	1	2	0.24	1.17	2
10	22	2/0	295	297.6	295.4	2.22	2	2	0.75	1.15	2
10	22	2/0	310	347.3	346.4	0.89	1	2	0.26	1.16	3
10	22	2/0	299	305.4	304.3	1.11	1	2	0.36	1.14	2
10	22	2/0	295	298.2	297.6	0.56	1	2	0.19	1.16	2
10	22	2/0	295	298.4	296.1	2.35	2	2	0.79	1.15	2
10	22	2/0	293	259.8	257.5	2.34	2	2	0.90	1.02	2
10	22	2/0	285	247.6	n.d.	n.d.	1	n.d.	n.d.	n.d.	2

MONTH	DAY	HOOK SIZE	LENGTH (mm)	WEIGHT (g)			SEX	MATURITY	GONADO-SOMATIC INDEX	CONDITION FACTOR	AGE (y)
				Total	Somatic	Gonad					
10	22	2/0	324	356.2	n.d.	n.d.	1	n.d.	n.d.	n.d.	n.d.
10	22	2/0	300	298.9	298.3	0.63	1	2	0.21	1.10	2
10	22	2/0	339	470.1	466.2	3.95	2	8	0.84	1.20	3
10	22	2/0	307	337.0	336.6	0.36	1	8	0.11	1.16	2
10	22	2/0	307	374.6	372.3	2.26	2	8	0.60	1.29	2
10	22	2/0	303	324.0	321.5	2.48	2	2	0.77	1.16	2
10	22	2/0	290	252.6	n.d.	n.d.	1	n.d.	n.d.	n.d.	2
10	22	2/0	332	419.3	418.1	1.18	1	8	0.28	1.14	2
10	22	2/0	304	322.9	320.3	2.64	2	8	0.82	1.14	2
10	22	2/0	291	282.7	282.2	0.46	1	2	0.16	1.15	2
10	22	2/0	312	319.2	318.8	0.42	1	8	0.13	1.05	2
10	22	2/0	316	372.3	371.7	0.60	1	8	0.16	1.18	3
10	22	2/0	331	406.7	404.0	2.72	2	8	0.67	1.11	2
10	22	2/0	292	262.1	261.6	0.48	1	2	0.18	1.05	2
10	22	2/0	305	342.6	340.1	2.51	2	2	0.73	1.20	6
10	22	2/0	356	573.1	571.5	1.57	1	8	0.27	1.27	2
10	22	2/0	295	261.4	260.3	1.07	2	2	0.41	1.01	2
10	22	2/0	313	352.4	350.0	2.40	2	2	0.68	1.14	2
10	22	2/0	302	304.7	304.4	0.29	1	2	0.10	1.11	2
10	22	2/0	313	326.8	326.3	0.46	1	8	0.14	1.06	2
10	22	2/0	295	273.0	n.d.	n.d.	1	2	n.d.	n.d.	2
10	22	2/0	330	415.0	410.8	4.17	2	8	1.00	1.14	3
10	22	2/0	290	265.9	265.4	0.48	1	2	0.18	1.09	2
10	22	2/0	305	303.2	302.5	0.68	1	2	0.22	1.07	2
10	22	2/0	297	295.0	292.9	2.14	2	2	0.73	1.12	2
10	22	2/0	335	436.5	431.6	4.89	2	8	1.12	1.15	4
10	22	2/0	299	306.2	305.8	0.38	1	2	0.12	1.14	3
10	22	2/0	263	186.5	185.4	1.13	2	2	0.61	1.02	1
10	22	2/0	293	289.8	287.6	2.24	2	2	0.77	1.14	2
10	22	2/0	305	304.9	304.4	0.52	1	8	0.17	1.07	2
10	22	2/0	311	385.8	383.3	2.50	2	8	0.65	1.27	3
10	22	2/0	344	505.3	500.2	5.06	2	8	1.00	1.23	6
10	22	2/0	315	356.3	353.6	2.73	2	8	0.77	1.13	4
10	22	2/0	288	291.5	291.1	0.43	1	2	0.15	1.22	2
10	22	2/0	291	295.7	293.1	2.59	2	8	0.88	1.19	2
10	22	2/0	288	293.8	291.0	2.82	2	2	0.96	1.22	2
10	22	2/0	282	240.1	n.d.	n.d.	1	2	n.d.	n.d.	2
10	22	2/0	302	315.6	313.2	2.38	2	2	0.75	1.14	3
10	22	2/0	315	360.6	358.5	2.12	2	2	0.59	1.15	3
10	22	2/0	277	243.4	n.d.	n.d.	1	2	n.d.	n.d.	1
10	22	2/0	282	247.8	247.4	0.37	1	2	0.15	1.10	2
10	22	2/0	306	328.1	327.7	0.36	1	8	0.11	1.14	3
10	22	2/0	304	294.5	292.3	2.25	2	2	0.76	1.04	3
10	22	2/0	319	366.4	363.2	3.18	2	8	0.87	1.12	2
10	22	2/0	297	279.3	277.2	2.10	2	2	0.75	1.06	2

MONTH	DAY	HOOK SIZE	LENGTH (mm)	WEIGHT (g)			SEX	MATURITY	GONADO-SOMATIC INDEX	CONDITION FACTOR	AGE (y)
				Total	Somatic	Gonad					
10	22	2/0	296	285.6	285.1	0.48	1	2	0.17	1.10	2
10	22	2/0	311	357.4	356.9	0.47	1	8	0.13	1.19	3
10	22	2/0	306	338.8	336.7	2.07	2	8	0.61	1.18	2
10	22	2/0	291	285.1	284.5	0.58	1	2	0.20	1.15	n.d.
10	22	2/0	294	253.2	251.6	1.64	2	2	0.65	0.99	2
10	22	2/0	282	257.3	257.0	0.33	1	2	0.13	1.15	2
10	22	2/0	292	285.5	283.2	2.30	2	2	0.81	1.14	2
10	22	2/0	301	295.6	292.9	2.67	2	2	0.90	1.07	2
10	22	2/0	285	260.4	258.2	2.17	2	2	0.83	1.12	2
10	22	2/0	318	334.0	331.4	2.58	2	8	0.77	1.03	n.d.
10	22	2/0	308	324.4	323.9	0.53	1	8	0.16	1.11	2
10	22	2/0	321	385.0	384.3	0.68	1	8	0.18	1.16	3
10	22	2/0	304	330.3	327.9	2.38	2	8	0.72	1.17	2
10	22	2/0	306	358.4	357.6	0.76	1	8	0.21	1.25	2
10	22	2/0	317	388.5	385.6	2.95	2	8	0.76	1.21	3
10	22	2/0	366	576.0	574.9	1.13	1	8	0.20	1.17	6
10	22	2/0	285	248.0	246.7	1.35	2	2	0.54	1.07	2
10	22	2/0	300	292.7	292.3	0.38	1	2	0.13	1.08	2
10	22	2/0	351	514.5	513.3	1.17	1	8	0.23	1.19	6
10	22	2/0	289	275.5	n.d.	n.d.	2	2	n.d.	n.d.	2
10	22	2/0	292	297.6	296.9	0.71	1	2	0.24	1.19	2
10	22	2/0	307	335.5	333.0	2.48	2	8	0.74	1.15	2
10	22	2/0	306	306.5	304.2	2.26	2	8	0.74	1.06	2
10	22	2/0	277	258.0	256.0	2.03	2	2	0.79	1.20	2
10	22	2/0	290	252.9	252.6	0.32	1	2	0.13	1.04	2
10	22	2/0	313	348.6	344.9	3.75	2	8	1.08	1.12	3
10	22	2/0	342	413.5	409.7	3.78	2	8	0.91	1.02	3
10	22	2/0	304	312.0	310.3	1.75	2	2	0.56	1.10	n.d.
10	22	2/0	311	340.9	339.8	1.06	1	2	0.31	1.13	3
10	22	2/0	313	336.0	335.0	0.97	1	8	0.29	1.09	2
10	22	2/0	289	287.1	286.8	0.35	1	2	0.12	1.19	2
10	22	2/0	360	552.1	546.6	5.50	2	8	1.00	1.17	5
10	22	2/0	294	292.3	291.9	0.40	1	2	0.14	1.15	2
10	22	2/0	337	488.9	484.8	4.06	2	8	0.83	1.27	3
10	23	10	282	225.5	224.8	0.75	1	2	0.33	1.00	2
10	23	10	282	229.3	227.6	1.74	2	2	0.76	1.01	2
10	23	10	302	309.0	306.8	2.20	2	2	0.71	1.11	2
10	23	10	288	262.2	261.8	0.44	1	2	0.17	1.10	2
10	23	10	288	247.9	247.4	0.52	1	2	0.21	1.04	2
10	23	10	326	372.5	369.2	3.35	2	8	0.90	1.07	3
10	23	10	296	264.9	262.9	1.97	2	2	0.74	1.01	2
10	23	10	310	322.2	320.1	2.12	2	8	0.66	1.07	2
10	23	10	302	308.4	307.6	0.77	1	8	0.25	1.12	3
10	23	10	305	281.2	280.9	0.31	1	8	0.11	0.99	2
10	23	10	295	265.3	263.1	2.18	2	2	0.82	1.02	2

MONTH	DAY	HOOK SIZE	LENGTH (mm)	WEIGHT (g)			SEX	MATURITY	GONADO-SOMATIC INDEX	CONDITION FACTOR	AGE (y)
				Total	Somatic	Gonad					
10	23	10	311	321.3	319.1	2.16	2	8	0.67	1.06	2
10	23	10	312	300.2	299.7	0.52	1	8	0.17	0.99	2
10	23	10	302	283.8	283.3	0.51	1	2	0.18	1.03	2
10	23	10	289	276.3	275.9	0.39	1	2	0.14	1.14	2
10	23	10	300	314.1	313.5	0.57	1	2	0.18	1.16	2
10	23	10	291	244.3	243.7	0.65	1	2	0.27	0.99	2
10	23	10	286	238.1	236.7	1.41	2	2	0.59	1.01	2
10	23	10	299	259.5	n.d.	n.d.	1	n.d.	n.d.	n.d.	2
10	23	10	281	241.6	n.d.	n.d.	1	n.d.	n.d.	n.d.	2
10	23	10	296	264.2	261.9	2.34	2	2	0.89	1.01	2
10	23	10	288	246.4	n.d.	n.d.	1	n.d.	n.d.	n.d.	2
10	23	10	286	235.8	234.9	0.90	1	2	0.38	1.00	2
10	23	10	287	246.0	243.8	2.25	2	2	0.91	1.03	2
10	23	10	284	236.8	234.5	2.28	1	2	0.96	1.02	2
10	23	10	310	316.1	315.4	0.71	1	8	0.22	1.06	2
10	23	10	308	321.4	320.7	0.68	1	8	0.21	1.10	3
10	23	10	292	273.5	273.3	0.20	2	2	0.07	1.10	2
10	23	10	295	279.3	276.3	3.00	2	8	1.07	1.08	2
10	23	10	268	195.4	194.9	0.50	1	2	0.26	1.01	1
10	23	10	296	251.5	250.8	0.75	1	2	0.30	0.97	2
10	23	10	326	358.5	358.0	0.51	1	8	0.14	1.03	3
10	23	10	279	219.0	218.6	0.36	1	2	0.16	1.01	2
10	23	10	285	217.7	216.5	1.17	2	2	0.54	0.94	2
10	23	10	260	168.8	168.4	0.41	1	2	0.24	0.96	1
10	23	10	304	290.7	n.d.	n.d.	1	n.d.	n.d.	n.d.	2
10	23	10	292	271.8	271.4	0.36	1	2	0.13	1.09	2
10	23	10	317	400.4	399.6	0.79	1	8	0.20	1.25	2
10	23	10	285	233.9	231.9	2.00	2	2	0.86	1.00	2
10	23	10	298	290.4	n.d.	n.d.	2	2	n.d.	n.d.	2
10	23	10	304	286.7	286.4	0.35	1	8	0.12	1.02	2
10	23	10	289	254.3	252.2	2.12	2	2	0.83	1.04	2
10	23	10	296	260.9	260.6	0.35	1	2	0.13	1.00	2
10	23	10	294	267.2	265.0	2.19	2	2	0.82	1.04	2
10	23	10	280	236.0	235.5	0.49	1	2	0.21	1.07	2
10	23	10	286	259.8	258.3	1.54	2	2	0.59	1.10	2
10	23	10	277	237.9	n.d.	n.d.	1	n.d.	n.d.	n.d.	2
10	23	10	291	209.6	209.4	0.19	1	2	0.09	0.85	2
10	23	10	292	277.2	276.5	0.75	1	2	0.27	1.11	2
10	23	10	330	400.4	399.4	0.96	1	8	0.24	1.11	2
10	23	10	277	226.6	225.9	0.74	2	2	0.33	1.06	2
10	23	10	341	447.0	441.4	5.65	2	8	1.26	1.11	5
10	23	10	312	374.9	n.d.	n.d.		n.d.	n.d.	n.d.	2
10	23	10	329	395.0	394.4	0.61	1	8	0.15	1.11	3
10	23	10	300	258.0	n.d.	n.d.		n.d.	n.d.	n.d.	2
10	23	10	304	317.4	316.9	0.52	1	2	0.16	1.13	2

MONTH	DAY	HOOK SIZE	LENGTH (mm)	WEIGHT (g)			SEX	MATURITY	GONADO-SOMATIC INDEX	CONDITION FACTOR	AGE (y)
				Total	Somatic	Gonad					
10	23	10	282	242.4	241.8	0.58	1	2	0.24	1.08	2
10	23	10	277	220.2	219.8	0.37	1	2	0.17	1.03	2
10	23	10	285	265.8	264.3	1.49	2	2	0.56	1.14	2
10	23	10	289	256.1	254.4	1.71	2	2	0.67	1.05	2
10	23	10	342	465.9	460.8	5.08	2	8	1.09	1.15	6
10	23	10	287	233.7	233.3	0.41	1	2	0.18	0.99	2
10	23	10	268	196.6	195.9	0.66	1	2	0.34	1.02	1
10	23	10	281	220.2	219.0	1.22	2	2	0.55	0.99	2
10	23	10	292	246.8	246.2	0.60	1	2	0.24	0.99	2
10	23	10	286	254.5	253.9	0.58	1	2	0.23	1.09	2
10	23	10	283	241.7	240.9	0.84	1	2	0.35	1.06	2
10	23	10	296	295.0	292.7	2.29	2	2	0.78	1.13	2
10	23	10	284	226.6	224.8	1.78	2	2	0.79	0.98	2
10	23	10	327	364.5	363.8	0.67	1	8	0.18	1.04	2
10	23	10	325	380.0	375.8	4.20	2	8	1.11	1.09	3
10	23	10	295	313.5	313.3	0.17	1	2	0.05	1.22	2
10	23	10	287	268.0	267.6	0.41	1	2	0.15	1.13	2
10	23	10	284	235.0	n.d.	n.d.	1	2	n.d.	n.d.	2
10	23	10	302	301.6	300.8	0.79	1	2	0.26	1.09	2
10	23	10	292	263.9	261.6	2.26	2	2	0.86	1.05	2
10	23	10	319	377.8	375.1	2.69	2	8	0.71	1.16	3
10	23	10	285	279.7	278.6	1.14	1	2	0.41	1.20	2
10	23	10	311	355.3	354.5	0.79	1	8	0.22	1.18	2
10	23	10	337	416.5	415.9	0.56	1	8	0.13	1.09	3
10	23	10	312	329.7	327.3	2.40	2	2	0.73	1.08	2
10	23	10	316	347.5	347.1	0.42	1	2	0.12	1.10	2
10	23	10	286	255.1	253.0	2.11	2	2	0.83	1.08	2
10	23	10	340	446.9	445.8	1.11	1	7	0.25	1.13	3
10	23	10	327	412.1	n.d.	n.d.	1	8	n.d.	n.d.	3
10	23	10	307	341.7	338.3	3.40	2	8	1.00	1.17	2
10	23	10	295	291.9	291.5	0.36	1	2	0.12	1.14	2
10	23	10	297	275.0	274.4	0.62	1	2	0.23	1.05	2
10	23	10	286	250.9	250.5	0.42	1	2	0.17	1.07	2
10	23	10	368	620.4	613.9	6.52	2	8	1.05	1.23	6
10	23	10	300	284.2	283.9	0.35	1	2	0.12	1.05	3
10	23	10	296	288.8	286.9	1.89	2	2	0.65	1.11	2
10	23	10	285	241.5	239.9	1.57	2	2	0.65	1.04	2
10	23	10	328	418.7	414.6	4.06	2	8	0.97	1.18	3
10	23	10	292	289.1	288.8	0.28	1	2	0.10	1.16	2
10	23	10	295	291.5	291.1	0.42	1	2	0.14	1.13	2
10	23	10	309	330.4	326.8	3.56	2	8	1.08	1.11	3
10	23	10	295	323.3	322.9	0.42	1	8	0.13	1.26	2
10	23	10	291	267.7	267.4	0.30	1	2	0.11	1.09	2
10	23	10	281	226.5	224.9	1.60	2	2	0.71	1.01	2
10	23	4/0	312	330.6	329.7	0.86	1	8	0.26	1.09	2

MONTH	DAY	HOOK SIZE	LENGTH (mm)	WEIGHT (g)			SEX	MATURITY	GONADO-SOMATIC INDEX	CONDITION FACTOR	AGE (y)
				Total	Somatic	Gonad					
10	23	4/0	341	455.9	451.1	4.85	2	8	1.06	1.14	3
10	23	4/0	314	373.2	370.2	2.98	2	8	0.80	1.20	2
10	23	4/0	297	310.6	310.1	0.48	1	2	0.15	1.18	2
10	23	4/0	311	341.3	338.9	2.42	2	2	0.71	1.13	2
10	23	4/0	360	541.4	539.9	1.49	1	8	0.28	1.16	n.d.
10	23	4/0	289	270.7	270.2	0.51	1	2	0.19	1.12	2
10	23	4/0	363	536.1	529.3	6.78	2	8	1.26	1.11	6
10	23	4/0	288	263.7	263.1	0.59	1	2	0.22	1.10	2
10	23	4/0	286	267.8	265.6	2.19	2	2	0.82	1.14	2
10	23	4/0	306	333.9	329.8	4.10	2	8	1.23	1.15	3
10	23	4/0	305	323.1	320.4	2.67	2	8	0.83	1.13	2
10	23	4/0	310	336.8	334.6	2.17	2	8	0.64	1.12	2
10	23	4/0	342	475.2	469.5	5.75	2	8	1.21	1.17	4
10	23	4/0	322	379.0	375.1	3.94	2	8	1.04	1.12	3
10	23	4/0	308	358.2	354.3	3.89	2	8	1.09	1.21	3
10	23	4/0	296	282.7	282.4	0.35	1	2	0.12	1.09	2
10	23	4/0	297	331.0	330.6	0.39	1	2	0.12	1.26	2
10	23	4/0	292	254.0	252.2	1.83	2	2	0.72	1.01	2
10	23	4/0	306	340.0	339.4	0.58	1	8	0.17	1.18	3
10	23	4/0	306	329.9	327.1	2.76	2	8	0.84	1.14	3
10	23	4/0	330	409.2	408.2	0.98	1	8	0.24	1.14	n.d.
10	23	4/0	293	301.1	298.7	2.38	2	2	0.79	1.19	2
10	23	4/0	281	244.4	242.6	1.83	2	2	0.75	1.09	2
10	23	4/0	321	410.2	405.6	4.57	2	8	1.11	1.23	4
10	23	4/0	289	286.7	286.3	0.40	1	2	0.14	1.19	2
10	23	4/0	305	311.6	311.1	0.51	1	2	0.16	1.10	2
10	23	4/0	287	276.7	275.2	1.54	2	2	0.56	1.16	2
10	23	4/0	314	342.2	341.7	0.54	1	8	0.16	1.10	2
10	23	4/0	279	244.3	243.8	0.48	1	2	0.20	1.12	2
10	23	4/0	286	271.5	269.6	1.89	2	2	0.70	1.15	2
10	23	4/0	305	334.5	334.1	0.43	1	2	0.13	1.18	2
10	23	4/0	289	271.3	271.0	0.34	1	2	0.13	1.12	2
10	23	4/0	290	268.4	267.8	0.56	1	2	0.21	1.10	2
10	23	4/0	316	394.4	393.8	0.61	1	8	0.15	1.25	2
10	23	4/0	297	304.3	303.8	0.53	1	2	0.17	1.16	2
10	23	4/0	296	285.5	n.d.	n.d.	1	2	n.d.	n.d.	2
10	23	4/0	318	415.8	415.1	0.67	1	8	0.16	1.29	4
10	23	4/0	344	497.2	496.0	1.18	1	8	0.24	1.22	3
10	23	4/0	274	236.7	236.4	0.27	1	2	0.11	1.15	2
10	23	4/0	292	287.3	285.5	1.83	2	2	0.64	1.15	2
10	23	4/0	332	480.9	476.6	4.33	2	8	0.90	1.30	3
10	23	4/0	277	238.2	236.6	1.64	2	2	0.69	1.11	2
10	23	4/0	286	249.9	249.6	0.34	1	2	0.14	1.07	2
10	23	4/0	292	255.1	253.2	1.90	2	2	0.74	1.02	2
10	23	4/0	289	237.3	235.2	2.06	2	2	0.87	0.97	2

MONTH	DAY	HOOK SIZE	LENGTH (mm)	WEIGHT (g)			SEX	MATURITY	GONADO-SOMATIC INDEX	CONDITION FACTOR	AGE (y)
				Total	Somatic	Gonad					
10	23	4/0	290	242.9	242.5	0.43	1	2	0.18	0.99	2
10	23	4/0	302	291.4	289.4	2.04	2	2	0.70	1.05	3
10	23	4/0	300	301.9	299.6	2.30	2	2	0.76	1.11	2
10	23	4/0	312	359.0	358.4	0.62	1	8	0.17	1.18	2
10	23	4/0	342	485.6	480.4	5.22	2	8	1.07	1.20	4
10	23	4/0	290	282.8	282.3	0.51	1	8	0.18	1.16	2
10	23	4/0	276	202.3	201.6	0.69	1	2	0.34	0.96	2
10	23	4/0	283	256.5	255.9	0.56	1	2	0.22	1.13	2
10	23	4/0	296	282.2	281.9	0.32	1	8	0.11	1.09	2
10	23	4/0	291	289.2	288.4	0.76	1	2	0.26	1.17	2
10	23	4/0	288	278.3	276.2	2.08	2	2	0.75	1.16	2
10	23	4/0	302	313.2	311.7	1.51	2	2	0.48	1.13	2
10	23	4/0	294	293.0	292.8	0.23	1	2	0.08	1.15	2
10	23	4/0	308	305.5	303.8	1.75	2	2	0.57	1.04	2
10	23	4/0	325	382.9	378.8	4.15	2	8	1.08	1.10	3
10	23	4/0	282	255.7	255.3	0.40	1	2	0.16	1.14	2
10	23	4/0	265	193.5	193.2	0.27	1	2	0.14	1.04	1
10	23	4/0	294	332.2	328.8	3.44	2	2	1.04	1.29	3
10	23	4/0	302	308.8	308.1	0.70	1	2	0.23	1.12	2
10	23	4/0	345	450.7	445.5	5.24	2	8	1.16	1.08	5
10	23	4/0	300	296.9	294.8	2.14	2	2	0.72	1.09	2
10	23	4/0	308	354.4	353.8	0.61	1	8	0.17	1.21	3
10	23	4/0	272	215.0	214.8	0.23	1	2	0.11	1.07	2
10	23	4/0	288	266.0	264.2	1.84	2	2	0.69	1.11	3
10	23	4/0	286	258.4	258.0	0.37	1	2	0.14	1.10	2
10	23	4/0	305	327.9	327.0	0.89	1	2	0.27	1.15	2
10	23	4/0	314	343.8	343.4	0.44	1	2	0.13	1.11	2
10	23	4/0	291	252.8	250.7	2.13	2	2	0.84	1.02	2
10	23	4/0	302	307.0	306.1	0.93	1	8	0.30	1.11	3
10	23	4/0	340	463.2	457.4	5.77	2	8	1.25	1.16	3
10	23	4/0	346	486.9	485.9	1.04	2	8	0.21	1.17	4
10	23	4/0	286	267.7	265.6	2.06	2	2	0.77	1.14	2
10	23	4/0	293	278.3	277.9	0.41	1	2	0.15	1.10	2
10	23	4/0	300	306.4	303.8	2.56	2	2	0.84	1.13	2
10	23	4/0	297	261.5	259.7	1.78	2	2	0.68	0.99	2
10	23	4/0	333	448.8	448.0	0.82	1	8	0.18	1.21	3
10	23	4/0	260	194.6	193.8	0.84	2	2	0.43	1.10	1
10	23	4/0	304	292.2	290.0	2.18	2	2	0.75	1.03	2
10	23	4/0	292	259.7	259.4	0.28	1	2	0.11	1.04	2
10	23	4/0	300	279.1	277.3	1.76	2	2	0.63	1.03	2
10	23	4/0	290	288.5	288.1	0.39	1	8	0.14	1.18	2
10	23	4/0	316	266.6	263.8	2.81	2	8	1.05	0.84	2
10	23	4/0	305	301.8	301.5	0.26	1	2	0.09	1.06	2
10	23	4/0	355	545.4	538.6	6.78	2	8	1.24	1.20	6
10	23	4/0	301	369.0	368.6	0.40	1	2	0.11	1.35	2

MONTH	DAY	HOOK SIZE	LENGTH (mm)	WEIGHT (g)			SEX	MATURITY	GONADO-SOMATIC INDEX	CONDITION FACTOR	AGE (y)
				Total	Somatic	Gonad					
10	23	4/0	301	292.1	291.9	0.22	1	2	0.08	1.07	2
10	23	4/0	300	318.5	317.9	0.62	1	2	0.19	1.18	2
10	23	4/0	301	294.8	294.4	0.41	1	2	0.14	1.08	2
10	23	4/0	369	556.9	555.6	1.29	1	8	0.23	1.11	6
10	23	4/0	279	234.7	233.0	1.72	2	2	0.73	1.07	2
10	23	4/0	314	343.3	340.6	2.74	2	2	0.80	1.10	2
10	23	4/0	350	471.6	466.9	4.75	2	8	1.01	1.09	4
10	23	4/0	314	367.5	363.9	3.57	2	8	0.97	1.18	3
10	23	4/0	283	247.8	247.4	0.39	1	2	0.16	1.09	2
10	24	2/0	293	287.2	286.7	0.51	1	2	0.18	1.14	2
10	24	2/0	344	493.7	488.8	4.88	2	8	0.99	1.20	3
10	24	2/0	287	241.1	240.7	0.41	1	2	0.17	1.02	2
10	24	2/0	280	256.9	256.4	0.51	1	2	0.20	1.17	2
10	24	2/0	291	256.0	255.7	0.34	1	2	0.13	1.04	2
10	24	2/0	287	269.1	268.7	0.40	1	2	0.15	1.14	2
10	24	2/0	300	282.9	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	2
10	24	2/0	305	317.7	317.3	0.40	1	8	0.13	1.12	n.d.
10	24	2/0	302	331.1	329.4	1.73	2	2	0.52	1.20	2
10	24	2/0	285	224.4	224.0	0.38	1	2	0.17	0.97	2
10	24	2/0	281	251.0	249.5	1.55	2	2	0.62	1.12	2
10	24	2/0	361	584.2	578.2	5.96	2	8	1.02	1.23	6
10	24	2/0	296	265.3	263.3	2.00	2	2	0.75	1.02	2
10	24	2/0	298	291.8	291.3	0.55	1	2	0.19	1.10	2
10	24	2/0	289	257.4	256.8	0.61	1	2	0.24	1.06	2
10	24	2/0	285	249.2	248.3	0.87	1	2	0.35	1.07	2
10	24	2/0	291	254.2	254.0	0.25	1	2	0.10	1.03	2
10	24	2/0	300	283.3	281.7	1.57	2	2	0.55	1.04	2
10	24	2/0	274	232.1	230.9	1.21	2	2	0.52	1.12	2
10	24	2/0	281	239.8	n.d.	n.d.	1	2	n.d.	n.d.	2
10	24	2/0	292	260.2	258.1	2.12	2	2	0.81	1.04	2
10	24	2/0	274	210.5	208.9	1.60	2	2	0.76	1.02	2
10	24	2/0	296	267.2	266.8	0.45	1	2	0.17	1.03	2
10	24	2/0	300	278.3	276.2	2.15	2	2	0.77	1.02	2
10	24	2/0	302	291.1	288.8	2.31	2	2	0.79	1.05	2
10	24	2/0	280	237.2	236.6	0.63	1	2	0.27	1.08	2
10	24	2/0	292	262.6	260.8	1.79	2	2	0.68	1.05	n.d.
10	24	2/0	306	335.1	332.5	2.58	2	8	0.77	1.16	2
10	24	2/0	307	339.5	339.0	0.50	1	8	0.15	1.17	2
10	24	2/0	301	290.7	290.4	0.31	1	2	0.11	1.06	2
10	24	2/0	307	281.2	280.7	0.52	1	8	0.18	0.97	2
10	24	2/0	289	265.5	263.9	1.62	2	2	0.61	1.09	2
10	24	2/0	274	217.9	217.2	0.74	2	2	0.34	1.06	1
10	24	2/0	316	325.9	325.2	0.70	1	8	0.21	1.03	n.d.
10	24	2/0	280	244.2	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	2
10	24	2/0	290	257.2	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	2

MONTH	DAY	HOOK SIZE	LENGTH (mm)	WEIGHT (g)			SEX	MATURITY	GONADO-SOMATIC INDEX	CONDITION FACTOR	AGE (y)
				Total	Somatic	Gonad					
10	24	2/0	298	270.6	268.6	2.03	2	2	0.75	1.01	2
10	24	2/0	302	315.4	313.4	1.99	2	2	0.63	1.14	2
10	24	2/0	291	268.3	268.0	0.32	1	2	0.12	1.09	2
10	24	2/0	255	157.9	157.3	0.61	1	2	0.39	0.95	1
10	24	2/0	275	230.7	229.8	0.91	2	2	0.39	1.10	1
10	24	2/0	290	247.0	245.0	1.97	2	2	0.80	1.00	2
10	24	2/0	305	316.2	314.3	1.91	2	2	0.60	1.11	2
10	24	2/0	287	280.3	279.8	0.50	1	2	0.18	1.18	2
10	24	2/0	293	293.9	293.6	0.35	1	2	0.12	1.17	2
10	24	2/0	303	289.3	287.3	2.01	2	2	0.69	1.03	2
10	24	2/0	280	257.2	255.2	2.01	2	2	0.78	1.16	2
10	24	2/0	306	324.2	323.7	0.47	1	2	0.14	1.13	2
10	24	2/0	292	276.2	274.1	2.14	2	2	0.77	1.10	2
10	24	2/0	288	257.2	256.8	0.44	1	2	0.17	1.07	2
10	24	2/0	306	307.9	307.3	0.56	1	2	0.18	1.07	2
10	24	2/0	316	407.5	403.9	3.57	2	8	0.88	1.28	4
10	24	2/0	302	316.5	316.0	0.50	1	2	0.16	1.15	2
10	24	2/0	292	288.5	286.4	2.10	2	2	0.73	1.15	2
10	24	2/0	296	294.5	293.7	0.83	1	2	0.28	1.13	2
10	24	2/0	293	278.9	278.4	0.52	1	2	0.19	1.11	2
10	24	2/0	287	233.5	231.6	1.90	2	2	0.81	0.98	2
10	24	2/0	285	255.6	255.1	0.49	1	2	0.19	1.10	2
10	24	2/0	294	281.9	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	2
10	24	2/0	322	450.9	447.2	3.71	2	8	0.82	1.34	4
10	24	2/0	291	265.6	265.3	0.32	1	2	0.12	1.08	2
10	24	2/0	325	401.1	400.4	0.68	1	8	0.17	1.17	2
10	24	2/0	290	274.9	273.6	1.32	2	2	0.48	1.12	2
10	24	2/0	290	259.9	259.5	0.43	1	2	0.17	1.06	2
10	24	2/0	281	217.2	216.5	0.66	1	2	0.30	0.98	2
10	24	2/0	303	319.0	316.8	2.24	2	2	0.70	1.14	2
10	24	2/0	287	329.8	329.4	0.36	1	2	0.11	1.39	2
10	24	2/0	290	268.0	265.8	2.23	2	2	0.83	1.09	2
10	24	2/0	296	290.4	288.3	2.08	2	2	0.72	1.11	2
10	24	2/0	289	254.6	252.6	2.03	2	2	0.80	1.05	2
10	24	2/0	305	321.0	320.6	0.36	1	2	0.11	1.13	2
10	24	2/0	285	269.8	269.4	0.44	1	2	0.16	1.16	2
10	24	2/0	318	358.6	n.d.	n.d.	1	n.d.	n.d.	n.d.	2
10	24	2/0	288	257.7	255.9	1.79	2	2	0.69	1.07	2
10	24	2/0	307	363.3	361.4	1.92	2	2	0.53	1.25	n.d.
10	24	2/0	295	269.9	269.4	0.49	1	2	0.18	1.05	2
10	24	2/0	285	271.1	270.6	0.47	1	2	0.17	1.17	2
10	24	2/0	314	367.9	365.7	2.17	2	8	0.59	1.18	2
10	24	2/0	294	288.7	286.6	2.06	2	2	0.71	1.13	2
10	24	2/0	304	294.7	292.8	1.95	2	2	0.66	1.04	2
10	24	2/0	290	268.3	267.9	0.37	1	2	0.14	1.10	2

MONTH	DAY	HOOK SIZE	LENGTH (mm)	WEIGHT (g)			SEX	MATURITY	GONADO-SOMATIC INDEX	CONDITION FACTOR	AGE (y)
				Total	Somatic	Gonad					
10	24	2/0	301	305.7	305.3	0.44	1	2	0.14	1.12	2
10	24	2/0	299	278.8	276.6	2.17	2	2	0.78	1.03	2
10	24	2/0	277	234.8	233.0	1.78	2	2	0.76	1.10	2
10	24	2/0	307	332.8	332.3	0.52	1	2	0.16	1.15	2
10	24	2/0	290	273.4	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	2
10	24	2/0	299	291.8	289.8	2.03	2	2	0.70	1.08	2
10	24	2/0	330	425.2	421.3	3.90	2	8	0.92	1.17	3
10	24	2/0	317	372.2	371.5	0.73	1	8	0.20	1.17	3
10	24	2/0	286	259.1	258.8	0.35	1	2	0.14	1.11	2
10	24	2/0	311	344.8	344.3	0.50	1	2	0.15	1.14	2
10	24	2/0	278	228.6	228.1	0.47	1	2	0.21	1.06	2
10	24	2/0	291	262.6	260.7	1.92	2	2	0.73	1.06	2
10	24	2/0	296	302.0	300.2	1.81	2	2	0.60	1.16	2
10	24	2/0	293	282.0	280.2	1.77	2	2	0.63	1.11	2
10	24	2/0	285	242.7	241.2	1.46	2	2	0.60	1.04	2
10	24	2/0	303	296.2	295.5	0.75	1	2	0.25	1.06	2
10	24	2/0	257	185.5	185.3	0.21	1	2	0.11	1.09	1
10	24	2/0	267	166.3	166.1	0.23	1	2	0.14	0.87	1
10	24	2/0	295	287.3	287.1	0.22	1	2	0.08	1.12	2
10	24	10	281	210.6	208.9	1.71	2	2	0.81	0.94	2
10	24	10	316	337.7	337.3	0.38	1	8	0.11	1.07	2
10	24	10	291	239.1	238.6	0.54	1	2	0.23	0.97	n.d.
10	24	10	301	224.1	223.3	0.81	1	2	0.36	0.82	2
10	24	10	282	209.8	209.3	0.48	1	2	0.23	0.93	2
10	24	10	287	257.6	256.2	1.42	2	2	0.55	1.08	2
10	24	10	284	240.8	239.6	1.23	2	2	0.51	1.05	2
10	24	10	288	250.3	250.1	0.21	1	2	0.08	1.05	2
10	24	10	297	270.3	268.3	2.01	2	2	0.74	1.02	2
10	24	10	297	287.7	285.7	2.03	2	2	0.71	1.09	2
10	24	10	283	228.5	227.5	0.96	1	2	0.42	1.00	2
10	24	10	302	350.0	349.6	0.42	1	2	0.12	1.27	2
10	24	10	272	203.2	202.6	0.63	1	2	0.31	1.01	n.d.
10	24	10	302	291.6	289.2	2.36	2	2	0.81	1.05	2
10	24	10	334	373.0	369.8	3.16	2	8	0.85	0.99	3
10	24	10	284	259.3	259.0	0.34	1	2	0.13	1.13	2
10	24	10	290	262.7	262.4	0.34	1	2	0.13	1.08	2
10	24	10	295	288.7	286.8	1.94	2	2	0.67	1.12	2
10	24	10	286	264.0	262.0	2.01	2	2	0.76	1.12	2
10	24	10	332	318.9	316.5	2.40	2	8	0.75	0.86	2
10	24	10	357	517.1	516.0	1.15	1	8	0.22	1.13	6
10	24	10	284	229.6	229.3	0.28	1	2	0.12	1.00	2
10	24	10	286	241.6	239.8	1.81	2	2	0.75	1.03	2
10	24	10	295	293.8	292.7	1.11	2	2	0.38	1.14	2
10	24	10	297	297.7	297.0	0.72	1	2	0.24	1.13	2
10	24	10	279	225.4	225.1	0.34	1	2	0.15	1.04	2

MONTH	DAY	HOOK SIZE	LENGTH (mm)	WEIGHT (g)			SEX	MATURITY	GONADO-SOMATIC INDEX	CONDITION FACTOR	AGE (y)
				Total	Somatic	Gonad					
10	24	10	296	239.7	238.2	1.51	2	2	0.63	0.92	2
10	24	10	275	222.1	221.3	0.78	2	2	0.35	1.06	1
10	24	10	310	284.4	283.9	0.50	1	2	0.18	0.95	2
10	24	10	275	205.7	205.4	0.35	1	2	0.17	0.99	2
10	24	10	290	275.0	274.6	0.40	1	2	0.15	1.13	2
10	24	10	294	290.4	290.0	0.37	1	2	0.13	1.14	2
10	24	10	285	246.1	243.0	3.08	2	2	1.25	1.05	2
10	24	10	265	177.7	n.d.	n.d.	1	2	n.d.	n.d.	1
10	24	10	301	318.2	317.0	1.20	1	2	0.38	1.16	2
10	24	10	280	224.9	222.8	2.09	2	2	0.93	1.01	2
10	24	10	294	270.3	269.2	1.15	1	2	0.43	1.06	2
10	24	10	290	248.7	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	2
10	24	10	266	197.3	196.4	0.91	2	2	0.46	1.04	1
10	24	10	343	474.6	474.1	0.51	1	8	0.11	1.17	2
10	24	10	291	246.0	243.5	2.52	2	2	1.02	0.99	2
10	24	10	301	321.8	321.3	0.53	1	2	0.16	1.18	2
10	24	10	295	292.0	289.4	2.60	2	2	0.89	1.13	2
10	24	10	293	281.8	279.9	1.87	2	2	0.66	1.11	2
10	24	10	256	186.9	185.8	1.07	2	2	0.57	1.11	1
10	24	10	305	318.8	317.4	1.44	2	2	0.45	1.12	2
10	24	10	286	263.0	261.1	1.86	2	2	0.71	1.12	2
10	24	10	293	275.9	274.2	1.73	2	2	0.63	1.09	2
10	24	10	283	196.6	n.d.	n.d.	1	2	n.d.	n.d.	2
10	24	10	352	557.4	556.5	0.86	1	8	0.15	1.28	6
10	24	10	298	296.2	294.4	1.80	2	2	0.61	1.11	2
10	24	10	277	223.3	223.0	0.35	1	2	0.16	1.05	2
10	24	10	283	239.3	238.8	0.46	1	2	0.19	1.05	2
10	24	10	293	283.1	282.5	0.65	1	8	0.23	1.12	2
10	24	10	284	244.5	244.3	0.25	1	2	0.10	1.07	2
10	24	10	285	254.0	253.6	0.41	1	2	0.16	1.10	2
10	24	10	295	291.2	289.5	1.72	2	2	0.59	1.13	2
10	24	10	262	195.3	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	1
10	24	10	290	252.3	250.0	2.30	2	2	0.91	1.03	2
10	24	10	302	274.9	273.0	1.95	2	2	0.71	0.99	2
10	24	10	306	332.5	330.1	2.44	2	2	0.73	1.15	2
10	24	10	297	279.4	279.0	0.37	1	2	0.13	1.07	2
10	24	10	294	277.9	275.7	2.22	2	2	0.80	1.08	2
10	24	10	288	256.0	254.4	1.62	2	2	0.63	1.06	2
10	24	10	286	263.6	261.8	1.81	2	2	0.69	1.12	2
10	24	10	291	275.6	275.2	0.45	1	2	0.16	1.12	2
10	24	10	279	218.6	218.2	0.38	1	2	0.17	1.00	2
10	24	10	308	314.6	314.1	0.51	1	2	0.16	1.07	2
10	24	10	298	283.9	283.4	0.47	1	2	0.17	1.07	2
10	24	10	316	389.5	388.9	0.57	1	2	0.15	1.23	2
10	24	10	302	280.3	279.7	0.65	1	2	0.23	1.02	2

MONTH	DAY	HOOK SIZE	LENGTH (mm)	WEIGHT (g)			SEX	MATURITY	GONADO-SOMATIC INDEX	CONDITION FACTOR	AGE (y)
				Total	Somatic	Gonad					
10	24	10	290	281.8	n.d.	n.d.	1	n.d.	n.d.	n.d.	2
10	24	10	285	236.3	235.9	0.40	1	2	0.17	1.02	2
10	24	10	301	308.5	308.0	0.50	1	2	0.16	1.13	2
10	24	10	302	306.2	305.5	0.71	1	2	0.23	1.11	2
10	24	10	293	258.4	258.0	0.40	1	2	0.15	1.03	2
10	24	10	303	327.0	324.1	2.93	2	8	0.90	1.16	3
10	24	10	297	299.0	297.7	1.34	1	2	0.45	1.14	2
10	24	10	289	279.1	n.d.	n.d.	1	n.d.	n.d.	n.d.	2
10	24	10	302	296.1	n.d.	n.d.	1	2	n.d.	n.d.	2
10	24	10	282	248.8	248.4	0.41	1	2	0.16	1.11	2
10	24	10	272	224.0	223.7	0.33	1	2	0.15	1.11	2
10	24	10	273	222.7	222.6	0.12	1	1	0.05	1.09	1
10	24	10	318	375.7	372.1	3.58	2	8	0.95	1.16	3
10	24	10	282	248.9	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	2
10	24	10	294	238.5	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	2
10	24	10	312	347.7	345.6	2.10	2	8	0.60	1.14	2
10	24	10	306	317.4	316.8	0.60	1	8	0.19	1.11	2
10	24	10	304	368.4	367.8	0.63	1	8	0.17	1.31	3
10	24	10	300	320.9	320.3	0.58	1	8	0.18	1.19	2
10	24	10	293	264.1	263.7	0.37	1	2	0.14	1.05	n.d.
10	24	10	292	243.9	n.d.	n.d.	1	2	n.d.	n.d.	2
10	24	10	292	270.0	267.8	2.21	2	2	0.82	1.08	2
10	24	10	287	247.7	247.3	0.37	1	2	0.15	1.05	2
10	24	10	285	257.3	256.9	0.39	1	2	0.15	1.11	2
10	24	10	305	330.3	329.6	0.68	1	8	0.21	1.16	2
10	24	10	305	314.7	313.2	1.53	2	2	0.49	1.10	2
10	24	10	287	248.2	246.6	1.60	2	2	0.64	1.04	2
10	24	10	287	229.1	228.2	0.87	2	2	0.38	0.97	2