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Review of the biology and fishery for
Australian sardines (*Sardinops sagax*)
in New South Wales – 2010

By

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EXECUTIVE SUMMARY

This report summarizes the current state of knowledge of the biology and fishery for sardines in NSW. Management of the sardine fishery is hampered by a lack of understanding of this species' biology, stock structure, biomass and movements along eastern Australia. These knowledge gaps are inhibiting informed management at a time when the fishery is expanding at a rapid rate. Similar fisheries globally have collapsed due to over-exploitation and the NSW Department of Industry & Investment and the commercial industry agree that this must not be allowed to occur in NSW. This report provides a first step in initiating dialogue between industry, managers and scientists with a view to developing ongoing monitoring, assessment and management arrangements for the NSW sardine fishery.

The following points are important to note:

- The fishery for sardines in NSW has expanded rapidly to historically high levels during the past few years.
- The expansion of the sardine fishery has resulted in significant regional employment.
- Jurisdiction for management of east-coast sardines is shared between the states of NSW, Victoria and Queensland as well as the Commonwealth.
- More than 70% of the NSW sardine catch has historically been from the south coast.
- The peak time for landings on the southern coast is during autumn/winter, while on the northern coast it is during winter/spring.
- Based on the size at sexual maturity in NSW the majority of sardines landed are of a mature size.
- Male and female sardines attain sexual maturity at approximately 14 cm fork length.
- The peak spawning time for sardines off the south coast of NSW is between July and January when sea surface temperatures range between 15 and 18 °C.
- The stock structure and patterns of movement of east-coast sardines is unknown.
- The retrospective spawning biomass estimate based on 2004 data suggests that recent catch levels are sustainable.
- The retrospective spawning biomass estimate based on 2004 data is becoming obsolete 6 years on.
- Spawning biomass estimates based on egg surveys and the Daily Egg Production Method are used in other Australian sardine fisheries. This approach may be applicable to ongoing assessment and management in NSW.

1. INTRODUCTION

The New South Wales (NSW) sardine fishery is one of few that has recently undergone a time of rapid expansion. An apparent increase in stock size in combination with increased markets (including human consumption, aquaculture feed, bait and pet food) has resulted in increased targeting of this species. In particular, investment in infrastructure such as filleting machines to produce value added “sardine fillets” and freezer tunnels to produce high quality Individually Quick Frozen (IQF) product has led to new market development. An improved understanding of sardine diurnal movements and how to catch them using purse-seine nets has seen landings in NSW increase more than 5000% since 2002. The sustainability of such a massive increase in catches is a major concern for the managing body (I&I NSW). This is particularly the case given the paucity of information available on sardines along the NSW coast.

Sardines (*Sardinops sagax*) are clupeid fishes that support large fisheries in temperate waters of most continents (Fletcher 1990). Clupeid populations are prone to large natural fluctuations in abundance and the fisheries they support are prone to collapse if exploitation levels are too high (Fletcher 1990). Sardines are a planktivorous schooling species that are targeted by net fisheries (Fletcher, 1991). It is thought that schools may interact and exchange individuals; however the differences in swimming speed between small and large individuals results in schools consisting of similar sized individuals. There currently exists very little information on sardines off eastern Australia that can be used to help in management decision making for this expanding fishery. Current information on age, growth rates, reproductive biology, spawning times and places, movements and stock structure is not available, let alone the fishery characteristics, sardine population dynamics and how they may respond to increased levels of exploitation.

The main objective of this report is therefore to collate the relevant available information that has been collected on the NSW sardine fishery during recent years and analyse biological data for a better understanding of the species’ characteristics and population dynamics. This information may be used in discussions regarding future management of this fishery, in particular with respect to setting sustainable catch limits and ongoing monitoring and assessment.

2. BACKGROUND

The management of sardines along eastern Australia is subject to the Offshore Constitutional Settlement (OCS) arrangements between NSW and the Commonwealth government. Under this arrangement, all purse-seine catches outside 3 nm offshore from NSW are managed by the Commonwealth. Sardines are caught in large quantities in both jurisdictions and are managed using a Recommended Biological Catch (RBC) by the Commonwealth. State catches are taken off the total RBC for Commonwealth fishing businesses. A recent assessment of sardines by the Commonwealth Small Pelagic Fishery (SPF) Resource Assessment Group (RAG) found that the combined total RBC in eastern Australian waters should not exceed 4,500t. Any management and monitoring of sardines along eastern Australia would ideally be collaborative between NSW and the Commonwealth.

Sardines in NSW are currently considered to be moderately fished. This is mainly based on the spawning biomass estimate provided by Ward *et al.* (2007) for 2004. It is believed that catch rates are probably a poor index of abundance in this type of fishery (schooling species with few operators).

Two mass mortality events of sardines occurred in southern Australian waters during the 1990s. Mortalities were first reported in March 1995 in South Australia and quickly spread both westwards and eastwards, reaching Geraldton in Western Australia and Noosa in Queensland by June 1995 (Jones *et al.*, 1997). The second mortality event occurred between October 1998 and April 1999. These mass mortality events were caused by a herpesvirus (Bernoth, 2002; Whittington *et al.*, 1997; Whittington *et al.*, 2008). The recovery of sardines and the fisheries that land them, subsequent to these mortality events may provide insight into population structure as well as population resilience and response to harvesting.

In general, large increases in sardine biomass following both the 1995 and 1998 mortality events were observed, suggesting that sardine stocks have a capacity for very rapid recovery (Bernoth, 2002). In Southern Australia it was estimated that more than 70% of the stock was killed during each mortality event, yet the spawning biomass trebled between 1996 and 1998 (Bernoth, 2002). Recovery of stocks was somewhat slower in Western Australia following the 1998/99 mortality event. In NSW, very few sardines were observed immediately following the 1998/99 mortality event; however by 2002 very large numbers of large sardines were observed in southern NSW and targeted fishing resumed. The abundance of sardines in northern NSW increased rapidly following 2002 (D. Brown, pers. comm.). Further insights into stock structure based on observations following the mass mortality events are discussed in the section on Stock Structure.

3. FISHERY MONITORING

Monitoring of the NSW sardine fishery currently includes the quantities landed (via monthly catch returns) and the sizes and biological condition of sardines in landings throughout the year.

Landings

Prior to the 1980s annual reported landings of sardines in NSW waters were less than 30 tonnes. Landings increased but did not rise above 475 tonnes throughout the 1980s and 1990s (Fig. 1). Reported annual landings increased rapidly following the low levels of 2000 to 2002 when approximately 40 tonnes were reported each year (Fig. 1). These low landings followed the second mass mortality event during 1998/99 when closures were implemented. Between 2002/03 and 2006/07 landings increased from 250 tonnes to a historical high of 2,040 tonnes (Fig. 1). Landings in Victoria are about 700 tonnes p.a. and a further 200 to 400 tonnes p.a. are landed from Commonwealth waters off the east coast (unpublished logbook data). The recent total annual harvest off the east coast is therefore likely to be > 3000 tonnes.

Data from fishers monthly catch returns were used to elucidate spatial and temporal patterns in landings (01/08/08 download of the I&I NSW comcatch database). Estuary landings accounted for less than 12% of the total catch (between 1984/85 and 2007/08), with the major estuaries being Jervis Bay (~70% of estuarine catches) and Twofold bay (~20% of estuarine catches). Landings from estuaries were allocated to the adjacent ocean zones for analysis. Within NSW during the period examined approximately 87% of the total catch was reported from the Ocean Hauling Fishery, with 82% being taken by the method of purse seine. The distribution of landings since 1984/85 by month and ocean fishing zone show that the majority of the catch has come from the far south of the state in zones 8, 9 and 10. (Fig. 2).

Dividing the coast into northern (ocean zones 1 to 5) and southern regions (ocean zones 6 to 10) the distribution of landings shows that approximately 70% have historically come from the southern region. The peaks in landings occur during winter/spring in the north and during autumn/winter in the south (Fig. 3).

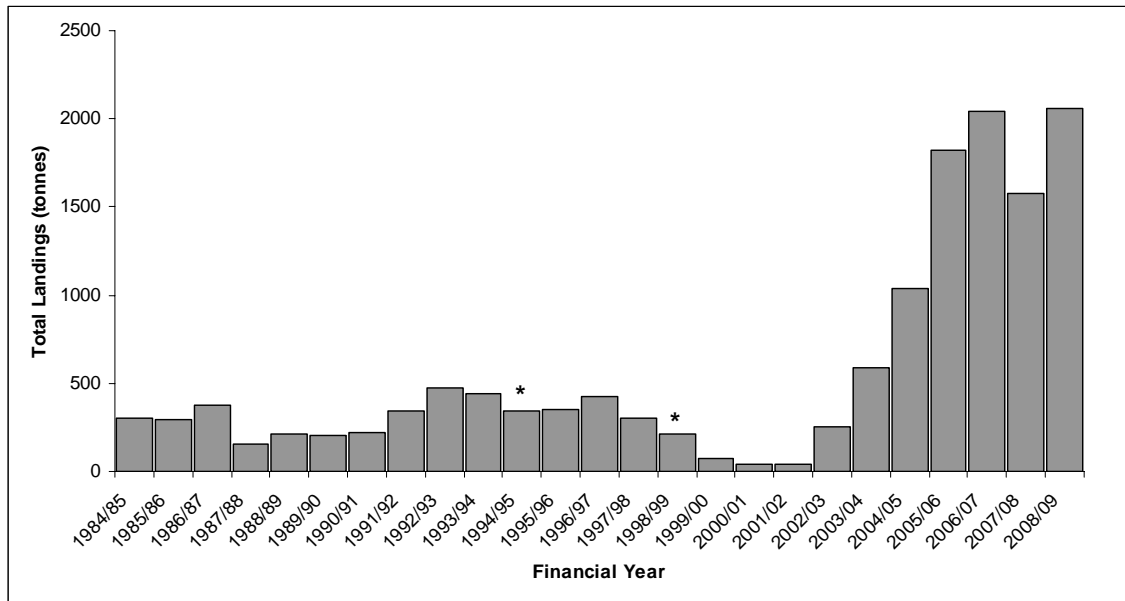


Figure 1. Reported annual landings of sardines in NSW waters. The mass mortality events are indicated by *s.

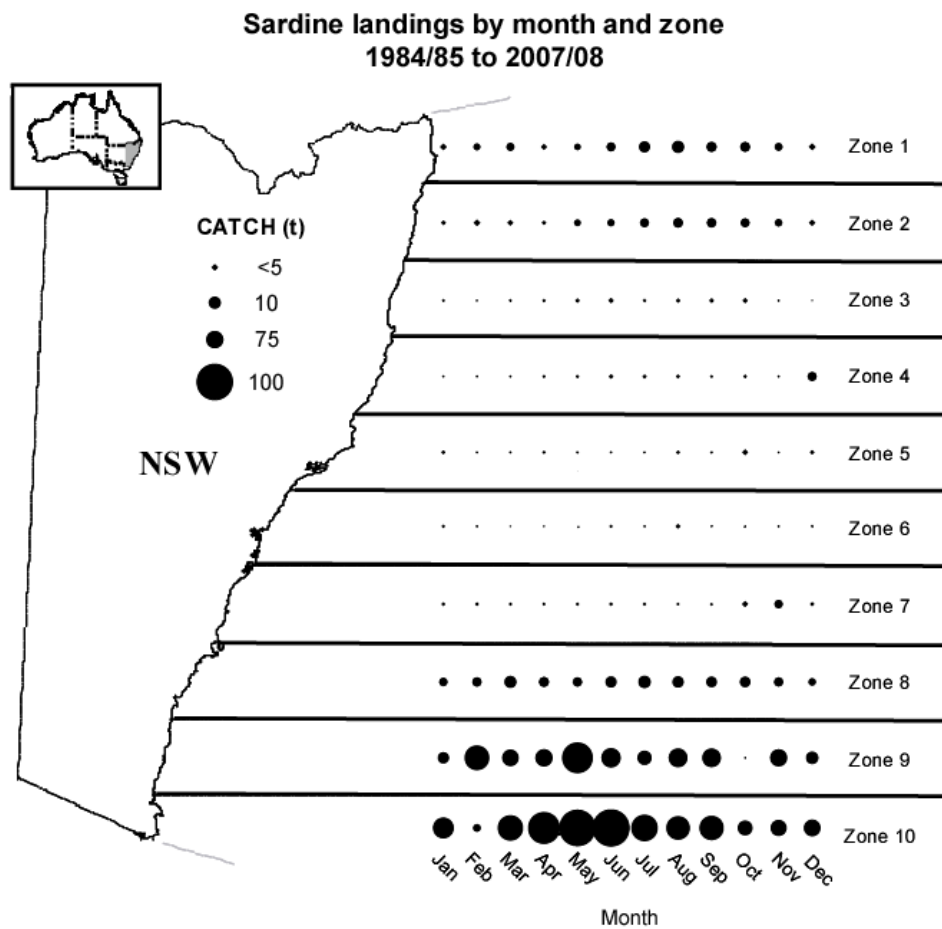


Figure 2. Average monthly reported landings of sardines by ocean zone between 1984/85 and 2007/08.

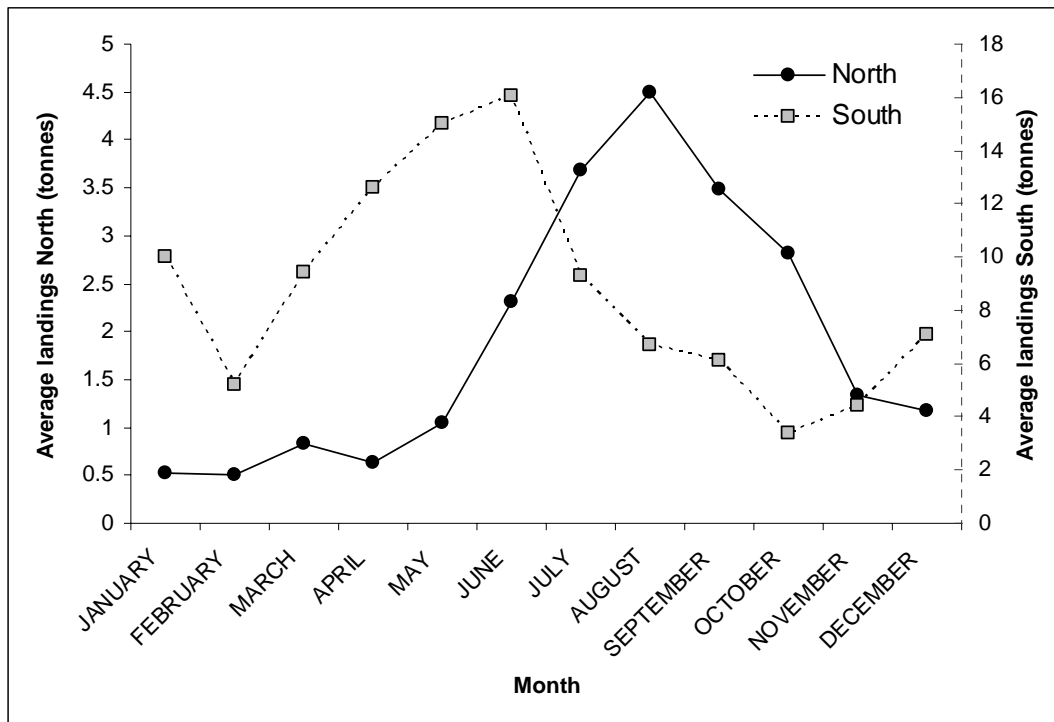


Figure 3. Average monthly landings of sardines (1984/85 to 2008/09) for the northern and southern regions of NSW. Note different scales on y-axis.

Size composition in landings

Lengths in landings

The lengths of sardines in landings have been monitored since 2005/06. The majority have been measured at the Pelagic Fish Processing factory in Eden; however some catches sold through the Sydney Fish Markets have also been measured. Monitoring of the lengths of sardines landed on the north coast of NSW started in mid-2008; however to date there have been insufficient catches measured to get any meaningful results. The protocol followed at the Eden factory is to measure approximately 80 to 100 randomly chosen fish (as fork length FL to the nearest whole cm below the true length) from all catches of greater than 1 tonne. Twenty randomly chosen fish from each of these catches are then kept for biological assessment. Length frequency distributions are calculated by firstly weighting each sub-sampled catch by the total weight of the catch, and secondly by weighting the lengths from each total catch to the total state-wide catch for the year.

The distributions of lengths of sardines in annual landings have tended to be bimodal; however the position of the modes has changed each year (Fig. 4). Based on the size at sexual maturity of ~14 cm FL in NSW (see later section) the majority of sardines landed in NSW are of a mature size. Female sardines tended to be slightly larger, on average, than male sardines (Fig. 5).

When the length distributions of sardines are pooled by month across all years, their bimodal nature remains apparent in some months (Fig. 6). This bimodal pattern was apparent within years and is not the result of pooling length distributions across years.

It should be noted that the length distribution of sardines in landings may not be representative of the length distribution in the population. The size composition of sardines caught is driven by a combination of factors, including availability and market demands.

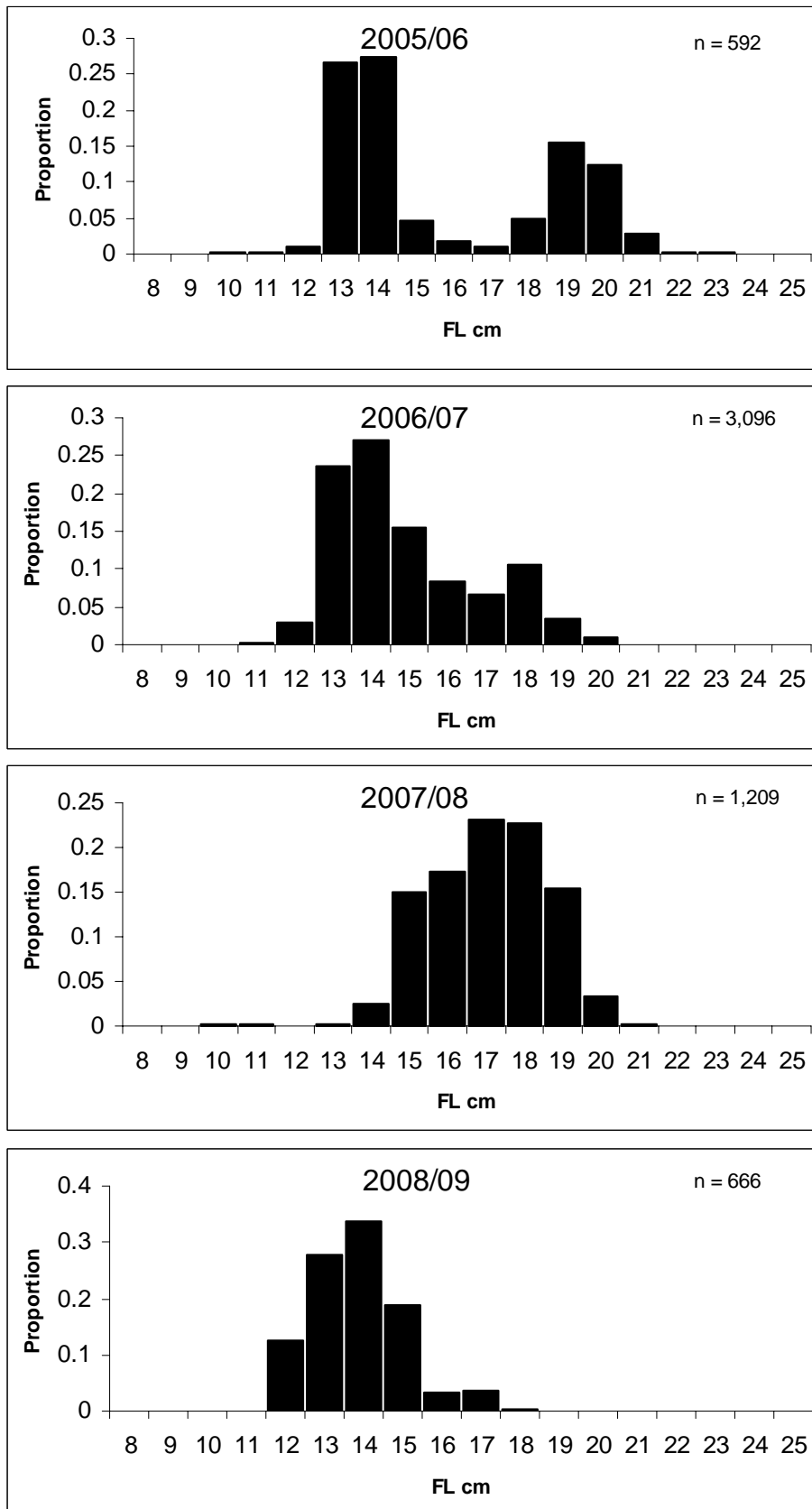


Figure 4. Length frequency distributions of sardines measured each financial year.

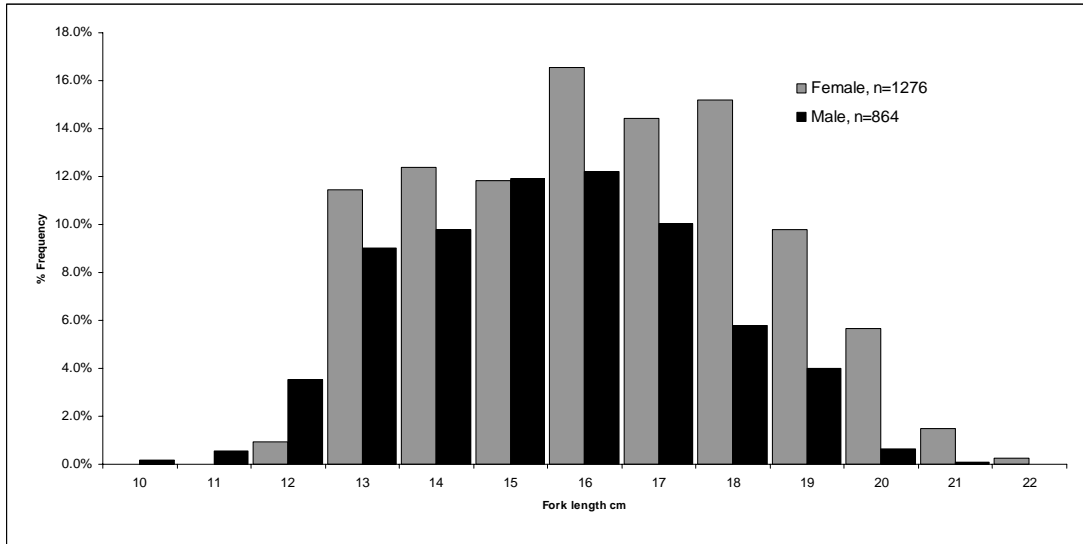


Figure 5. Length frequency distributions of male and female sardines between 2003/04 and 2009.

Length weight relationship

The length/weight relationship for sardines sampled from NSW landings was described by the relationship: weight (g) = 0.0068 x FL^{3.1596} (cm) (Fig. 7).

Age composition

A total of 1,629 otolith pairs were collected from sardines sampled from commercial catches. These otoliths have not been used for direct age estimation to date because of the difficulty in interpreting sardine otoliths (Fletcher & Blight, 1996). Recent research in South Australia (Rogers & Ward, 2007) concluded that counting annuli in whole sardine otoliths was overly subjective, time consuming and had low levels of precision. They recommended that otolith weight should be used as a better indication of age, rather than attempting to count annuli. The linear relationship between age and otolith weight, using only those otoliths that had a high level of readability, was found to be:

$$\text{Age (years)} = 1.95 \times \text{otolith weight (mg)} + 0.43.$$

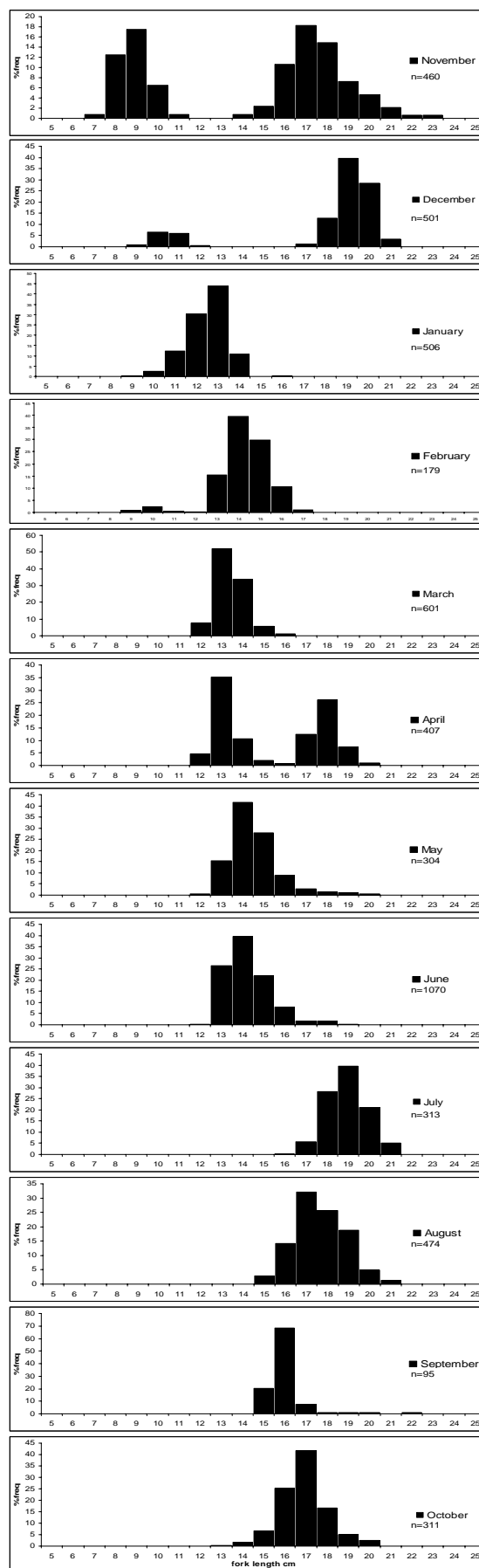


Figure 6. Length frequency distributions of sardines pooled by month during 2005/06 to 2007/08.

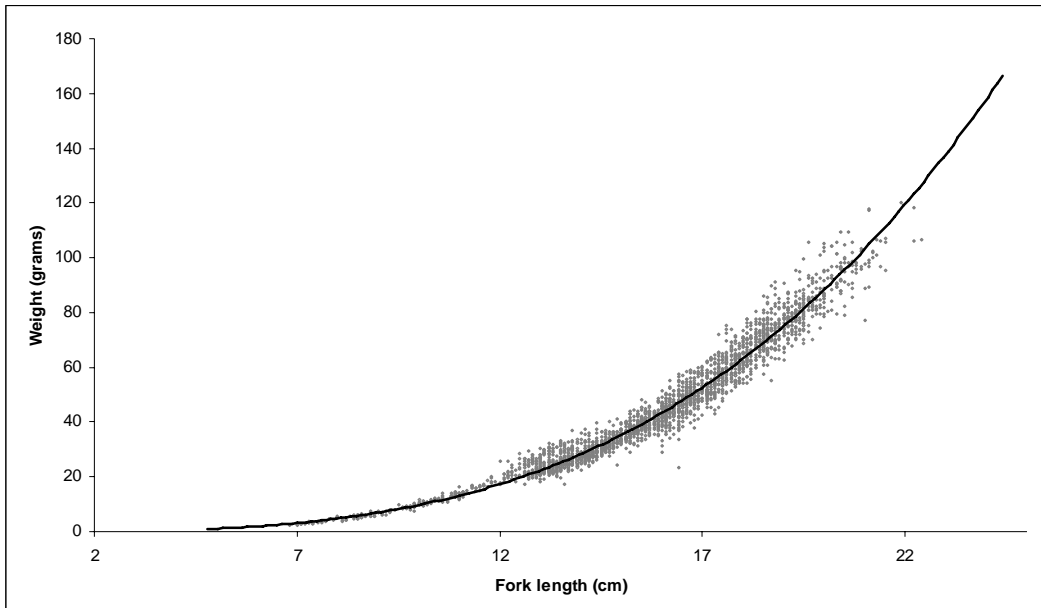


Figure 7. Length weight relationship for sardines sampled from NSW landings.

Fletcher (1995) has also used otolith weight as an index of age for sardines in Western Australia. Analysis of the data presented in Table 2 of that paper suggests the relationship was: Age (years) = $4.34 \times \text{otolith weight (mg)} - 2.38$. This relationship provides similar mean otolith weights to the Rogers & Ward (2007) regression for age classes 2, 3 and 4 but lower otolith weights for age classes thereafter. It is unknown whether such an otolith weight/age relationship applies for sardines found in NSW. Nevertheless, as a preliminary guide to the ages of sardines being harvested in NSW waters, the linear relationship for sardines in South Australia was applied to the otolith weight data from NSW.

The distribution of otolith weights (average of the left and right otolith weights) indicates that females dominated the heavier otolith weight categories, suggesting that females may exhibit greater longevity than males (Fig. 8).

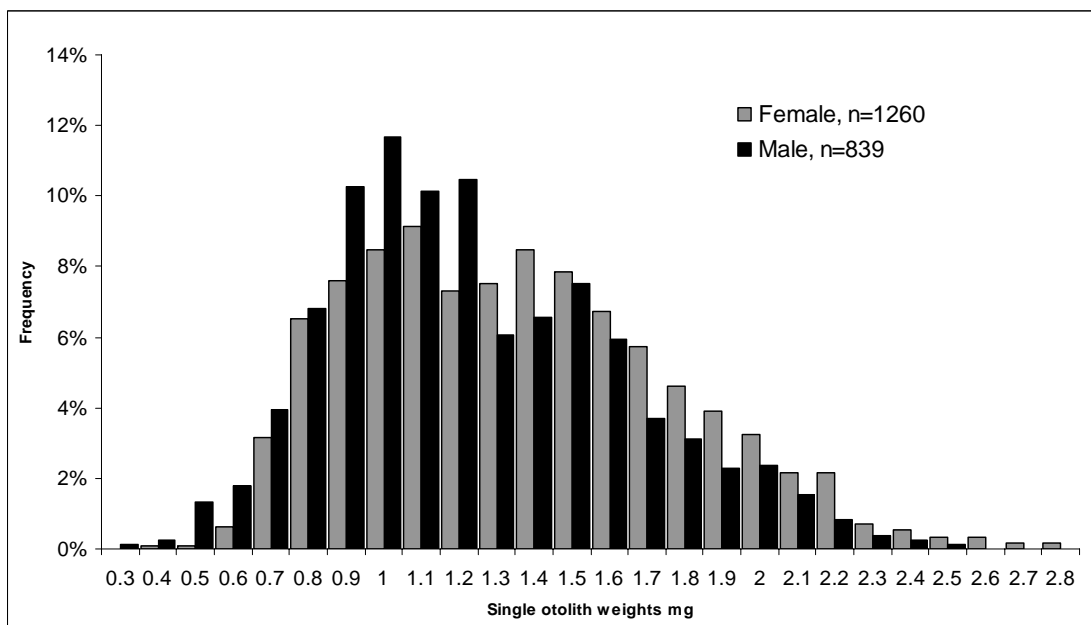


Figure 8. The combined (left and right) otolith weight distribution from sardines sampled from commercial landings in NSW.

The South Australian regression for calculating age from otolith weight, when applied to the NSW dataset suggests that the bulk of the fishery consists of fish between 1 and 4 years of age (Fig. 9). Given the lengths and ages of sardines reported in Rogers & Ward (2007), these ages appear plausible. However, the mean otolith weights for sardines in Western Australia reported by Fletcher (1995) are considerably smaller for age classes 3 to 5 years, suggesting that regional differences in sardine age to otolith weight relationships exist.

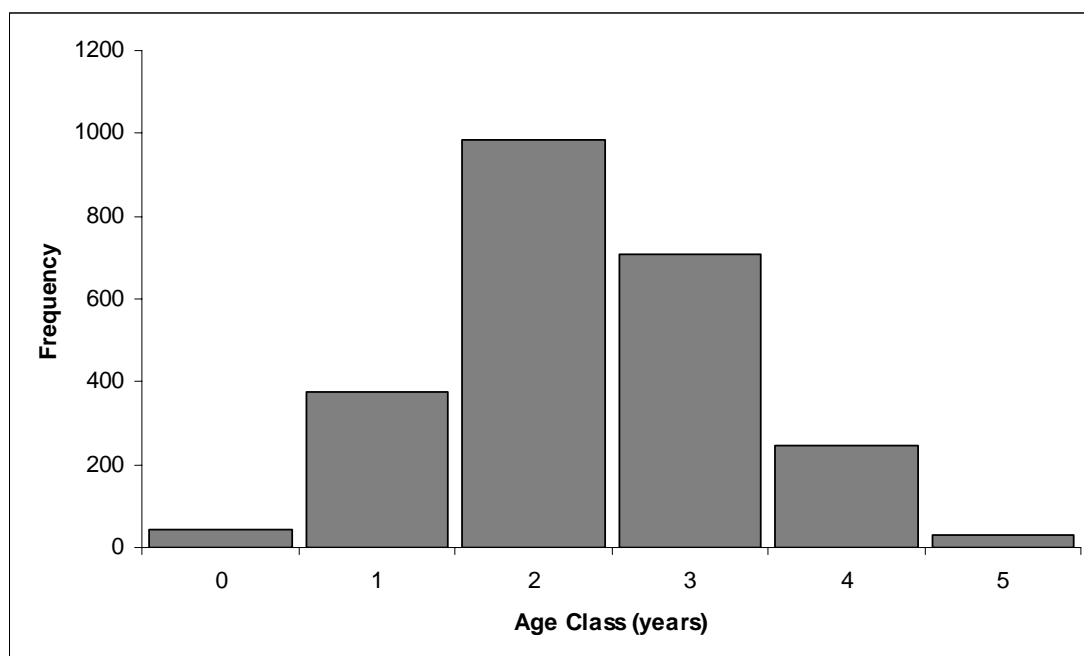


Figure 9. The distribution of ages of sardines landed in the NSW fishery 2003 to 2009. The ages were estimated using the South Australian age to otolith weight regression (Rogers & Ward, 2007).

Growth modelled from the preliminary estimates of age (based on the South Australian relationship) and observed lengths suggest that sardines in NSW may grow at slightly faster rates and attain larger sizes than those in Queensland waters (Staunton-Smith & Ward, 2000) (Table 1). It also suggests that faster growth and larger sizes are attained than those reported by Joseph, 1981 (unseen but cited in Fletcher 1990) for sardines in NSW based on scale readings

Table 1. von Bertalanffy growth function parameters for east-coast sardines.

von Bertalanffy growth function parameter	Staunton-Smith & Ward (2000) Qld	Joseph (1981) NSW	Current NSW based on S.A. regression
L_{∞} mm FL	189 to 201	216	236.1
K yr ⁻¹	0.297 to 0.36	0.32	0.37
T_0 yrs	-1.009 to -1.6	-0.22	-0.28

4. REPRODUCTIVE BIOLOGY

Size at maturity

A total of 1,556 sardines were assessed for their stage of reproductive maturity using a modification of the macroscopic gonad staging schedule described in Staunton-Smith & Ward (2000) (Table 2). Of these, 276 were juveniles, 760 were females and 520 were males. The size at sexual maturity was estimated by assigning all sardines with stage 1 gonads as being immature and all other stages as being mature (after Staunton-Smith & Ward, 2000). After preliminary analyses, sardines that could not be assigned a sex (due largely to being juveniles with very small gonads) were added to both male and female datasets to model size at maturity. The proportion of fish assigned as being mature in each 1 cm length class was calculated and logistic curves were fitted to the data.

There were no significant differences between logistic maturity curves for males and females (Walds test, $W = 6.72$, 2 d.f. $P < 0.01$). The data were therefore pooled and the resulting logistic model indicated a size at 50% maturity of 13.65 cm FL (SE = 0.07) (Fig. 10). This size at 50% maturity is similar to that estimated for sardines in southern Queensland (Staunton-Smith & Ward, 2000) and observations of NSW sardines during the 1940s (Blackburn, 1950). It is slightly smaller than that estimated for sardines in South Australia of approximately 14 to 15 cm FL (Ward & Staunton-Smith, 2002).

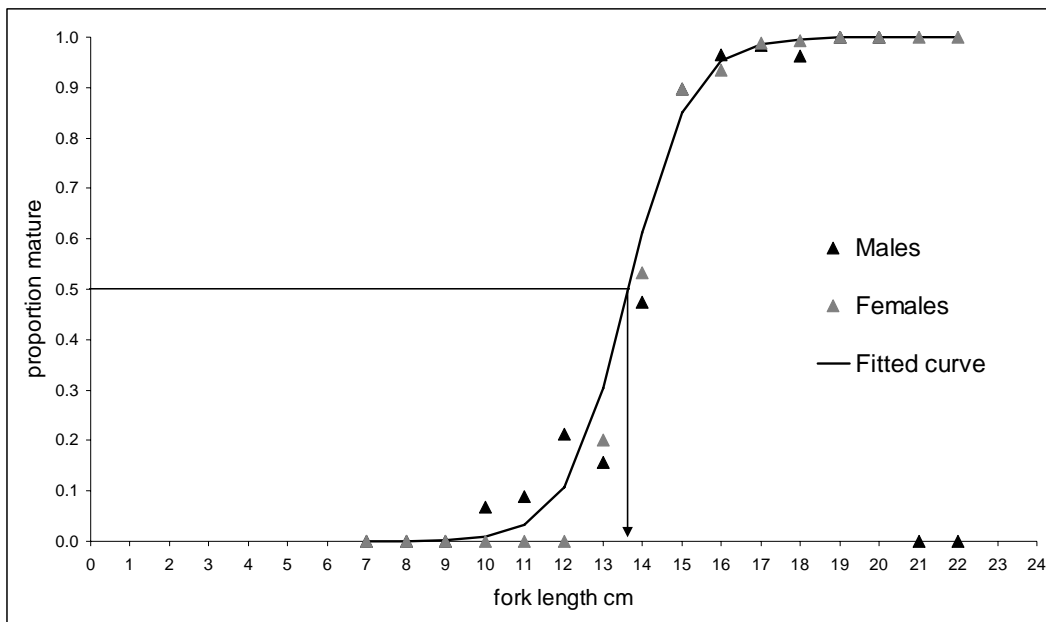


Figure 10. The proportion of mature sardines in each 1 cm size class with fitted logistic curve. The size at 50% maturity is indicated by the arrow.

Table 2. Macroscopic gonad staging schedule for sardines in NSW (modified from Staunton-Smith & Ward, 2000).

Stage	Description	Staunton-Smith & Ward stages	Description
<u>Males</u>			
1	Immature	1	Testes flat and leaf like, pink or transparent.
2	Developing	2	Testes beginning to thicken and elongate, white colour developing.
3	Ripe/spent	3 to 9	Testes elongated to more than half the body cavity. Opaque white. Posterior half appears milky in ripe fish. In spent fish the testes are elongated, strap-like and bloodshot.
<u>Females</u>			
1	Immature	1	Small Ovaries, less than half the body cavity length, narrow but firm and pink.
2	Early developing/resting	2	Ovaries Beginning to enlarge, slightly longer and up to 5mm thick, dark pink.
3	Developing	3	Ovaries longer than one half the body cavity length, noticeably thicker and yellow, vascular.
4	Ripe	4, 5, 6	Ovaries distended, almost filling the body cavity, bright yellow, vascular, eggs discrete, becoming transparent at posterior end. Ovaries change to a darker yellow colour and semi-transparent eggs are seen throughout fully ripe gonads.
5	Spent	7, 8, 9	Ovaries elongated, but flat, hollow and bloodshot, no large eggs are present except occasionally a few in the oviduct. Ovaries may show shrinkage and become firmer and less blood shot with time. Ovaries become pale pink.

Seasonality of spawning

The peak months for reproductive activity were estimated by plotting the average gonadosomatic indices (gonad weight as a percentage of body weight) against month, with months being pooled across all years sampled. Only adult fish (those with gonad stages greater than stage 1) were included. Note that these data relate to the spawning period for sardines on the far south coast of NSW. Only 5 of 76 catches sampled came from the north coast (ocean zones 1 and 2) and these were not included in the analysis. Of the remaining 71 samples 64 came from ocean zone 10.

There was a distinct period in gonad activity between July and January, with much lower levels during the remainder of the year (Fig. 11). Male and female GSIs were of similar values. Mean female GSI values of between approximately 3.5 and 4.5% were used by Staunton-Smith & Ward (2000) to describe the spawning season for sardines in southern Queensland. They reported a peak spawning season between July and October with the highest individual GSIs being 7 to 8%. Individual GSIs of > 5% were recorded during January, June, July, September, October, November and December. Spawning sardines have been associated with GSIs of greater than 4.6% (Macewicz, 1996).

There is little doubt that the spawning period for sardines along eastern Australia varies with latitude. Our data, in combination with that of Staunton-Smith & Ward (2000) in southern Queensland and observations by Blackburn (1950) and Joseph (1981, summarized by Fletcher, 1990) suggest that spawning occurs in southern NSW during late winter to early summer and in northern NSW and southern Queensland during winter and spring. Interestingly, the peak time of landings in southern NSW is May/June (see Fig. 3) which is just prior to the observed spawning

peaks. In contrast, the fishery in northern NSW and southern Queensland (Staunton-Smith & Ward, 2000) occurs during the peak spawning period in those areas. This pattern in the north leads to the hypothesis that the fishery in that area only occurs when sardines have migrated into that area to spawn during winter/spring.

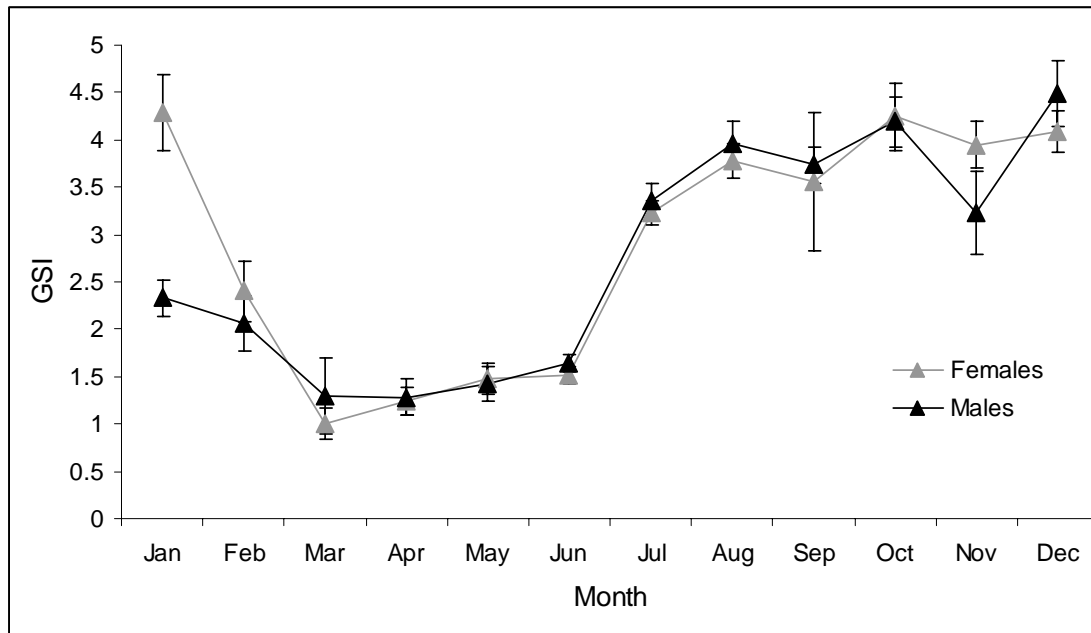


Figure 11. Mean GSI values, with standard errors, for male and female sardines sampled from the south coast of NSW.

Sardine spawning has been linked to water temperature, with spawning recorded to occur between approximately 14 and 21 °C. In southern Queensland, Staunton-Smith & Ward (2000) reported the peak spawning to occur at water temperatures of between 18 and 22 °C. In southern NSW, the average sea surface temperature off Eden ranges from approximately 14 °C in August up to approximately 20 °C between January and April (Fig. 12). Elevated GSI values were associated with sea surface temperatures of between 15 and 18 °C and declined rapidly once temperatures reached 20 °C. It is hypothesized that water temperature is not the single most important factor associated with sardine spawning (Staunton-Smith & Ward, 2000), and that patterns of spawning are strongly influenced by the east Australian current and will therefore vary spatially and temporally. In South Australia it has been hypothesized that the timing of spawning is associated with food availability for larvae and/or adults and that the upwelling of cool nutrient rich waters can govern this food availability (Ward & Staunton-Smith, 2002).

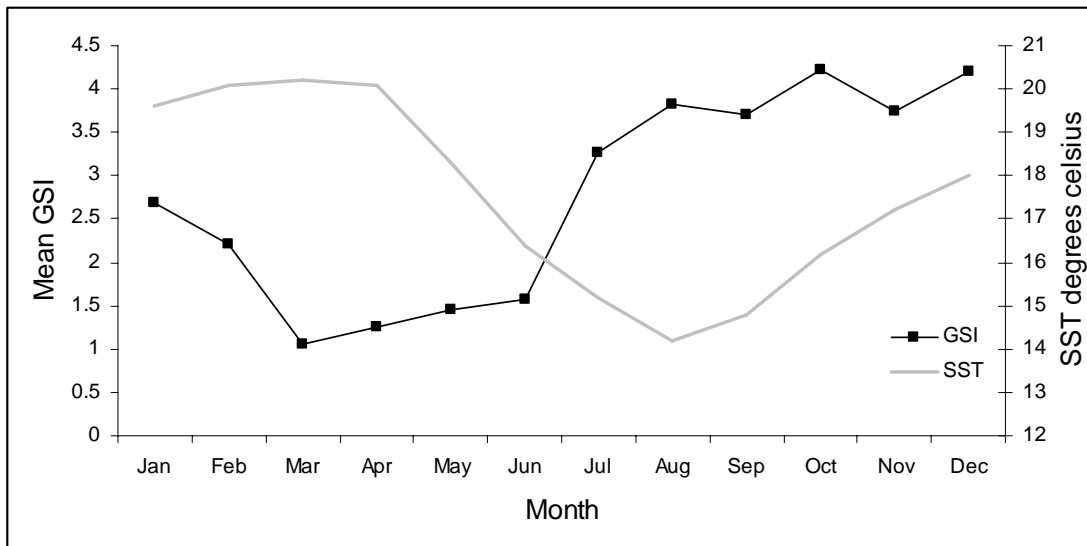


Figure 12. Mean monthly sardine GSI values and mean monthly sea surface temperatures offshore from Eden. Source: Australian Government Department of Defence, Directorate of Oceanography & Meteorology website (www.metoc.gov.au/index.php).

5. FAT CONTENT

The amount of body fat in sardines can be used to quantify fish condition. We used the macroscopic fat staging schedule developed for sardines in South Africa (van der Lingen & Hutchings, 2005) (Fig. 13 and Table 3) to assess the condition of sardines that were sampled between June and August 2009 from 2 locations (Iluka and Eden) on the NSW coast. This was of interest because parental condition, through lipid content, can potentially influence egg production rate, recruitment success and an individual's strength and survival ability. Fat content can affect the value of the catch as fish condition influences the nutritional value. This is particularly valuable for the source of sardines used as a food supply for aquaculture. Spatial variation in fat content can also assist in understanding stock structure.

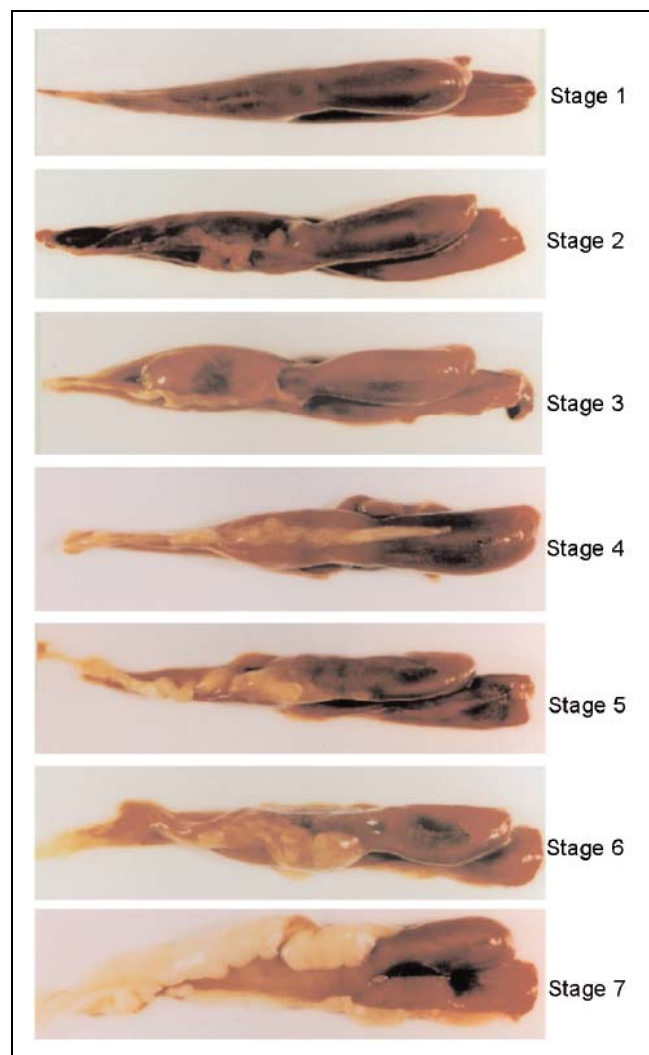


Figure 13. The seven fat stages used for sardines (from van der Lingen & Hutchings, 2005).

Table 3. Description of sardine fat stages. (Van der Lingen & Hutchings, 2005).

Fat Stage	Description
1	Fat lines invisible or thin and indistinct
2	Depth greater than width of one or more fat lines
3	Pyloric fat line noticeably thicker than the other fat lines, and about one-third the thickness of the pyloric junction
4	Depth greater than width for all fat lines but no fat lobes present
5	All fat lines slightly lobed, but no overlap between lobes
6	Fat line lobes obvious and show some overlap
7	Fat line lobes large, lots of overlap, and fundulus well-covered with fat

A total of 496 sardines were assessed for fat content during biological assessment. The Northern region (Iluka) had all sardines staged as having low (stage 1) fat content (Fig. 14). The Southern region (Eden) had sardines with fat content of all stages with fat stage 4 being the most common (Fig. 14). The lengths of sardines sampled from each region differed in their distributions but spanned similar ranges (Fig. 15), suggesting that fish size did not affect the fat content. The sex of the fish also did not appear to affect fat content. There was an inverse relationship between GSI and fat stage, with large gonad size being associated with low body fat stages (Fig. 14). This inverse relationship has been demonstrated for sardines in South Africa (van der Lingen & Hutchings, 2005) and is thought to relate to the body lipids being utilized for gonad development. The sardines from the northern region were generally in spawning condition, whereas those from the southern region were not (Fig. 14).

The macroscopic fat staging procedure is quick, simple and provides considerable additional information on the condition of the fish. We recommend that future monitoring of sardine landings incorporate this fat content assessment. We acknowledge that the fat stages used do not account for the lipids that have been converted into gonad tissue and so are not direct measures of total sardine lipid. This is important as in cases where the whole body, gut and gonads are consumed, (e.g. aquaculture feed) a total body lipid analysis would be preferable.

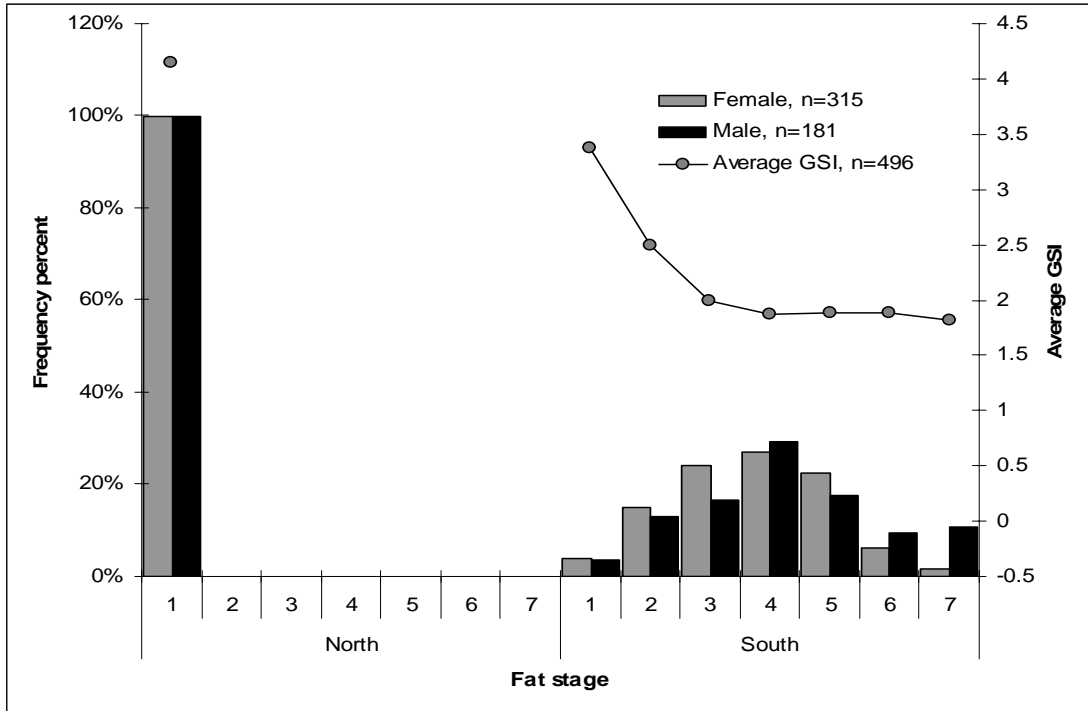


Figure 14. Fat stage frequencies of sardines sampled during the 2009 winter relative to GSI segregated by northern and southern regions.

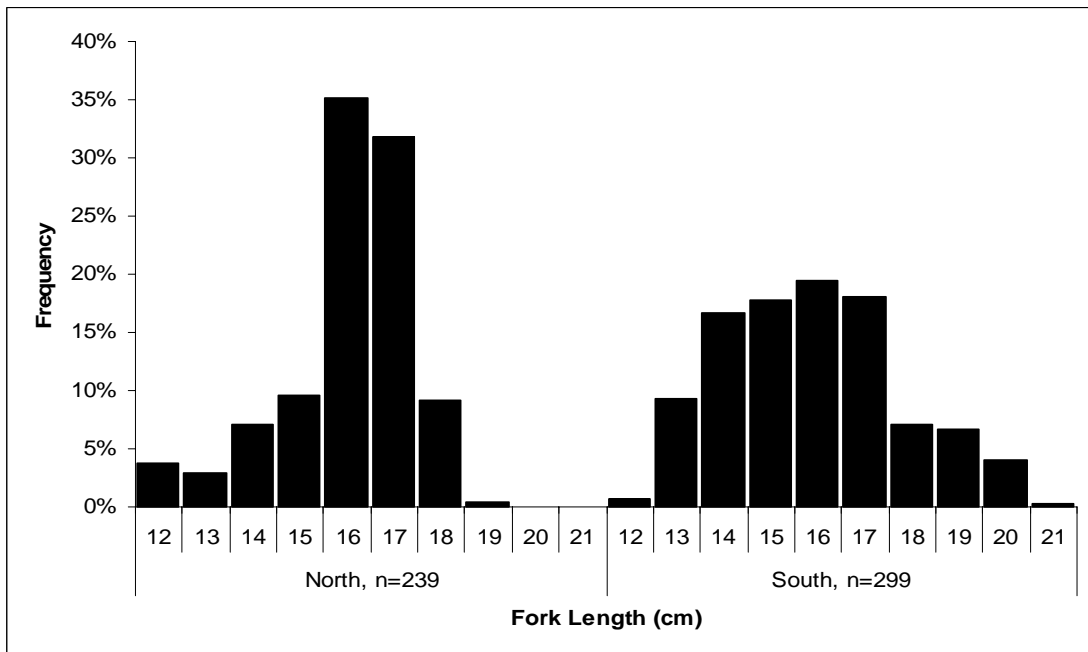


Figure 15. Length frequencies of sardines captured during 2009 segregated into Northern and Southern regions.

6. STOCK STRUCTURE

The stock structure of sardines along eastern Australia is not well understood. This is unfortunate, because understanding the stock structure and movements of sardines is fundamental to management and monitoring of the fishery. In particular, understanding the stock structure, in combination with spawning characteristics, will be vital for designing and interpreting any future egg surveys to estimate spawning biomasses.

Blackburn (1951) suggested there were 3 sub-populations along eastern Australia based on differences in spawning times, abundance, growth rates and vertebral counts. Blackburn suggested that sardines from southern Queensland and northern NSW, down as far as Jervis Bay, comprised 1 population that overlapped with a southern population that ranged from Port Jackson down to the NSW/Victorian border. Sardines from the NSW/Victorian border and Lakes Entrance were proposed to be a distinct group of fish. This historical model has not been examined further and requires consideration; however the results from our recent fat staging and gonad assessment work do indicate that sardines from Iluka and Eden are in very different condition during winter. Historical observations of large schools of sardines migrating northwards along the NSW coast during winter (Roughly, 1916; Whitley, 1937) and the potential mixing influence of the east Australian current suggest that discrete genetic stocks are unlikely. However, distinct groups of spawning sardines have been identified in Western Australia (Gaughan *et al.*, 2002) and the potential for similar distinct groups in eastern Australia requires investigation.

One model suggested by the data presented in this report is that there exists one main stock of sardines along the NSW coast. The bulk of this stock migrates into northern NSW and southern Queensland to spawn during the cooler months (winter/spring). It is at this time that they are vulnerable to the fishery in these areas. Larvae and juveniles spawned in this area are transported southwards in the East Australian current. In support of this, huge quantities of very small sardines “as long as a match box” have been reported close to shore between Bermagui and Greenwell point during October & November 2008 (G. Warren, pers. comm.). It is possible that these juveniles were spawned during the winter months in northern NSW/southern Queensland and have been transported southwards in the prevailing currents. The bulk of the spawning population also returns southwards at this time and, when conditions are suitable; continue to spawn until around February on the south coast of NSW. The fate of larvae spawned during these summer months is unknown; however transport southwards to Victoria and Tasmania seems plausible. The degree of mixing of sardines between southern NSW and the area around Lakes Entrance is unknown.

Observations from the mass mortality events that occurred with sardines during 1995 and again during 1998/99 suggest that there may be only one stock of sardines along the east coast of Australia (see Whittington *et al.*, 2008). One fisher's (Denis Brown pers. comm.) observation following the 1998 sardine mortality event was that the surviving fish contracted to Victorian waters and that fishers at Lakes Entrance maintained high catch rates. Very few sardines were seen in NSW waters immediately following the 1998 event. By 2000 some schools of sardines were observed in southern NSW waters; however they were not observed to move north of around Ulladulla. More fish were observed in 2001 and they ranged as far north as around Wollongong. By 2002, large numbers were sighted on the south coast and targeted fishing resumed. Most sardines were observed only as far north as Seal Rocks during 2002, however Paul Gibson, a beach fisher at Tweed heads, observed some sardines. An enormous increase in observed schools of sardines occurred in 2003 and they were observed to move into northern NSW and southern Queensland waters. This pattern has been repeated each year since.

Stock structure and movements of sardines is a priority area of research. A joint research project, between scientists from NSW DPI, SARDI, UNSW and the University of Adelaide, is currently being done to examine this (FRDC project 2009/021).

Otolith Shape

Differences in otolith shape have been used to discriminate fish stocks (Campana & Casselman, 1993). Geographically distinct stocks may experience different environmental factors, such as temperature and food availability, that may in turn affect growth rates (Campana & Casselman, 1993). Variation in growth rates produce corresponding variation in otolith microstructure and shape (Gauldie & Nelson, 1990). Various functions (e.g. Fourier series) may be used to describe the outlines of otolith shape and comparison of these functions between different samples of fish may be used to test hypotheses concerning stock discrimination (Campana & Casselman, 1993). It should be noted however, that some studies have concluded that otolith shape is not useful in discriminating stocks of small pelagic species (Castonguay *et al.*, 1991). Temporal variation in otolith shape and biases in sampling may, if not accounted for, result in incorrectly attributing significant differences in otolith shape to differences in stocks.

Preliminary analyses were done to examine the utility of using otolith shape to discriminate different groups of sardines. Twenty sardine otoliths were taken from each of two size classes of fish from both Iluka and Eden. The size classes of fish chosen were medium (13 cm FL) and large (14 to 16 cm FL). Each otolith was viewed at x25 magnification with a dissecting microscope using reflected light against a black background, sulcus side downwards and with the same orientation. Images were captured using the image analysis software Image J 1.381. Elliptic fourier descriptors were calculated for each otolith using the software 'SHAPE' (Iwata & Ukai, 2002). The program normalizes these descriptors to account for differences in size and orientation of the otoliths. Twenty harmonics, each consisting of 4 coefficients, were generated for each otolith. During the normalization process the first 3 coefficients degenerate to be 1, 0 and 0 and each otolith was therefore described by the remaining 77 coefficients. A comparison of otolith shape between locations and size classes was done using the statistical package PRIMER (Clarke & Gorley 2001). The data compared were the 77 Fourier coefficients from each otolith that were transformed to a Euclidean distance similarity matrix. Non-metric multidimensional scaling (MDS) was used to ordinate the matrices and analysis of similarity (ANOSIM) was used to test for statistical differences between groups.

The ANOSIM results found significant differences between locations and sizes of sardines (Table 4 and Fig. 16). There were no significant differences between medium and large sardines from Eden, but there were significant differences between medium and large sardines from Iluka. There were also significant differences between medium and large sardines from each location.

Table 4. Results from the ANOSIM comparing otolith shape (Fourier descriptors) for sardines from each location and size class. * denotes significantly different $P < 0.05$.

Sample statistic (Global R): 0.108			
Significance level of sample statistic: 0.1%			
Number of permutations: 999 (Random sample from a large number)			
Number of permuted statistics greater than or equal to Global R: 0			
<u>Pairwise Tests</u>			
Groups		R Statistic	Significance Level %
Iluka_medium	Iluka_large	0.18	0.1*
Iluka_medium	Eden_medium	0.071	2.5*
Iluka_medium	Eden_large	0.053	5.6
Iluka_large	Eden_medium	0.135	0.2*
Iluka_large	Eden_large	0.191	0.1*
Eden_medium	Eden_large	0.027	16.6

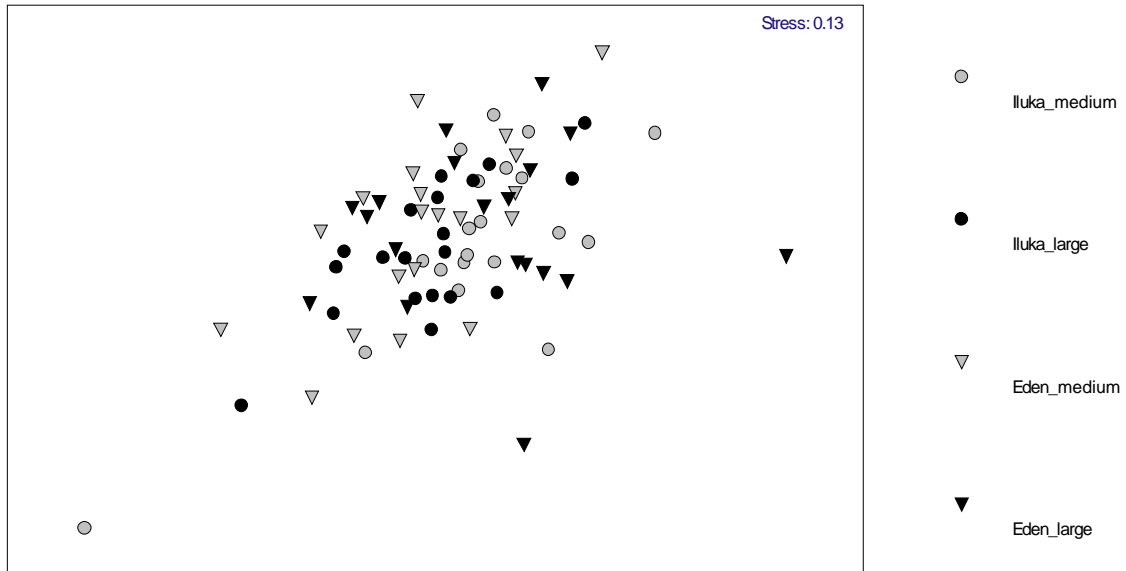


Figure 16. Two dimensional MDS ordination plot of the otolith shape Fourier descriptors for sardines.

These preliminary results are difficult to interpret. The lack of difference in otolith shape between size classes from Eden suggests that otolith shape may not change significantly with fish growth between 13 and 16 cm FL. The significant differences between size classes from Iluka and between samples from Iluka and Eden may reflect real differences in populations, or alternatively may be a result of either small sample sizes or variation with fish age rather than size. Medium fish from Eden and Iluka were not significantly different at $\alpha = 0.01$. Sardine otoliths appear to vary in shape considerably between fish from the same samples and suitable sample sizes to account for this individual variation need to be determined. The joint research project that has been funded by the FRDC will further examine the utility of using otolith shape to discriminate stocks.

7. BIOMASS ESTIMATES

Daily Egg Production Method

In 2006 NSW DPI contracted scientists from the South Australian Research and Development Institute (SARDI) to investigate the utility of using sardine eggs that were collected off eastern Australia during 2004 to estimate the spawning biomass during that time. The large project that collected these eggs was designed to use the Daily Egg Production Method (DEPM) to estimate the spawning biomass of blue mackerel *Scomber australasicus* and conducted ichthyoplankton surveys along the east coast from 2002 to 2004. The DEPM is based on the assumption that spawning biomass can be calculated from estimates of the number of eggs produced per day within the spawning area (mean daily egg production) and the average number of eggs spawned per day per unit mass of the population (mean daily fecundity).

The resulting report (Ward *et al.*, 2007) acknowledged the many assumptions that needed to be made to apply the DEPM to east coast sardines, but used a pragmatic approach to provide the most likely model outputs. This approach was considered preferable to not having any estimates of sardine spawning biomass along NSW that could assist in understanding the sustainability of the rapidly expanding commercial catch. The ichthyoplankton cruise from which sardine eggs were chosen to perform the assessment was done during July 2004. This time coincides with the time of peak spawning activity reported in southern Queensland and northern NSW (Staunton-Smith & Ward, 2000).

The study found that there was a high probability that the spawning biomass of sardines between Bundaberg in Queensland and Newcastle in NSW during July 2004 was between 25,000 and 35,000 tonnes, with a best estimate of 29,000 tonnes. This put the NSW harvest (~1,800 tonnes p.a.) at 6.2% of the best estimate of spawning biomass, and 5.1 and 7.2% of the most likely maximum and minimum estimates of spawning biomass, respectively. Exploitation rates (catch/spawning biomass) of less than 20% are generally considered to be sustainable for small pelagic fisheries (e.g. Rogers and Ward 2005).

This DEPM estimate provided some comfort that levels of harvest have been at sustainable levels; however there are many factors that suggest caution when using these estimates. The total annual harvest off the east coast (including NSW and Victorian state catches and Commonwealth catches off NSW waters) is currently (2010) likely to be > 3000 tonnes. This level is therefore around 12% of the most likely minimum 2004 spawning biomass estimate of 25,000 tonnes. Given the large population fluctuations that are known to occur for sardines, the applicability of spawning biomass estimates that are > 5 years old is questionable. If the east-coast harvest remains at current levels or increases then more up-to-date estimates of biomass are required.

How these updated estimates of biomass are acquired is yet to be determined. Given the fact that egg surveys and the DEPM are used in sardine fisheries around the world (Stratoudakis *et al.*, 2006) and throughout Australia and that the scientific expertise to do the analyses exists in Australia, the DEPM seems a logical choice. Before future egg surveys are done several important parameters will require improvement. Perhaps the most important of these concerns stock structure and variation in spawning times and areas with latitude. Without this knowledge it is not possible to design an egg survey to sample during the peak spawning time and throughout the spawning area. Other parameters that require improved and/or local knowledge include the adult spawning parameters (average weight of males and females, sex ratio, batch fecundity and spawning fraction) that were taken from studies done in other parts of Australia by Ward *et al.* (2007).

Acoustic surveys

Whilst the use of egg surveys and the DEPM of estimating the spawning biomass of small pelagic species is popular within Australia (Tasmania, South Australia and Western Australia), there are other methods of assessment that require consideration. For example, the biomass of sardines in South African waters has been assessed using hydroacoustic surveys each year since 1984 (Beckley & van der Lingen, 1999). The utility of using the east-coast Australian fishing vessels to provide estimates of school biomass via sonar observations requires further examination.

8. SUMMARY

The current NSW sardine fishery is unique in many ways and its assessment and management requires careful consideration.

Some fishers in NSW have identified the diurnal behaviour patterns of sardines and have developed highly efficient purse-seine operations to catch them. These catching operations appear to be capable of landing substantially bigger volumes of sardines if market demands increase. It would therefore be prudent to cap landings at levels that limit the risk of over-exploitation and promote the capture of sardines at their most economically profitable size. The difficulty, of course, is how to set these precautionary catch levels whilst allowing the industry to develop.

The retrospective spawning biomass estimate for 2004 was designed to be conservative and suggested that the annual harvest of close to 2000 tonnes was precautionary and sustainable. The east-coast harvest has since increased to be > 3000 tonnes and looks likely to expand further given the investment in infrastructure occurring in northern NSW. It is possible that the east-coast sardine stock in 2004 was still rebuilding following the 1998/99 mass mortality event given that sardines were only observed in large numbers in northern NSW during 2003. Such a model leads to the proposition that the DEPM assessment that was based on egg surveys in northern NSW and southern Queensland during 2004 was done on a rebuilding population and the current biomass is likely to be greater than during 2004. If so, then current levels of harvest remain conservative.

An updated biomass assessment is really required to help in setting management controls in this fishery. A repeat of the retrospective biomass estimate using improved egg sampling surveys could be done, but funding for such a survey would be required. Alternatively, some sort of harvest control rules could be developed. For example, it has been shown that sardine distributions are related to stock size (Watanabe *et al.*, 1997; Stratoudakis *et al.*, 2006) and observations of the changes in distribution and abundance of east-coast sardines following the 1998/99 mass mortality event support this model. Monitoring the abundance of sardines through the fishery in northern NSW during the main spawning season in that area may indicate any declines in stock size that could trigger catch caps. Any such harvest control rules would require discussions and agreement with industry. Fortunately there exist only a few purse-seine businesses in NSW that target sardines and a collaborative approach to assessments and management between NSW DPI and these industry members should be achievable.

It should be noted that the bulk of the NSW catch has historically been taken on the south coast of NSW and generally outside of the spawning season. The developing fishery on the north coast of NSW appears to operate on spawning aggregations of sardines and any impacts of this are unknown.

Sardines in NSW appear to mature at around 14 cm fork length and monitoring of landings in recent years indicates that the fishery has been targeting mostly sardines of mature sizes. This is seen as a positive trait of the fishery and any shift in targeting to sardines of immature sizes may be a risk to sustainability. Targeting is driven by market demands and it is possible that markets (e.g. for bait and aquaculture feed) may seek very small sardines. The selectivity of purse-seine nets allows the capture of very small fish and it will be important that monitoring of the sizes of sardines being landed is ongoing. This clearly requires the ongoing co-operation of industry.

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APPENDIX 1: RAW SARDINE BIOLOGICAL DATA USED IN THIS REPORT

Envelope ID	Sample Date	Location	Region	Sex	Fork Length (cm)	Body Weight (g)	Gonad Weight (g)	Gonad Stage	Fat Stage
Sn1	10/11/2003			Unknown	16	43.06			
Sn2	10/11/2003			Female	15.6	45.04	0.73		
Sn3	10/11/2003			Male	17.2	53.57	1.3		
Sn4	10/11/2003			Female	16.4	43.98	0.47		
Sn5	10/11/2003			Male	15.9	40.93	0.56		
Sn6	10/11/2003			Male	15.6	39.52	0.81		
Sn7	26/07/2004			Female	19	71.4	2.6		
Sn8	26/07/2004			Female	20	83.8	2.9		
Sn9	26/07/2004			Female	19.5	82.2	3.1		
Sn10	26/07/2004			Female	18.7	69.8	3.1		
Sn11	26/07/2004			Male	18.8	68.8	3.4		
Sn12	26/07/2004			Female	18.5	73.7	4.3		
Sn13	26/07/2004			Male	17.6	58.4	2.4		
Sn14	26/07/2004			Male	18.1	66.6	3.6		
Sn15	26/07/2004			Male	19.3	72.8	2.6		
Sn16	26/07/2004			Male	19.3	77.6	3.6		
Sn17	26/07/2004			Female	18.7	70.2	2.5		
Sn18	26/07/2004			Female	20.7	90.8	2		
Sn19	26/07/2004			Female	19.3	70.1	2.5		
Sn20	26/07/2004			Female	18.5	62.6	2.4		
Sn21	26/07/2004			Female	18.8	71.8	3.1		
Sn22	26/07/2004			Male	18.5	73.6	3.7		
Sn23	26/07/2004			Female	18	65.2	2.5		
Sn24	26/07/2004			Female	19.5	73.9	2.8		
Sn25	26/07/2004			Female	19.6	72.9	2.5		
Sn26	26/07/2004			Female	18.7	73.7	3.3		
Sn27	26/07/2004			Female	18.9	66.4	2		
Sn28	26/07/2004			Female	20.3	79.6	3		
Sn29	26/07/2004			Female	19.6	75.4	2.9		
Sn30	26/07/2004			Male	17.7	61.1	3.5		
Sn31	26/07/2004			Female	18.5	62.3	2.5		
Sn32	26/07/2004			Male	17.9	59.8	3.9		
Sn33	26/07/2004			Female	19.2	77.5	3.5		
Sn34	26/07/2004			Male	17.4	57.3	3.6		
Sn35	26/07/2004			Female	18.3	63.8	2.5		
Sn36	26/07/2004			Female	19.9	92.5	3.9		
Sn37	26/07/2004			Female	19	67.3	1.9		
Sn38	26/07/2004			Female	19.9	74.2	1.8		
Sn39	26/07/2004			Male	18	59.5	3.9		
Sn40	26/07/2004			Female	19.5	68.6	2.7		
Sn41	26/07/2004			Female	20.4	91.6	2.6		
Sn42	26/07/2004			Male	17.9	64	3.4		
Sn43	26/07/2004			Male	17.7	54.5	1.8		
Sn44	26/07/2004			Female	18.7	66.9	2		
Sn45	26/07/2004			Female	20	79.7	3.6		
Sn46	26/07/2004			Female	18.5	71	2		
Sn47	26/07/2004			Female	18.8	66.9	1.9		
Sn48	26/07/2004			Male	18.7	63.4	2.5		
Sn49	26/07/2004			Female	20.5	82.1	3		
Sn50	26/07/2004			Female	19.5	76	3.8		
Sn51	26/07/2004			Male	16.8	42.6	2.1		
Sn199	21/07/2005	EDEN	South	Female	21.2	102.4	5.2	3	
Sn200	21/07/2005	EDEN	South	Male	17.6	61.1	1.1	3	
Sn201	21/07/2005	EDEN	South	Female	19.3	79.3	4.3	3	
Sn202	21/07/2005	EDEN	South	Female	19.7	90.6	1.9	5	
Sn203	21/07/2005	EDEN	South	Female	20	88.6	5.5	3	
Sn204	21/07/2005	EDEN	South	Male	19.5	73.3	2.3	3	
Sn205	21/07/2005	EDEN	South	Male	18.2	68.2	3.7	3	
Sn206	21/07/2005	EDEN	South	Female	17.9	58.9	1.5	3	
Sn207	21/07/2005	EDEN	South	Female	18.6	60.8	1.6	5	
Sn208	21/07/2005	EDEN	South	Female	20.7	105.7	6	3	
Sn209	21/07/2005	EDEN	South	Female	20.8	94.4	2.2	5	
Sn210	21/07/2005	EDEN	South	Male	18.6	70	2.4	3	
Sn211	21/07/2005	EDEN	South	Female	20	86	3.4	3	
Sn212	21/07/2005	EDEN	South	Female	17.6	58.5	1.6	3	
Sn213	21/07/2005	EDEN	South	Male	18.9	70.8	2.9	3	
Sn214	21/07/2005	EDEN	South	Male	18.5	62.6	2.5	3	
Sn215	21/07/2005	EDEN	South	Male	17.9	63	2.5	3	
Sn216	21/07/2005	EDEN	South	Female	17.7	60	1.9	3	
Sn217	21/07/2005	EDEN	South	Female	18.2	62.1	1.3	2	
Sn218	21/07/2005	EDEN	South	Male	19.9	81.9	4.6	3	
Sn219	21/07/2005	EDEN	South	Male	21	77.1	3	3	
Sn220	21/07/2005	EDEN	South	Female	18.7	71	0.8	2	
Sn221	21/06/2005	EDEN	South	Female	20.9	96.6	4.1	3	
Sn222	21/06/2005	EDEN	South	Female	18	55.6	0.5	2	
Sn223	21/06/2005	EDEN	South	Male	15.9	40	0.8	3	
Sn224	21/06/2005	EDEN	South	Female	16.2	44.9	1.3	3	
Sn225	21/06/2005	EDEN	South	Male	17.7	59.7	0.7	3	
Sn226	21/06/2005	EDEN	South	Female	16.6	48.9	0.7	2	
Sn227	21/06/2005	EDEN	South	Female	18.1	61	0.6	2	
Sn228	21/06/2005	EDEN	South	Female	16.9	47.5	1	2	

Envelope ID	Sample Date	Location	Region	Sex	Fork Length (cm)	Body Weight (g)	Gonad Weight (g)	Gonad Stage	Fat Stage
Sn229	21/06/2005	EDEN	South	Male	17.8	58	0.9	3	
Sn230	21/06/2005	EDEN	South	Female	17.4	57.9	1	3	
Sn231	21/06/2005	EDEN	South	Female	18.6	69.7	0.6	2	
Sn232	21/06/2005	EDEN	South	Female	19.7	78.6	0.8	2	
Sn233	21/06/2005	EDEN	South	Male	16.6	49.5	0.6	2	
Sn234	21/06/2005	EDEN	South	Male	18.1	62	1.4	3	
Sn235	21/06/2005	EDEN	South	Female	17.5	54.7	0.7	2	
Sn236	21/06/2005	EDEN	South	Female	17.9	62.4	2.4	3	
Sn237	21/06/2005	EDEN	South	Female	20.2	80.9	1.7	3	
Sn238	21/06/2005	EDEN	South	Male	16.4	50.7	1.2	3	
Sn239	21/06/2005	EDEN	South	Male	19.6	82.4	1.2	3	
Sn240	21/06/2005	EDEN	South	Female	19.3	74.5	2	3	
Sn241	21/06/2005	EDEN	South	Male	19.5	76.3	1.3	3	
Sn242	21/06/2005	EDEN	South	Female	19.8	81	1.6	2	
Sn243	21/06/2005	EDEN	South	Female	20.7	85.4	0.8	2	
Sn244	21/06/2005	EDEN	South	Female	18.8	66.7	0.5	2	
Sn245	21/06/2005	EDEN	South	Female	17.8	55	0.6	2	
Sn246	21/06/2005	EDEN	South	Female	18.2	70.8	3.3	3	
Sn247	21/06/2005	EDEN	South	Male	16.7	49	1.5	3	
Sn248	6/07/2005	EDEN	South	Female	21	88.6	1.2	2	
Sn249	6/07/2005	EDEN	South	Male	16	38.9	0.6	2	
Sn250	6/07/2005	EDEN	South	Female	18.6	65.5	2.3	3	
Sn251	6/07/2005	EDEN	South	Female	18.9	70	0.6	2	
Sn252	6/07/2005	EDEN	South	Female	20	81.9	1.8	3	
Sn253	6/07/2005	EDEN	South	Male	18.8	75.6	2	3	
Sn254	6/07/2005	EDEN	South	Female	19.1	74.8	3.5	3	
Sn255	6/07/2005	EDEN	South	Female	17.5	58.4	2.7	3	
Sn256	6/07/2005	EDEN	South	Female	17.5	58.2	1.3	3	
Sn257	6/07/2005	EDEN	South	Female	16.5	46.8	0.9	3	
Sn258	6/07/2005	EDEN	South	Female	21.4	96.8	4.1	3	
Sn259	6/07/2005	EDEN	South	Female	20.9	95.8	1.1	2	
Sn260	29/06/2005	EDEN	South	Female	16.5	41.8	1.5	3	
Sn261	29/06/2005	EDEN	South	Female	20.3	89.4	1.6	2	
Sn262	29/06/2005	EDEN	South	Female	20.4	91.9	1.1	2	
Sn263	29/06/2005	EDEN	South	Female	20.7	88.8	0.8	2	
Sn264	29/06/2005	EDEN	South	Female	20.6	98.1	1.9	2	
Sn265	29/06/2005	EDEN	South	Female	16	41.6	1.1	3	
Sn266	29/06/2005	EDEN	South	Female	17.4	58.3	0.5	2	
Sn267	29/06/2005	EDEN	South	Female	19	66.8	0.6	2	
Sn268	29/06/2005	EDEN	South	Male	15	35.1	0.8	2	
Sn269	29/06/2005	EDEN	South	Male	18.2	62.2	0.8	2	
Sn270	29/06/2005	EDEN	South	Female	18.1	65.2	0.9	2	
Sn271	29/06/2005	EDEN	South	Female	17.4	55.9	0.5	2	
Sn272	29/06/2005	EDEN	South	Female	16	40.5	1.1	3	
Sn273	29/06/2005	EDEN	South	Female	18.5	67.7	0.5	2	
Sn274	29/06/2005	EDEN	South	Male	17.7	56.9	0.3	2	
Sn275	29/06/2005	EDEN	South	Male	17	54.1	0.5	2	
Sn276	29/06/2005	EDEN	South	Male	14.8	34.3	1.1	3	
Sn277	29/06/2005	EDEN	South	Male	16.3	42.7	1.1	3	
Sn278	29/06/2005	EDEN	South	Female	16.8	47.1	2.5	3	
Sn279	29/06/2005	EDEN	South	Female	15.5	38.4	0.3	2	
Sn280	29/06/2005	EDEN	South	Male	15.9	47.5	1.4	3	
Sn281	29/06/2005	EDEN	South	Female	15.5	35.6	0.7	2	
Sn282	29/06/2005	EDEN	South	Female	14.7	34	2	3	
Sn283	29/06/2005	EDEN	South	Male	18.3	60.6	1.3	3	
Sn284	29/06/2005	EDEN	South	Female	16.5	43.2	0.6	2	
Sn285	29/06/2005	EDEN	South	Female	15.4	36.5	2.1	3	
Sn286	29/06/2005	EDEN	South	Male	14.5	29.9	0.6	2	
Sn287	11/08/2005	EDEN	South	Male	18.7	74.2	2.9	3	
Sn288	11/08/2005	EDEN	South	Male	18	68.4	1.2	3	
Sn289	11/08/2005	EDEN	South	Female	16.3	50.1	1.3	3	
Sn290	11/08/2005	EDEN	South	Female	18.7	73.3	1.7	3	
Sn291	11/08/2005	EDEN	South	Female	18.4	73.3	2.9	3	
Sn292	11/08/2005	EDEN	South	Female	16.2	48.5	0.9	3	
Sn293	11/08/2005	EDEN	South	Male	17.5	59.5	1.6	3	
Sn294	11/08/2005	EDEN	South	Female	15.2	38.4	0.6	3	
Sn295	11/08/2005	EDEN	South	Female	19.5	84.9	2.1	3	
Sn296	11/08/2005	EDEN	South	Female	16.1	49.8	2.2	3	
Sn297	11/08/2005	EDEN	South	Female	18.3	68.4	0.6	2	
Sn298	11/08/2005	EDEN	South	Female	18.3	69.2	1.1	3	
Sn299	11/08/2005	EDEN	South	Female	18.5	74	1.3	3	
Sn300	11/08/2005	EDEN	South	Male	16.5	48.8	0.6	3	
Sn301	11/08/2005	EDEN	South	Male	18.4	69.3	2.3	3	
Sn302	11/08/2005	EDEN	South	Female	18.5	73.7	3.2	3	
Sn303	11/08/2005	EDEN	South	Female	16.1	43.8	1.2	3	
Sn304	11/08/2005	EDEN	South	Female	15.9	42.7	0.7	2	
Sn305	26/07/2005	EDEN	South	Male	17.6	64.1	1.3	2	
Sn306	26/07/2005	EDEN	South	Female	20.9	102.6	3.6	3	
Sn307	26/07/2005	EDEN	South	Female	15.8	41.1	0.8	3	
Sn308	26/07/2005	EDEN	South	Male	17.6	59.2	1.2	3	
Sn309	26/07/2005	EDEN	South	Female	19.5	75.4	2.5	3	
Sn310	26/07/2005	EDEN	South	Male	16.4	49.7	0.9	3	
Sn311	26/07/2005	EDEN	South	Female	17.3	58.2	1.3	3	
Sn312	26/07/2005	EDEN	South	Female	21.4	106.2	3	3	
Sn313	26/07/2005	EDEN	South	Male	15.8	39.5	1.1	3	
Sn314	26/07/2005	EDEN	South	Female	17.5	61.7	2.1	3	
Sn315	26/07/2005	EDEN	South	Female	17	53.1	1.8	3	
Sn316	26/07/2005	EDEN	South	Female	18.3	67.7	2.4	3	
Sn317	26/07/2005	EDEN	South	Female	18	61	1.4	3	
Sn318	26/07/2005	EDEN	South	Male	17.7	67.9	2.1	3	
Sn319	26/07/2005	EDEN	South	Female	19.5	78.5	2.2	3	

Envelope ID	Sample Date	Location	Region	Sex	Fork Length (cm)	Body Weight (g)	Gonad Weight (g)	Gonad Stage	Fat Stage
Sn320	26/07/2005	EDEN	South	Female	20.4	87	2.8	3	
Sn321	26/07/2005	EDEN	South	Male	20.8	95.7	2.9	3	
Sn322	26/07/2005	EDEN	South	Female	19.3	79.9	2.3	3	
Sn323	26/07/2005	EDEN	South	Female	18.4	66.4	1.8	3	
Sn324	26/07/2005	EDEN	South	Female	19.4	77.9	3.2	3	
Sn325	26/07/2005	EDEN	South	Female	18	61.6	2.6	3	
Sn326	26/07/2005	EDEN	South	Female	21.2	100	2.4	3	
Sn327	26/07/2005	EDEN	South	Female	19.1	70.8	1.7	3	
Sn328	26/07/2005	EDEN	South	Female	17.5	57.8	1.1	3	
Sn329	26/07/2005	EDEN	South	Female	18.5	67.4	1.7	3	
Sn330	26/07/2005	EDEN	South	Female	17.8	60.7	3.1	3	
Sn331	26/07/2005	EDEN	South	Female	16.8	49.8	2	3	
Sn332	26/07/2005	EDEN	South	Female	18.7	67.5	2.3	3	
Sn333	26/07/2005	EDEN	South	Female	17	52.9	0.5	2	
Sn334	26/07/2005	EDEN	South	Male	15.4	39.4	1.1	3	
Sn335	26/07/2005	EDEN	South	Female	16.3	47.1	1.8	3	
Sn336	26/07/2005	EDEN	South	Female	15.5	40.5	1.3	3	
Sn337	26/07/2005	EDEN	South	Male	15.8	41.8	1.3	3	
Sn338	26/07/2005	EDEN	South	Female	16.2	45.6	1.9	3	
Sn339	26/07/2005	EDEN	South	Male	15.3	37.6	1.5	3	
Sn340	26/07/2005	EDEN	South	Female	15	37	1.9	3	
Sn341	26/07/2005	EDEN	South	Female	14.5	33.4	1.3	3	
Sn342	26/07/2005	EDEN	South	Male	16.1	42.8	1.1	3	
Sn343	26/07/2005	EDEN	South	Female	15.5	40.5	1.4	3	
Sn344	26/07/2005	EDEN	South	Female	15.6	40.5	2	3	
Sn345	26/07/2005	EDEN	South	Male	15.5	38.4	0.9	3	
Sn346	10/06/2005	EDEN	South	Female	19.4	94.8	2.7	3	
Sn347	10/06/2005	EDEN	South	Female	21.3	106.7	2.3	3	
Sn348	10/06/2005	EDEN	South	Female	17.7	58.2	0.6	2	
Sn349	10/06/2005	EDEN	South	Male	17.7	51.4	0.3	2	
Sn350	10/06/2005	EDEN	South	Female	17.5	59.4	0.6	2	
Sn351	10/06/2005	EDEN	South	Female	17.1	56.9	0.5	2	
Sn352	10/06/2005	EDEN	South	Female	20.4	88.1	1.6	3	
Sn353	10/06/2005	EDEN	South	Male	18.8	69.3	2.8	3	
Sn354	10/06/2005	EDEN	South	Female	19.2	74	1.8	3	
Sn355	10/06/2005	EDEN	South	Female	17.7	59.6	1	3	
Sn356	10/06/2005	EDEN	South	Male	19.8	86.2	3	4	
Sn357	10/06/2005	EDEN	South	Female	18.3	64.4	1.3	3	
Sn358	10/06/2005	EDEN	South	Female	17.9	63.9	1.9	3	
Sn359	10/06/2005	EDEN	South	Female	20.6	96.9	2.2	3	
Sn360	10/06/2005	EDEN	South	Male	16.3	45.6	2.1	3	
Sn361	10/06/2005	EDEN	South	Female	17.1	56.1	0.5	2	
Sn362	10/06/2005	EDEN	South	Female	17.1	47.9	1	2	
Sn363	10/06/2005	EDEN	South	Male	15.9	40.2	2.2	3	
Sn364	10/06/2005	EDEN	South	Female	17.9	58.2	3.1	3	
Sn365	10/06/2005	EDEN	South	Male	17.5	56.8	0.4	2	
Sn366	4/12/2005	GREENWELL POINT	South	Unknown/Juvenile	11	12.8	0.1	1	
Sn367	4/12/2005	GREENWELL POINT	South	Unknown/Juvenile	9.9	9.6	0.1	1	
Sn368	4/12/2005	GREENWELL POINT	South	Unknown/Juvenile	10.7	11.6	0.1	1	
Sn369	4/12/2005	GREENWELL POINT	South	Unknown/Juvenile	11.1	12.7	0.1	1	
Sn370	4/12/2005	GREENWELL POINT	South	Unknown/Juvenile	12	18	0.1	1	
Sn371	4/12/2005	GREENWELL POINT	South	Unknown/Juvenile	9.9	9.4	0.1	1	
Sn372	4/12/2005	GREENWELL POINT	South	Unknown/Juvenile	9.7	8.7	0.1	1	
Sn373	4/12/2005	GREENWELL POINT	South	Unknown/Juvenile	10.6	10.6	0.1	1	
Sn374	4/12/2005	GREENWELL POINT	South	Unknown/Juvenile	10.8	12.5	0.1	1	
Sn375	4/12/2005	GREENWELL POINT	South	Unknown/Juvenile	11	11.9	0.1	1	
Sn376	4/12/2005	GREENWELL POINT	South	Unknown/Juvenile	8.9	6.5	0.1	1	
Sn377	4/12/2005	GREENWELL POINT	South	Unknown/Juvenile	11	12.2	0.1	1	
Sn378	4/12/2005	GREENWELL POINT	South	Unknown/Juvenile	11.2	13.9	0.1	1	
Sn379	4/12/2005	GREENWELL POINT	South	Unknown/Juvenile	10.2	10.8	0.1	1	
Sn380	4/12/2005	GREENWELL POINT	South	Unknown/Juvenile	11	12	0.1	1	
Sn381	4/12/2005	GREENWELL POINT	South	Unknown/Juvenile	10.2	10.4	0.1	1	
Sn382	4/12/2005	GREENWELL POINT	South	Unknown/Juvenile	10.3	10.3	0.1	1	
Sn383	4/12/2005	GREENWELL POINT	South	Unknown/Juvenile	10.4	11	0.1	1	
Sn384	4/12/2005	GREENWELL POINT	South	Unknown/Juvenile	10.6	11.5	0.1	1	
Sn385	4/12/2005	GREENWELL POINT	South	Unknown/Juvenile	10.7	11.4	0.1	1	
Sn386	19/06/2005	WOLLONGONG	South	Male	18.5	66.5	1.4	3	
Sn387	19/06/2005	WOLLONGONG	South	Female	18.1	77.8	2.5	4	
Sn388	19/06/2005	WOLLONGONG	South	Female	18.5	71.6	1.1	3	
Sn389	19/06/2005	WOLLONGONG	South	Female	18.6	74.1	3	4	
Sn390	19/06/2005	WOLLONGONG	South	Male	17.4	58.8	1.5	3	
Sn391	19/06/2005	WOLLONGONG	South	Male	14.7	36.6	1.2	3	
Sn392	19/06/2005	WOLLONGONG	South	Female	18.4	70.2	2.1	4	
Sn393	19/06/2005	WOLLONGONG	South	Male	17.3	57.4	3	3	
Sn394	19/06/2005	WOLLONGONG	South	Female	19	72.4	1.2	5	
Sn395	19/06/2005	WOLLONGONG	South	Female	17.9	64.1	2	4	
Sn396	19/06/2005	WOLLONGONG	South	Female	20.2	84.2	4.3	4	
Sn397	19/06/2005	WOLLONGONG	South	Male	14.6	30.8	0.9	3	
Sn398	19/06/2005	WOLLONGONG	South	Female	15	35.9	1.7	4	
Sn399	19/06/2005	WOLLONGONG	South	Female	16.2	47.1	2	4	
Sn400	19/06/2005	WOLLONGONG	South	Male	14.5	29.6	0.9	3	
Sn401	19/06/2005	WOLLONGONG	South	Male	18.3	72.2	2.4	3	
Sn402	19/06/2005	WOLLONGONG	South	Male	18.8	66.4	1.4	3	
Sn403	19/06/2005	WOLLONGONG	South	Unknown/Juvenile	15.2	42.8	0.1	1	
Sn404	19/06/2005	WOLLONGONG	South	Female	16.3	47.4	2.5	4	
Sn405	19/06/2005	WOLLONGONG	South	Male	15.4	38.5	1.2	3	
Sn406	19/06/2005	WOLLONGONG	South	Female	14.6	31.2	1.9	4	
Sn407	19/06/2005	WOLLONGONG	South	Male	14	29.2	0.8	3	
Sn408	19/06/2005	WOLLONGONG	South	Female	15.2	38.9	1.7	4	
Sn409	19/06/2005	WOLLONGONG	South	Male	14.6	30.8	1.4	3	
Sn410	19/06/2005	WOLLONGONG	South	Female	14.1	28.7	1.3	4	

Envelope ID	Sample Date	Location	Region	Sex	Fork Length (cm)	Body Weight (g)	Gonad Weight (g)	Gonad Stage	Fat Stage
Sn411	21/11/2005	EDEN	South	Female	21.9	120.2	6.5	3	
Sn412	21/11/2005	EDEN	South	Male	16.2	55.4	1.4	2	
Sn413	21/11/2005	EDEN	South	Unknown/Juvenile	15	37.2	0.1	1	
Sn414	21/11/2005	EDEN	South	Male	15.7	44	0.7	2	
Sn415	21/11/2005	EDEN	South	Male	16.7	59.1	1.6	2	
Sn416	21/11/2005	EDEN	South	Female	19.1	77.8	1.8	3	
Sn417	21/11/2005	EDEN	South	Female	18.8	82.5	4	3	
Sn418	21/11/2005	EDEN	South	Male	18.3	74	2.5	3	
Sn419	21/11/2005	EDEN	South	Female	19	90.5	1.7	3	
Sn420	21/11/2005	EDEN	South	Female	20.1	95.5	5.5	3	
Sn421	21/11/2005	EDEN	South	Unknown/Juvenile	14.4	31	0.1	1	
Sn422	21/11/2005	EDEN	South	Male	16.7	54.7	1.7	3	
Sn423	21/11/2005	EDEN	South	Male	17.1	59.1	1.4	3	
Sn424	21/11/2005	EDEN	South	Female	18.9	81.8	2	3	
Sn425	21/11/2005	EDEN	South	Female	19.1	83.6	3.5	3	
Sn426	21/11/2005	EDEN	South	Female	17.7	69.2	2.8	3	
Sn427	21/11/2005	EDEN	South	Female	16.2	47.2	2.3	3	
Sn428	21/11/2005	EDEN	South	Female	16.8	58.3	3.2	3	
Sn429	21/11/2005	EDEN	South	Unknown/Juvenile	14.4	32.7	0.1	1	
Sn430	21/11/2005	EDEN	South	Unknown/Juvenile	15.2	37.2	0.1	1	
Sn431	21/11/2005	EDEN	South	Female	20	95.3	4.1	3	
Sn432	20/03/2006	EDEN	South	Female	14.2	28.8	0.1	2	
Sn433	20/03/2006	EDEN	South	Juvenile	14.2	27	0.1	1	
Sn434	20/03/2006	EDEN	South	Female	13.8	25.9	0.1	1	
Sn435	20/03/2006	EDEN	South	Juvenile	13.5	22.6	0.1	1	
Sn436	20/03/2006	EDEN	South	Juvenile	13.8	26.9	0.1	1	
Sn437	20/03/2006	EDEN	South	Female	13.7	25.3	0.1	2	
Sn438	20/03/2006	EDEN	South	Female	13.8	25.7	0.1	2	
Sn439	20/03/2006	EDEN	South	Female	13.5	23.6	0.1	1	
Sn440	20/03/2006	EDEN	South	Juvenile	13.2	22.9	0.1	1	
Sn441	20/03/2006	EDEN	South	Juvenile	13.6	26.3	0.1	1	
Sn442	20/03/2006	EDEN	South	Female	13.7	25	0.1	1	
Sn443	20/03/2006	EDEN	South	Juvenile	13.5	24.7	0.1	1	
Sn444	20/03/2006	EDEN	South	Female	14.6	32.7	0.1	2	
Sn445	20/03/2006	EDEN	South	Juvenile	13.9	25.2	0.1	1	
Sn446	20/03/2006	EDEN	South	Female	14.2	25.6	0.1	2	
Sn447	20/03/2006	EDEN	South	Female	13.6	25.8	0.1	2	
Sn448	20/03/2006	EDEN	South	Juvenile	13	23	0.1	1	
Sn449	20/03/2006	EDEN	South	Juvenile	13.7	24.7	0.1	1	
Sn450	20/03/2006	EDEN	South	Juvenile	13.5	24.3	0.1	1	
Sn451	20/03/2006	EDEN	South	Juvenile	14.2	26.7	0.1	1	
Sn452	20/03/2006	EDEN	South	Juvenile	14.1	27.9	0.1	1	
Sn453	20/03/2006	EDEN	South	Juvenile	13.9	26.5	0.1	1	
Sn454	20/03/2006	EDEN	South	Juvenile	14.2	26.2	0.1	1	
Sn455	20/03/2006	EDEN	South	Juvenile	13.5	24.2	0.1	1	
Sn456	20/03/2006	EDEN	South	Female	13.2	32.2	0.1	2	
Sn457	20/03/2006	EDEN	South	Juvenile	14	26.8	0.1	1	
Sn458	20/03/2006	EDEN	South	Female	13.5	26.1	0.1	2	
Sn459	20/03/2006	EDEN	South	Male	13.7	23.6	0.1	1	
Sn460	20/03/2006	EDEN	South	Female	13.5	26.1	0.1	1	
Sn461	20/03/2006	EDEN	South	Juvenile	13.9	26.3	0.1	1	
Sn462	20/03/2006	EDEN	South	Juvenile	13.2	22.8	0.1	1	
Sn463	20/03/2006	EDEN	South	Female	13.6	25	0.1	1	
Sn464	20/03/2006	EDEN	South	Juvenile	14.4	29	0.1	1	
Sn465	20/03/2006	EDEN	South	Juvenile	13.6	27.6	0.1	1	
Sn466	20/03/2006	EDEN	South	Female	14.5	30.3	0.1	2	
Sn467	20/03/2006	EDEN	South	Juvenile	13.6	25.6	0.1	1	
Sn468	20/03/2006	EDEN	South	Juvenile	13.6	25	0.1	1	
Sn469	20/03/2006	EDEN	South	Juvenile	13.7	25.9	0.1	1	
Sn470	20/03/2006	EDEN	South	Female	13.8	25.7	0.1	2	
Sn471	20/03/2006	EDEN	South	Female	14.4	29.4	0.1	1	
Sn472	20/03/2006	EDEN	South	Juvenile	13.7	26.8	0.1	1	
Sn473	20/03/2006	EDEN	South	Female	13.8	25.5	0.1	2	
Sn474	20/03/2006	EDEN	South	Female	13.3	25.1	0.1	2	
Sn475	20/03/2006	EDEN	South	Juvenile	13.7	24.4	0.1	1	
Sn476	20/03/2006	EDEN	South	Juvenile	13.7	25.5	0.1	1	
Sn477	20/03/2006	EDEN	South	Female	13.1	23	0.1	2	
Sn478	20/03/2006	EDEN	South	Female	13.5	23.7	0.1	2	
Sn479	20/03/2006	EDEN	South	Juvenile	13.6	26.4	0.1	1	
Sn480	20/03/2006	EDEN	South	Male	15	33.1	0.1	2	
Sn481	20/03/2006	EDEN	South	Juvenile	13.5	23.6	0.1	1	
Sn482	7/12/2005	EDEN	South	Female	21.1	117.2	5.7	3	
Sn483	7/12/2005	EDEN	South	Male	19.9	101	4.8	3	
Sn484	7/12/2005	EDEN	South	Male	18.5	86.2	3.8	3	
Sn485	7/12/2005	EDEN	South	Female	18.4	77.4	1.6	3	
Sn486	7/12/2005	EDEN	South	Female	18.5	80.8	3.3	3	
Sn487	7/12/2005	EDEN	South	Female	19.4	87.9	3.2	3	
Sn488	7/12/2005	EDEN	South	Male	18.2	76.1	2.8	3	
Sn489	7/12/2005	EDEN	South	Female	17.4	59.9	4	3	
Sn490	7/12/2005	EDEN	South	Female	18.6	85.5	3.6	3	
Sn491	7/12/2005	EDEN	South	Female	18.5	75.7	3.1	3	
Sn492	7/12/2005	EDEN	South	Female	19.1	81.2	3.3	3	
Sn493	7/12/2005	EDEN	South	Female	20	95.1	3.2	3	
Sn494	7/12/2005	EDEN	South	Female	18.5	74.8	2.7	3	
Sn495	7/12/2005	EDEN	South	Female	20.5	104.9	6.4	3	
Sn496	7/12/2005	EDEN	South	Female	20	102.6	4.6	3	
Sn497	7/12/2005	EDEN	South	Male	17.6	72.4	2.2	3	
Sn498	7/12/2005	EDEN	South	Female	18.6	83.9	2.4	3	
Sn499	7/12/2005	EDEN	South	Female	17.6	69.5	3.5	3	
Sn500	7/12/2005	EDEN	South	Male	19.6	93.7	5.1	3	
Sn501	6/03/2006	EDEN	South	Juvenile	13.5	25.2	0.1	1	

Envelope ID	Sample Date	Location	Region	Sex	Fork Length (cm)	Body Weight (g)	Gonad Weight (g)	Gonad Stage	Fat Stage
Sn502	6/03/2006	EDEN	South	Female	13.8	25	0.1	1	
Sn503	6/03/2006	EDEN	South	Juvenile	13.7	25.1	0.1	1	
Sn504	6/03/2006	EDEN	South	Juvenile	13.7	25.5	0.1	1	
Sn505	6/03/2006	EDEN	South	Male	13.6	26.4	0.1	1	
Sn506	6/03/2006	EDEN	South	Female	13.8	26.7	0.1	2	
Sn507	6/03/2006	EDEN	South	Male	14.1	27.5	0.1	1	
Sn508	6/03/2006	EDEN	South	Juvenile	13.5	24.5	0.1	1	
Sn509	6/03/2006	EDEN	South	Female	13.9	25.2	0.1	1	
Sn510	6/03/2006	EDEN	South	Female	14.4	29	0.1	1	
Sn511	6/03/2006	EDEN	South	Female	14.2	27.2	0.1	2	
Sn512	6/03/2006	EDEN	South	Juvenile	13.8	30.4	0.1	1	
Sn513	6/03/2006	EDEN	South	Juvenile	13.6	23.5	0.1	1	
Sn514	6/03/2006	EDEN	South	Female	13.8	25	0.1	2	
Sn515	6/03/2006	EDEN	South	Female	13.3	23.9	0.1	1	
Sn516	6/03/2006	EDEN	South	Juvenile	13.6	25.7	0.1	1	
Sn517	6/03/2006	EDEN	South	Juvenile	14.1	27.6	0.1	1	
Sn518	6/03/2006	EDEN	South	Female	13.9	27.2	0.1	2	
Sn519	6/03/2006	EDEN	South	Female	13.7	25.4	0.1	1	
Sn520	6/03/2006	EDEN	South	Male	13.5	24	0.1	1	
Sn521	6/03/2006	EDEN	South	Juvenile	13.2	25.9	0.1	1	
Sn522	6/03/2006	EDEN	South	Juvenile	13.2	25.2	0.1	1	
Sn523	6/03/2006	EDEN	South	Female	14	28.7	0.1	1	
Sn524	6/03/2006	EDEN	South	Juvenile	12.9	25	0.1	1	
Sn525	6/03/2006	EDEN	South	Male	13.7	26.3	0.1	1	
Sn526	6/03/2006	EDEN	South	Female	14	27.9	0.1	1	
Sn527	6/03/2006	EDEN	South	Female	13.8	25.9	0.1	1	
Sn528	6/03/2006	EDEN	South	Juvenile	13.2	22.6	0.1	1	
Sn529	6/03/2006	EDEN	South	Juvenile	12.9	21.6	0.1	1	
Sn530	6/03/2006	EDEN	South	Female	13.6	25.1	0.1	2	
Sn531	6/03/2006	EDEN	South	Female	14.4	27.6	0.1	1	
Sn532	6/03/2006	EDEN	South	Female	14.3	27.7	0.1	2	
Sn533	6/03/2006	EDEN	South	Juvenile	14	27.4	0.1	1	
Sn534	6/03/2006	EDEN	South	Female	14.3	30.5	0.1	1	
Sn535	6/03/2006	EDEN	South	Female	14.1	27	0.1	1	
Sn536	6/03/2006	EDEN	South	Juvenile	13.6	24.2	0.1	1	
Sn537	6/03/2006	EDEN	South	Juvenile	13.4	24	0.1	1	
Sn538	6/03/2006	EDEN	South	Juvenile	14	27.7	0.1	1	
Sn539	6/03/2006	EDEN	South	Female	14	27.7	0.1	1	
Sn540	6/03/2006	EDEN	South	Female	13.9	26.6	0.1	2	
Sn541	6/03/2006	EDEN	South	Juvenile	13.5	24.7	0.1	1	
Sn542	6/03/2006	EDEN	South	Female	13.7	28.7	0.1	1	
Sn543	6/03/2006	EDEN	South	Juvenile	13.3	25.9	0.1	1	
Sn544	6/03/2006	EDEN	South	Female	13.4	23.3	0.1	1	
Sn545	6/03/2006	EDEN	South	Female	13.9	26.8	0.1	2	
Sn546	6/03/2006	EDEN	South	Female	14.2	26.9	0.1	2	
Sn547	6/03/2006	EDEN	South	Juvenile	13.4	23.6	0.1	1	
Sn548	6/03/2006	EDEN	South	Juvenile	14.1	25.6	0.1	1	
Sn549	6/03/2006	EDEN	South	Female	13.6	23.9	0.1	2	
Sn550	6/03/2006	EDEN	South	Female	14.2	28.8	0.1	1	
Sn551	8/02/2006	EDEN	South	Female	15.1	36.6	1.4	3	
Sn552	8/02/2006	EDEN	South	Male	13.3	24	0.4	2	
Sn553	8/02/2006	EDEN	South	Male	13.8	26.5	0.7	2	
Sn554	8/02/2006	EDEN	South	Female	13.2	25.4	0.4	3	
Sn555	8/02/2006	EDEN	South	Female	13	25.3	0.1	1	
Sn556	8/02/2006	EDEN	South	Male	12.9	23.9	0.1	2	
Sn557	8/02/2006	EDEN	South	Female	13.4	27.6	0.5	2	
Sn558	8/02/2006	EDEN	South	Juvenile	12.4	20.5	0.1	1	
Sn559	8/02/2006	EDEN	South	Male	15.3	42	2.2	3	
Sn560	8/02/2006	EDEN	South	Male	14.9	36.4	0.6	2	
Sn561	8/02/2006	EDEN	South	Male	13.6	17.2	0.1	1	
Sn562	8/02/2006	EDEN	South	Juvenile	12.2	20.4	0.1	1	
Sn563	8/02/2006	EDEN	South	Male	14.6	35.8	0.1	1	
Sn564	8/02/2006	EDEN	South	Male	15.5	45.2	0.8	2	
Sn565	8/02/2006	EDEN	South	Juvenile	11.9	18.1	0.1	1	
Sn566	8/02/2006	EDEN	South	Male	12.7	24	0.4	2	
Sn567	8/02/2006	EDEN	South	Male	12.3	20.7	0.1	1	
Sn568	8/02/2006	EDEN	South	Female	15.4	42.4	0.8	3	
Sn569	8/02/2006	EDEN	South	Male	15.6	47	1.6	3	
Sn570	8/02/2006	EDEN	South	Female	15.5	41.3	1.2	3	
Sn571	8/02/2006	EDEN	South	Female	13.2	26.9	0.5	3	
Sn572	8/02/2006	EDEN	South	Female	13.8	30.6	0.3	2	
Sn573	8/02/2006	EDEN	South	Male	13.5	26.5	0.4	2	
Sn574	8/02/2006	EDEN	South	Male	15.1	38.4	0.9	2	
Sn575	8/02/2006	EDEN	South	Male	16	46	1.2	2	
Sn576	8/02/2006	EDEN	South	Male	16.7	53	0.7	2	
Sn577	8/02/2006	EDEN	South	Male	12.9	25.9	0.1	2	
Sn578	8/02/2006	EDEN	South	Male	14.3	31.1	0.5	2	
Sn579	8/02/2006	EDEN	South	Male	15.5	34.3	0.9	3	
Sn580	8/02/2006	EDEN	South	Female	13.4	25.5	0.6	2	
Sn581	8/02/2006	EDEN	South	Female	15	35.9	1.2	3	
Sn582	8/02/2006	EDEN	South	Female	14.2	30.1	1.4	3	
Sn583	8/02/2006	EDEN	South	Female	15.5	48.1	0.1	1	
Sn584	8/02/2006	EDEN	South	Female	15.4	43.2	0.6	2	
Sn585	8/02/2006	EDEN	South	Male	13	23.7	0.5	2	
Sn586	8/02/2006	EDEN	South	Male	12.4	22.4	0.1	1	
Sn587	8/02/2006	EDEN	South	Juvenile	12.6	21.4	0.1	1	
Sn588	8/02/2006	EDEN	South	Female	13.8	31.5	0.7	3	
Sn589	8/02/2006	EDEN	South	Juvenile	12.7	21.5	0.1	1	
Sn590	8/02/2006	EDEN	South	Juvenile	12.2	20.2	0.1	1	
Sn591	8/02/2006	EDEN	South	Juvenile	12.5	20.5	0.1	1	
Sn592	31/03/2006	EDEN	South	Female	16.2	45.8	0.1	1	

Envelope ID	Sample Date	Location	Region	Sex	Fork Length (cm)	Body Weight (g)	Gonad Weight (g)	Gonad Stage	Fat Stage
Sn593	31/03/2006	EDEN	South	Female	15.4	34.3	0.1	1	
Sn594	31/03/2006	EDEN	South	Male	16.1	44.4	0.1	1	
Sn595	31/03/2006	EDEN	South	Female	16	43	0.2	2	
Sn596	31/03/2006	EDEN	South	Female	17.4	64.8	0.4	2	
Sn597	31/03/2006	EDEN	South	Female	14.7	31.5	0.1	1	
Sn598	31/03/2006	EDEN	South	Female	18.9	73.4	2.5	3	
Sn599	31/03/2006	EDEN	South	Female	17.5	62.8	1	3	
Sn600	31/03/2006	EDEN	South	Female	14.2	29.6	0.1	1	
Sn601	31/03/2006	EDEN	South	Female	18.5	71.9	1.5	5	
Sn602	31/03/2006	EDEN	South	Female	16.4	55	1	5	
Sn603	31/03/2006	EDEN	South	Female	18	61.4	1.5	3	
Sn604	31/03/2006	EDEN	South	Female	19.3	83.6	2.9	5	
Sn605	31/03/2006	EDEN	South	Female	18	67.7	1.2	5	
Sn606	31/03/2006	EDEN	South	Female	16.9	50.5	0.1	1	
Sn607	31/03/2006	EDEN	South	Female	17.8	58.2	1.4	5	
Sn608	31/03/2006	EDEN	South	Female	17.3	63.2	0.2	5	
Sn609	31/03/2006	EDEN	South	Female	18.2	68.9	0.9	5	
Sn610	31/03/2006	EDEN	South	Male	16.6	45.2	0.7	2	
Sn611	31/03/2006	EDEN	South	Female	14.9	34	0.1	1	
Sn612	31/03/2006	EDEN	South	Female	16	43.7	0.3	5	
Sn613	31/03/2006	EDEN	South	Male	15.1	30.3	0.1	1	
Sn614	31/03/2006	EDEN	South	Juvenile	14.5	28	0.1	1	
Sn615	31/03/2006	EDEN	South	Female	18.2	58.4	1.2	5	
Sn616	31/03/2006	EDEN	South	Male	16.9	47.2	1	1	
Sn617	31/03/2006	EDEN	South	Male	15	33.1	0.1	1	
Sn618	31/03/2006	EDEN	South	Female	14.9	34.7	0.1	1	
Sn619	31/03/2006	EDEN	South	Male	14.9	32.2	0.1	1	
Sn620	31/03/2006	EDEN	South	Female	14	26.7	0.1	1	
Sn621	31/03/2006	EDEN	South	Female	14.3	28	0.1	1	
Sn622	6/06/2006	EDEN	South	Female	19	78	3.3	5	
Sn623	6/06/2006	EDEN	South	Female	16.4	44.9	0.7	5	
Sn624	6/06/2006	EDEN	South	Female	19.5	73.7	0.7	5	
Sn625	6/06/2006	EDEN	South	Female	15.6	36.8	0.3	2	
Sn626	6/06/2006	EDEN	South	Female	20.8	98.1	1.7	3	
Sn627	6/06/2006	EDEN	South	Male	16.4	54.8	3	3	
Sn628	6/06/2006	EDEN	South	Male	15.4	37.1	0.6	2	
Sn629	6/06/2006	EDEN	South	Male	16.9	49.7	2.3	3	
Sn630	6/06/2006	EDEN	South	Female	17	50.4	0.7	5	
Sn631	6/06/2006	EDEN	South	Male	16.9	48.4	1.5	3	
Sn632	6/06/2006	EDEN	South	Female	16.6	46.4	0.4	5	
Sn633	6/06/2006	EDEN	South	Female	17.1	50.1	1	5	
Sn634	6/06/2006	EDEN	South	Female	17.4	51.7	1.8	3	
Sn635	6/06/2006	EDEN	South	Male	19.5	70.3	1.7	2	
Sn636	6/06/2006	EDEN	South	Female	16.3	45.9	0.8	3	
Sn637	6/06/2006	EDEN	South	Male	19.3	71.9	1	2	
Sn638	6/06/2006	EDEN	South	Female	15.3	36.4	0.9	5	
Sn639	6/06/2006	EDEN	South	Male	19.4	73.8	3	2	
Sn640	6/06/2006	EDEN	South	Female	17.6	50.9	0.3	2	
Sn641	6/06/2006	EDEN	South	Male	19.3	76.6	1.6	2	
Sn642	6/06/2006	EDEN	South	Male	17	51.6	1.6	2	
Sn643	6/06/2006	EDEN	South	Male	15.1	36.8	0.6	2	
Sn644	6/06/2006	EDEN	South	Female	17.1	51.1	0.3	5	
Sn645	6/06/2006	EDEN	South	Female	15.7	37.8	0.3	5	
Sn646	6/06/2006	EDEN	South	Female	16	42.7	1.4	5	
Sn647	6/06/2006	EDEN	South	Female	15.7	35.7	0.2	1	
Sn648	6/06/2006	EDEN	South	Female	16.6	48.1	0.8	5	
Sn649	6/06/2006	EDEN	South	Female	17.9	54.6	0.6	5	
Sn650	6/06/2006	EDEN	South	Female	16.4	43.8	0.3	5	
Sn651	6/06/2006	EDEN	South	Female	16.4	44	1.8	3	
Sn652	19/06/2006	EDEN	South	Male	15	37.3	0.6	3	
Sn653	19/06/2006	EDEN	South	Female	16.4	40.3	0.4	2	
Sn654	19/06/2006	EDEN	South	Female	16.2	43.5	0.6	2	
Sn655	19/06/2006	EDEN	South	Male	16.1	41.3	0.8	3	
Sn656	19/06/2006	EDEN	South	Male	15.4	40.2	1	3	
Sn657	19/06/2006	EDEN	South	Male	16.8	48.2	0.5	3	
Sn658	19/06/2006	EDEN	South	Female	16.6	48.1	2	3	
Sn659	19/06/2006	EDEN	South	Female	17.6	55.9	0.5	2	
Sn660	19/06/2006	EDEN	South	Male	14.8	32.7	0.4	3	
Sn661	19/06/2006	EDEN	South	Female	16.3	42.9	1.9	3	
Sn662	19/06/2006	EDEN	South	Male	16.3	44.1	0.5	3	
Sn663	19/06/2006	EDEN	South	Female	14.9	34.1	0.1	2	
Sn664	19/06/2006	EDEN	South	Female	16.2	44.8	0.3	2	
Sn665	19/06/2006	EDEN	South	Male	15.1	32.9	0.4	2	
Sn666	19/06/2006	EDEN	South	Female	16.3	45.1	0.5	2	
Sn667	19/06/2006	EDEN	South	Female	16.6	43.6	0.3	2	
Sn668	19/06/2006	EDEN	South	Male	17.3	53.4	1.6	3	
Sn669	19/06/2006	EDEN	South	Female	16.1	42.4	1.4	3	
Sn670	19/06/2006	EDEN	South	Female	15.6	37.9	1.1	3	
Sn671	19/06/2006	EDEN	South	Female	16.7	50.8	0.4	2	
Sn672	19/06/2006	EDEN	South	Male	14.4	30.6	0.1	2	
Sn673	19/06/2006	EDEN	South	Female	16.2	46.3	1.2	3	
Sn674	19/06/2006	EDEN	South	Male	16.3	42.2	0.9	3	
Sn675	19/06/2006	EDEN	South	Male	16.7	51.4	0.4	2	
Sn676	19/06/2006	EDEN	South	Male	15	37.5	0.5	2	
Sn677	19/06/2006	EDEN	South	Female	18	70.9	0.7	2	
Sn678	19/06/2006	EDEN	South	Male	15.2	34.6	0.7	3	
Sn679	19/06/2006	EDEN	South	Male	15.4	36.1	0.5	2	
Sn680	19/06/2006	EDEN	South	Male	17.1	50.5	1	3	
Sn681	19/06/2006	EDEN	South	Female	17.2	50.3	0.4	2	
Sn682	19/06/2006	EDEN	South	Male	17.7	61	1.1	3	
Sn683	19/06/2006	EDEN	South	Male	18.1	56.4	0.1	1	

Envelope ID	Sample Date	Location	Region	Sex	Fork Length (cm)	Body Weight (g)	Gonad Weight (g)	Gonad Stage	Fat Stage
Sn684	19/06/2006	EDEN	South	Female	19	62.5	0.6	2	
Sn685	19/06/2006	EDEN	South	Male	17	51.1	0.8	3	
Sn686	19/06/2006	EDEN	South	Female	16.4	44.5	0.3	2	
Sn687	19/06/2006	EDEN	South	Female	19.9	79.3	1.4	3	
Sn688	19/06/2006	EDEN	South	Female	19.1	70	0.7	2	
Sn689	19/06/2006	EDEN	South	Female	15.1	33	0.3	2	
Sn690	19/06/2006	EDEN	South	Male	16.5	46.8	0.4	2	
Sn691	19/06/2006	EDEN	South	Female	19.7	82.3	0.6	2	
Sn692	19/06/2006	EDEN	South	Male	18.3	62.8	0.8	3	
Sn693	19/06/2006	EDEN	South	Male	16.4	44.2	0.5	2	
Sn694	19/06/2006	EDEN	South	Female	18.5	66.5	1	2	
Sn695	19/06/2006	EDEN	South	Female	19.7	82.9	2	3	
Sn696	19/06/2006	EDEN	South	Male	17.7	57.1	0.5	3	
Sn697	19/06/2006	EDEN	South	Male	16	40.4	0.6	2	
Sn698	19/06/2006	EDEN	South	Male	19.8	82.3	0.9	2	
Sn699	19/06/2006	EDEN	South	Male	18	58.4	1	3	
Sn700	19/06/2006	EDEN	South	Female	18.5	69.1	0.5	2	
Sn701	19/06/2006	EDEN	South	Female	18.7	70.1	3.1	3	
Sn702	19/06/2006	EDEN	South	Female	16.3	40.6	0.4	2	
Sn703	19/06/2006	EDEN	South	Female	21.5	95.3	1	2	
Sn704	19/06/2006	EDEN	South	Female	17.1	53.2	0.4	2	
Sn705	19/06/2006	EDEN	South	Male	17.9	55.9	0.5	2	
Sn706	19/06/2006	EDEN	South	Female	19.9	84.7	1.1	2	
Sn707	19/06/2006	EDEN	South	Female	18.5	66.8	0.6	2	
Sn708	19/06/2006	EDEN	South	Female	19.6	81	0.8	2	
Sn709	19/06/2006	EDEN	South	Male	16.6	47.4	0.5	2	
Sn710	19/06/2006	EDEN	South	Female	20	78.6	0.7	2	
Sn711	19/06/2006	EDEN	South	Female	18.4	64.1	0.2	2	
Sn712	29/06/2006	EDEN	South	Male	16.3	44.9	0.4	2	
Sn713	29/06/2006	EDEN	South	Female	17.1	51.6	0.7	3	
Sn714	29/06/2006	EDEN	South	Female	16.2	43.5	0.4	2	
Sn715	29/06/2006	EDEN	South	Male	15.9	40.6	0.3	2	
Sn716	29/06/2006	EDEN	South	Female	17.9	63.1	2.1	3	
Sn717	29/06/2006	EDEN	South	Female	16.7	48.5	0.9	3	
Sn718	29/06/2006	EDEN	South	Female	16.3	43	0.4	2	
Sn719	29/06/2006	EDEN	South	Female	14.8	33.5	1.1	3	
Sn720	29/06/2006	EDEN	South	Male	15.8	44	0.7	3	
Sn721	29/06/2006	EDEN	South	Female	17.6	55.2	1.5	3	
Sn722	29/06/2006	EDEN	South	Female	16.8	45.2	0.2	1	
Sn723	29/06/2006	EDEN	South	Male	15.9	35.4	0.1	2	
Sn724	29/06/2006	EDEN	South	Male	16	42.1	0.3	2	
Sn725	29/06/2006	EDEN	South	Female	17.9	66.9	0.6	2	
Sn726	29/06/2006	EDEN	South	Male	15.4	38.8	0.9	3	
Sn727	29/06/2006	EDEN	South	Female	19	78.2	2.4	3	
Sn728	29/06/2006	EDEN	South	Female	15.4	38.2	0.2	2	
Sn729	29/06/2006	EDEN	South	Female	15.2	34.3	0.2	2	
Sn730	29/06/2006	EDEN	South	Female	15.2	35.8	0.5	2	
Sn731	29/06/2006	EDEN	South	Female	15.4	35.8	0.3	2	
Sn732	29/06/2006	EDEN	South	Male	15.6	37.3	0.5	2	
Sn733	29/06/2006	EDEN	South	Female	16.4	44.9	0.3	2	
Sn734	29/06/2006	EDEN	South	Female	16.3	43.5	0.2	2	
Sn735	29/06/2006	EDEN	South	Female	16.1	45.5	0.3	2	
Sn736	29/06/2006	EDEN	South	Male	15.1	33.5	0.5	3	
Sn737	29/06/2006	EDEN	South	Male	16.4	47.3	1.6	3	
Sn738	29/06/2006	EDEN	South	Male	15.9	43.4	1	3	
Sn739	29/06/2006	EDEN	South	Male	15.7	38.1	0.8	3	
Sn740	29/06/2006	EDEN	South	Male	15.3	36.3	0.5	3	
Sn741	29/06/2006	EDEN	South	Female	18.2	63.9	0.7	3	
Sn742	3/07/2006	EDEN	South	Female	17.3	44.3	0.4	2	
Sn743	3/07/2006	EDEN	South	Female	20.1	80.4	0.8	2	
Sn744	3/07/2006	EDEN	South	Female	20	85.8	4.1	3	
Sn745	3/07/2006	EDEN	South	Female	17.9	59.6	1.2	2	
Sn746	3/07/2006	EDEN	South	Male	18.8	71.9	2.1	3	
Sn747	3/07/2006	EDEN	South	Female	17.2	57.9	0.4	2	
Sn748	3/07/2006	EDEN	South	Female	18.9	71.6	2.5	3	
Sn749	3/07/2006	EDEN	South	Male	18.7	73.2	1.7	3	
Sn750	3/07/2006	EDEN	South	Female	19.7	80.9	0.8	2	
Sn751	3/07/2006	EDEN	South	Female	18.9	62.9	1.1	3	
Sn752	3/07/2006	EDEN	South	Female	15.9	40.6	0.6	2	
Sn753	3/07/2006	EDEN	South	Male	16.8	49.6	1.5	3	
Sn754	3/07/2006	EDEN	South	Male	17.1	50.8	1.5	3	
Sn755	3/07/2006	EDEN	South	Male	19.6	84.1	2.7	3	
Sn756	3/07/2006	EDEN	South	Female	16.8	48.2	0.4	2	
Sn757	3/07/2006	EDEN	South	Female	20	86.9	5.9	3	
Sn758	3/07/2006	EDEN	South	Male	16.1	44.6	1.2	3	
Sn759	3/07/2006	EDEN	South	Male	16.4	43.5	0.9	3	
Sn760	3/07/2006	EDEN	South	Male	19.4	85.3	3	3	
Sn761	3/07/2006	EDEN	South	Male	17.6	57.6	1.4	3	
Sn762	3/07/2006	EDEN	South	Female	19.1	70.1	1.8	3	
Sn763	3/07/2006	EDEN	South	Male	15.9	40	0.3	2	
Sn764	3/07/2006	EDEN	South	Female	19.8	79.5	1.4	3	
Sn765	3/07/2006	EDEN	South	Female	17	47.9	1.3	3	
Sn766	3/07/2006	EDEN	South	Male	16.7	49.1	0.6	2	
Sn767	3/07/2006	EDEN	South	Female	16.6	44.6	0.7	2	
Sn768	3/07/2006	EDEN	South	Male	16.8	46.8	1.3	3	
Sn769	3/07/2006	EDEN	South	Male	18.6	66.9	1.8	3	
Sn770	3/07/2006	EDEN	South	Male	17	48.4	2.2	3	
Sn771	3/07/2006	EDEN	South	Male	16.4	42.1	0.8	2	
Sn772	23/05/2006	EDEN	South	Male	18.8	68.5	1.2	2	
Sn773	23/05/2006	EDEN	South	Male	19.1	70.2	2.4	3	
Sn774	23/05/2006	EDEN	South	Female	19.5	79.3	2.9	2	

Envelope ID	Sample Date	Location	Region	Sex	Fork Length (cm)	Body Weight (g)	Gonad Weight (g)	Gonad Stage	Fat Stage
Sn775	23/05/2006	EDEN	South	Female	18.8	69.5	1.2	2	
Sn776	23/05/2006	EDEN	South	Female	20.4	96.2	2.4	3	
Sn777	23/05/2006	EDEN	South	Female	18.7	81.2	2.2	2	
Sn778	23/05/2006	EDEN	South	Female	18.2	69	1.9	3	
Sn779	23/05/2006	EDEN	South	Female	19.1	68.7	2.4	3	
Sn780	23/05/2006	EDEN	South	Female	19.3	80.8	1.1	3	
Sn781	23/05/2006	EDEN	South	Male	19.3	80.7	2.2	3	
Sn782	23/05/2006	EDEN	South	Male	17.6	61.8	1.7	3	
Sn783	23/05/2006	EDEN	South	Female	19.8	88.7	2.6	3	
Sn784	23/05/2006	EDEN	South	Male	18.1	70.7	1.7	3	
Sn785	23/05/2006	EDEN	South	Female	17.8	71.1	1.8	3	
Sn786	23/05/2006	EDEN	South	Female	17.4	64.1	1.1	2	
Sn787	23/05/2006	EDEN	South	Female	17.6	64.9	1.1	3	
Sn788	23/05/2006	EDEN	South	Female	18.8	75.1	1.4	3	
Sn789	23/05/2006	EDEN	South	Female	19.2	79.6	1.3	3	
Sn790	23/05/2006	EDEN	South	Female	19	74.2	3	3	
Sn791	23/05/2006	EDEN	South	Female	19.1	78	2.8	3	
Sn792	23/05/2006	EDEN	South	Female	18.5	57.3	1.5	3	
Sn793	23/05/2006	EDEN	South	Male	18.9	81.4	2.5	3	
Sn794	23/05/2006	EDEN	South	Male	17.8	61.1	1.4	2	
Sn795	23/05/2006	EDEN	South	Female	20.1	92.7	2.6	3	
Sn796	23/05/2006	EDEN	South	Female	18.9	84.9	1.7	3	
Sn797	23/05/2006	EDEN	South	Male	18.4	67.1	1.3	3	
Sn798	23/05/2006	EDEN	South	Female	17.7	55.6	0.9	3	
Sn799	23/05/2006	EDEN	South	Male	18.5	69.6	1.5	3	
Sn800	23/05/2006	EDEN	South	Female	19.3	87.4	2.1	3	
Sn801	23/05/2006	EDEN	South	Juvenile	19.5	77.6	0.1	1	
Sn802	28/09/2006	EDEN	South	Male	16.4	47.89	1.97	2	
Sn803	28/09/2006	EDEN	South	Male	15.7	42.33	1.94	2	
Sn804	28/09/2006	EDEN	South	Male	16.4	47.39	2.11	2	
Sn805	28/09/2006	EDEN	South	Female	16.2	46.3	0.96	3	
Sn806	28/09/2006	EDEN	South	Male	16.3	48.13	1.93	2	
Sn807	28/09/2006	EDEN	South	Male	16	45.93	1.69	2	
Sn808	28/09/2006	EDEN	South	Male	16.4	50	1.77	2	
Sn809	28/09/2006	EDEN	South	Female	16.3	49.45	2.2	3	
Sn810	31/01/2007	EDEN	South	Female	20	104	5.3	3	
Sn811	31/01/2007	EDEN	South	Female	19.8	93.8	1.9	2	
Sn812	31/01/2007	EDEN	South	Male	17.7	73.9	3.1	2	
Sn813	31/01/2007	EDEN	South	Male	19	83	4.8	2	
Sn814	31/01/2007	EDEN	South	Female	19.3	95.6	4.5	3	
Sn815	31/01/2007	EDEN	South	Female	19.6	105.6	4.5	3	
Sn816	31/01/2007	EDEN	South	Female	19	82.1	2.7	2	
Sn817	31/01/2007	EDEN	South	Female	18.7	90	3.9	2	
Sn818	31/01/2007	EDEN	South	Female	17.4	72.1	3.9	2	
Sn819	31/01/2007	EDEN	South	Female	18.3	76.5	4	2	
Sn820	11/10/2006	EDEN	South	Male	16.3	47.07	2.24	2	
Sn821	11/10/2006	EDEN	South	Male	16	46.51	3.38	3	
Sn822	11/10/2006	EDEN	South	Male	15.6	43.77	2.08	2	
Sn823	11/10/2006	EDEN	South	Female	17	57.96	1.24	2	
Sn824	11/10/2006	EDEN	South	Male	16.7	54.92	2.53	2	
Sn825	11/10/2006	EDEN	South	Male	16.4	53.07	1.52	2	
Sn826	11/10/2006	EDEN	South	Male	17	55.2	2.36	2	
Sn827	11/10/2006	EDEN	South	Female	16.8	56.09	2.64	2	
Sn828	11/10/2006	EDEN	South	Male	16.9	56.43	2.17	2	
Sn829	11/10/2006	EDEN	South	Male	16.5	54.07	1.46	2	
Sn830	11/10/2006	EDEN	South	Male	16.2	53.02	2.4	2	
Sn831	11/10/2006	EDEN	South	Male	16.6	50.49	2.11	2	
Sn832	11/10/2006	EDEN	South	Male	19.5	88.34	4.72	3	
Sn833	11/10/2006	EDEN	South	Female	16.6	51.18	3.23	2	
Sn834	13/12/2006	EDEN	South	Female	20.2	92.4	3.1	2	
Sn835	13/12/2006	EDEN	South	Female	13.8	93.7	5.9	3	
Sn836	13/12/2006	EDEN	South	Male	18	71.1	4.6	3	
Sn837	13/12/2006	EDEN	South	Female	18	73.6	1.9	3	
Sn838	13/12/2006	EDEN	South	Male	18.6	74.5	3.2	3	
Sn839	13/12/2006	EDEN	South	Female	19.6	89.6	2.6	3	
Sn840	13/12/2006	EDEN	South	Female	20	91.8	3.8	3	
Sn841	13/12/2006	EDEN	South	Female	19.6	85.5	2.4	2	
Sn842	13/12/2006	EDEN	South	Female	19.7	92.5	4	3	
Sn843	13/12/2006	EDEN	South	Female	19.3	83.2	4.1	3	
Sn844	13/12/2006	EDEN	South	Male	19.2	78.4	3	3	
Sn845	13/12/2006	EDEN	South	Female	20.7	98.7	4.3	3	
Sn846	13/12/2006	EDEN	South	Female	19.3	85.8	2.1	3	
Sn847	13/12/2006	EDEN	South	Female	18.7	81.4	3	3	
Sn848	29/01/2007	EDEN	South	Male	12.2	25.5	0.6	2	
Sn849	29/01/2007	EDEN	South	Male	13.1	29.8	0.5	2	
Sn850	29/01/2007	EDEN	South	Male	13.6	28.9	0.5	2	
Sn851	29/01/2007	EDEN	South	Male	13.8	29.5	0.5	2	
Sn852	29/01/2007	EDEN	South	Male	13.9	32.9	1.2	2	
Sn853	29/01/2007	EDEN	South	Male	13.7	32.6	0.9	2	
Sn854	29/01/2007	EDEN	South	Male	12.1	20.9	0.3	2	
Sn855	29/01/2007	EDEN	South	Male	12.5	22.8	0.2	2	
Sn856	29/01/2007	EDEN	South	Male	13.5	27.2	0.5	2	
Sn857	29/01/2007	EDEN	South	Male	14.1	32.9	0.5	2	
Sn858	29/01/2007	EDEN	South	Male	13.7	27.6	0.5	2	
Sn859	29/01/2007	EDEN	South	Male	12.9	25.8	0.2	2	
Sn860	29/01/2007	EDEN	South	Male	13	26.9	0.6	2	
Sn861	29/01/2007	EDEN	South	Male	14.5	36.6	0.8	2	
Sn862	29/01/2007	EDEN	South	Male	12	25.6	0.8	2	
Sn863	29/01/2007	EDEN	South	Male	12.6	24.3	0.6	2	
Sn864	29/01/2007	EDEN	South	Male	11.4	16	0.01	1	
Sn865	24/01/2007	EDEN	South	Male	12.6	23.2	0.4	2	

Envelope ID	Sample Date	Location	Region	Sex	Fork Length (cm)	Body Weight (g)	Gonad Weight (g)	Gonad Stage	Fat Stage
Sn866	24/01/2007	EDEN	South	Male	13	24.5	0.9	2	
Sn867	24/01/2007	EDEN	South	Male	16.6	54.8	2.3	2	
Sn868	24/01/2007	EDEN	South	Male	12.3	19.2	0.1	1	
Sn869	24/01/2007	EDEN	South	Male	11	13.8	0.2	2	
Sn870	24/01/2007	EDEN	South	Male	12.2	19.6	0.3	2	
Sn871	24/01/2007	EDEN	South	Male	13.1	25.1	0.5	2	
Sn872	24/01/2007	EDEN	South	Male	13.1	28.4	0.6	2	
Sn873	24/01/2007	EDEN	South	Male	12	17.6	0.3	2	
Sn874	24/01/2007	EDEN	South	Male	11	16.3	0.1	1	
Sn875	24/01/2007	EDEN	South	Male	12	17.3	0.2	1	
Sn876	24/01/2007	EDEN	South	Male	11.1	13.6	0.1	1	
Sn877	24/01/2007	EDEN	South	Male	11.6	17.4	0.6	2	
Sn878	24/01/2007	EDEN	South	Male	12.3	24.1	1	2	
Sn879	24/01/2007	EDEN	South	Male	13.6	26.6	0.8	2	
Sn880	24/01/2007	EDEN	South	Male	11.8	17.9	0.3	2	
Sn881	24/01/2007	EDEN	South	Male	10.3	11.9	0.1	2	
Sn882	24/01/2007	EDEN	South	Male	13	23.4	0.6	2	
Sn883	24/01/2007	EDEN	South	Male	12.7	20	0.6	2	
Sn884	24/01/2007	EDEN	South	Male	10	11.8	0.2	2	
Sn885	31/01/2007	EDEN	South	Juvenile	14.2	34.9	0.1	1	
Sn886	31/01/2007	EDEN	South	Juvenile	13.1	28.6	0.1	1	
Sn887	31/01/2007	EDEN	South	Juvenile	12.7	26.2	0.1	1	
Sn888	31/01/2007	EDEN	South	Juvenile	12.6	25.7	0.1	1	
Sn889	31/01/2007	EDEN	South	Juvenile	14.4	39.8	0.1	1	
Sn890	31/01/2007	EDEN	South	Juvenile	13.8	29.9	0.1	1	
Sn891	31/01/2007	EDEN	South	Juvenile	13.9	32.2	0.1	1	
Sn892	31/01/2007	EDEN	South	Juvenile	13	24.9	0.1	1	
Sn893	31/01/2007	EDEN	South	Juvenile	13.2	27.9	0.1	1	
Sn894	31/01/2007	EDEN	South	Juvenile	14.4	34.2	0.1	1	
Sn895	31/01/2007	EDEN	South	Juvenile	12.2	21.7	0.1	1	
Sn896	31/01/2007	EDEN	South	Juvenile	12.5	23.6	0.1	1	
Sn897	31/01/2007	EDEN	South	Juvenile	13.8	32.8	0.1	1	
Sn898	31/01/2007	EDEN	South	Juvenile	13.2	28.6	0.1	1	
Sn899	31/01/2007	EDEN	South	Juvenile	14	33.7	0.1	1	
Sn900	31/01/2007	EDEN	South	Juvenile	13.5	29.2	0.1	1	
Sn901	31/01/2007	EDEN	South	Juvenile	11.3	16.9	0.1	1	
Sn902	31/01/2007	EDEN	South	Juvenile	13.8	30.7	0.1	1	
Sn903	31/01/2007	EDEN	South	Juvenile	13.7	29.1	0.1	1	
Sn904	31/01/2007	EDEN	South	Juvenile	13	27	0.1	1	
Sn905	30/01/2007	EDEN	South	Juvenile	12.6	24.7	0.1	1	
Sn906	30/01/2007	EDEN	South	Juvenile	13.3	26.3	0.1	1	
Sn907	30/01/2007	EDEN	South	Juvenile	14.2	36	0.1	1	
Sn908	30/01/2007	EDEN	South	Juvenile	14.1	37.6	0.1	1	
Sn909	30/01/2007	EDEN	South	Juvenile	13.8	33.1	0.1	1	
Sn910	30/01/2007	EDEN	South	Juvenile	13	26.5	0.1	1	
Sn911	30/01/2007	EDEN	South	Juvenile	12.3	21.4	0.1	1	
Sn912	30/01/2007	EDEN	South	Juvenile	12.1	21.2	0.1	1	
Sn913	30/01/2007	EDEN	South	Juvenile	13.5	31.8	0.1	1	
Sn914	30/01/2007	EDEN	South	Juvenile	12.6	26.7	0.1	1	
Sn915	30/01/2007	EDEN	South	Juvenile	12.2	20.7	0.1	1	
Sn916	30/01/2007	EDEN	South	Juvenile	13.6	28.9	0.1	1	
Sn917	30/01/2007	EDEN	South	Juvenile	13.1	24.8	0.1	1	
Sn918	30/01/2007	EDEN	South	Juvenile	12.3	22	0.1	1	
Sn919	30/01/2007	EDEN	South	Juvenile	12.2	22	0.1	1	
Sn920	30/01/2007	EDEN	South	Juvenile	12.8	28.2	0.1	1	
Sn921	30/01/2007	EDEN	South	Juvenile	13.8	29.9	0.1	1	
Sn922	22/01/2007	EDEN	South	Juvenile	14.4	36.23	0.01	1	
Sn923	22/01/2007	EDEN	South	Juvenile	13.3	30.55	0.01	1	
Sn924	22/01/2007	EDEN	South	Juvenile	13.2	29.5	0.01	1	
Sn925	22/01/2007	EDEN	South	Juvenile	12.3	23.38	0.01	1	
Sn926	22/01/2007	EDEN	South	Juvenile	13.8	30.25	0.01	1	
Sn927	22/01/2007	EDEN	South	Juvenile	12.8	25.11	0.01	1	
Sn928	22/01/2007	EDEN	South	Juvenile	12.8	26.03	0.01	1	
Sn929	22/01/2007	EDEN	South	Juvenile	14.1	35.43	0.01	1	
Sn930	22/01/2007	EDEN	South	Juvenile	12.7	24.21	0.01	1	
Sn931	22/01/2007	EDEN	South	Juvenile	12.9	25.74	0.01	1	
Sn932	22/01/2007	EDEN	South	Juvenile	13.2	30.51	0.01	1	
Sn933	22/01/2007	EDEN	South	Juvenile	13	26.42	0.01	1	
Sn934	22/01/2007	EDEN	South	Juvenile	12.7	25.45	0.01	1	
Sn935	22/01/2007	EDEN	South	Juvenile	12.6	24.43	0.01	1	
Sn936	22/01/2007	EDEN	South	Juvenile	13.7	30.45	0.01	1	
Sn937	22/01/2007	EDEN	South	Juvenile	13.3	28.02	0.01	1	
Sn938	22/01/2007	EDEN	South	Juvenile	12.8	24.63	0.01	1	
Sn939	22/01/2007	EDEN	South	Juvenile	11.8	19.52	0.01	1	
Sn940	22/01/2007	EDEN	South	Juvenile	12.7	25.07	0.01	1	
Sn941	22/01/2007	EDEN	South	Juvenile	14	32.24	0.01	1	
Sn942	22/10/2006	EDEN	South	Female	15.8	43.9	0.2	2	
Sn943	22/10/2006	EDEN	South	Female	18.5	72	4.2	4	
Sn944	22/10/2006	EDEN	South	Female	16.5	49.9	1	3	
Sn945	22/10/2006	EDEN	South	Female	18.4	71.3	2.4	3	
Sn946	22/10/2006	EDEN	South	Female	15.5	40.9	0.2	2	
Sn947	22/10/2006	EDEN	South	Male	16.4	50	1.9	2	
Sn948	22/10/2006	EDEN	South	Female	16.8	55.9	1	3	
Sn949	22/10/2006	EDEN	South	Female	16.2	48.2	0.8	2	
Sn950	22/10/2006	EDEN	South	Male	16	47.4	1.7	2	
Sn951	22/10/2006	EDEN	South	Male	15.7	44	2	2	
Sn952	22/10/2006	EDEN	South	Female	16.8	52.9	1.1	3	
Sn953	22/10/2006	EDEN	South	Male	15.2	40.9	1.2	2	
Sn954	22/10/2006	EDEN	South	Male	15.5	40.6	0.7	2	
Sn955	22/10/2006	EDEN	South	Female	16.7	52.7	2.6	3	
Sn956	22/10/2006	EDEN	South	Female	16.2	48.6	2	3	

Envelope ID	Sample Date	Location	Region	Sex	Fork Length (cm)	Body Weight (g)	Gonad Weight (g)	Gonad Stage	Fat Stage
Sn957	22/10/2006	EDEN	South	Male	18.3	62.7	2.5	2	
Sn958	22/10/2006	EDEN	South	Female	19.5	78.6	5.1	4	
Sn959	22/10/2006	EDEN	South	Male	16.4	51.4	2.3	2	
Sn960	22/10/2006	EDEN	South	Female	15	39.9	0.3	2	
Sn961	22/10/2006	EDEN	South	Male	16.8	50.8	0.7	2	
Sn962	22/10/2006	EDEN	South	Juvenile	8.4	5.8	0.01	1	
Sn963	22/10/2006	EDEN	South	Juvenile	8.8	7.1	0.01	1	
Sn964	22/10/2006	EDEN	South	Juvenile	9	7.6	0.01	1	
Sn965	22/10/2006	EDEN	South	Juvenile	7.3	3.2	0.01	1	
Sn966	22/10/2006	EDEN	South	Juvenile	8.4	6.3	0.01	1	
Sn967	22/10/2006	EDEN	South	Juvenile	8.9	6.7	0.01	1	
Sn968	22/10/2006	EDEN	South	Juvenile	8.5	6.2	0.01	1	
Sn969	22/10/2006	EDEN	South	Juvenile	8	5.1	0.01	1	
Sn970	22/10/2006	EDEN	South	Juvenile	8.8	7.3	0.01	1	
Sn971	22/10/2006	EDEN	South	Juvenile	8.9	5.8	0.01	1	
Sn972	22/10/2006	EDEN	South	Juvenile	7.8	4.5	0.01	1	
Sn973	22/10/2006	EDEN	South	Juvenile	8.6	6.7	0.01	1	
Sn974	22/10/2006	EDEN	South	Juvenile	7.8	4.7	0.01	1	
Sn975	22/10/2006	EDEN	South	Juvenile	9.1	7.1	0.01	1	
Sn976	22/10/2006	EDEN	South	Juvenile	7.3	3.6	0.01	1	
Sn977	22/10/2006	EDEN	South	Juvenile	7.5	3.8	0.01	1	
Sn978	22/10/2006	EDEN	South	Juvenile	8.4	5.8	0.01	1	
Sn979	22/10/2006	EDEN	South	Juvenile	9	7.2	0.01	1	
Sn980	22/10/2006	EDEN	South	Juvenile	9	7.2	0.01	1	
Sn981	22/10/2006	EDEN	South	Juvenile	8.5	6.2	0.01	1	
Sn982	22/10/2006	EDEN	South	Juvenile	8.5	6.2	0.01	1	
Sn983	22/10/2006	EDEN	South	Juvenile	8.8	6.4	0.01	1	
Sn984	22/10/2006	EDEN	South	Juvenile	8.9	6.7	0.01	1	
Sn985	22/10/2006	EDEN	South	Juvenile	8	5.3	0.01	1	
Sn986	22/10/2006	EDEN	South	Juvenile	8.6	6.2	0.01	1	
Sn987	22/10/2006	EDEN	South	Juvenile	7.8	4.5	0.01	1	
Sn988	22/05/2007	EDEN	South	Female	20	86.7	3	4	
Sn989	22/05/2007	EDEN	South	Male	14.1	28	0.1	2	
Sn990	22/05/2007	EDEN	South	Male	13.5	25.4	0.2	2	
Sn991	22/05/2007	EDEN	South	Female	15.7	45.2	0.2	2	
Sn992	22/05/2007	EDEN	South	Male	15.5	39.1	0.2	2	
Sn993	22/05/2007	EDEN	South	Female	15.5	38.5	0.2	2	
Sn994	22/05/2007	EDEN	South	Female	15.5	40.7	0.3	2	
Sn995	22/05/2007	EDEN	South	Female	14.2	28.8	0.1	2	
Sn996	22/05/2007	EDEN	South	Female	19.5	87.1	1.4	3	
Sn997	22/05/2007	EDEN	South	Female	16.1	45	0.3	2	
Sn998	22/05/2007	EDEN	South	Male	13.7	23.8	0.1	2	
Sn999	22/05/2007	EDEN	South	Male	15	33.1	0.2	2	
Sn1000	22/05/2007	EDEN	South	Female	15.5	36.8	0.1	2	
Sn1001	22/05/2007	EDEN	South	Female	15.3	35.7	0.2	2	
Sn1002	22/05/2007	EDEN	South	Male	15.4	39.5	0.1	2	
Sn1003	22/05/2007	EDEN	South	Male	13.6	24.1	0.1	2	
Sn1004	22/05/2007	EDEN	South	Female	16	45.9	0.2	2	
Sn1005	22/05/2007	EDEN	South	Female	14.6	31.9	0.1	2	
Sn1006	22/05/2007	EDEN	South	Female	14.5	31	0.1	2	
Sn1007	22/05/2007	EDEN	South	Male	15.8	41.3	0.2	2	
Sn1008	22/04/2007	EDEN	South	Male	17.5	57.6	1.3	2	
Sn1009	22/04/2007	EDEN	South	Female	17.6	63.5	0.5	2	
Sn1010	22/04/2007	EDEN	South	Male	14	28.9	0.1	2	
Sn1011	22/04/2007	EDEN	South	Male	17.4	61.3	1.8	2	
Sn1012	22/04/2007	EDEN	South	Male	17.1	53	1	2	
Sn1013	22/04/2007	EDEN	South	Female	18.3	67	1	2	
Sn1014	22/04/2007	EDEN	South	Male	17	59	1.6	2	
Sn1015	22/04/2007	EDEN	South	Female	18.3	67.5	1.3	3	
Sn1016	22/04/2007	EDEN	South	Male	17.8	62.8	1.3	2	
Sn1017	22/04/2007	EDEN	South	Female	18.5	66.3	1.2	3	
Sn1018	22/04/2007	EDEN	South	Male	17.8	64.3	1.7	2	
Sn1019	22/04/2007	EDEN	South	Female	18.1	70.3	1	3	
Sn1020	22/04/2007	EDEN	South	Female	13.5	24.5	0.1	2	
Sn1021	22/04/2007	EDEN	South	Female	19.5	75.4	0.5	5	
Sn1022	22/04/2007	EDEN	South	Male	18.6	66.8	1	2	
Sn1023	22/04/2007	EDEN	South	Male	17.8	63.2	0.5	2	
Sn1024	22/04/2007	EDEN	South	Male	19.4	80.5	2	2	
Sn1025	22/04/2007	EDEN	South	Male	17.9	64.4	1.4	2	
Sn1026	22/04/2007	EDEN	South	Male	18.5	71	0.7	2	
Sn1027	22/04/2007	EDEN	South	Female	17.6	62.7	1	3	
Sn1028	3/04/2007	EDEN	South	Juvenile	13.2	22.6	0.1	1	
Sn1029	3/04/2007	EDEN	South	Female	15.3	40.6	0.1	2	
Sn1030	3/04/2007	EDEN	South	Juvenile	13.1	21.9	0.1	1	
Sn1031	3/04/2007	EDEN	South	Juvenile	13.8	24.7	0.1	1	
Sn1032	3/04/2007	EDEN	South	Juvenile	13.4	20.6	0.1	1	
Sn1033	3/04/2007	EDEN	South	Juvenile	13.9	25.6	0.1	1	
Sn1034	3/04/2007	EDEN	South	Juvenile/Female	13.5	19.8	0.1	1	
Sn1035	3/04/2007	EDEN	South	Juvenile/Male	12.9	20.2	0.1	1	
Sn1036	3/04/2007	EDEN	South	Juvenile	13.9	26.5	0.1	1	
Sn1037	3/04/2007	EDEN	South	Juvenile	13.1	20.9	0.1	1	
Sn1038	3/04/2007	EDEN	South	Juvenile	12.7	19.3	0.1	1	
Sn1039	3/04/2007	EDEN	South	Juvenile/Female	13.9	26.6	0.1	1	
Sn1040	3/04/2007	EDEN	South	Juvenile/Male	13.8	25.6	0.1	1	
Sn1041	3/04/2007	EDEN	South	Juvenile	13.3	21.1	0.1	1	
Sn1042	3/04/2007	EDEN	South	Juvenile	13.4	22.6	0.1	1	
Sn1043	3/04/2007	EDEN	South	Juvenile/Male	13.9	24.1	0.1	1	
Sn1044	3/04/2007	EDEN	South	Juvenile	13.5	22.7	0.1	1	
Sn1045	3/04/2007	EDEN	South	Juvenile	13.8	27.4	0.1	1	
Sn1046	3/04/2007	EDEN	South	Juvenile/Female	13.6	27.4	0.1	1	
Sn1047	3/04/2007	EDEN	South	Juvenile	13.1	21.7	0.1	1	

Envelope ID	Sample Date	Location	Region	Sex	Fork Length (cm)	Body Weight (g)	Gonad Weight (g)	Gonad Stage	Fat Stage
Sn1048	3/04/2007	EDEN	South	Juvenile/Male	13.6	24	0.1	1	
Sn1049	3/04/2007	EDEN	South	Juvenile/Female	13.7	26.3	0.1	1	
Sn1050	16/04/2007	EDEN	South	Female	13.7	26.9	0.1	1	
Sn1051	16/04/2007	EDEN	South	Female	14	27.9	0.1	1	
Sn1052	16/04/2007	EDEN	South	Male	15.1	36.7	0.1	1	
Sn1053	16/04/2007	EDEN	South	Male	13.2	22	0.1	1	
Sn1054	16/04/2007	EDEN	South	Female	13.7	25.3	0.1	1	
Sn1055	16/04/2007	EDEN	South	Male	14	26.9	0.1	1	
Sn1056	16/04/2007	EDEN	South	Juvenile	13.4	24.6	0.1	1	
Sn1057	16/04/2007	EDEN	South	Male	13.8	24.3	0.1	1	
Sn1058	16/04/2007	EDEN	South	Male	13.8	26.9	0.1	1	
Sn1059	16/04/2007	EDEN	South	Male	13.3	22.4	0.1	1	
Sn1060	16/04/2007	EDEN	South	Male	13.2	24.3	0.1	1	
Sn1061	16/04/2007	EDEN	South	Male	13.6	25.2	0.1	1	
Sn1062	16/04/2007	EDEN	South	Male	13.7	25.5	0.1	1	
Sn1063	16/04/2007	EDEN	South	Male	13.8	26.4	0.1	1	
Sn1064	16/04/2007	EDEN	South	Female	13.9	28.6	0.1	1	
Sn1065	16/04/2007	EDEN	South	Female	13.3	22.3	0.1	1	
Sn1066	16/04/2007	EDEN	South	Female	13	22.5	0.1	1	
Sn1067	16/04/2007	EDEN	South	Male	13.8	26.5	0.1	1	
Sn1068	16/04/2007	EDEN	South	Male	13.9	26	0.1	1	
Sn1069	16/04/2007	EDEN	South	Female	13.7	26.1	0.1	1	
Sn1070	21/05/2007	EDEN	South	Female	18.2	74.1	1.7	4	
Sn1071	21/05/2007	EDEN	South	Female	18.3	70.3	0.9	3	
Sn1072	21/05/2007	EDEN	South	Female	16.5	47.8	0.2	2	
Sn1073	21/05/2007	EDEN	South	Male	17.9	67.7	1.2	2	
Sn1074	21/05/2007	EDEN	South	Female	19	78.8	3.4	4	
Sn1075	21/05/2007	EDEN	South	Female	15.8	42.5	0.2	2	
Sn1076	21/05/2007	EDEN	South	Female	16.4	47.5	0.2	2	
Sn1077	21/05/2007	EDEN	South	Female	18.9	67.9	1.3	3	
Sn1078	21/05/2007	EDEN	South	Male	15.5	41.5	0.3	2	
Sn1079	21/05/2007	EDEN	South	Female	18.5	63.5	0.5	3	
Sn1080	21/05/2007	EDEN	South	Female	16.8	53.8	0.2	2	
Sn1081	21/05/2007	EDEN	South	Male	16.6	42.8	0.2	2	
Sn1082	21/05/2007	EDEN	South	Female	18.5	72.6	0.9	3	
Sn1083	21/05/2007	EDEN	South	Female	18.8	73.4	3	4	
Sn1084	21/05/2007	EDEN	South	Male	14.8	31.1	0.7	2	
Sn1085	21/05/2007	EDEN	South	Male	15.5	39.9	0.3	2	
Sn1086	21/05/2007	EDEN	South	Male	17.7	61.3	1.6	3	
Sn1087	21/05/2007	EDEN	South	Female	17.5	58.6	0.4	3	
Sn1088	21/05/2007	EDEN	South	Male	17.8	65.1	1.5	2	
Sn1089	21/05/2007	EDEN	South	Male	15.4	39.1	0.6	2	
Sn1090	29/03/2007	EDEN	South	Female	13.6	25.17	0.02	1	
Sn1091	29/03/2007	EDEN	South	Female	14.4	30.4	0.05	1	
Sn1092	29/03/2007	EDEN	South	Female	13.4	23.48	0.04	1	
Sn1093	29/03/2007	EDEN	South	Female	13.5	24.77	0.04	1	
Sn1094	29/03/2007	EDEN	South	Male	14.7	31.75	0.01	1	
Sn1095	29/03/2007	EDEN	South	Male	15	35.15	0.01	1	
Sn1096	29/03/2007	EDEN	South	Female	14.2	28	0.02	1	
Sn1097	29/03/2007	EDEN	South	Male	16.1	45.8	0.12	2	
Sn1098	29/03/2007	EDEN	South	Male	13.9	26.76	0.01	1	
Sn1099	29/03/2007	EDEN	South	Male	14.6	31.95	0.01	1	
Sn1100	29/03/2007	EDEN	South	Male	15.3	38.32	0.02	1	
Sn1101	29/03/2007	EDEN	South	Female	13.4	23.93	0.01	1	
Sn1102	29/03/2007	EDEN	South	Male	14.9	32.68	0.02	1	
Sn1103	29/03/2007	EDEN	South	Female	15	35.31	0.02	1	
Sn1104	29/03/2007	EDEN	South	Male	13.5	24.22	0.01	1	
Sn1105	29/03/2007	EDEN	South	Female	13.4	24.61	0.01	1	
Sn1106	29/03/2007	EDEN	South	Male	14.1	27.95	0.01	1	
Sn1107	29/03/2007	EDEN	South	Male	13.3	24.12	0.01	1	
Sn1108	29/03/2007	EDEN	South	Female	16	44.75	0.07	1	
Sn1109	29/03/2007	EDEN	South	Male	15.2	36.01	0.01	1	
Sn1110	18/04/2007	EDEN	South	Female	19.8	84.6	2.11	4	
Sn1111	18/04/2007	EDEN	South	Male	18.8	66.3	0.55	2	
Sn1112	18/04/2007	EDEN	South	Female	18.7	70.37	0.25	3	
Sn1113	18/04/2007	EDEN	South	Female	18	65.31	0.24	3	
Sn1114	18/04/2007	EDEN	South	Female	18	61.86	0.42	3	
Sn1115	18/04/2007	EDEN	South	Female	18.7	77.55	0.67	3	
Sn1116	18/04/2007	EDEN	South	Female	18.2	70.53	0.35	3	
Sn1117	18/04/2007	EDEN	South	Male	18	69.87	0.24	2	
Sn1118	18/04/2007	EDEN	South	Male	17.7	63.95	0.43	2	
Sn1119	18/04/2007	EDEN	South	Male	18.3	70.14	0.87	3	
Sn1120	18/04/2007	EDEN	South	Female	18.6	77.48	0.81	3	
Sn1121	18/04/2007	EDEN	South	Male	17.7	65.71	0.42	2	
Sn1122	18/04/2007	EDEN	South	Female	17.4	65.43	0.26	3	
Sn1123	18/04/2007	EDEN	South	Female	18.5	75.61	0.77	3	
Sn1124	18/04/2007	EDEN	South	Male	18	70.81	0.18	2	
Sn1125	18/04/2007	EDEN	South	Male	18.3	70.9	0.28	2	
Sn1126	18/04/2007	EDEN	South	Female	18.1	67.21	0.37	3	
Sn1127	18/04/2007	EDEN	South	Male	18.4	76.03	0.65	2	
Sn1128	18/04/2007	EDEN	South	Male	19	73.82	0.38	2	
Sn1129	18/04/2007	EDEN	South	Male	19.7	85.51	2.55	3	
Sn1130	23/11/2006	EDEN	South	Juvenile	9.6	8.48	0.01	1	
Sn1131	23/11/2006	EDEN	South	Juvenile	10.5	11.1	0.01	1	
Sn1132	23/11/2006	EDEN	South	Juvenile	8.4	5.47	0.01	1	
Sn1133	23/11/2006	EDEN	South	Juvenile	9.3	6.95	0.01	1	
Sn1134	23/11/2006	EDEN	South	Juvenile	8.7	6.2	0.01	1	
Sn1135	23/11/2006	EDEN	South	Juvenile	9.8	9.55	0.01	1	
Sn1136	23/11/2006	EDEN	South	Juvenile	9.8	9.24	0.01	1	
Sn1137	23/11/2006	EDEN	South	Juvenile	9.7	9.37	0.01	1	
Sn1138	23/11/2006	EDEN	South	Juvenile	10	10.28	0.01	1	

Envelope ID	Sample Date	Location	Region	Sex	Fork Length (cm)	Body Weight (g)	Gonad Weight (g)	Gonad Stage	Fat Stage
Sn1139	23/11/2006	EDEN	South	Juvenile	9.7	8.63	0.01	1	
Sn1140	23/11/2006	EDEN	South	Juvenile	10.4	11.16	0.01	1	
Sn1141	23/11/2006	EDEN	South	Juvenile	9.6	8.65	0.01	1	
Sn1142	23/11/2006	EDEN	South	Juvenile	9.6	8.76	0.01	1	
Sn1143	23/11/2006	EDEN	South	Juvenile	10.4	11.88	0.01	1	
Sn1144	23/11/2006	EDEN	South	Juvenile	10.2	10.66	0.01	1	
Sn1145	23/11/2006	EDEN	South	Juvenile	9.3	7.4	0.01	1	
Sn1146	23/11/2006	EDEN	South	Juvenile	10	9.74	0.01	1	
Sn1147	23/11/2006	EDEN	South	Juvenile	9.4	7.79	0.01	1	
Sn1148	23/11/2006	EDEN	South	Juvenile	9.1	6.99	0.01	1	
Sn1149	23/11/2006	EDEN	South	Juvenile	11.1	14.48	0.01	1	
Sn1150	23/11/2006	EDEN	South	Juvenile	9.2	7.59	0.01	1	
Sn1151	23/11/2006	EDEN	South	Juvenile	9.3	7.35	0.01	1	
Sn1152	23/11/2006	EDEN	South	Juvenile	8.7	5.77	0.01	1	
Sn1153	23/11/2006	EDEN	South	Juvenile	9.9	10.3	0.01	1	
Sn1154	23/11/2006	EDEN	South	Juvenile	9.7	8.87	0.01	1	
Sn1155	23/11/2006	EDEN	South	Juvenile	9.8	7.92	0.01	1	
Sn1156	23/11/2006	EDEN	South	Juvenile	9	7.02	0.01	1	
Sn1157	23/11/2006	EDEN	South	Juvenile	9.3	7.9	0.01	1	
Sn1158	23/11/2006	EDEN	South	Juvenile	10.4	12.17	0.01	1	
Sn1159	23/11/2006	EDEN	South	Juvenile	8.3	5.65	0.01	1	
Sn1160	26/03/2007	EDEN	South	Male	13.6	24.44	0.01	1	
Sn1161	26/03/2007	EDEN	South	Female	13	20.47	0.01	1	
Sn1162	26/03/2007	EDEN	South	Female	14	27.72	0.03	1	
Sn1163	26/03/2007	EDEN	South	Male	13.1	22.15	0.01	1	
Sn1164	26/03/2007	EDEN	South	Female	13.5	26.18	0.02	1	
Sn1165	26/03/2007	EDEN	South	Male	12.9	21.77	0.01	1	
Sn1166	26/03/2007	EDEN	South	Female	16.1	38.79	0.08	2	
Sn1167	26/03/2007	EDEN	South	Female	13.6	23.17	0.03	1	
Sn1168	26/03/2007	EDEN	South	Female	13.4	23.7	0.03	1	
Sn1169	26/03/2007	EDEN	South	Female	14.1	27.04	0.03	1	
Sn1170	26/03/2007	EDEN	South	Male	14.2	26.72	0.01	1	
Sn1171	26/03/2007	EDEN	South	Male	12.7	20.02	0.01	1	
Sn1172	26/03/2007	EDEN	South	Female	13.2	22.09	0.01	1	
Sn1173	26/03/2007	EDEN	South	Male	12.9	21.14	0.01	1	
Sn1174	26/03/2007	EDEN	South	Male	13.2	21.69	0.01	1	
Sn1175	26/03/2007	EDEN	South	Female	13.2	22.11	0.02	1	
Sn1176	26/03/2007	EDEN	South	Female	13.3	21.34	0.03	1	
Sn1177	26/03/2007	EDEN	South	Female	13.3	21.55	0.02	1	
Sn1178	26/03/2007	EDEN	South	Male	13.3	23.02	0.01	1	
Sn1179	26/03/2007	EDEN	South	Male	13.3	23.25	0.01	1	
Sn1180	26/03/2007	EDEN	South	Female	18.5	70.44	0.96	3	
Sn1181	26/03/2007	EDEN	South	Male	19	75.39	2.02	3	
Sn1182	26/03/2007	EDEN	South	Female	19.6	84.72	0.56	3	
Sn1183	26/03/2007	EDEN	South	Male	18.4	72.3	0.31	2	
Sn1184	26/03/2007	EDEN	South	Male	18.5	71.39	1.27	3	
Sn1185	26/03/2007	EDEN	South	Female	18.8	71.59	1.9	4	
Sn1186	26/03/2007	EDEN	South	Female	19	76.04	3.64	4	
Sn1187	26/03/2007	EDEN	South	Female	19.2	72.16	0.78	3	
Sn1188	26/03/2007	EDEN	South	Male	18.8	73.51	2.23	3	
Sn1189	26/03/2007	EDEN	South	Male	17.7	66.17	0.25	2	
Sn1190	16/04/2007	EDEN	South	Male	18.5	72.81	0.53	3	
Sn1191	16/04/2007	EDEN	South	Male	19.1	80.65	0.41	2	
Sn1192	16/04/2007	EDEN	South	Female	18.5	75.9	2.18	4	
Sn1193	16/04/2007	EDEN	South	Female	20.3	101.6	2.3	3	
Sn1194	16/04/2007	EDEN	South	Female	18	70.38	0.57	3	
Sn1195	16/04/2007	EDEN	South	Female	19.7	87.59	1.05	3	
Sn1196	16/04/2007	EDEN	South	Female	19.5	80.25	0.4	3	
Sn1197	16/04/2007	EDEN	South	Female	19.5	85.12	0.47	3	
Sn1198	16/04/2007	EDEN	South	Male	17.7	67.16	0.27	2	
Sn1199	16/04/2007	EDEN	South	Male	17.5	63.86	0.17	2	
Sn1200	22/03/2007	EDEN	South	Male	14.4	29.31	0.01	1	
Sn1201	22/03/2007	EDEN	South	Female	13.5	23.32	0.01	1	
Sn1202	22/03/2007	EDEN	South	Male	13.8	25.6	0.01	1	
Sn1203	22/03/2007	EDEN	South	Male	13	21.1	0.01	1	
Sn1204	22/03/2007	EDEN	South	Female	13.7	23.73	0.05	1	
Sn1205	22/03/2007	EDEN	South	Male	12.8	20.58	0.01	1	
Sn1206	22/03/2007	EDEN	South	Female	13.7	24.83	0.01	1	
Sn1207	22/03/2007	EDEN	South	Male	14	27.13	0.01	1	
Sn1208	22/03/2007	EDEN	South	Female	13.6	23.49	0.01	1	
Sn1209	22/03/2007	EDEN	South	Female	14.3	27.49	0.05	1	
Sn1210	22/03/2007	EDEN	South	Female	12.9	21.29	0.02	1	
Sn1211	22/03/2007	EDEN	South	Male	13.7	24.11	0.01	1	
Sn1212	22/03/2007	EDEN	South	Female	13	20.67	0.02	1	
Sn1213	22/03/2007	EDEN	South	Female	13.1	22.55	0.01	1	
Sn1214	22/03/2007	EDEN	South	Female	13.6	25.2	0.05	1	
Sn1215	22/03/2007	EDEN	South	Male	12.9	22.78	0.01	1	
Sn1216	22/03/2007	EDEN	South	Female	13.1	21.62	0.02	1	
Sn1217	22/03/2007	EDEN	South	Female	13.3	22.14	0.03	1	
Sn1218	22/03/2007	EDEN	South	Male	12.8	19.72	0.01	1	
Sn1219	22/03/2007	EDEN	South	Male	12.8	20.63	0.01	1	
Sn1220	21/03/2007	EDEN	South	Female	13.2	22.98	0.01	1	
Sn1221	21/03/2007	EDEN	South	Male	12.8	21.13	0.01	1	
Sn1222	21/03/2007	EDEN	South	Male	13.1	22.75	0.01	1	
Sn1223	21/03/2007	EDEN	South	Male	13	20.85	0.01	1	
Sn1224	21/03/2007	EDEN	South	Female	13.3	21.28	0.01	1	
Sn1225	21/03/2007	EDEN	South	Female	14	26.32	0.04	1	
Sn1226	21/03/2007	EDEN	South	Male	14.3	28.37	0.01	1	
Sn1227	21/03/2007	EDEN	South	Female	13.1	21.68	0.02	1	
Sn1228	21/03/2007	EDEN	South	Male	13.1	23.02	0.01	1	
Sn1229	21/03/2007	EDEN	South	Male	12.9	19.52	0.01	1	

Envelope ID	Sample Date	Location	Region	Sex	Fork Length (cm)	Body Weight (g)	Gonad Weight (g)	Gonad Stage	Fat Stage
Sn1230	21/03/2007	EDEN	South	Male	12.9	20.95	0.01	1	
Sn1231	21/03/2007	EDEN	South	Female	13.1	22.38	0.01	1	
Sn1232	21/03/2007	EDEN	South	Male	14	26.37	0.01	1	
Sn1233	21/03/2007	EDEN	South	Male	13.7	26.63	0.01	1	
Sn1234	21/03/2007	EDEN	South	Male	14.2	28.05	0.01	1	
Sn1235	21/03/2007	EDEN	South	Female	14.1	28.37	0.04	1	
Sn1236	21/03/2007	EDEN	South	Female	13.2	21.11	0.01	1	
Sn1237	21/03/2007	EDEN	South	Female	13.5	22.87	0.02	1	
Sn1238	21/03/2007	EDEN	South	Male	13.6	26.24	0.01	1	
Sn1239	21/03/2007	EDEN	South	Female	12.8	22.39	0.01	1	
Sn1240	18/04/2007	EDEN	South	Female	22.2	118.24	3.77	4	
Sn1241	18/04/2007	EDEN	South	Female	20.6	109.19	1.79	4	
Sn1242	18/04/2007	EDEN	South	Female	20.7	101.83	0.89	3	
Sn1243	18/04/2007	EDEN	South	Female	20.5	99.5	1.84	4	
Sn1244	18/04/2007	EDEN	South	Female	20.8	97.38	1.86	4	
Sn1245	18/04/2007	EDEN	South	Female	20.4	109.53	2.59	4	
Sn1246	22/03/2007	EDEN	South	Juvenile	7.9	4.05	0.01	1	
Sn1247	22/03/2007	EDEN	South	Juvenile	7.4	3.2	0.01	1	
Sn1248	22/03/2007	EDEN	South	Juvenile	8.1	3.82	0.01	1	
Sn1249	22/03/2007	EDEN	South	Juvenile	9.1	6.32	0.01	1	
Sn1250	22/03/2007	EDEN	South	Juvenile	8.7	5.51	0.01	1	
Sn1251	22/03/2007	EDEN	South	Juvenile	7	2.69	0.01	1	
Sn1252	22/03/2007	EDEN	South	Juvenile	7.7	3.79	0.01	1	
Sn1253	22/03/2007	EDEN	South	Juvenile	8.6	5.13	0.01	1	
Sn1254	9/08/2007	EDEN	South	Female	18	62.17	1.57	3	
Sn1255	9/08/2007	EDEN	South	Male	16.8	50.06	2.84	3	
Sn1256	9/08/2007	EDEN	South	Male	19.6	84.59	3.45	3	
Sn1257	9/08/2007	EDEN	South	Female	20.7	95.07	2.41	3	
Sn1258	9/08/2007	EDEN	South	Female	18.8	86.5	2.19	3	
Sn1259	9/08/2007	EDEN	South	Female	18	65.25	3.58	4	
Sn1260	9/08/2007	EDEN	South	Female	17.4	53.95	2.48	4	
Sn1261	9/08/2007	EDEN	South	Female	20.4	96.11	7.71	4	
Sn1262	9/08/2007	EDEN	South	Female	18.8	91.12	4.33	4	
Sn1263	9/08/2007	EDEN	South	Male	19.5	78.93	2.1	2	
Sn1264	9/08/2007	EDEN	South	Female	19.5	83.46	3.46	4	
Sn1265	9/08/2007	EDEN	South	Female	19	73.04	4.9	4	
Sn1266	9/08/2007	EDEN	South	Male	17.3	55.18	2.17	2	
Sn1267	9/08/2007	EDEN	South	Male	19.9	88.98	3.2	3	
Sn1268	9/08/2007	EDEN	South	Male	17	51.74	2.2	2	
Sn1269	9/08/2007	EDEN	South	Female	18.8	70.33	1.43	3	
Sn1270	9/08/2007	EDEN	South	Male	20.3	90.69	3	2	
Sn1271	9/08/2007	EDEN	South	Female	17.6	57.73	2.45	3	
Sn1272	9/08/2007	EDEN	South	Female	19.5	81.84	3.03	4	
Sn1273	9/08/2007	EDEN	South	Female	20.3	89.23	2.73	4	
Sn1274	18/06/2007	EDEN	South	Male	14.6	29.74	0.5	2	
Sn1275	18/06/2007	EDEN	South	Female	15	33.73	0.16	2	
Sn1276	18/06/2007	EDEN	South	Male	15.2	35.97	0.23	2	
Sn1277	18/06/2007	EDEN	South	Female	14	28.12	0.28	2	
Sn1278	18/06/2007	EDEN	South	Male	15	35.24	0.47	2	
Sn1279	18/06/2007	EDEN	South	Female	13.9	25.08	0.15	2	
Sn1280	18/06/2007	EDEN	South	Male	15.8	40.36	0.34	2	
Sn1281	18/06/2007	EDEN	South	Female	15.5	38.99	0.24	2	
Sn1282	18/06/2007	EDEN	South	Male	14.6	29.18	0.15	2	
Sn1283	18/06/2007	EDEN	South	Male	16.5	46.88	0.39	2	
Sn1284	18/06/2007	EDEN	South	Male	15.2	38.81	0.36	2	
Sn1285	18/06/2007	EDEN	South	Male	14.2	27.14	0.07	2	
Sn1286	18/06/2007	EDEN	South	Male	14.6	30.78	0.15	2	
Sn1287	18/06/2007	EDEN	South	Male	15.2	34.85	0.28	2	
Sn1288	18/06/2007	EDEN	South	Female	14.1	26.29	0.16	2	
Sn1289	18/06/2007	EDEN	South	Female	14.4	29.41	0.08	1	
Sn1290	18/06/2007	EDEN	South	Male	15.3	36.46	0.1	2	
Sn1291	18/06/2007	EDEN	South	Female	17.8	63.74	0.59	2	
Sn1292	18/06/2007	EDEN	South	Female	13.8	25.55	0.07	1	
Sn1293	18/06/2007	EDEN	South	Male	14.5	30	0.29	2	
Sn1294	3/06/2007	EDEN	South	Female	13.4	23.62	0.07	1	
Sn1295	3/06/2007	EDEN	South	Male	15.2	35.21	0.51	2	
Sn1296	3/06/2007	EDEN	South	Male	15.3	36.46	0.33	2	
Sn1297	3/06/2007	EDEN	South	Female	14	26.99	0.12	2	
Sn1298	3/06/2007	EDEN	South	Male	14.6	30.47	0.23	2	
Sn1299	3/06/2007	EDEN	South	Male	17	51.68	0.68	2	
Sn1300	3/06/2007	EDEN	South	Female	14.4	30.4	0.15	2	
Sn1301	3/06/2007	EDEN	South	Female	14.6	30.99	0.07	1	
Sn1302	3/06/2007	EDEN	South	Female	16.8	51.82	0.83	3	
Sn1303	3/06/2007	EDEN	South	Female	18.1	60.94	0.7	3	
Sn1304	3/06/2007	EDEN	South	Male	15.6	37.11	0.07	1	
Sn1305	3/06/2007	EDEN	South	Male	13.1	22.94	0.01	1	
Sn1306	3/06/2007	EDEN	South	Male	13.7	25.66	0.07	1	
Sn1307	3/06/2007	EDEN	South	Female	18.5	74.04	4.42	4	
Sn1308	3/06/2007	EDEN	South	Male	15.8	42.85	0.67	2	
Sn1309	3/06/2007	EDEN	South	Male	15.2	33.31	0.26	2	
Sn1310	3/06/2007	EDEN	South	Female	18.6	72.2	2.04	4	
Sn1311	3/06/2007	EDEN	South	Male	17.2	55.85	0.32	2	
Sn1312	3/06/2007	EDEN	South	Female	16.3	43.88	0.28	2	
Sn1313	3/06/2007	EDEN	South	Male	15.5	37.37	0.09	2	
Sn1314	4/06/2007	EDEN	South	Female	16.7	50.31	0.28	2	
Sn1315	4/06/2007	EDEN	South	Male	16	45.42	0.25	2	
Sn1316	4/06/2007	EDEN	South	Female	16.5	45.51	0.21	2	
Sn1317	4/06/2007	EDEN	South	Male	14.1	28.39	0.06	1	
Sn1318	4/06/2007	EDEN	South	Female	14.4	32.29	0.23	2	
Sn1319	4/06/2007	EDEN	South	Female	16.3	46.09	0.2	2	
Sn1320	4/06/2007	EDEN	South	Male	14.4	30.8	0.05	1	

Envelope ID	Sample Date	Location	Region	Sex	Fork Length (cm)	Body Weight (g)	Gonad Weight (g)	Gonad Stage	Fat Stage
Sn1321	4/06/2007	EDEN	South	Male	15.3	38.15	0.25	2	
Sn1322	4/06/2007	EDEN	South	Female	14.4	29.28	0.04	1	
Sn1323	4/06/2007	EDEN	South	Female	15.5	39.45	0.24	2	
Sn1324	4/06/2007	EDEN	South	Female	15.7	40.48	0.32	2	
Sn1325	4/06/2007	EDEN	South	Female	16	46.62	0.3	2	
Sn1326	4/06/2007	EDEN	South	Female	15.7	41.7	0.14	2	
Sn1327	4/06/2007	EDEN	South	Male	14.3	30.34	0.1	1	
Sn1328	4/06/2007	EDEN	South	Female	14.5	28.06	0.1	1	
Sn1329	4/06/2007	EDEN	South	Male	15.4	40.28	0.52	2	
Sn1330	4/06/2007	EDEN	South	Male	14	27.07	0.01	1	
Sn1331	4/06/2007	EDEN	South	Male	14.8	34.08	0.17	2	
Sn1332	4/06/2007	EDEN	South	Male	16	46.95	0.19	2	
Sn1333	4/06/2007	EDEN	South	Female	15	36.02	0.09	1	
Sn1334	14/08/2007	EDEN	South	Female	18.8	79.26	4.62	4	
Sn1335	14/08/2007	EDEN	South	Female	21.1	98.37	3.7	4	
Sn1336	14/08/2007	EDEN	South	Female	20	85.27	1.79	3	
Sn1337	14/08/2007	EDEN	South	Female	19.7	81.95	2.58	4	
Sn1338	14/08/2007	EDEN	South	Female	18.9	75.71	2.65	4	
Sn1339	14/08/2007	EDEN	South	Female	19.4	83.4	3.1	4	
Sn1340	14/08/2007	EDEN	South	Male	20	87.01	3.57	3	
Sn1341	14/08/2007	EDEN	South	Female	20.5	98.11	2.14	4	
Sn1342	14/08/2007	EDEN	South	Female	19.2	73.38	1.79	3	
Sn1343	14/08/2007	EDEN	South	Female	19.5	83.06	1.56	4	
Sn1344	14/08/2007	EDEN	South	Female	19.8	85.66	2.87	4	
Sn1345	14/08/2007	EDEN	South	Male	19.6	80.68	3.22	3	
Sn1346	14/08/2007	EDEN	South	Female	21.1	89.34	2.6	4	
Sn1347	14/08/2007	EDEN	South	Female	18.6	73.31	2.5	4	
Sn1348	14/08/2007	EDEN	South	Female	19.5	79.83	2.86	4	
Sn1349	14/08/2007	EDEN	South	Female	17.9	61.22	1.53	3	
Sn1350	14/08/2007	EDEN	South	Female	18.8	83.28	3.51	4	
Sn1351	14/08/2007	EDEN	South	Female	20.5	94.91	4.45	4	
Sn1352	14/08/2007	EDEN	South	Female	21.1	99.16	3.72	4	
Sn1353	14/08/2007	EDEN	South	Female	19.8	81.46	2.55	4	
Sn1354	25/06/2007	EDEN	South	Female	16.8	48.45	0.57	3	
Sn1355	25/06/2007	EDEN	South	Male	16	40	0.28	2	
Sn1356	25/06/2007	EDEN	South	Male	14	26.32	0.05	1	
Sn1357	25/06/2007	EDEN	South	Female	15.6	37.8	0.29	3	
Sn1358	25/06/2007	EDEN	South	Female	16	36.86	0.23	2	
Sn1359	25/06/2007	EDEN	South	Male	16.8	46.35	0.74	2	
Sn1360	25/06/2007	EDEN	South	Female	14.3	28.36	0.2	2	
Sn1361	25/06/2007	EDEN	South	Female	15.4	33.25	0.24	3	
Sn1362	25/06/2007	EDEN	South	Female	16	41.55	0.52	3	
Sn1363	25/06/2007	EDEN	South	Male	16.3	45.63	1.93	3	
Sn1364	25/06/2007	EDEN	South	Male	15.5	38.23	0.78	2	
Sn1365	25/06/2007	EDEN	South	Male	15.1	34.31	0.65	2	
Sn1366	25/06/2007	EDEN	South	Female	14.7	31.43	0.2	2	
Sn1367	25/06/2007	EDEN	South	Female	15.7	36.1	0.35	3	
Sn1368	25/06/2007	EDEN	South	Female	15.5	39.34	0.66	3	
Sn1369	25/06/2007	EDEN	South	Male	14.9	34.35	1	2	
Sn1370	25/06/2007	EDEN	South	Male	18.4	66.16	1.14	2	
Sn1371	25/06/2007	EDEN	South	Male	14.6	30.93	0.08	2	
Sn1372	25/06/2007	EDEN	South	Female	14.7	27.62	0.1	2	
Sn1373	25/06/2007	EDEN	South	Female	14.9	32.26	0.31	3	
Sn1374	19/06/2007	EDEN	South	Male	14.4	28.88	0.1	2	
Sn1375	19/06/2007	EDEN	South	Female	14.2	26.6	0.14	2	
Sn1376	19/06/2007	EDEN	South	Female	15.6	38.59	0.2	3	
Sn1377	19/06/2007	EDEN	South	Male	14.3	27.89	0.04	1	
Sn1378	19/06/2007	EDEN	South	Female	15.4	36.86	0.24	3	
Sn1379	19/06/2007	EDEN	South	Female	18.5	65.75	0.82	3	
Sn1380	19/06/2007	EDEN	South	Female	13.7	22.83	0.16	2	
Sn1381	19/06/2007	EDEN	South	Female	17.7	57.68	0.47	3	
Sn1382	19/06/2007	EDEN	South	Female	13.8	24.86	0.1	2	
Sn1383	19/06/2007	EDEN	South	Male	15.1	34.65	0.6	2	
Sn1384	19/06/2007	EDEN	South	Female	15.5	38.46	0.3	3	
Sn1385	19/06/2007	EDEN	South	Female	14.3	27.6	0.32	3	
Sn1386	19/06/2007	EDEN	South	Male	14.7	32.19	0.54	2	
Sn1387	19/06/2007	EDEN	South	Male	14.3	27.04	0.06	2	
Sn1388	19/06/2007	EDEN	South	Female	14.3	27.74	0.18	3	
Sn1389	19/06/2007	EDEN	South	Male	15.1	33.85	0.37	2	
Sn1390	19/06/2007	EDEN	South	Female	15.3	34.59	0.16	2	
Sn1391	19/06/2007	EDEN	South	Female	13.7	24.09	0.12	2	
Sn1392	19/06/2007	EDEN	South	Male	14.8	30.55	0.23	2	
Sn1393	19/06/2007	EDEN	South	Male	14.7	29.7	0.04	1	
Sn1394	19/06/2007	EDEN	South	Female	15	36.14	0.29	3	
Sn1395	19/06/2007	EDEN	South	Male	14.5	31.49	0.2	2	
Sn1396	19/06/2007	EDEN	South	Male	15	35.01	0.3	2	
Sn1397	19/06/2007	EDEN	South	Female	14.5	32.43	0.11	2	
Sn1398	19/06/2007	EDEN	South	Female	14.5	30.63	0.1	2	
Sn1399	19/06/2007	EDEN	South	Female	14.5	29.25	0.13	2	
Sn1400	19/06/2007	EDEN	South	Male	14.8	33.26	0.63	2	
Sn1401	19/06/2007	EDEN	South	Female	14.5	32.38	0.11	2	
Sn1402	19/06/2007	EDEN	South	Male	15.8	38.88	0.18	2	
Sn1403	19/06/2007	EDEN	South	Male	16.1	41.77	0.23	2	
Sn1404	19/06/2007	EDEN	South	Female	14.2	29.87	0.13	2	
Sn1405	19/06/2007	EDEN	South	Female	15.4	36.87	0.14	2	
Sn1406	19/06/2007	EDEN	South	Female	15.2	39.09	0.18	2	
Sn1407	19/06/2007	EDEN	South	Female	14.9	34.62	0.55	3	
Sn1408	19/06/2007	EDEN	South	Female	14.9	32.32	0.13	2	
Sn1409	19/06/2007	EDEN	South	Male	14.1	29.62	0.06	1	
Sn1410	19/06/2007	EDEN	South	Male	14.8	33.59	0.11	2	
Sn1411	19/06/2007	EDEN	South	Male	14.8	34.91	0.28	2	

Envelope ID	Sample Date	Location	Region	Sex	Fork Length (cm)	Body Weight (g)	Gonad Weight (g)	Gonad Stage	Fat Stage
Sn1412	19/06/2007	EDEN	South	Female	14.1	28.8	0.11	2	
Sn1413	19/06/2007	EDEN	South	Male	16.6	48.28	0.32	2	
Sn1414	23/05/2007	EDEN	South	Female	15	33.71	0.15	2	
Sn1415	23/05/2007	EDEN	South	Female	18.1	72.37	1.86	4	
Sn1416	23/05/2007	EDEN	South	Male	14.7	33.54	0.15	2	
Sn1417	23/05/2007	EDEN	South	Female	14	26.71	0.1	2	
Sn1418	23/05/2007	EDEN	South	Male	14.9	34.86	0.12	2	
Sn1419	23/05/2007	EDEN	South	Male	13.8	30.31	0.04	1	
Sn1420	23/05/2007	EDEN	South	Female	15.5	37.73	0.18	2	
Sn1421	23/05/2007	EDEN	South	Female	14.5	31.68	0.13	2	
Sn1422	23/05/2007	EDEN	South	Female	15.2	39.07	0.19	2	
Sn1423	23/05/2007	EDEN	South	Female	15	32.99	0.14	2	
Sn1424	23/05/2007	EDEN	South	Female	15.3	38.41	0.11	2	
Sn1425	23/05/2007	EDEN	South	Male	14.9	36.59	0.37	2	
Sn1426	23/05/2007	EDEN	South	Female	14.8	32.12	0.08	2	
Sn1427	23/05/2007	EDEN	South	Female	14.7	34.08	0.14	2	
Sn1428	23/05/2007	EDEN	South	Male	14.8	33.43	0.43	2	
Sn1429	23/05/2007	EDEN	South	Male	16	44.91	0.37	2	
Sn1430	23/05/2007	EDEN	South	Female	14.7	34.12	0.17	2	
Sn1431	23/05/2007	EDEN	South	Female	14	25.02	0.08	2	
Sn1432	23/05/2007	EDEN	South	Female	17.3	57.8	0.43	3	
Sn1433	23/05/2007	EDEN	South	Female	15.4	37.15	0.15	2	
Sn1434	7/06/2007	EDEN	South	Female	14.6	30.83	0.14	2	
Sn1435	7/06/2007	EDEN	South	Female	13.4	21.78	0.09	1	
Sn1436	7/06/2007	EDEN	South	Female	14.2	28.17	0.09	1	
Sn1437	7/06/2007	EDEN	South	Female	13.9	24.75	0.09	1	
Sn1438	7/06/2007	EDEN	South	Male	13.9	25.31	0.04	1	
Sn1439	7/06/2007	EDEN	South	Male	13.7	24.36	0.07	1	
Sn1440	7/06/2007	EDEN	South	Male	15.2	35.5	0.09	1	
Sn1441	7/06/2007	EDEN	South	Male	14.2	27.71	0.27	2	
Sn1442	7/06/2007	EDEN	South	Female	15.2	33.98	0.13	2	
Sn1443	7/06/2007	EDEN	South	Male	14.3	28.97	0.1	1	
Sn1444	7/06/2007	EDEN	South	Male	14.2	26.32	0.17	2	
Sn1445	7/06/2007	EDEN	South	Female	13	22.26	0.07	1	
Sn1446	7/06/2007	EDEN	South	Male	15.8	39.07	0.18	2	
Sn1447	7/06/2007	EDEN	South	Male	14.7	34.13	0.38	2	
Sn1448	7/06/2007	EDEN	South	Male	15.2	38.2	0.19	2	
Sn1449	7/06/2007	EDEN	South	Female	13.8	24.99	0.16	2	
Sn1450	7/06/2007	EDEN	South	Male	15	34.12	0.37	2	
Sn1451	7/06/2007	EDEN	South	Female	14.8	30.17	0.23	2	
Sn1452	7/06/2007	EDEN	South	Female	15	33.31	0.72	3	
Sn1453	7/06/2007	EDEN	South	Female	14.7	30.66	0.1	1	
Sn1454	5/06/2007	EDEN	South	Male	14.9	32.41	0.01	1	
Sn1455	5/06/2007	EDEN	South	Male	13.9	24.74	0.05	1	
Sn1456	5/06/2007	EDEN	South	Female	14.3	29.59	0.11	2	
Sn1457	5/06/2007	EDEN	South	Female	18.6	74.14	0.76	3	
Sn1458	5/06/2007	EDEN	South	Female	15.6	38.7	0.2	2	
Sn1459	5/06/2007	EDEN	South	Male	15.6	38.45	0.47	2	
Sn1460	5/06/2007	EDEN	South	Female	14.5	32.76	0.14	2	
Sn1461	5/06/2007	EDEN	South	Male	14.1	25.78	0.04	1	
Sn1462	5/06/2007	EDEN	South	Male	15.3	37.01	0.43	2	
Sn1463	5/06/2007	EDEN	South	Female	18.2	65.13	0.62	3	
Sn1464	5/06/2007	EDEN	South	Female	15.2	35.48	0.16	2	
Sn1465	5/06/2007	EDEN	South	Female	15.1	34.06	0.2	2	
Sn1466	5/06/2007	EDEN	South	Male	13.2	21.85	0.01	1	
Sn1467	5/06/2007	EDEN	South	Male	14.1	25.43	0.11	2	
Sn1468	5/06/2007	EDEN	South	Female	15.8	35.54	0.2	2	
Sn1469	5/06/2007	EDEN	South	Female	16.3	42.72	0.26	2	
Sn1470	5/06/2007	EDEN	South	Male	13.9	24	0.03	1	
Sn1471	5/06/2007	EDEN	South	Female	15.2	35.04	0.1	2	
Sn1472	5/06/2007	EDEN	South	Female	13.6	23.2	0.1	2	
Sn1473	5/06/2007	EDEN	South	Male	14.3	27.23	0.03	1	
Sn1474	25/06/2007	EDEN	South	Male	14.4	27.73	0.03	1	
Sn1475	25/06/2007	EDEN	South	Male	14.1	24.97	0.04	1	
Sn1476	25/06/2007	EDEN	South	Female	18.4	63.92	0.58	5	
Sn1477	25/06/2007	EDEN	South	Female	14.9	30.8	0.17	2	
Sn1478	25/06/2007	EDEN	South	Female	15.6	33.66	0.09	2	
Sn1479	25/06/2007	EDEN	South	Female	15.1	33.62	0.35	3	
Sn1480	25/06/2007	EDEN	South	Male	13.3	21.93	0.01	1	
Sn1481	25/06/2007	EDEN	South	Female	15	32.4	0.17	2	
Sn1482	25/06/2007	EDEN	South	Female	18.2	59.27	0.78	3	
Sn1483	25/06/2007	EDEN	South	Female	13.5	22.27	0.07	1	
Sn1484	25/06/2007	EDEN	South	Female	14.3	27.64	0.22	2	
Sn1485	25/06/2007	EDEN	South	Male	15.2	32.84	0.37	2	
Sn1486	25/06/2007	EDEN	South	Female	17.5	51.33	0.38	3	
Sn1487	25/06/2007	EDEN	South	Female	14.4	26.26	0.15	2	
Sn1488	25/06/2007	EDEN	South	Female	13.7	22.58	0.1	2	
Sn1489	25/06/2007	EDEN	South	Male	14.7	29.15	0.07	1	
Sn1490	25/06/2007	EDEN	South	Female	14.8	31.14	0.15	2	
Sn1491	25/06/2007	EDEN	South	Male	15.5	37.79	0.57	2	
Sn1492	25/06/2007	EDEN	South	Male	14.9	33.1	0.34	2	
Sn1493	25/06/2007	EDEN	South	Female	13.5	23.98	0.12	2	
Sn1494	7/06/2007	EDEN	South	Female	22.4	106.68	0.69	5	
Sn1495	23/10/2007	ILUKA	North	Female	15.9	44.31	0.64	3	
Sn1496	23/10/2007	ILUKA	North	Male	15.9	41.01	0.42	2	
Sn1497	23/10/2007	ILUKA	North	Female	16.1	36.68	0.13	2	
Sn1498	23/10/2007	ILUKA	North	Female	16.4	39.04	0.2	2	
Sn1499	23/10/2007	ILUKA	North	Female	15.8	38.03	0.26	2	
Sn1500	23/10/2007	ILUKA	North	Female	17	51.44	0.32	2	
Sn1501	23/10/2007	ILUKA	North	Female	14.2	23.65	0.12	2	
Sn1502	23/10/2007	ILUKA	North	Female	16.1	44.45	0.58	3	

Envelope ID	Sample Date	Location	Region	Sex	Fork Length (cm)	Body Weight (g)	Gonad Weight (g)	Gonad Stage	Fat Stage
Sn1503	23/10/2007	ILUKA	North	Female	16.5	46.21	0.96	3	
Sn1504	23/10/2007	ILUKA	North	Female	14.8	35.89	0.35	2	
Sn1505	23/10/2007	ILUKA	North	Female	16	33.39	0.07	2	
Sn1506	23/10/2007	ILUKA	North	Female	17.3	54.68	0.87	3	
Sn1507	23/10/2007	ILUKA	North	Female	14.7	33.68	0.16	2	
Sn1508	23/10/2007	ILUKA	North	Male	15.1	40.13	0.2	2	
Sn1509	23/10/2007	ILUKA	North	Female	17.5		0.26	2	
Sn1510	23/10/2007	ILUKA	North	Male	14.8	32.24	0.14	2	
Sn1511	23/10/2007	ILUKA	North	Female	15.7	44.03	0.21	2	
Sn1512	23/10/2007	ILUKA	North	Male	13.9	26.32	0.05	2	
Sn1513	23/10/2007	ILUKA	North	Male	15.1	36.26	0.29	2	
Sn1514	23/10/2007	ILUKA	North	Female	17.1	51.58	0.53	3	
Sn1515	6/12/2007	GREENWELL POINT	South	Juvenile	9.5	9.78	0.01	1	
Sn1516	6/12/2007	GREENWELL POINT	South	Juvenile	11	13.93	0.01	1	
Sn1517	6/12/2007	GREENWELL POINT	South	Juvenile	10.8	12.48	0.01	1	
Sn1518	6/12/2007	GREENWELL POINT	South	Juvenile	10.9	14.56	0.01	1	
Sn1519	6/12/2007	GREENWELL POINT	South	Juvenile	11.3	16.06	0.01	1	
Sn1520	6/12/2007	GREENWELL POINT	South	Juvenile	10.9	13.04	0.01	1	
Sn1521	6/12/2007	GREENWELL POINT	South	Juvenile	10.8	12.94	0.01	1	
Sn1522	6/12/2007	GREENWELL POINT	South	Juvenile	10.1	11.26	0.01	1	
Sn1523	6/12/2007	GREENWELL POINT	South	Juvenile	10	9.82	0.01	1	
Sn1524	6/12/2007	GREENWELL POINT	South	Juvenile	11.1	13.39	0.01	1	
Sn1525	6/12/2007	GREENWELL POINT	South	Juvenile	9.9	9.04	0.01	1	
Sn1526	6/12/2007	GREENWELL POINT	South	Juvenile	10.8	12.87	0.01	1	
Sn1527	6/12/2007	GREENWELL POINT	South	Juvenile	10.4	12.38	0.01	1	
Sn1528	6/12/2007	GREENWELL POINT	South	Juvenile	10.1	10.42	0.01	1	
Sn1529	6/12/2007	GREENWELL POINT	South	Juvenile	9.9	10.47	0.01	1	
Sn1530	6/12/2007	GREENWELL POINT	South	Juvenile	10.8	12.79	0.01	1	
Sn1531	6/12/2007	GREENWELL POINT	South	Juvenile	9.9	9.54	0.01	1	
Sn1532	6/12/2007	GREENWELL POINT	South	Juvenile	11.3	16.74	0.01	1	
Sn1533	6/12/2007	GREENWELL POINT	South	Juvenile	10.1	10.39	0.01	1	
Sn1534	6/12/2007	GREENWELL POINT	South	Juvenile	10.6	12.3	0.01	1	
Sn1535	6/12/2007	GREENWELL POINT	South	Juvenile	11	14.11	0.01	1	
Sn1536	6/12/2007	GREENWELL POINT	South	Juvenile	10.9	12.49	0.01	1	
Sn1537	6/12/2007	GREENWELL POINT	South	Juvenile	11.1	13.4	0.01	1	
Sn1538	6/12/2007	GREENWELL POINT	South	Juvenile	10.3	11.08	0.01	1	
Sn1539	6/12/2007	GREENWELL POINT	South	Juvenile	10.5	11.52	0.01	1	
Sn1540	6/12/2007	GREENWELL POINT	South	Juvenile	10.2	10.61	0.01	1	
Sn1541	6/12/2007	GREENWELL POINT	South	Juvenile	10.8	12.83	0.01	1	
Sn1542	6/12/2007	GREENWELL POINT	South	Juvenile	10.6	12.98	0.01	1	
Sn1543	6/12/2007	GREENWELL POINT	South	Juvenile	11.1	13.91	0.01	1	
Sn1544	6/12/2007	GREENWELL POINT	South	Juvenile	9.8	8.9	0.01	1	
Sn1545	6/12/2007	GREENWELL POINT	South	Juvenile	10.8	13.94	0.01	1	
Sn1546	6/12/2007	GREENWELL POINT	South	Juvenile	10.8	12.86	0.01	1	
Sn1547	6/12/2007	GREENWELL POINT	South	Juvenile	10.6	13.86	0.01	1	
Sn1548	6/12/2007	GREENWELL POINT	South	Juvenile	11.6	16.96	0.01	1	
Sn1549	6/12/2007	GREENWELL POINT	South	Juvenile	10.8	12.69	0.01	1	
Sn1550	6/12/2007	GREENWELL POINT	South	Juvenile	10.2	9.97	0.01	1	
Sn1551	6/12/2007	GREENWELL POINT	South	Juvenile	10.6	12.44	0.01	1	
Sn1552	6/12/2007	GREENWELL POINT	South	Juvenile	10.7	10.67	0.01	1	
Sn1553	6/12/2007	GREENWELL POINT	South	Juvenile	11.5	16.96	0.01	1	
Sn1554	6/12/2007	GREENWELL POINT	South	Juvenile	10.5	12.21	0.01	1	
Sn1555	6/12/2007	GREENWELL POINT	South	Juvenile	10.8	12.79	0.01	1	
Sn1556	6/12/2007	GREENWELL POINT	South	Juvenile	10.6	11.74	0.01	1	
Sn1557	6/12/2007	GREENWELL POINT	South	Juvenile	10.9	13.22	0.01	1	
Sn1558	6/12/2007	GREENWELL POINT	South	Juvenile	10	10.61	0.01	1	
Sn1559	6/12/2007	GREENWELL POINT	South	Juvenile	10.5	11.35	0.01	1	
Sn1560	6/12/2007	GREENWELL POINT	South	Juvenile	10.5	11.56	0.01	1	
Sn1561	6/12/2007	GREENWELL POINT	South	Juvenile	11	14.14	0.01	1	
Sn1562	6/12/2007	GREENWELL POINT	South	Juvenile	11.7	16.33	0.01	1	
Sn1563	6/12/2007	GREENWELL POINT	South	Juvenile	10.9	13.35	0.01	1	
Sn1564	6/12/2007	GREENWELL POINT	South	Juvenile	10.9	13.57	0.01	1	
Sn1565	6/12/2007	GREENWELL POINT	South	Juvenile	11.1	14.57	0.01	1	
Sn1566	6/12/2007	GREENWELL POINT	South	Juvenile	10.1	10.83	0.01	1	
Sn1567	20/12/2007	GREENWELL POINT	South	Juvenile	12.6	21.99		1	
Sn1568	20/12/2007	GREENWELL POINT	South	Juvenile	12.3	18.94		1	
Sn1569	20/12/2007	GREENWELL POINT	South	Juvenile	11.7	18.54		1	
Sn1570	20/12/2007	GREENWELL POINT	South	Juvenile	11.6	15.28		1	
Sn1571	20/12/2007	GREENWELL POINT	South	Juvenile	12.8	21.64		1	
Sn1572	20/12/2007	GREENWELL POINT	South	Juvenile	12.1	18.02		1	
Sn1573	20/12/2007	GREENWELL POINT	South	Juvenile	10	10.4		1	
Sn1574	20/12/2007	GREENWELL POINT	South	Juvenile	11.7	16.43		1	
Sn1575	20/12/2007	GREENWELL POINT	South	Juvenile	11.3	16.41		1	
Sn1576	20/12/2007	GREENWELL POINT	South	Juvenile	11.6	16.76		1	
Sn1577	20/12/2007	GREENWELL POINT	South	Juvenile	11.4	15.91		1	
Sn1578	20/12/2007	GREENWELL POINT	South	Juvenile	12.3	19		1	
Sn1579	20/12/2007	GREENWELL POINT	South	Juvenile	11.2	13.97		1	
Sn1580	20/12/2007	GREENWELL POINT	South	Juvenile	10.9	14.15		1	
Sn1581	20/12/2007	GREENWELL POINT	South	Juvenile	11.5	16.28		1	
Sn1582	20/12/2007	GREENWELL POINT	South	Juvenile	11.5	14.98		1	
Sn1583	20/12/2007	GREENWELL POINT	South	Juvenile	11.1	13.51		1	
Sn1584	20/12/2007	GREENWELL POINT	South	Juvenile	10.1	9.33		1	
Sn1585	20/12/2007	GREENWELL POINT	South	Juvenile	11.1	14.53		1	
Sn1586	20/12/2007	GREENWELL POINT	South	Juvenile	10.9	14.4		1	
Sn1587	20/12/2007	GREENWELL POINT	South	Juvenile	9.6	8.55		1	
Sn1588	20/12/2007	GREENWELL POINT	South	Juvenile	11	13.13		1	
Sn1589	20/12/2007	GREENWELL POINT	South	Juvenile	11.5	16.15		1	
Sn1590	20/12/2007	GREENWELL POINT	South	Juvenile	11.6	17.02		1	
Sn1591	20/12/2007	GREENWELL POINT	South	Juvenile	11.2	14.86		1	
Sn1592	20/12/2007	GREENWELL POINT	South	Juvenile	12.1	19.7		1	
Sn1593	20/12/2007	GREENWELL POINT	South	Juvenile	10.8	12.53		1	

Envelope ID	Sample Date	Location	Region	Sex	Fork Length (cm)	Body Weight (g)	Gonad Weight (g)	Gonad Stage	Fat Stage
Sn1594	20/12/2007	GREENWELL POINT	South	Juvenile	11.1	13.44		1	
Sn1595	20/12/2007	GREENWELL POINT	South	Juvenile	10.9	14.25		1	
Sn1596	20/12/2007	GREENWELL POINT	South	Juvenile	11.2	13.8		1	
Sn1597	27/11/2007	EDEN	South	Male	17.1	61.49	3.59	3	
Sn1598	27/11/2007	EDEN	South	Female	18.3	66.87	4.26	4	
Sn1599	27/11/2007	EDEN	South	Female	16.4	46.15	0.61	3	
Sn1600	27/11/2007	EDEN	South	Male	16.9	57.88	2.62	3	
Sn1601	27/11/2007	EDEN	South	Female	18.2	70.5	4.54	4	
Sn1602	27/11/2007	EDEN	South	Female	17.7	62.53	3.33	4	
Sn1603	27/11/2007	EDEN	South	Female	17.7	67.96	3.34	4	
Sn1604	27/11/2007	EDEN	South	Female	17.3	61.78	2.68	4	
Sn1605	27/11/2007	EDEN	South	Female	18.3	80.25	5.56	4	
Sn1606	27/11/2007	EDEN	South	Male	16.6	52.64	1.46	2	
Sn1607	27/11/2007	EDEN	South	Female	17.2	63.24	3.3	4	
Sn1608	27/11/2007	EDEN	South	Female	17.8	61.58	3.11	4	
Sn1609	27/11/2007	EDEN	South	Female	17	60.45	1.96	3	
Sn1610	27/11/2007	EDEN	South	Female	16.1	48.65	1.21	3	
Sn1611	27/11/2007	EDEN	South	Male	17.4	65.35	5.16	3	
Sn1612	27/11/2007	EDEN	South	Female	17.7	69.2	2.14	3	
Sn1613	27/11/2007	EDEN	South	Male	17.4	61.11	2.42	3	
Sn1614	27/11/2007	EDEN	South	Female	17.9	68.94	3.55	4	
Sn1615	31/10/2007	EDEN	South	Female	18.3	72.26	2.81	4	
Sn1616	31/10/2007	EDEN	South	Female	17.7	66.55	2.7	4	
Sn1617	31/10/2007	EDEN	South	Female	17.6	61.7	2.24	4	
Sn1618	31/10/2007	EDEN	South	Female	17.6	62.22	4.08	4	
Sn1619	31/10/2007	EDEN	South	Female	19.6	85.27	4.89	4	
Sn1620	31/10/2007	EDEN	South	Female	16.3	44.88	2.34	4	
Sn1621	31/10/2007	EDEN	South	Male	18.7	79.83	4.25	3	
Sn1622	31/10/2007	EDEN	South	Female	17.6	73.91	3.27	4	
Sn1623	31/10/2007	EDEN	South	Male	17.6	63.33	3.28	3	
Sn1624	31/10/2007	EDEN	South	Female	18.2	71.15	3.49	4	
Sn1625	31/10/2007	EDEN	South	Female	18.6	83.19	5.89	4	
Sn1626	31/10/2007	EDEN	South	Female	19.8	91.02	6.36	4	
Sn1627	31/10/2007	EDEN	South	Male	17.2	62.87	3.78	3	
Sn1628	31/10/2007	EDEN	South	Female	18.5	66.86	4.84	4	
Sn1629	31/10/2007	EDEN	South	Female	17.1	62.36	3.67	4	
Sn1630	31/10/2007	EDEN	South	Female	16.5	56.93	2.72	4	
Sn1631	31/10/2007	EDEN	South	Female	18.1	77.46	4.41	4	
Sn1632	31/10/2007	EDEN	South	Male	18	69.34	4.95	3	
Sn1633	31/10/2007	EDEN	South	Female	16.9	58.27	3.22	4	
Sn1634	29/11/2007	EDEN	South	Female	19.1	80.87	1.85	4	
Sn1635	29/11/2007	EDEN	South	Female	18.5	72.62	1.07	3	
Sn1636	29/11/2007	EDEN	South	Female	19.4	76.42	1.76	3	
Sn1637	29/11/2007	EDEN	South	Male	18.6	75.54	1.88	3	
Sn1638	29/11/2007	EDEN	South	Female	19	79.31	2.31	4	
Sn1639	29/11/2007	EDEN	South	Female	21	97.77	2.47	4	
Sn1640	29/11/2007	EDEN	South	Female	17.9	64.39	3.47	4	
Sn1641	29/11/2007	EDEN	South	Female	18	70.62	2.4	4	
Sn1642	29/11/2007	EDEN	South	Female	19.1	76.61	2.99	4	
Sn1643	29/11/2007	EDEN	South	Female	19.3	79.61	5.25	4	
Sn1644	29/11/2007	EDEN	South	Male	17.9	64.63	1	2	
Sn1645	29/11/2007	EDEN	South	Female	18.5	72.26	1.39	3	
Sn1646	29/11/2007	EDEN	South	Male	17.3	55.42	0.86	2	
Sn1647	29/11/2007	EDEN	South	Female	19.2	78.64	3.75	4	
Sn1648	29/11/2007	EDEN	South	Female	18.6	78.29	0.85	3	
Sn1649	29/11/2007	EDEN	South	Female	18.6	72.1	3.2	4	
Sn1650	29/11/2007	EDEN	South	Male	18	67.36	0.79	2	
Sn1651	29/11/2007	EDEN	South	Female	19.6	84.92	2.7	4	
Sn1652	29/11/2007	EDEN	South	Female	19.2	76.47	2.38	4	
Sn1653	29/11/2007	EDEN	South	Female	18.3	69.04	1.64	4	
Sn1654	20/08/2007	EDEN	South	Female	18.7	70.31	2.41	4	
Sn1655	20/08/2007	EDEN	South	Female	18	59.36	2.18	4	
Sn1656	20/08/2007	EDEN	South	Male	18.6	65.26	2.89	3	
Sn1657	20/08/2007	EDEN	South	Male	17.4	56.07	2.52	3	
Sn1658	20/08/2007	EDEN	South	Female	16.9	53.95	1.83	4	
Sn1659	20/08/2007	EDEN	South	Female	18.3	77.62	4.35	4	
Sn1660	20/08/2007	EDEN	South	Male	19.1	75.41	4.05	3	
Sn1661	20/08/2007	EDEN	South	Female	19.6	84.81	2.8	4	
Sn1662	20/08/2007	EDEN	South	Female	19.3	84.03	4.99	4	
Sn1663	20/08/2007	EDEN	South	Female	21.5	105.87	6.58	4	
Sn1664	20/08/2007	EDEN	South	Male	15.8	42.02	1.92	3	
Sn1665	20/08/2007	EDEN	South	Female	22.2	106.15	6.13	4	
Sn1666	20/08/2007	EDEN	South	Female	18.9	74.24	2.59	4	
Sn1667	20/08/2007	EDEN	South	Male	18.6	69.09	2.85	3	
Sn1668	20/08/2007	EDEN	South	Male	16.6	50.58	3.41	3	
Sn1669	20/08/2007	EDEN	South	Male	17.3	55.94	3.26	3	
Sn1670	20/08/2007	EDEN	South	Female	18.3	70.46	3.05	4	
Sn1671	20/08/2007	EDEN	South	Female	19.7	91.62	7.76	4	
Sn1672	20/08/2007	EDEN	South	Female	19.1	79.83	5.68	4	
Sn1673	20/08/2007	EDEN	South	Female	18.6	77.29	4.86	4	
Sn1674	28/08/2007	EDEN	South	Male	16.3	51.26	1.35	3	
Sn1675	28/08/2007	EDEN	South	Female	17.5	57.93	1.82	4	
Sn1676	28/08/2007	EDEN	South	Female	18.6	71.62	2.18	4	
Sn1677	28/08/2007	EDEN	South	Female	18.1	69.98	3.44	4	
Sn1678	28/08/2007	EDEN	South	Female	18.1	67.54	2.14	4	
Sn1679	28/08/2007	EDEN	South	Female	19.5	84.7	2.71	4	
Sn1680	28/08/2007	EDEN	South	Male	15.1	40.2	2	3	
Sn1681	28/08/2007	EDEN	South	Female	18.9	77.53	3.75	4	
Sn1682	28/08/2007	EDEN	South	Female	17.1	56.19	2.01	4	
Sn1683	28/08/2007	EDEN	South	Female	19.4	80.53	5.75	4	
Sn1684	28/08/2007	EDEN	South	Male	17.4	62.86	2.57	3	

Envelope ID	Sample Date	Location	Region	Sex	Fork Length (cm)	Body Weight (g)	Gonad Weight (g)	Gonad Stage	Fat Stage
Sn1685	28/08/2007	EDEN	South	Female	16.6	51.29	2.11	4	
Sn1686	28/08/2007	EDEN	South	Male	19.4	81.88	2.54	3	
Sn1687	28/08/2007	EDEN	South	Female	18.8	75.05	1.8	4	
Sn1688	28/08/2007	EDEN	South	Female	18.8	68.95	2.17	4	
Sn1689	28/08/2007	EDEN	South	Female	16.5	49.16	1.64	4	
Sn1690	28/08/2007	EDEN	South	Female	18.8	74.44	3.19	4	
Sn1691	28/08/2007	EDEN	South	Female	17.6	57.93	2.57	4	
Sn1692	28/08/2007	EDEN	South	Female	18.9	74.95	2.99	4	
Sn1693	28/08/2007	EDEN	South	Female	18.3	72.71	2.25	4	
Sn1694	29/11/2007	EDEN	South	Male	14.7	32.52	0.19	1	
Sn1695	29/11/2007	EDEN	South	Female	13.2	21.28	0.04	1	
Sn1696	29/11/2007	EDEN	South	Male	13.1	22.26	0.01	1	
Sn1697	29/11/2007	EDEN	South	Male	14.5	30.12	0.08	1	
Sn1698	29/11/2007	EDEN	South	Female	13.2	23.64	0.01	1	
Sn1699	29/11/2007	EDEN	South	Male	13.7	25.57	0.02	1	
Sn1700	29/11/2007	EDEN	South	Female	13.6	24.55	0.05	1	
Sn1701	29/11/2007	EDEN	South	Male	13.4	21.74	0.02	1	
Sn1702	29/11/2007	EDEN	South	Female	13.5	25.07	0.04	1	
Sn1703	29/11/2007	EDEN	South	Male	13.6	25.51	0.04	1	
Sn1704	29/11/2007	EDEN	South	Female	14.2	28.45	0.08	1	
Sn1705	29/11/2007	EDEN	South	Female	13.3	24.51	0.05	1	
Sn1706	29/11/2007	EDEN	South	Male	13.9	25.74	0.01	1	
Sn1707	29/11/2007	EDEN	South	Male	13.2	23.21	0.01	1	
Sn1708	29/11/2007	EDEN	South	Male	13.4	23.47	0.08	1	
Sn1709	29/11/2007	EDEN	South	Female	13.7	24.28	0.06	1	
Sn1710	29/11/2007	EDEN	South	Female	13	21.24	0.01	1	
Sn1711	29/11/2007	EDEN	South	Female	13.5	23.47	0.02	1	
Sn1712	29/11/2007	EDEN	South	Female	13.8	24.5	0.02	1	
Sn1713	23/10/2007	ILUKA	North	Female	15.9	37.9	0.17	2	
Sn1714	23/10/2007	ILUKA	North	Male	15.6	37.91	0.48	3	
Sn1715	23/10/2007	ILUKA	North	Female	16.4	40.16	0.18	2	
Sn1716	23/10/2007	ILUKA	North	Male	15.7	37.89	0.15	2	
Sn1717	23/10/2007	ILUKA	North	Female	14.3	31.03	0.13	2	
Sn1718	23/10/2007	ILUKA	North	Female	14.2	27.55	0.16	2	
Sn1719	23/10/2007	ILUKA	North	Female	16.5	38.32	0.19	2	
Sn1720	23/10/2007	ILUKA	North	Male	16.1	37.67	0.16	2	
Sn1721	23/10/2007	ILUKA	North	Male	16.7	42.89	0.4	3	
Sn1722	23/10/2007	ILUKA	North	Female	16.7	39.55	0.12	1	
Sn1723	23/10/2007	ILUKA	North	Male	14.6	33.45	0.16	2	
Sn1724	23/10/2007	ILUKA	North	Male	15.7	38.97	0.69	3	
Sn1725	23/10/2007	ILUKA	North	Female	15.2	38.69	0.32	3	
Sn1726	23/10/2007	ILUKA	North	Female	15	32.45	0.09	1	
Sn1727	23/10/2007	ILUKA	North	Female	14.8	30.74	0.16	2	
Sn1728	23/10/2007	ILUKA	North	Male	16.7	43.39	0.55	3	
Sn1729	23/10/2007	ILUKA	North	Male	15.2	37.86	0.37	2	
Sn1730	23/10/2007	ILUKA	North	Male	14.4	30.28	0.2	2	
Sn1731	23/10/2007	ILUKA	North	Male	16.2	37.03	0.18	2	
Sn1732	23/10/2007	ILUKA	North	Male	14.7	33.11	0.18	2	
Sn1733	3/12/2007	ILUKA	North	Juvenile	13.5	32.25	0.01	1	
Sn1734	3/12/2007	ILUKA	North	Female	13.1	29.42	0.01	1	
Sn1735	3/12/2007	ILUKA	North	Female	13.6	31.74	0.01	1	
Sn1736	3/12/2007	ILUKA	North	Male	12.5	28.32	0.01	1	
Sn1737	3/12/2007	ILUKA	North	Female	13.2	30.92	0.01	1	
Sn1738	3/12/2007	ILUKA	North	Female	13.2	30.45	0.01	1	
Sn1739	3/12/2007	ILUKA	North	Male	12.6	26.46	0.01	1	
Sn1740	3/12/2007	ILUKA	North	Female	13.4	30.63	0.01	1	
Sn1741	3/12/2007	ILUKA	North	Female	13	26.89	0.01	1	
Sn1742	3/12/2007	ILUKA	North	Male	13.1	28.53	0.01	1	
Sn1743	3/12/2007	ILUKA	North	Male	13.5	32.52	0.01	1	
Sn1744	3/12/2007	ILUKA	North	Male	13.2	28.47	0.01	1	
Sn1745	3/12/2007	ILUKA	North	Juvenile	13.6	32.21		1	
Sn1746	3/12/2007	ILUKA	North	Male	13.2	30.8	0.01	1	
Sn1747	3/12/2007	ILUKA	North	Female	12.8	26.19	0.01	1	
Sn1748	3/12/2007	ILUKA	North	Male	12.8	25.18	0.01	1	
Sn1749	3/12/2007	ILUKA	North	Male	12.8	27.1	0.01	1	
Sn1750	3/12/2007	ILUKA	North	Female	13.1	29.9	0.01	1	
Sn1751	3/12/2007	ILUKA	North	Female	13	30.17	0.01	1	
Sn1752	3/12/2007	ILUKA	North	Female	13.1	28.09	0.01	1	
Sn1753	3/12/2007	ILUKA	North	Male	13.8	36.74	0.01	1	5
Sn1754	3/12/2007	ILUKA	North	Female	13.2	29.34	0.01	1	5
Sn1755	3/12/2007	ILUKA	North	Male	13.3	29.06	0.01	1	5
Sn1756	3/12/2007	ILUKA	North	Female	12.7	26.41	0.01	1	5
Sn1757	3/12/2007	ILUKA	North	Male	13.1	28.82	0.01	1	5
Sn1758	3/12/2007	ILUKA	North	Juvenile	12.8	26.42		1	5
Sn1759	3/12/2007	ILUKA	North	Male	13.6	29.67	0.01	1	6
Sn1760	3/12/2007	ILUKA	North	Male	12.8	28.16	0.01	1	4
Sn1761	3/12/2007	ILUKA	North	Female	12.9	24.83	0.01	1	4
Sn1762	3/12/2007	ILUKA	North	Female	13.9	33.85	0.01	1	5
Sn1763	3/12/2007	ILUKA	North	Male	14	36.23	0.01	1	5
Sn1764	3/12/2007	ILUKA	North	Juvenile	11.8	20.02		1	6
Sn1765	3/12/2007	ILUKA	North	Female	13.8	31.03	0.01	1	4
Sn1766	3/12/2007	ILUKA	North	Female	13.3	30.24	0.01	1	4
Sn1767	3/12/2007	ILUKA	North	Female	14.5	36.65	0.01	1	6
Sn1768	3/12/2007	ILUKA	North	Female	13.8	28.69	0.01	1	5
Sn1769	3/12/2007	ILUKA	North	Female	13.2	26.25	0.01	1	4
Sn1770	3/12/2007	ILUKA	North	Female	13.5	30.05	0.01	1	5
Sn1771	3/12/2007	ILUKA	North	Juvenile	13	26.41		1	4
Sn1772	3/12/2007	ILUKA	North	Male	13.5	33.03	0.02	1	4
Sn1773	3/12/2007	ILUKA	North	Female	13.5	29.49	0.01	1	4
Sn1774	3/12/2007	ILUKA	North	Male	13.4	30.96	0.01	1	4
Sn1775	3/12/2007	ILUKA	North	Male	12.8	26.89	0.01	1	4

Envelope ID	Sample Date	Location	Region	Sex	Fork Length (cm)	Body Weight (g)	Gonad Weight (g)	Gonad Stage	Fat Stage
Sn1776	3/12/2007	ILUKA	North	Female	13	27.29	0.01	1	4
Sn1777	3/12/2007	ILUKA	North	Male	12.7	29.51	0.35	3	
Sn1778	3/12/2007	ILUKA	North	Male	13.5	31.45	0.06	1	4
Sn1779	3/12/2007	ILUKA	North	Female	13	25.57	0.01	1	4
Sn1780	3/12/2007	ILUKA	North	Male	13.6	30.61	0.02	1	4
Sn1781	3/12/2007	ILUKA	North	Female	13.8	29.88	0.01	1	4
Sn1782	3/12/2007	ILUKA	North	Male	13.6	31.36	0.01	1	4
Sn1783	3/12/2007	ILUKA	North	Male	12.5	24.9	0.01	1	4
Sn1784	3/12/2007	ILUKA	North	Male	13.7	29.82	0.01	1	5
Sn1785	3/12/2007	ILUKA	North	Female	13	28.15	0.01	1	4
Sn1786	3/12/2007	ILUKA	North	Male	13.6	30.43	0.01	1	4
Sn1787	3/12/2007	ILUKA	North	Male	13.7	29.86	0.01	1	4
Sn1788	3/12/2007	ILUKA	North	Male	13.5	28.36	0.01	1	4
Sn1789	3/12/2007	ILUKA	North	Female	12.9	26.42	0.01	1	
Sn1790	3/12/2007	ILUKA	North	Female	12.8	25.83	0.01	1	4
Sn1791	3/12/2007	ILUKA	North	Female	13.8	28.01	0.01	1	5
Sn1792	3/12/2007	ILUKA	North	Male	13.9	25.16	0.01	1	4
Sn1793	3/12/2007	ILUKA	North	Female	14.5	30	0.1	2	2
Sn1794	3/12/2007	ILUKA	North	Female	13.2	29.31	0.01	1	5
Sn1795	3/12/2007	ILUKA	North	Female	13.3	29.25	0.01	1	4
Sn1796	3/12/2007	ILUKA	North	Male	13	27.84	0.01	1	5
Sn1797	3/12/2007	ILUKA	North	Male	12.5	26.6	0.4	2	4
Sn1798	23/10/2007	ILUKA	North	Female	15.4	35.4	0.19	2	3
Sn1799	23/10/2007	ILUKA	North	Male	16.8	40.81	0.34	2	2
Sn1800	23/10/2007	ILUKA	North	Male	15.5	33.35	0.38	3	1
Sn1801	23/10/2007	ILUKA	North	Female	16.4	37.15	0.22	2	2
Sn1802	23/10/2007	ILUKA	North	Female	17	42.44	0.19	2	1
Sn1803	23/10/2007	ILUKA	North	Male	14.6	32.11	0.23	2	1
Sn1804	23/10/2007	ILUKA	North	Male	15.6	37.97	0.32	2	2
Sn1805	23/10/2007	ILUKA	North	Male	14.8	35.73	0.11	2	1
Sn1806	23/10/2007	ILUKA	North	Female	16.4	38.09	0.25	2	1
Sn1807	23/10/2007	ILUKA	North	Female	16.2	33.94	0.15	2	1
Sn1808	23/10/2007	ILUKA	North	Female	16.5	45.55	1.78	4	1
Sn1809	23/10/2007	ILUKA	North	Female	14.5	27.67	0.15	3	1
Sn1810	23/10/2007	ILUKA	North	Female	17.5	53.5	2.1	4	1
Sn1811	23/10/2007	ILUKA	North	Female	17.5	47.83	0.27	2	1
Sn1812	23/10/2007	ILUKA	North	Male	16	31.27	0.21	2	1
Sn1813	23/10/2007	ILUKA	North	Male	16.5	40.02	0.28	2	1
Sn1814	23/10/2007	ILUKA	North	Male	16.4	38.58	0.25	2	1
Sn1815	23/10/2007	ILUKA	North	Female	14.5	33.32	0.26	3	1
Sn1816	23/10/2007	ILUKA	North	Male	14.1	32.54	0.41	3	2
Sn1817	23/10/2007	ILUKA	North	Female	15.9	37.41	0.19	2	1
Sn1818	23/10/2007	ILUKA	North	Female	14.4	37.45	0.19	2	1
Sn1820	23/10/2007	ILUKA	North	Female	16.3	35.45	0.2	3	
Sn1821	23/10/2007	ILUKA	North	Female	15.2	38.71	0.49	2	
Sn1822	23/10/2007	ILUKA	North	Male	15.9	37.13	0.23	2	
Sn1823	23/10/2007	ILUKA	North	Male	14.8	29.15	0.06	1	
Sn1824	23/10/2007	ILUKA	North	Female	16.2	39.64	0.28	2	
Sn1825	23/10/2007	ILUKA	North	Male	14.9	35.17	0.14	2	
Sn1826	23/10/2007	ILUKA	North	Male	17.3	48.97	1.14	3	
Sn1827	23/10/2007	ILUKA	North	Female	14.8	35.87	0.3	3	
Sn1828	23/10/2007	ILUKA	North	Male	14.3	32.51	0.22	2	
Sn1829	23/10/2007	ILUKA	North	Female	16.4	33.81	0.18	3	
Sn1830	23/10/2007	ILUKA	North	Male	15	33.23	0.09	2	
Sn1831	23/10/2007	ILUKA	North	Female	16.8	38.1	0.53	3	
Sn1832	23/10/2007	ILUKA	North	Female	16.3	37.94	0.36	3	
Sn1833	23/10/2007	ILUKA	North	Female	14.6	34.57	0.35	2	
Sn1834	23/10/2007	ILUKA	North	Male	16	29.2	0.14	2	
Sn1835	23/10/2007	ILUKA	North	Male	16.2	38.77	0.14	2	
Sn1836	23/10/2007	ILUKA	North	Female	15.3	35.54	0.35	3	
Sn1837	23/10/2007	ILUKA	North	Male	14.8	36.48	0.14	2	
Sn1838	23/10/2007	ILUKA	North	Male	15.3	35.56	0.44	3	
Sn1839	23/10/2007	ILUKA	North	Female	15.2	29.14	0.13	2	
Sn1840	23/10/2007	ILUKA	North	Male	15.4	31.3	0.35	3	
Sn1841	23/10/2007	ILUKA	North	Male	15.1	33.71	0.33	2	
Sn1842	23/10/2007	ILUKA	North	Female	16.9	40.91	0.59	3	
Sn1843	23/10/2007	ILUKA	North	Male	15.7	35.29	0.36	3	
Sn1844	23/10/2007	ILUKA	North	Male	14.7	34.15	0.45	3	
Sn1845	23/10/2007	ILUKA	North	Male	14	27.12	0.3	2	
Sn1846	23/10/2007	ILUKA	North	Female	15.2	36.13	0.29	2	
Sn1847	23/10/2007	ILUKA	North	Male	15.9	38.17	0.32	3	
Sn1848	23/10/2007	ILUKA	North	Female	14.7	32.49	0.18	2	
Sn1849	23/10/2007	ILUKA	North	Female	15.9	35.23	0.18	2	
Sn1850	21/05/2008	EDEN	South	Female	19.5	85.87	3.61	4	
Sn1851	21/05/2008	EDEN	South	Male	15.5	40.91	1.16	2	
Sn1852	21/05/2008	EDEN	South	Male	15.5	44.48	1.49	2	
Sn1853	21/05/2008	EDEN	South	Male	15.6	41.81	1.15	2	
Sn1854	21/05/2008	EDEN	South	Female	14.7	34.24	0.91	4	
Sn1855	21/05/2008	EDEN	South	Male	16.6	52.17	1.82	3	
Sn1856	21/05/2008	EDEN	South	Male	16.2	52.16	1.65	3	
Sn1857	21/05/2008	EDEN	South	Female	15.3	44.43	1.63	4	
Sn1858	21/05/2008	EDEN	South	Male	14.8	36.63	1	2	
Sn1859	21/05/2008	EDEN	South	Male	15.5	41.09	1.28	2	
Sn1860	21/05/2008	EDEN	South	Female	17	57.8	0.97	3	
Sn1861	21/05/2008	EDEN	South	Female	15.6	41.6	0.98	3	
Sn1862	21/05/2008	EDEN	South	Female	19.1	87.25	1.94	4	
Sn1863	21/05/2008	EDEN	South	Male	15.7	41.73	1.33	3	
Sn1864	21/05/2008	EDEN	South	Female	15.7	43.43	0.64	3	
Sn1865	21/05/2008	EDEN	South	Male	18.6	79.84	3.36	3	
Sn1866	21/05/2008	EDEN	South	Male	15.7	42.82	1.52	3	
Sn1867	21/05/2008	EDEN	South	Male	15.2	43.17	1.03	3	

Envelope ID	Sample Date	Location	Region	Sex	Fork Length (cm)	Body Weight (g)	Gonad Weight (g)	Gonad Stage	Fat Stage
Sn1868	21/05/2008	EDEN	South	Male	15.7	43.82	0.88	2	
Sn1869	21/05/2008	EDEN	South	Male	15.8	43.3	0.99	2	
Sn1870	14/04/2008	EDEN	South	Female	17.2	63.16	0.24	2	
Sn1871	14/04/2008	EDEN	South	Male	19.6	92.38	2.72	3	
Sn1872	14/04/2008	EDEN	South	Male	17.5	64.84	1.94	3	
Sn1873	14/04/2008	EDEN	South	Female	18.4	75.87	2.99	4	
Sn1874	14/04/2008	EDEN	South	Female	17.7	67.01	2.43	4	
Sn1875	14/04/2008	EDEN	South	Female	18.1	72.52	0.4	2	
Sn1876	14/04/2008	EDEN	South	Unknown	19	79.14			
Sn1877	14/04/2008	EDEN	South	Female	19.4	82.71	2.04	3	
Sn1878	14/04/2008	EDEN	South	Female	18.1	74.85	1.22	3	
Sn1879	14/04/2008	EDEN	South	Female	19.9	87.5	4.06	4	
Sn1880	14/04/2008	EDEN	South	Female	20.5	100.03	2.15	3	
Sn1881	14/04/2008	EDEN	South	Female	18.3	75.7	3.45	4	
Sn1882	14/04/2008	EDEN	South	Female	19.1	78.64	1.17	3	
Sn1883	14/04/2008	EDEN	South	Female	19.4	91.98	3.31	4	
Sn1884	14/04/2008	EDEN	South	Female	18.5	75.16	1.42	3	
Sn1885	14/04/2008	EDEN	South	Female	18.7	75.58	2.37	4	
Sn1886	14/04/2008	EDEN	South	Female	18.9	83.62	4.04	4	
Sn1887	14/04/2008	EDEN	South	Male	18.4	69.2	1.93	3	
Sn1888	14/04/2008	EDEN	South	Male	17.6	55.06	0.67	2	
Sn1889	14/04/2008	EDEN	South	Male	18.6	76.31	3.23	3	
Sn1890	22/05/2008	EDEN	South	Female	16	47.16	0.26	2	
Sn1891	22/05/2008	EDEN	South	Female	18.1	76.11	2.73	4	
Sn1892	22/05/2008	EDEN	South	Female	15.9	47.66	1.28	3	
Sn1893	22/05/2008	EDEN	South	Female	15.6	43.67	1.27	3	
Sn1894	22/05/2008	EDEN	South	Female	16.5	52.92	0.5	2	
Sn1895	22/05/2008	EDEN	South	Male	14.3	32.86	0.76	2	
Sn1896	22/05/2008	EDEN	South	Female	16.7	57.9	3.15	4	
Sn1897	22/05/2008	EDEN	South	Male	18.9	77.06	4.38	3	
Sn1898	22/05/2008	EDEN	South	Male	19.1	81.95	2.32	3	
Sn1899	22/05/2008	EDEN	South	Female	15.9	46.99	0.82	4	
Sn1900	22/05/2008	EDEN	South	Male	16.1	48.73	1.07	2	
Sn1901	22/05/2008	EDEN	South	Female	14.2	33.44	0.13	2	
Sn1902	22/05/2008	EDEN	South	Female	15.7	45.75	1.27	4	
Sn1903	22/05/2008	EDEN	South	Female	16.1	50.29	0.84	3	
Sn1904	22/05/2008	EDEN	South	Male	15.5	45.37	1.2	3	
Sn1905	22/05/2008	EDEN	South	Female	18.9	76.03	1.24		
Sn1906	22/05/2008	EDEN	South	Male	14.6	36.97	0.33	2	
Sn1907	22/05/2008	EDEN	South	Female	15.6	42.86	1.27	4	
Sn1908	22/05/2008	EDEN	South	Male	16.4	50.24	1.22	3	
Sn1909	22/05/2008	EDEN	South	Male	14.8	38.59	1.02	2	
Sn1910	21/05/2008	EDEN	South	Female	20.2	104.17	4.28	4	
Sn1911	21/05/2008	EDEN	South	Female	21.1	118	6.32	4	
Sn1912	21/05/2008	EDEN	South	Female	20.2	93.74	4.4	4	
Sn1913	21/05/2008	EDEN	South	Female	21.2	101.84	1.82	5	
Sn1914	21/05/2008	EDEN	South	Female	20.3	105.47	3.81	4	
Sn1915	21/05/2008	EDEN	South	Male	20.3	96.91	3.49	3	
Sn1916	21/05/2008	EDEN	South	Female	20.4	98.12	2.19	5	
Sn1917	21/05/2008	EDEN	South	Male	20.4	95.88	3.2	3	
Sn1918	21/05/2008	EDEN	South	Female	20.3	101.35	0.49	5	
Sn1919	21/05/2008	EDEN	South	Female	20.7	97.41	5.56	4	
Sn1920	7/04/2008			Female	17.8	66.47	2.84	4	
Sn1921	7/04/2008			Female	20.2	104.39	5.54	4	
Sn1922	7/04/2008			Male	18.4	70.25	3.36	3	
Sn1923	7/04/2008			Female	19.7	83.71	1.76	3	
Sn1924	7/04/2008			Female	18.5	77.3	4.28	3	
Sn1925	7/04/2008			Male	17.2	63.57	3	3	
Sn1926	7/04/2008			Female	18.1	68.96	3.55	4	
Sn1927	7/04/2008			Male	19.5	99.6	6.12	3	
Sn1928	7/04/2008			Male	17.8	71.31	2.39	3	
Sn1929	7/04/2008			Female	16.7	58.86	2.75	3	
Sn1930	7/04/2008			Male	19.2	82.16	3.56	3	
Sn1931	7/04/2008			Male	19	81.59	5.62	3	
Sn1932	7/04/2008			Female	17.6	75.38	5.68	4	
Sn1933	7/04/2008			Male	17.8	69.51	3.29	3	
Sn1934	7/04/2008			Female	20	105.25	6.2	4	
Sn1935	7/04/2008			Female	18.8	88.68	4.76	4	
Sn1936	7/04/2008			Male	18.5	79.79	3.21	3	
Sn1937	7/04/2008			Female	16.9	57.28	2.7	3	
Sn1938	25/11/2008	WALLIS LAKE	North	Juvenile	8.9	5.39	0.01	1	
Sn1939	25/11/2008	WALLIS LAKE	North	Juvenile	9.1	6.2	0.01	1	
Sn1940	25/11/2008	WALLIS LAKE	North	Juvenile	7.4	3.2	0.01	1	
Sn1941	25/11/2008	WALLIS LAKE	North	Juvenile	7.5	3.27	0.01	1	
Sn1942	25/11/2008	WALLIS LAKE	North	Juvenile	7.3	3.11	0.01	1	
Sn1943	25/11/2008	WALLIS LAKE	North	Juvenile	7.2	2.67	0.01	1	
Sn1944	25/11/2008	WALLIS LAKE	North	Juvenile	8.5	4.71	0.01	1	
Sn1945	25/11/2008	WALLIS LAKE	North	Juvenile	8.2	4.4	0.01	1	
Sn1946	25/11/2008	WALLIS LAKE	North	Juvenile	8.8	5.6	0.01	1	
Sn1947	25/11/2008	WALLIS LAKE	North	Juvenile	9.9	7.63	0.01	1	
Sn1948	25/11/2008	WALLIS LAKE	North	Juvenile	7	2.63	0.01	1	
Sn1949	25/11/2008	WALLIS LAKE	North	Juvenile	8.1	4.2	0.01	1	
Sn1950	25/11/2008	WALLIS LAKE	North	Juvenile	7.1	2.6	0.01	1	
Sn1951	25/11/2008	WALLIS LAKE	North	Juvenile	7.6	3.19	0.01	1	
Sn1952	25/11/2008	WALLIS LAKE	North	Juvenile	8.8	5.63	0.01	1	
Sn1953	25/11/2008	WALLIS LAKE	North	Juvenile	8.5	5.1	0.01	1	
Sn1954	25/11/2008	WALLIS LAKE	North	Juvenile	8.4	4.65	0.01	1	
Sn1955	25/11/2008	WALLIS LAKE	North	Juvenile	6.8	2.5	0.01	1	
Sn1956	25/11/2008	WALLIS LAKE	North	Juvenile	7.1	2.63	0.01	1	
Sn1957	25/11/2008	WALLIS LAKE	North	Juvenile	7.3	3.1	0.01	1	
Sn1958	25/11/2008	WALLIS LAKE	North	Juvenile	7.6	3.66	0.01	1	

Envelope ID	Sample Date	Location	Region	Sex	Fork Length (cm)	Body Weight (g)	Gonad Weight (g)	Gonad Stage	Fat Stage
Sn1959	25/11/2008	WALLIS LAKE	North	Juvenile	8.5	4.92	0.01	1	
Sn1960	25/11/2008	WALLIS LAKE	North	Juvenile	7.1	2.62	0.01	1	
Sn1961	25/11/2008	WALLIS LAKE	North	Juvenile	8.2	4.43	0.01	1	
Sn1962	25/11/2008	WALLIS LAKE	North	Juvenile	7	2.59	0.01	1	
Sn1963	25/11/2008	WALLIS LAKE	North	Juvenile	8.5	4.69	0.01	1	
Sn1964	25/11/2008	WALLIS LAKE	North	Juvenile	8.6	5.07	0.01	1	
Sn1965	25/11/2008	WALLIS LAKE	North	Juvenile	7	2.46	0.01	1	
Sn1966	25/11/2008	WALLIS LAKE	North	Juvenile	7.4	2.85	0.01	1	
Sn1967	25/11/2008	WALLIS LAKE	North	Juvenile	9.2	5.97	0.01	1	
Sn1968	1/10/2008	ILUKA	North	Female	14.7	31.56	0.49	3	
Sn1969	1/10/2008	ILUKA	North	Male	14.3	29.35	0.52	3	
Sn1970	1/10/2008	ILUKA	North	Male	17.7	57.66	1.89	3	
Sn1971	1/10/2008	ILUKA	North	Female	14.4	33.21	0.44	3	
Sn1972	1/10/2008	ILUKA	North	Male	14.7	31.06	0.34	3	
Sn1973	1/10/2008	ILUKA	North	Female	14.5	31.85	0.48	3	
Sn1974	1/10/2008	ILUKA	North	Male	13.5	26.6	0.24	2	
Sn1975	1/10/2008	ILUKA	North	Female	14.4	31.93	0.38	2	
Sn1976	1/10/2008	ILUKA	North	Female	15.1	39.25	1.6	4	
Sn1977	1/10/2008	ILUKA	North	Female	14	29.17	0.36	2	
Sn1978	1/10/2008	ILUKA	North	Female	16.7	47.34	0.49	3	
Sn1979	1/10/2008	ILUKA	North	Male	15.8	39.43	1.49	3	
Sn1980	1/10/2008	ILUKA	North	Male	13.3	25.2	0.68	3	
Sn1981	1/10/2008	ILUKA	North	Male	16.7	47.34	1.5	3	
Sn1982	1/10/2008	ILUKA	North	Male	14.7	31.87	0.63	3	
Sn1983	1/10/2008	ILUKA	North	Female	16.1	47.78	0.79	3	
Sn1984	1/10/2008	ILUKA	North	Female	15.4	40.39	1.82	4	
Sn1985	1/10/2008	ILUKA	North	Female	16	44.92	2.32	4	
Sn1986	1/10/2008	ILUKA	North	Female	14.4	30.3	0.63	3	
Sn1987	1/10/2008	ILUKA	North	Male	13.5	27.01	0.33	2	
Sn1988	3/11/2008	ILUKA	North	Female	17.6	58.43	1.03	3	
Sn1989	3/11/2008	ILUKA	North	Male	17.3	57.9	0.67	3	
Sn1990	3/11/2008	ILUKA	North	Female	16.5	54.92	0.31	2	
Sn1991	3/11/2008	ILUKA	North	Male	16.5	51.55	0.21	2	
Sn1992	3/11/2008	ILUKA	North	Male	17	57.09	0.26	2	
Sn1993	3/11/2008	ILUKA	North	Male	15.9	48.64	0.09	2	
Sn1994	3/11/2008	ILUKA	North	Male	16.6	48.45	0.29	2	
Sn1995	3/11/2008	ILUKA	North	Male	15.6	40.86	0.05	2	
Sn1996	3/11/2008	ILUKA	North	Female	16.6	58.27	0.23	2	
Sn1997	3/11/2008	ILUKA	North	Female	17.3	61.87	0.34	2	
Sn1998	3/11/2008	ILUKA	North	Male	17.2	60.91	0.2	2	
Sn1999	3/11/2008	ILUKA	North	Male	15.6	43.46	1.39	3	
Sn2000	3/11/2008	ILUKA	North	Male	16.7	51.55	0.13	2	
Sn2001	3/11/2008	ILUKA	North	Male	16	48.88	0.47	2	
Sn2002	3/11/2008	ILUKA	North	Male	16.8	58.04	0.81	3	
Sn2003	3/11/2008	ILUKA	North	Female	16.8	49.61	0.57	3	
Sn2004	3/11/2008	ILUKA	North	Female	17.3	64.29	0.65	3	
Sn2005	3/11/2008	ILUKA	North	Female	17.1	58.03	0.39	2	
Sn2006	3/11/2008	ILUKA	North	Male	17.6	61.6	0.34	2	
Sn2007	3/11/2008	ILUKA	North	Male	16.6	52.79	1.41	3	
Sn2008	30/04/2009			Female	14.3	25.7	0.03	1	
Sn2009	30/04/2009			Female	15	33.58	0.04	2	
Sn2010	30/04/2009			Male	13	20.99	0.01	1	
Sn2011	30/04/2009			Male	15.8	41.52	0.13	2	
Sn2012	30/04/2009			Female	12.6	17.4	0.04	1	
Sn2013	30/04/2009			Female	15.2	32.27	0.06	2	
Sn2014	30/04/2009			Female	14.2	27.09	0.04	2	
Sn2015	30/04/2009			Female	15.4	34.03	0.06	2	
Sn2016	30/04/2009			Female	13.3	21.85	0.01	1	
Sn2017	30/04/2009			Male	13.4	22.21	0.01	1	
Sn2018	30/04/2009			Male	13	21.53	0.01	1	
Sn2019	30/04/2009			Female	12.4	18.15	0.02	1	
Sn2020	30/04/2009			Male	14.6	30.01	0.02	1	
Sn2021	30/04/2009			Female	14.4	28.88	0.05	2	
Sn2022	30/04/2009			Female	15.1	35.4	0.08	2	
Sn2023	30/04/2009			Male	14.7	30.52	0.01	1	
Sn2024	30/04/2009			Female	14.6	30.5	0.05	2	
Sn2025	30/04/2009			Female	14.4	31.87	0.07	2	
Sn2026	30/04/2009			Female	14	25.44	0.09	2	
Sn2027	30/04/2009			Female	14.3	25.28	0.06	2	
Sn2028	10/06/2009			Male	13.9	23.82	0.04	2	
Sn2029	10/06/2009			Female	14.2	24.42	0.04	2	
Sn2030	10/06/2009			Male	19.4	73.51	1.32	3	
Sn2031	10/06/2009			Male	14.2	28	0.05	2	
Sn2032	10/06/2009			Female	14.2	27.13	0.04	2	
Sn2033	10/06/2009			Male	13.8	22.61	0.01	1	
Sn2034	10/06/2009			Male	15.9	40.19	0.15	2	
Sn2035	10/06/2009			Male	18.6	64.98	0.36	5	
Sn2036	10/06/2009			Female	14.4	28.48	0.11	2	
Sn2037	10/06/2009			Male	19.4	72.08	0.19	5	
Sn2038	10/06/2009			Female	13.9	23.18	0.05	2	
Sn2039	10/06/2009			Female	13.6	24.13	0.05	2	
Sn2040	10/06/2009			Female	14.4	30.47	0.08	2	
Sn2041	10/06/2009			Male	13.3	21.68	0.01	1	
Sn2042	10/06/2009			Female	15.6	37.33	0.14	2	
Sn2043	10/06/2009			Male	19.1	72.25	0.24	5	
Sn2044	10/06/2009			Male	14.9	24.47	0.02	1	
Sn2045	10/06/2009			Female	13.6	25.4	0.06	2	
Sn2046	10/06/2009			Female	14.5	28.92	0.03	2	
Sn2047	10/06/2009			Male	16.1	43.74	0.43	2	
Sn2048	10/06/2009			Male	13.4	23	0.06	2	
Sn2049	10/06/2009			Male	14.4	29.43	0.04	2	

Envelope ID	Sample Date	Location	Region	Sex	Fork Length (cm)	Body Weight (g)	Gonad Weight (g)	Gonad Stage	Fat Stage
Sn2050	10/06/2009			Male	13	22.88	0.02	2	
Sn2051	10/06/2009				14.6	29.39	0.05	2	
Sn2052	10/06/2009			Female	13.7	24.88	0.04	2	
Sn2053	10/06/2009			Male	19.2	72.94	0.55	2	
Sn2054	10/06/2009			Female	15.6	34.88	0.11	2	
Sn2055	10/06/2009			Male	16.9	48	0.08	2	
Sn2056	10/06/2009			Male	14.4	27.27	0.03	2	
Sn2057	10/06/2009			Female	14.4	27.26	0.03	1	
Sn2058	30/07/2009	EDEN	South	Female	14.5	28.71	0.14	2	2
Sn2059	30/07/2009	EDEN	South	Female	14.1	27.5	0.36	3	5
Sn2060	30/07/2009	EDEN	South	Female	15.4	36.41	0.22	3	6
Sn2061	30/07/2009	EDEN	South	Female	15.3	32.32	0.24	3	3
Sn2062	30/07/2009	EDEN	South	Male	14.8	33.6	0.66	2	4
Sn2063	30/07/2009	EDEN	South	Female	17.5	56.19	0.58	3	4
Sn2064	30/07/2009	EDEN	South	Male	14.6	31.7	0.62	2	6
Sn2065	30/07/2009	EDEN	South	Female	14.3	29.14	0.18	2	4
Sn2066	30/07/2009	EDEN	South	Male	16.4	46.4	0.64	2	5
Sn2067	30/07/2009	EDEN	South	Female	14.5	29.42	0.19	2	3
Sn2068	30/07/2009	EDEN	South	Female	14.3	31.9	0.26	2	4
Sn2069	30/07/2009	EDEN	South	Female	13.8	25.84	0.17	2	3
Sn2070	30/07/2009	EDEN	South	Male	13.9	29.6	0.23	2	5
Sn2071	30/07/2009	EDEN	South	Female	15.8	37.38	0.3	3	4
Sn2072	30/07/2009	EDEN	South	Male	14.9	32.2	0.32	2	4
Sn2073	30/07/2009	EDEN	South	Female	14.5	30.8	0.33	2	3
Sn2074	30/07/2009	EDEN	South	Male	16.2	50	1.39	3	5
Sn2075	30/07/2009	EDEN	South	Male	15.6	40.91	0.33	2	3
Sn2076	30/07/2009	EDEN	South	Male	16.4	41.8	0.18	2	3
Sn2077	30/07/2009	EDEN	South	Male	12.7	21.84	0.01	1	3
Sn2078	6/07/2009	EDEN	South	Male	15.7	41.41	1.21	3	5
Sn2079	6/07/2009	EDEN	South	Female	17.6	59.75	1	4	5
Sn2080	6/07/2009	EDEN	South	Male	16.4	54.95	0.41	3	7
Sn2081	6/07/2009	EDEN	South	Male	15.1	36.79	0.36	3	4
Sn2082	6/07/2009	EDEN	South	Male	17.1	58.05	0.96	3	4
Sn2083	6/07/2009	EDEN	South	Female	16	45.62	2.32	4	6
Sn2084	6/07/2009	EDEN	South	Male	18.3	70.91	1.35	3	5
Sn2085	6/07/2009	EDEN	South	Female	14.1	29.37	0.22	2	5
Sn2086	6/07/2009	EDEN	South	Male	17.2	63.11	2.46	3	2
Sn2087	6/07/2009	EDEN	South	Female	16.6	53.92	0.92	4	3
Sn2088	6/07/2009	EDEN	South	Female	15.4	39.61	0.64	4	3
Sn2089	6/07/2009	EDEN	South	Female	16.8	55.14	1.97	4	5
Sn2090	6/07/2009	EDEN	South	Male	17	52.11	0.65	3	7
Sn2091	6/07/2009	EDEN	South	Female	17.9	64.4	0.91	4	6
Sn2092	6/07/2009	EDEN	South	Male	15.4	42.78	1.43	3	7
Sn2093	6/07/2009	EDEN	South	Female	17	57.46	1.36	4	5
Sn2094	6/07/2009	EDEN	South	Female	14	28.84	0.13	2	5
Sn2095	6/07/2009	EDEN	South	Female	16.7	53.91	2.02	4	6
Sn2096	6/07/2009	EDEN	South	Female	17.3	51	1.78	4	4
Sn2097	6/07/2009	EDEN	South	Female	18.1	61.55	0.65	2	3
Sn2098	18/08/2009	EDEN	South	Female	17.8	63.15	0.96	3	5
Sn2099	18/08/2009	EDEN	South	Female	15.9	38.21	1.75	4	2
Sn2100	18/08/2009	EDEN	South	Female	15.9	42	0.5	3	5
Sn2101	18/08/2009	EDEN	South	Male	18.1	68.71	2.22	3	2
Sn2102	18/08/2009	EDEN	South	Female	15.1	34.34	0.46	2	4
Sn2103	18/08/2009	EDEN	South	Male	15.4	43.01	1.82	3	1
Sn2104	18/08/2009	EDEN	South	Female	17.7	64.4	2.38	4	3
Sn2105	18/08/2009	EDEN	South	Male	16.6	48.41	1.61	3	4
Sn2106	18/08/2009	EDEN	South	Female	15.2	43.86	0.37	2	3
Sn2107	18/08/2009	EDEN	South	Female	16	43.49	0.76	3	2
Sn2108	18/08/2009	EDEN	South	Male	19.1	86.74	4.65	3	1
Sn2109	18/08/2009	EDEN	South	Male	16.6	55.51	2.91	3	4
Sn2110	18/08/2009	EDEN	South	Male	16	41.78	0.66	2	3
Sn2111	18/08/2009	EDEN	South	Female	18.4	76.1	2.5	4	4
Sn2112	18/08/2009	EDEN	South	Female	15.3	37.03	1.37	4	3
Sn2113	18/08/2009	EDEN	South	Female	16.7	50.98	0.89	2	3
Sn2114	18/08/2009	EDEN	South	Female	15.5	39.98	1.05	3	3
Sn2115	18/08/2009	EDEN	South	Female	15.5	41.1	0.87	3	4
Sn2116	18/08/2009	EDEN	South	Male	14.1	26.92	0.4	2	5
Sn2117	18/08/2009	EDEN	South	Female	16.7	52.95	1.7	4	2
Sn2118	15/08/2009	EDEN	South	Male	16	41.71	1.19	3	5
Sn2119	15/08/2009	EDEN	South	Female	16.3	46.15	0.79	3	5
Sn2120	15/08/2009	EDEN	South	Female	15.1	39.77	0.79	3	4
Sn2121	15/08/2009	EDEN	South	Female	19.2	75.38	1.2	3	3
Sn2122	15/08/2009	EDEN	South	Female	18.1	65.61	0.9	3	4
Sn2123	15/08/2009	EDEN	South	Male	15.6	41.53	1.11	3	5
Sn2124	15/08/2009	EDEN	South	Male	15.8	41.56	0.27	2	2
Sn2125	15/08/2009	EDEN	South	Male	13.8	27.71	0.3	2	4
Sn2126	15/08/2009	EDEN	South	Female	14.7	29.06	0.64	3	4
Sn2127	15/08/2009	EDEN	South	Male	15.5	42.04	1.07	3	3
Sn2128	15/08/2009	EDEN	South	Male	14.8	33.16	0.3	2	4
Sn2129	15/08/2009	EDEN	South	Female	17.9	63.8	1.18	4	4
Sn2130	15/08/2009	EDEN	South	Male	13.8	27.56	0.03	3	5
Sn2131	15/08/2009	EDEN	South	Female	17.1	57.26	1.41	3	4
Sn2132	15/08/2009	EDEN	South	Female	13.4	20.09	0.27	2	3
Sn2133	15/08/2009	EDEN	South	Male	17	52.37	2.04	3	7
Sn2134	15/08/2009	EDEN	South	Female	14.2	32.82	0.49	2	5
Sn2135	15/08/2009	EDEN	South	Female	17.1	51.5	0.84	3	4
Sn2136	15/08/2009	EDEN	South	Female	15.2	37.73	0.31	2	5
Sn2137	15/08/2009	EDEN	South	Female	16.5	45.15	0.64	2	5
Sn2138	22/07/2009	EDEN	South	Female	13.5	24.56	0.09	1	5
Sn2139	22/07/2009	EDEN	South	Male	16.1	46.8	0.04	3	4
Sn2140	22/07/2009	EDEN	South	Female	13.1	23.81	0.21	2	2

Envelope ID	Sample Date	Location	Region	Sex	Fork Length (cm)	Body Weight (g)	Gonad Weight (g)	Gonad Stage	Fat Stage
Sn2141	22/07/2009	EDEN	South	Female	15.6	40.4	0.33	2	6
Sn2142	22/07/2009	EDEN	South	Female	14.4	28.86	0.23	2	4
Sn2143	22/07/2009	EDEN	South	Female	15.4	36.95	0.39	2	3
Sn2144	22/07/2009	EDEN	South	Female	14	29.07	0.11	1	2
Sn2145	22/07/2009	EDEN	South	Male	14.5	30.67	0.33	2	6
Sn2146	22/07/2009	EDEN	South	Female	15.1	34.44	0.16	1	3
Sn2147	22/07/2009	EDEN	South	Female	13.5	23.3	0.23	2	4
Sn2148	22/07/2009	EDEN	South	Female	15.3	36.21	0.27	2	3
Sn2149	22/07/2009	EDEN	South	Male	16.1	41.91	0.3	2	6
Sn2150	22/07/2009	EDEN	South	Female	14.7	30.3	1.01	4	4
Sn2151	22/07/2009	EDEN	South	Female	15	35.74	0.26	2	3
Sn2152	22/07/2009	EDEN	South	Female	15.7	37.82	0.87	3	3
Sn2153	22/07/2009	EDEN	South	Male	14.7	31.79	0.07	1	3
Sn2154	22/07/2009	EDEN	South	Male	15.1	36.42	0.15	2	6
Sn2155	22/07/2009	EDEN	South	Female	14.4	30.53	0.34	2	4
Sn2156	22/07/2009	EDEN	South	Female	14.6	30.16	0.12	1	1
Sn2157	22/07/2009	EDEN	South	Male	13.6	25.5	0.32	2	5
Sn2158	30/07/2009	EDEN	South	Female	17.8	64.1	3.57	4	4
Sn2159	30/07/2009	EDEN	South	Female	18.4	73	1.91	3	3
Sn2160	30/07/2009	EDEN	South	Female	18.1	65.33	2.66	4	5
Sn2161	30/07/2009	EDEN	South	Female	20.9	103.18	4.69	4	1
Sn2162	30/07/2009	EDEN	South	Male	17.8	62.98	2.98	3	2
Sn2163	30/07/2009	EDEN	South	Female	18.5	69.78	2.05	4	3
Sn2164	30/07/2009	EDEN	South	Female	18.2	65.81	2.66	4	2
Sn2165	30/07/2009	EDEN	South	Male	15.6	40.06	1.87	3	3
Sn2166	30/07/2009	EDEN	South	Male	14.7	35.3	0.77	3	4
Sn2167	30/07/2009	EDEN	South	Female	19.1	78.27	4.01	3	1
Sn2168	30/07/2009	EDEN	South	Female	16.7	50.43	1.55	4	5
Sn2169	30/07/2009	EDEN	South	Female	18	65.07	1.51	4	5
Sn2170	30/07/2009	EDEN	South	Female	17.1	49.37	1.57	4	2
Sn2171	30/07/2009	EDEN	South	Female	18.4	69.3	3.39	4	3
Sn2172	30/07/2009	EDEN	South	Female	18.2	71.6	3.29	4	2
Sn2173	30/07/2009	EDEN	South	Female	17.8	64.5	3.36	4	3
Sn2174	30/07/2009	EDEN	South	Female	17.2	58.4	6.03	4	1
Sn2175	30/07/2009	EDEN	South	Female	17.5	54.03	1.72	4	3
Sn2176	30/07/2009	EDEN	South	Female	16.7	49.18	2.28	4	4
Sn2177	30/07/2009	EDEN	South	Male	17.5	58.25	2.62	3	4
Sn2178	15/07/2009	EDEN	South	Male	20.3	90.05	0.39	2	5
Sn2179	15/07/2009	EDEN	South	Female	20.2	96.71	1.43	5	2
Sn2180	15/07/2009	EDEN	South	Female	20.4	91.46	1.73	2	5
Sn2181	15/07/2009	EDEN	South	Female	20.3	90.7	1.06	5	5
Sn2182	15/07/2009	EDEN	South	Female	19.3	77.28	0.31	5	1
Sn2183	15/07/2009	EDEN	South	Female	20	85.2	0.8	5	1
Sn2184	15/07/2009	EDEN	South	Female	20.2	88.47	4.21	4	3
Sn2185	15/07/2009	EDEN	South	Female	19	77.84	0.68	2	6
Sn2186	15/07/2009	EDEN	South	Female	18.2	75.05	2.59	4	5
Sn2187	15/07/2009	EDEN	South	Female	21.3	101.03	2.64	4	2
Sn2188	15/07/2009	EDEN	South	Male	20.5	91.07	0.45	3	2
Sn2189	15/07/2009	EDEN	South	Male	19.9	82.7	1.34	3	3
Sn2190	15/07/2009	EDEN	South	Female	20.5	78.79	0.88	3	2
Sn2191	15/07/2009	EDEN	South	Female	19.3	76.98	0.56	2	5
Sn2192	15/07/2009	EDEN	South	Female	18.5	77.38	1.03	5	4
Sn2193	15/07/2009	EDEN	South	Male	20.8	98.3	1.49	3	5
Sn2194	15/07/2009	EDEN	South	Female	19.3	78.03	2.55	4	5
Sn2195	15/07/2009	EDEN	South	Female	20.4	87.7	1.52	4	2
Sn2196	15/07/2009	EDEN	South	Female	19.3	80.24	0.78	2	4
Sn2197	15/07/2009	EDEN	South	Male	19.2	76.56	1.23	3	3
Sn2198	25/06/2009	EDEN	South	Female	12.8	21.12	0.04	1	2
Sn2199	25/06/2009	EDEN	South	Female	14	26.79	0.1	1	1
Sn2200	25/06/2009	EDEN	South	Male	16.1	38.84	0.95	3	5
Sn2201	25/06/2009	EDEN	South	Male	15.6	36.47	0.1	2	5
Sn2202	25/06/2009	EDEN	South	Male	13.5	22.34	0.01	1	1
Sn2203	25/06/2009	EDEN	South	Female	13.1	22.07	0.16	1	1
Sn2204	25/06/2009	EDEN	South	Female	14	24.75	0.02	1	2
Sn2205	25/06/2009	EDEN	South	Female	14	27.19	0.56	2	3
Sn2206	25/06/2009	EDEN	South	Female	17.6	55.25	0.48	2	1
Sn2207	25/06/2009	EDEN	South	Female	13.2	20.53	0.46	2	1
Sn2208	25/06/2009	EDEN	South	Female	14.5	29.27	0.4	3	5
Sn2209	25/06/2009	EDEN	South	Female	13.4	21.95	0.21	1	1
Sn2210	25/06/2009	EDEN	South	Female	13.7	22.11	0.01	1	1
Sn2211	25/06/2009	EDEN	South	Female	14	22.62	0.07	1	3
Sn2212	25/06/2009	EDEN	South	Female	13.7	24.61	0.37	1	2
Sn2213	25/06/2009	EDEN	South	Female	14.4	26.89	0.24	2	3
Sn2214	25/06/2009	EDEN	South	Male	13.9	30.17	0.19	2	2
Sn2215	25/06/2009	EDEN	South	Female	13.5	22.11	0.06	1	3
Sn2216	25/06/2009	EDEN	South	Male	13	18.41	0.17	2	1
Sn2217	25/06/2009	EDEN	South	Female	14	25.4	0.24	1	1
Sn2218	26/08/2009	EDEN	South	Female	17	51.88	2.08	4	3
Sn2219	26/08/2009	EDEN	South	Female	17.1	62.4	1.54	3	2
Sn2220	26/08/2009	EDEN	South	Female	17.1	58.83	2.24	3	6
Sn2221	26/08/2009	EDEN	South	Female	17.5	63.51	1.01	3	4
Sn2222	26/08/2009	EDEN	South	Male	17.4	62.63	2.77	3	2
Sn2223	26/08/2009	EDEN	South	Male	14.5	31.98	0.59	2	3
Sn2224	26/08/2009	EDEN	South	Male	18.1	63.52	1.88	2	7
Sn2225	26/08/2009	EDEN	South	Male	16.6	52.63	1.54	2	3
Sn2226	26/08/2009	EDEN	South	Male	17.8	61.59	2.14	2	4
Sn2227	26/08/2009	EDEN	South	Female	16.1	42.16	0.57	2	4
Sn2228	26/08/2009	EDEN	South	Female	16.6	50.38	0.71	2	4
Sn2229	26/08/2009	EDEN	South	Female	16.7	46.18	2.07	4	3
Sn2230	26/08/2009	EDEN	South	Female	18.5	68.41	2.11	4	4
Sn2231	26/08/2009	EDEN	South	Male	17.6	62.93	3.36	3	2

Envelope ID	Sample Date	Location	Region	Sex	Fork Length (cm)	Body Weight (g)	Gonad Weight (g)	Gonad Stage	Fat Stage
Sn2232	26/08/2009	EDEN	South	Female	17.8	68.65	2.02	2	4
Sn2233	26/08/2009	EDEN	South	Female	17.5	59.49	3.37	4	2
Sn2234	26/08/2009	EDEN	South	Male	17.6	65.28	3.95	3	2
Sn2235	26/08/2009	EDEN	South	Female	16.7	48.6	0.48	2	3
Sn2236	26/08/2009	EDEN	South	Male	15.8	39.4	1.21	3	2
Sn2237	26/08/2009	EDEN	South	Female	17.8	57.09	2.02	3	3
Sn2238	28/08/2009	EDEN	South	Male	17.1	56.69	1.98	2	7
Sn2239	28/08/2009	EDEN	South	Female	17.1	54	1.18	3	4
Sn2240	28/08/2009	EDEN	South	Female	17.3	61.48	0.95	3	6
Sn2241	28/08/2009	EDEN	South	Male	17.1	56.59	2.6	3	4
Sn2242	28/08/2009	EDEN	South	Female	18.6	72.4	2.86	4	3
Sn2243	28/08/2009	EDEN	South	Male	16.4	51.44	2.44	2	5
Sn2244	28/08/2009	EDEN	South	Female	15.7	37.6	0.33	2	3
Sn2245	28/08/2009	EDEN	South	Female	17.9	64.76	0.86	2	5
Sn2246	28/08/2009	EDEN	South	Male	14.9	34.52	0.79	2	4
Sn2247	28/08/2009	EDEN	South	Male	16.6	44.16	1.1	3	4
Sn2248	28/08/2009	EDEN	South	Female	17.8	59.54	1.38	3	4
Sn2249	28/08/2009	EDEN	South	Male	15.5	37.22	1.04	3	4
Sn2250	28/08/2009	EDEN	South	Female	17.3	48.53	0.81	2	2
Sn2251	28/08/2009	EDEN	South	Female	16	44.94	2.62	4	3
Sn2252	28/08/2009	EDEN	South	Female	17.4	58.17	1.09	3	4
Sn2253	28/08/2009	EDEN	South	Female	16.9	49.79	0.77	3	4
Sn2254	28/08/2009	EDEN	South	Female	16.1	45.12	2.64	3	2
Sn2255	28/08/2009	EDEN	South	Female	16.1	45.45	0.79	3	3
Sn2256	28/08/2009	EDEN	South	Female	17	59.87	2.76	4	5
Sn2257	28/08/2009	EDEN	South	Female	17.7	61.24	1.43	3	5
Sn2258	28/07/2009	EDEN	South	Female	16.4	49.73	0.45	2	4
Sn2259	28/07/2009	EDEN	South	Male	15.2	40.27	0.91	3	4
Sn2260	28/07/2009	EDEN	South	Female	17.7	60.85	1.01	2	5
Sn2261	28/07/2009	EDEN	South	Female	15	37.1	0.31	2	5
Sn2262	28/07/2009	EDEN	South	Female	16.3	43.96	0.4	2	4
Sn2263	28/07/2009	EDEN	South	Female	16.2	47.76	0.72	2	5
Sn2264	28/07/2009	EDEN	South	Female	16.2	49.87	0.33	2	3
Sn2265	28/07/2009	EDEN	South	Male	18.1	60.89	1.77	3	2
Sn2266	28/07/2009	EDEN	South	Female	16.4	51.77	0.5	2	4
Sn2267	28/07/2009	EDEN	South	Female	15.7	41.46	0.37	2	5
Sn2268	28/07/2009	EDEN	South	Male	16	43.37	0.68	3	5
Sn2269	28/07/2009	EDEN	South	Female	16.4	56.65	1.97	3	4
Sn2270	28/07/2009	EDEN	South	Male	14.1	26.48	0.13	2	4
Sn2271	28/07/2009	EDEN	South	Female	17.2	52.93	0.86	2	5
Sn2272	28/07/2009	EDEN	South	Male	17.5	56.64	0.73	2	4
Sn2273	28/07/2009	EDEN	South	Male	15.6	43.05	0.64	3	6
Sn2274	28/07/2009	EDEN	South	Female	16.4	45.94	1.22	2	5
Sn2275	28/07/2009	EDEN	South	Female	15.1	39.8	0.58	2	6
Sn2276	28/07/2009	EDEN	South	Female	16.4	45.59	0.39	2	5
Sn2277	28/07/2009	EDEN	South	Male	15.1	33.47	0.21	2	7
Sn2278	21/07/2009	EDEN	South	Female	16.7	51.35	0.56	2	5
Sn2279	21/07/2009	EDEN	South	Female	17.1	53.48	0.47	2	7
Sn2280	21/07/2009	EDEN	South	Female	16.9	48.29	0.4	2	2
Sn2281	21/07/2009	EDEN	South	Male	19.2	67.8	1.23	2	4
Sn2282	21/07/2009	EDEN	South	Male	17.3	43.23	0.51	3	6
Sn2283	21/07/2009	EDEN	South	Female	17.1	50.73	0.52	2	2
Sn2284	21/07/2009	EDEN	South	Female	14.6	31.7	0.22	2	2
Sn2285	21/07/2009	EDEN	South	Female	13.2	23.38	0.02	1	4
Sn2286	21/07/2009	EDEN	South	Female	16.1	44.51	0.33	1	2
Sn2287	21/07/2009	EDEN	South	Female	19.3	74.65	1.12	4	1
Sn2288	21/07/2009	EDEN	South	Male	17.8	55.09	0.84	2	7
Sn2289	21/07/2009	EDEN	South	Female	16.5	46.19	0.44	3	4
Sn2290	21/07/2009	EDEN	South	Female	16.1	48.66	0.24	2	5
Sn2291	21/07/2009	EDEN	South	Female	15.6	43.91	0.43	2	4
Sn2292	21/07/2009	EDEN	South	Female	17.4	62.74	2.08	3	6
Sn2293	21/07/2009	EDEN	South	Female	15	39.4	0.39	3	3
Sn2294	21/07/2009	EDEN	South	Female	16.3	45.49	0.77	2	3
Sn2295	21/07/2009	EDEN	South	Male	16.4	47.98	0.36	2	6
Sn2296	21/07/2009	EDEN	South	Female	17.5	53.13	0.59	2	4
Sn2297	21/07/2009	EDEN	South	Male	19.7	70.01	1.46	2	6
Sn2298	16/07/2009	EDEN	South	Female	20.4	96.84	0.44	2	7
Sn2299	16/07/2009	EDEN	South	Male	19.4	77.37	1.76	3	2
Sn2300	16/07/2009	EDEN	South	Male	15.9	38.74	0.42	2	3
Sn2301	16/07/2009	EDEN	South	Male	19.2	75.39	0.71	3	1
Sn2302	16/07/2009	EDEN	South	Female	19.4	81.73	1.73	3	5
Sn2303	16/07/2009	EDEN	South	Male	14.2	27.13	0.06	1	4
Sn2304	16/07/2009	EDEN	South	Female	19.3	78.44	2.73	3	6
Sn2305	16/07/2009	EDEN	South	Female	19	77.4	0.71	3	7
Sn2306	16/07/2009	EDEN	South	Female	17.9	60.44	0.58	3	5
Sn2307	16/07/2009	EDEN	South	Female	16.1	45.91	0.49	2	4
Sn2308	16/07/2009	EDEN	South	Female	19.3	77.06	1.88	4	4
Sn2309	16/07/2009	EDEN	South	Male	18.1	65.49	1.78	2	5
Sn2310	16/07/2009	EDEN	South	Female	14.1	30.44	0.19	2	4
Sn2311	16/07/2009	EDEN	South	Female	19.1	77.3	1.07	2	3
Sn2312	16/07/2009	EDEN	South	Female	18.2	61.37	0.47	3	4
Sn2313	16/07/2009	EDEN	South	Female	16.6	52.59	1	3	3
Sn2314	16/07/2009	EDEN	South	Female	14.1	28.62	0.11	1	2
Sn2315	16/07/2009	EDEN	South	Male	16.2	42.81	0.42	2	3
Sn2316	16/07/2009	EDEN	South	Male	14.2	31.35	0.77	3	4
Sn2317	16/07/2009	EDEN	South	Male	14.7	32.26	0.18	2	4
Sn2318	28/06/2009	EDEN	South	Male	14.2	27.69	0.11	2	5
Sn2319	28/06/2009	EDEN	South	Female	14.4	30.9	0.34	2	3
Sn2320	28/06/2009	EDEN	South	Male	15.1	39.79	0.62	3	2
Sn2321	28/06/2009	EDEN	South	Male	13	19.3	0.05	1	2
Sn2322	28/06/2009	EDEN	South	Male	14.7	40.25	1.45	3	6

Envelope ID	Sample Date	Location	Region	Sex	Fork Length (cm)	Body Weight (g)	Gonad Weight (g)	Gonad Stage	Fat Stage
Sn2323	28/06/2009	EDEN	South	Female	13.2	23.06	0.09	2	3
Sn2324	28/06/2009	EDEN	South	Female	15.9	42.96	0.58	3	2
Sn2325	28/06/2009	EDEN	South	Male	15.8	39.75	0.05	2	4
Sn2326	28/06/2009	EDEN	South	Female	13.9	26.08	0.32	3	2
Sn2327	28/06/2009	EDEN	South	Male	14.6	29.13	0.17	1	5
Sn2328	28/06/2009	EDEN	South	Female	15	31.98	0.12	1	4
Sn2329	28/06/2009	EDEN	South	Female	13.1	24.38	0.16	2	3
Sn2330	28/06/2009	EDEN	South	Female	13.5	25	0.13	2	2
Sn2331	28/06/2009	EDEN	South	Female	18.8	76.36	0.77	5	2
Sn2332	28/06/2009	EDEN	South	Female	14.2	28.03	0.35	3	4
Sn2333	28/06/2009	EDEN	South	Male	13.1	19.33	0.04	1	3
Sn2334	28/06/2009	EDEN	South	Male	14.9	32.06	0.11	1	2
Sn2335	28/06/2009	EDEN	South	Male	13.6	23.15	0.04	1	2
Sn2336	28/06/2009	EDEN	South	Female	13.9	26.87	0.67	4	3
Sn2337	28/06/2009	EDEN	South	Female	14.2	26.3	0.16	2	2
Sn2338	12/08/2009	EDEN	South	Male	16.4	50.14	1.57	3	4
Sn2339	12/08/2009	EDEN	South	Female	15.5	39.82	0.45	3	4
Sn2340	12/08/2009	EDEN	South	Female	17.2	52.92	1.31	3	3
Sn2341	12/08/2009	EDEN	South	Female	14.1	31.32	0.75	3	5
Sn2342	12/08/2009	EDEN	South	Male	15.8	43.34	0.77	3	7
Sn2343	12/08/2009	EDEN	South	Female	16.9	50.9	1.63	4	5
Sn2344	12/08/2009	EDEN	South	Female	16.7	46.63	0.64	2	3
Sn2345	12/08/2009	EDEN	South	Female	16.6	52.91	1.21	3	4
Sn2346	12/08/2009	EDEN	South	Female	16.3	43.2	0.27	2	2
Sn2347	12/08/2009	EDEN	South	Female	14.2	30.05	0.05	3	2
Sn2348	12/08/2009	EDEN	South	Male	15.5	41.44	1.11	3	3
Sn2349	12/08/2009	EDEN	South	Female	16	51.36	1.51	3	5
Sn2350	12/08/2009	EDEN	South	Female	14.9	34.37	0.25	2	3
Sn2351	12/08/2009	EDEN	South	Male	13.7	27.38	0.5	2	4
Sn2352	12/08/2009	EDEN	South	Female	14.4	33.07	0.91	3	2
Sn2353	12/08/2009	EDEN	South	Female	13.5	26.44	0.07	1	3
Sn2354	12/08/2009	EDEN	South	Female	15.2	38.62	1	3	5
Sn2355	12/08/2009	EDEN	South	Female	15.5	40.06	0.55	3	4
Sn2356	12/08/2009	EDEN	South	Female	15.1	39.57	0.82	3	2
Sn2357	12/08/2009	EDEN	South	Female	15.8	41.88	0.27	2	4
Sn2358	13/08/2009	ILUKA	North	Male	18.2	62.85	3.94	3	1
Sn2359	13/08/2009	ILUKA	North	Male	16.3	42.2	2.43	3	1
Sn2360	13/08/2009	ILUKA	North	Male	12.1	19.02	0.67	2	1
Sn2361	13/08/2009	ILUKA	North	Male	17.6	57.5	0.86	2	1
Sn2362	13/08/2009	ILUKA	North	Male	17.3	49.74	2.54	3	1
Sn2363	13/08/2009	ILUKA	North	Male	17.4	55.88	3.72	3	1
Sn2364	13/08/2009	ILUKA	North	Female	17.8	53.76	2.25	4	1
Sn2365	13/08/2009	ILUKA	North	Male	16.4	23.24	2.08	3	1
Sn2366	13/08/2009	ILUKA	North	Male	17.8	56.99	3.25	3	1
Sn2367	13/08/2009	ILUKA	North	Female	14.5	30.25	0.7	3	1
Sn2368	13/08/2009	ILUKA	North	Male	17.6	55.72	2.32	3	1
Sn2369	13/08/2009	ILUKA	North	Male	17.9	54.16	1.73	3	1
Sn2370	13/08/2009	ILUKA	North	Female	17.3	50.87	2.54	3	1
Sn2371	13/08/2009	ILUKA	North	Female	16.7	47.5	2.05	3	1
Sn2372	13/08/2009	ILUKA	North	Female	17.8	52.96	1.21	3	1
Sn2373	13/08/2009	ILUKA	North	Female	18.2	57.62	1.7	3	1
Sn2374	13/08/2009	ILUKA	North	Male	17	47.88	1.83	3	1
Sn2375	13/08/2009	ILUKA	North	Male	16.2	42.1	2.68	3	1
Sn2376	13/08/2009	ILUKA	North	Female	17.2	48.52	2.12	3	1
Sn2377	13/08/2009	ILUKA	North	Female	17.2	48.18	2.32	3	1
Sn2378	13/08/2009	ILUKA	North	Male	16.9	48.49	2.6	3	1
Sn2379	13/08/2009	ILUKA	North	Male	17.1	49.97	2.22	3	1
Sn2380	13/08/2009	ILUKA	North	Female	17.9	55.08	1.82	3	1
Sn2381	13/08/2009	ILUKA	North	Male	16.1	38.39	2.33	3	1
Sn2382	13/08/2009	ILUKA	North	Male	16.6	46.63	1.86	3	1
Sn2383	13/08/2009	ILUKA	North	Male	16.1	45.73	2.88	3	1
Sn2384	13/08/2009	ILUKA	North	Female	17.8	57.87	2.97	4	1
Sn2385	13/08/2009	ILUKA	North	Male	16.1	40.43	2.44	3	1
Sn2386	13/08/2009	ILUKA	North	Female	17.8	57.26	1.93	4	1
Sn2387	13/08/2009	ILUKA	North	Male	17.2	50.95	3.09	3	1
Sn2388	13/08/2009	ILUKA	North	Male	17.1	49.65	2.63	3	1
Sn2389	13/08/2009	ILUKA	North	Male	17.2	51.99	3.32	3	1
Sn2390	13/08/2009	ILUKA	North	Male	15.2	35.91	1.54	3	1
Sn2391	13/08/2009	ILUKA	North	Male	16.1	40.47	2.5	3	1
Sn2392	13/08/2009	ILUKA	North	Male	17.3	53.34	3.62	3	1
Sn2393	13/08/2009	ILUKA	North	Male	17.5	51.93	2.74	3	1
Sn2394	13/08/2009	ILUKA	North	Female	18	58.42	4.04	4	1
Sn2395	13/08/2009	ILUKA	North	Female	17.1	51.83	3.11	4	1
Sn2396	13/08/2009	ILUKA	North	Male	16.3	43.65	2.71	3	1
Sn2397	13/08/2009	ILUKA	North	Male	16.6	49.56	2.95	3	1
Sn2398	30/07/2009	ILUKA	North	Female	16.4	50.24	2.3	3	1
Sn2399	30/07/2009	ILUKA	North	Female	14.5	30.58	1.96	4	1
Sn2400	30/07/2009	ILUKA	North	Female	17.1	48.79	3.18	3	1
Sn2401	30/07/2009	ILUKA	North	Female	16.2	38.76	0.66	2	1
Sn2402	30/07/2009	ILUKA	North	Male	14.8	35.68	1.79	3	1
Sn2403	30/07/2009	ILUKA	North	Male	16.3	44.29	1.62	3	1
Sn2404	30/07/2009	ILUKA	North	Female	17.8	53.9	2.8	4	1
Sn2405	30/07/2009	ILUKA	North	Female	15.4	44.18	1.53	3	1
Sn2406	30/07/2009	ILUKA	North	Female	17.5	54.25	2.63	4	1
Sn2407	30/07/2009	ILUKA	North	Male	17.3	52.16	2.93	3	1
Sn2408	30/07/2009	ILUKA	North	Male	14.7	31.95	2.03	3	1
Sn2409	30/07/2009	ILUKA	North	Female	17	48.61	1.67	3	1
Sn2410	30/07/2009	ILUKA	North	Male	16.2	38.82	2.57	3	1
Sn2411	30/07/2009	ILUKA	North	Male	16.1	43.9	2.7	3	1
Sn2412	30/07/2009	ILUKA	North	Male	16.4	41.96	1.58	3	1
Sn2413	30/07/2009	ILUKA	North	Male	16.8	45.11	2.27	3	1

Envelope ID	Sample Date	Location	Region	Sex	Fork Length (cm)	Body Weight (g)	Gonad Weight (g)	Gonad Stage	Fat Stage
Sn2414	30/07/2009	ILUKA	North	Female	16.1	42.13	2.16	3	1
Sn2415	30/07/2009	ILUKA	North	Female	16.5	47.82	2.64	4	1
Sn2416	30/07/2009	ILUKA	North	Male	16.3	44.55	2.95	3	1
Sn2417	30/07/2009	ILUKA	North	Male	16.7	47.67	2.99	3	1
Sn2418	30/07/2009	ILUKA	North	Female	15.5	37.56	1.24	3	1
Sn2419	30/07/2009	ILUKA	North	Female	16.1	43.48	2.64	3	1
Sn2420	30/07/2009	ILUKA	North	Female	16.1	41.06	2.1	4	1
Sn2421	30/07/2009	ILUKA	North	Male	16.1	43.26	2	3	1
Sn2422	30/07/2009	ILUKA	North	Female	14.5	34.56	2.85	4	1
Sn2423	30/07/2009	ILUKA	North	Male	15.9	39.26	2.32	3	1
Sn2424	30/07/2009	ILUKA	North	Male	16.1	41.12	2.9	3	1
Sn2425	30/07/2009	ILUKA	North	Male	15.3	38.85	2.02	2	1
Sn2426	30/07/2009	ILUKA	North	Female	15.8	39.9	1.51	3	1
Sn2427	30/07/2009	ILUKA	North	Female	17.1	46.92	0.52	2	1
Sn2428	30/07/2009	ILUKA	North	Male	16.1	42.2	2.94	3	1
Sn2429	30/07/2009	ILUKA	North	Male	16.1	39.63	1.54	3	1
Sn2430	30/07/2009	ILUKA	North	Male	15	32.56	1.7	3	1
Sn2431	30/07/2009	ILUKA	North	Female	17	48.69	2.54	3	1
Sn2432	30/07/2009	ILUKA	North	Male	16	39.27	2.29	3	1
Sn2433	30/07/2009	ILUKA	North	Female	16.5	44.18	2.19	4	1
Sn2434	30/07/2009	ILUKA	North	Male	14.1	30.57	1.34	3	1
Sn2435	30/07/2009	ILUKA	North	Female	16.6	45.15	1.21	3	1
Sn2436	30/07/2009	ILUKA	North	Male	15.3	37.04	1.91	3	1
Sn2437	30/07/2009	ILUKA	North	Female	16.1	35.48	0.79	3	1
Sn2438	1/09/2009	ILUKA	North	Female	18.2	66.62	3.86	2	1
Sn2439	1/09/2009	ILUKA	North	Female	17.6	57.17	1.79	2	1
Sn2440	1/09/2009	ILUKA	North	Female	17.6	59.97	3.82	4	1
Sn2441	1/09/2009	ILUKA	North	Female	16.7	49.3	2.21	3	1
Sn2442	1/09/2009	ILUKA	North	Male	17.1	48.96	2.06	3	1
Sn2443	1/09/2009	ILUKA	North	Female	18.7	66.93	1.75	3	1
Sn2444	1/09/2009	ILUKA	North	Female	18.8	69.43	2.94	2	1
Sn2445	1/09/2009	ILUKA	North	Female	16.6	52.05	2.91	3	1
Sn2446	1/09/2009	ILUKA	North	Female	17.4	59.87	2.79	3	1
Sn2447	1/09/2009	ILUKA	North	Female	17.5	55.13	1.5	2	1
Sn2448	1/09/2009	ILUKA	North	Female	18.7	55.12	2.67	2	1
Sn2449	1/09/2009	ILUKA	North	Female	17.1	57.94	3.85	3	1
Sn2450	1/09/2009	ILUKA	North	Male	16.7	52.23	2.67	2	1
Sn2451	1/09/2009	ILUKA	North	Female	18.1	62.82	2.3	2	1
Sn2452	1/09/2009	ILUKA	North	Male	17.5	58.5	2.74	2	1
Sn2453	1/09/2009	ILUKA	North	Female	16.9	59.91	2.04	2	1
Sn2454	1/09/2009	ILUKA	North	Female	16.7	47.19	1.15	2	1
Sn2455	1/09/2009	ILUKA	North	Female	18.3	59.74	0.39	1	1
Sn2456	1/09/2009	ILUKA	North	Male	17.5	55.34	3.28	2	1
Sn2457	1/09/2009	ILUKA	North	Male	18.4	69.38	2.96	3	1
Sn2458	1/09/2009	ILUKA	North	Unknown	18.1	70.36	2.84	2	1
Sn2459	1/09/2009	ILUKA	North	Male	17.1	50.69	3.06	3	1
Sn2460	1/09/2009	ILUKA	North	Female	16.9	53.8	1.54	2	1
Sn2461	1/09/2009	ILUKA	North	Male	17.4	53.92	2.05	2	1
Sn2462	1/09/2009	ILUKA	North	Female	16.4	57.73	2.6	2	1
Sn2463	1/09/2009	ILUKA	North	Female	17.2	51.07	0.05	1	1
Sn2464	1/09/2009	ILUKA	North	Female	18.1	60.54	1.23	2	1
Sn2465	1/09/2009	ILUKA	North	Female	18.6	66.13	2.2	2	1
Sn2466	1/09/2009	ILUKA	North	Female	18.1	63.32	3.22	2	1
Sn2467	1/09/2009	ILUKA	North	Male	17.6	59.95	3.65	3	1
Sn2468	1/09/2009	ILUKA	North	Female	17	57.12	1.87	2	1
Sn2469	1/09/2009	ILUKA	North	Female	17.1	54.13	2.94	3	1
Sn2470	1/09/2009	ILUKA	North	Female	17.3	54.09	2.43	2	1
Sn2471	1/09/2009	ILUKA	North	Male	17.4	60.22	2.56	3	1
Sn2472	1/09/2009	ILUKA	North	Female	17.4	56.06	2.6	2	1
Sn2473	1/09/2009	ILUKA	North	Female	18.1	62.67	3.29	3	1
Sn2474	1/09/2009	ILUKA	North	Female	16.4	46.84	1.22	2	1
Sn2475	1/09/2009	ILUKA	North	Male	16.1	42.59	1.45	2	1
Sn2476	1/09/2009	ILUKA	North	Male	16.4	49.66	2.96	3	1
Sn2477	1/09/2009	ILUKA	North	Female	18.5	67.92	2.39	2	1
Sn2478	7/07/2009	ILUKA	North	Female	13.1	25.36	1.77	2	1
Sn2479	7/07/2009	ILUKA	North	Male	12.6	20.96	0.68	2	1
Sn2480	7/07/2009	ILUKA	North	Female	13.6	27.15	0.97	3	1
Sn2481	7/07/2009	ILUKA	North	Female	15.5	39.61	0.51	2	1
Sn2482	7/07/2009	ILUKA	North	Female	16.6	49.29	1.11	2	1
Sn2483	7/07/2009	ILUKA	North	Female	15.9	41	0.82	2	1
Sn2484	7/07/2009	ILUKA	North	Male	13.2	22.55	0.1	2	1
Sn2485	7/07/2009	ILUKA	North	Female	16.1	35.72	0.29	1	1
Sn2486	7/07/2009	ILUKA	North	Male	16.9	49.76	2.27	2	1
Sn2487	7/07/2009	ILUKA	North	Female	15.2	35.4	0.33	3	1
Sn2488	7/07/2009	ILUKA	North	Female	16.9	44.74	1.39	2	1
Sn2489	7/07/2009	ILUKA	North	Female	17.3	54.23	1.44	2	1
Sn2490	7/07/2009	ILUKA	North	Female	16.5	43.64	0.71	2	1
Sn2491	7/07/2009	ILUKA	North	Male	14.1	33.01	1.76	2	1
Sn2492	7/07/2009	ILUKA	North	Female	14.5	32.57	1.12	3	1
Sn2493	7/07/2009	ILUKA	North	Female	18.3	59.73	0.99	2	1
Sn2494	7/07/2009	ILUKA	North	Female	14.8	34.12	1.01	3	1
Sn2495	7/07/2009	ILUKA	North	Male	14.2	28.05	1.8	2	1
Sn2496	7/07/2009	ILUKA	North	Male	12.7	19.7	0.75	3	1
Sn2497	7/07/2009	ILUKA	North	Male	15.6	38.38	0.25	1	1
Sn2498	7/07/2009	ILUKA	North	Female	14.5	30.17	0.2	2	1
Sn2499	7/07/2009	ILUKA	North	Male	13.6	26.6	0.89	2	1
Sn2500	7/07/2009	ILUKA	North	Female	15.7	38.8	0.63	3	1
Sn2501	7/07/2009	ILUKA	North	Male	14.7	30.38	0.11	1	1
Sn2502	7/07/2009	ILUKA	North	Female	16	38.35	1.05	3	1
Sn2503	7/07/2009	ILUKA	North	Female	13.2	25.16	0.72	3	1
Sn2504	7/07/2009	ILUKA	North	Male	12.9	22.1	0.67	2	1

Envelope ID	Sample Date	Location	Region	Sex	Fork Length (cm)	Body Weight (g)	Gonad Weight (g)	Gonad Stage	Fat Stage
Sn2505	7/07/2009	ILUKA	North	Female	15.4	37.17	1.12	3	1
Sn2506	7/07/2009	ILUKA	North	Female	14.6	35.33	0.72	2	1
Sn2507	7/07/2009	ILUKA	North	Female	13.7	27.44	1.44	3	1
Sn2508	7/07/2009	ILUKA	North	Male	12.8	21.11	0.91	2	1
Sn2509	7/07/2009	ILUKA	North	Female	16.2	37.93	0.51	2	1
Sn2510	7/07/2009	ILUKA	North	Male	12.9	23.1	0.74	2	1
Sn2511	7/07/2009	ILUKA	North	Female	16.7	43.83	1.82	3	1
Sn2512	7/07/2009	ILUKA	North	Male	12.9	23.28	0.93	2	1
Sn2513	7/07/2009	ILUKA	North	Female	17.8	54.77	0.42	2	1
Sn2514	7/07/2009	ILUKA	North	Female	13.4	25.04	0.43	2	1
Sn2515	7/07/2009	ILUKA	North	Female	12	17.07	0.49	3	1
Sn2516	7/07/2009	ILUKA	North	Male	13.1	22.53	0.37	2	1
Sn2517	7/07/2009	ILUKA	North	Female	12.8	22.48	1.15	3	1
Sn2518	31/07/2009	ILUKA	North	Female	17.6	54.93	3.47	4	1
Sn2519	31/07/2009	ILUKA	North	Female	18.1	54.46	2.33	3	1
Sn2520	31/07/2009	ILUKA	North	Male	17.4	51.72	0.95	2	1
Sn2521	31/07/2009	ILUKA	North	Male	17.6	55.26	1.9	3	1
Sn2522	31/07/2009	ILUKA	North	Male	17.6	53.69	2.1	3	1
Sn2523	31/07/2009	ILUKA	North	Female	17.5	50.3	2.99	4	1
Sn2524	31/07/2009	ILUKA	North	Male	17.3	54.43	3.5	3	1
Sn2525	31/07/2009	ILUKA	North	Male	16.2	41.38	2.52	3	1
Sn2526	31/07/2009	ILUKA	North	Male	18	54.04	2.6	3	1
Sn2527	31/07/2009	ILUKA	North	Female	16.6	50.08	1.3	3	1
Sn2528	31/07/2009	ILUKA	North	Female	16.7	43.34	1.01	3	1
Sn2529	31/07/2009	ILUKA	North	Male	16.4	43.79	1.53	3	1
Sn2530	31/07/2009	ILUKA	North	Male	17.3	50.59	1.78	3	1
Sn2531	31/07/2009	ILUKA	North	Female	15.3	31.82	0.71	3	1
Sn2532	31/07/2009	ILUKA	North	Female	16.1	38.68	0.78	3	1
Sn2533	31/07/2009	ILUKA	North	Male	17.6	50.44	1.53	3	1
Sn2534	31/07/2009	ILUKA	North	Female	16.3	43.39	2.43	3	1
Sn2535	31/07/2009	ILUKA	North	Female	16	42.78	1.03	3	1
Sn2536	31/07/2009	ILUKA	North	Female	15.9	40.79	1.24	3	1
Sn2537	31/07/2009	ILUKA	North	Male	16.7	47.61	3.02	3	1
Sn2538	31/07/2009	ILUKA	North	Male	17.1	47.98	2.27	3	1
Sn2539	31/07/2009	ILUKA	North	Female	17.4	45.53	0.76	2	1
Sn2540	31/07/2009	ILUKA	North	Male	15.7	39.17	1.71	3	1
Sn2541	31/07/2009	ILUKA	North	Female	16.9	45.64	2.85	4	1
Sn2542	31/07/2009	ILUKA	North	Female	16.5	42.35	0.98	3	1
Sn2543	31/07/2009	ILUKA	North	Female	17.4	55.06	3.27	4	1
Sn2544	31/07/2009	ILUKA	North	Male	15.2	37.14	2.71	3	1
Sn2545	31/07/2009	ILUKA	North	Male	16.4	45.6	2.7	3	1
Sn2546	31/07/2009	ILUKA	North	Female	16.4	47.3	2.58	3	1
Sn2547	31/07/2009	ILUKA	North	Male	17.4	51.12	2.68	3	1
Sn2548	31/07/2009	ILUKA	North	Male	17.5	48.71	0.41	2	1
Sn2549	31/07/2009	ILUKA	North	Female	17.1	51.74	1.53	3	1
Sn2550	31/07/2009	ILUKA	North	Female	16.3	43.08	2.34	3	1
Sn2551	31/07/2009	ILUKA	North	Female	15.7	37.14	1.27	3	1
Sn2552	31/07/2009	ILUKA	North	Female	17.1	50.98	2.54	4	1
Sn2553	31/07/2009	ILUKA	North	Female	16.4	45	1.19	2	1
Sn2554	31/07/2009	ILUKA	North	Female	15.1	38.34	1.19	3	1
Sn2555	31/07/2009	ILUKA	North	Female	16.5	49.45	1.98	3	1
Sn2556	31/07/2009	ILUKA	North	Female	17.2	45.34	1.07	3	1
Sn2557	31/07/2009	ILUKA	North	Female	17.1	45.49	1.14	2	1
Sn2558	10/08/2009	ILUKA	North	Female	17.2	49.85	1.5	2	1
Sn2559	10/08/2009	ILUKA	North	Female	16.9	50.67	1.53	3	1
Sn2560	10/08/2009	ILUKA	North	Female	16.4	43.61	1.87	3	1
Sn2561	10/08/2009	ILUKA	North	Female	17.1	51.99	1.01	2	1
Sn2562	10/08/2009	ILUKA	North	Female	17.8	54.53	3.15	3	1
Sn2563	10/08/2009	ILUKA	North	Female	17.5	53.57	1.44	3	1
Sn2564	10/08/2009	ILUKA	North	Male	17.9	60.83	0.14	1	1
Sn2565	10/08/2009	ILUKA	North	Male	17.4	53.72	2.56	3	1
Sn2566	10/08/2009	ILUKA	North	Female	16.8	54.31	5.31	4	1
Sn2567	10/08/2009	ILUKA	North	Male	17.3	53.84	3.25	3	1
Sn2568	10/08/2009	ILUKA	North	Female	18.2	55.53	2.4	3	1
Sn2569	10/08/2009	ILUKA	North	Female	14.6	33.28	1.27	3	1
Sn2570	10/08/2009	ILUKA	North	Female	17.1	54.15	1.43	3	1
Sn2571	10/08/2009	ILUKA	North	Female	17.2	50.52	1.65	3	1
Sn2572	10/08/2009	ILUKA	North	Female	15.6	39.43	2.02	3	1
Sn2573	10/08/2009	ILUKA	North	Female	16.4	44.6	1.17	3	1
Sn2574	10/08/2009	ILUKA	North	Male	16.3	41.92	0.87	2	1
Sn2575	10/08/2009	ILUKA	North	Female	14.9	41.33	1.43	3	1
Sn2576	10/08/2009	ILUKA	North	Male	16.1	44.26	2.45	3	1
Sn2577	10/08/2009	ILUKA	North	Female	16.1	44.21	1.78	3	1
Sn2578	10/08/2009	ILUKA	North	Female	16.1	45.46	1.89	3	1
Sn2579	10/08/2009	ILUKA	North	Female	18.1	56.43	2.07	3	1
Sn2580	10/08/2009	ILUKA	North	Female	16.9	44.99	0.9	2	1
Sn2581	10/08/2009	ILUKA	North	Male	14.9	35.5	1.66	3	1
Sn2582	10/08/2009	ILUKA	North	Female	15.7	39.84	1.67	3	1
Sn2583	10/08/2009	ILUKA	North	Female	16.3	43.69	1.3	3	1
Sn2584	10/08/2009	ILUKA	North	Female	19	65.41	2.25	3	1
Sn2585	10/08/2009	ILUKA	North	Female	16.3	45.31	1.73	3	1
Sn2586	10/08/2009	ILUKA	North	Female	16.1	40.8	1.99	3	1
Sn2587	10/08/2009	ILUKA	North	Female	16.2	44.71	1.41	3	1
Sn2588	10/08/2009	ILUKA	North	Female	14.2	30.9	1.27	3	1
Sn2589	10/08/2009	ILUKA	North	Female	16.5	46.32	2.4	3	1
Sn2590	10/08/2009	ILUKA	North	Female	17.1	49.84	2.66	3	1
Sn2591	10/08/2009	ILUKA	North	Male	16.3	43.25	1.79	3	1
Sn2592	10/08/2009	ILUKA	North	Female	18.8	63.07	2.92	3	1
Sn2593	10/08/2009	ILUKA	North	Male	15.6	39.44	1.45	3	1
Sn2594	10/08/2009	ILUKA	North	Female	16.6	41.66	1.93	3	1
Sn2595	10/08/2009	ILUKA	North	Female	16.1	43.75	1.29	3	1

Envelope ID	Sample Date	Location	Region	Sex	Fork Length (cm)	Body Weight (g)	Gonad Weight (g)	Gonad Stage	Fat Stage
Sn2596	10/08/2009	ILUKA	North		16	40.4	1.73	3	1
Sn2597	10/08/2009	ILUKA	North	Female	17.3	50	1.14	3	1

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