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Open-File Report 2010–1252

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Conversion Factors

Multiply	By	To obtain
foot (ft)	0.3048	meter
gallon (gal)	3.785	liter (L)
inch (in.)	2.54	centimeter
inch (in.)	25,400	micrometer (µm)
micromolar (µM)	molecular weight	micrograms per liter
micron (µm)	1,000,000	meter
mile (mi)	1.609	kilometer
ounce (oz)	28.35	gram (g)
part per million	1	microgram per gram (µg/g)

Concentrations of chemical constituents in solids are given in micrograms per gram (µg/g, dry weight).

Isotopic values (∂) are expressed in parts per thousand, or per mil.

Horizontal coordinate information is referenced to the North American Datum of 1983 (NAD 83)

Abbreviations and Acronyms

Abbreviations and Acronym	Meaning
HGAAS	Hydride Generation Atomic Absorption Spectroscopy
ICP-AES	Inductively Coupled Plasma Atomic Emission Spectroscopy
IAEA	International Atomic Energy Agency
NIST	National Institute of Science and Technology
NRCC	National Research Council Canada
QA/QC	Quality Assurance/Quality Control
USGS	U.S. Geological Survey

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Abstract

The clam-based food webs of San Francisco Bay, California efficiently bioaccumlate selenium and thus provide pathways for exposure to predators important to the estuary. This study documents changes in monthly selenium concentrations for the clam *Corbula amurensis*, a keystone species of the estuary, at five locations in northern San Francisco Bay from 1995 through 2010. Samples were collected from designated U.S. Geological Survey stations and prepared and analyzed by U.S. Geological Survey methods. Stable isotopes of carbon and nitrogen in soft tissues of clams also were measured as an indicator of sources of selenium for the clams. These monitoring data indicate that clam selenium concentrations ranged from a low of 2 to a high of 22 micrograms per gram dry weight with strong spatial and seasonal variation over the period of study.

Introduction

Contaminants that bioaccumulate, such as selenium (Se), have the potential to threaten fish and birds and thus to impede ecosystem restoration efforts. Selenium is a contaminant of concern and a challenge for resource managers in the San Francisco Bay because of oil refinery and agricultural sources of Se. The resident clam *Corbula amurensis* is an ecologically significant species in terms of critical food webs of the Bay. This estuarine clam invaded the estuary in 1986 and was established in the northern reaches of the estuary by autumn 1987. The invasion of *C. amurensis* has been linked to significant shifts in food web structure (Feyrer and others, 2003), loss of native pelagic invertebrates (Kimmerer and others, 1994; Kimmerer and Orsi, 1996; Kimmerer, 2002), and declines in pelagic organisms (Sommer and others, 2007).

C. amurensis is an efficient accumulator of Se when compared to other invertebrates (Presser and Luoma, 2010). This species of clam also is an efficient accumulator when compared to other bivalve species because of its high Se assimilation efficiency and slow Se loss rates from its tissues (Schlekat and others, 2000; Stewart and others, 2004; Lee and others, 2006). Stewart and others (2004) showed that a combination of food-web structure and the physiology of invertebrate species explain how Se is propagated up different food webs and which predators are therefore at risk.

The purpose of this study is to provide data that are representative of the spatial (five benthic stations in northern San Francisco Bay) and temporal (seasonal and inter-annual) variation in Se concentration in clams. These data document 15 years of Se concentrations, stable isotope (C and N) values and element compositions (% C and N, molar C:N) in the soft tissues of *C. amurensis*. Clam shell lengths and dry weights are also provided.

Methods

Sites and Dates of Collection

Samples of *C. amurensis* were collected from five locations in northern San Francisco Bay (fig. 1, table 1). The sites in San Pablo Bay, Carquinez Strait, and Suisun Bay are near the head of the estuary, seaward of the confluence of the Sacramento-San Joaquin River system. USGS benthic stations 4.1, 6.1, 8.1, and 12.5 are located along the main channel extending from Chipps Island through the North Bay (fig. 1, table 1). These stations are sampled monthly for chlorophyll-*a*, salinity, and suspended-sediment concentrations as part of a larger water-quality program that has been ongoing since 1968 (U.S. Geological Survey, 2010, *http://sfbay.wr.usgs.gov/access/wqdata/index.html*). USGS benthic station 415.1 is located near where Montezuma Slough enters Grizzly Bay. USGS benthic stations 405.1 and 411.1 are located in Suisun Bay between stations 8.1 and 415.1 (table 1). USGS benthic stations 4.1, 6.1, and 8.1 have depths of 11.6, 10.1, and 14.3 m respectively (table 1). USGS benthic stations 12.5, 405.1, 411.1, and 415.1 have shallower depths of 6.7, 7.9, 4.9, and 3.0 m respectively (table 1).

During the sampling period May 1995 – February 2010, the collection of *C. amurensis* for stations 4.1 and 8.1 was nearly monthly and is on-going (tables 3 and 5). The dates of sample collection for stations 6.1, 12.5, 405.1, 411.1, and 415.1 were more limited (tables 4, 6–9). Besides sampling logistics, collection depended on availability of clam populations.

Table 1. Locations and depths for USGS benthic stations, northern San Francisco Bay, California.

[Abbreviations: m, meters; N, north; W, west]

USGS station name	Latitude	Longitude	Depth (m)
Benthic 4.1	38º 03.427' N	121° 56.691' W	11.6
Benthic 6.1	38º 04.042' N	122º 02.933' W	10.1
Benthic 8.1	38º 01.900' N	122º 08.416' W	14.3
Benthic 12.5	38º 02.425' N	122º 18.850' W	6.7
Benthic 405.1	38º 02.885' N	122º 07.353' W	7.9
Benthic 411.1	38º 05.811' N	122º 03.491' W	4.9
Benthic 415.1	38º 07.743' N	122º 03.405' W	3.0

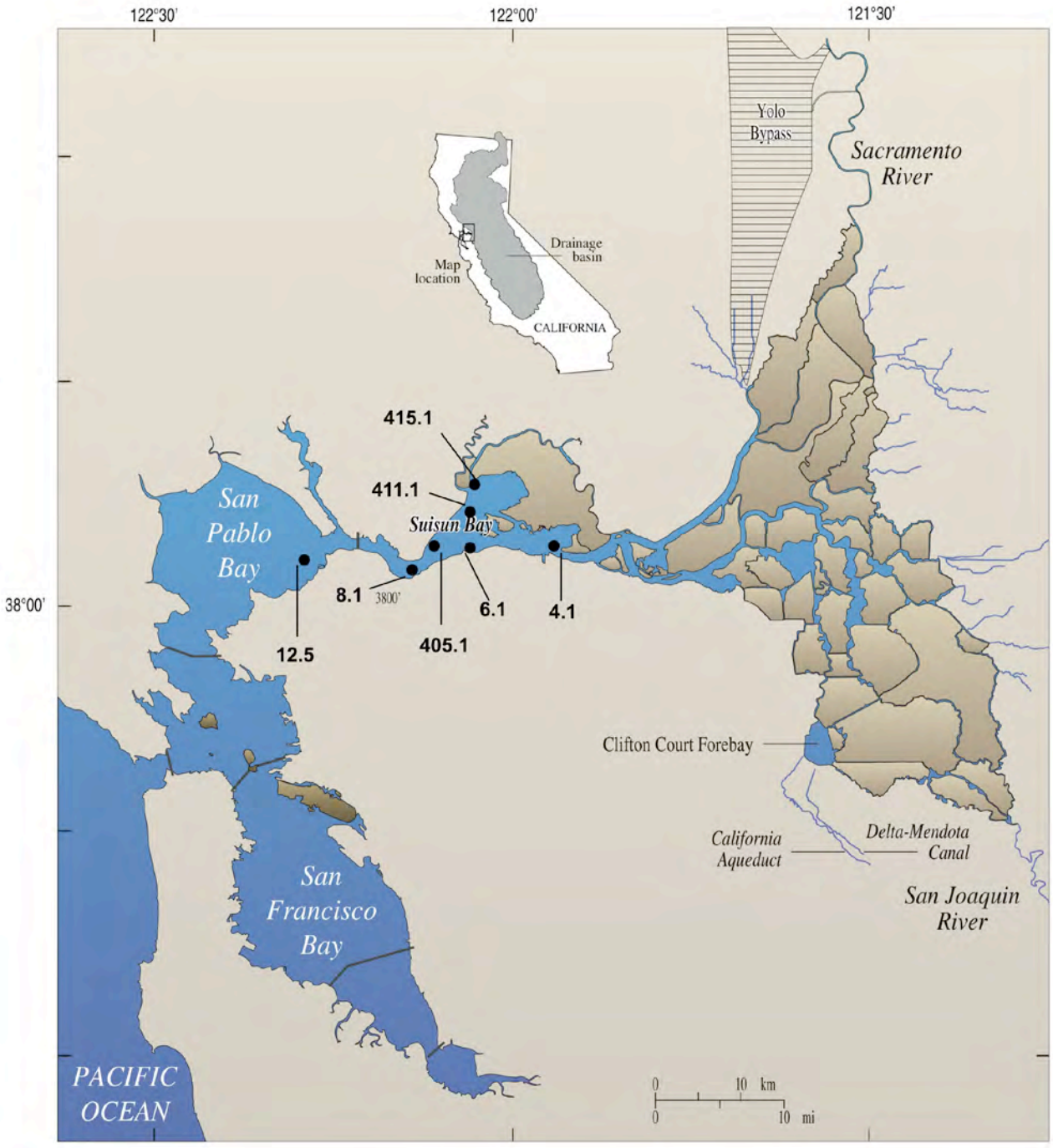

Figure 1. Study area with USGS benthic station locations in northern San Francisco Bay, California.

Sample Preparation and Selenium and Stable Isotope Analysis

Samples of *C. amurensis* were collected from the USGS ship, the R/V Polaris, using a benthic grab sampler. At each station, multiple benthic grab samples were taken until approximately 80 individual clams ranging in size from 9 to 18 mm were collected. The clams were placed in bottom water drained from the surface of the grab and depurated for 48 h (Brown and Luoma, 1995). Samples were processed as described in Linville and others (2002). Clams were measured to the nearest millimeter using electronic calipers and pooled by size to create three composite samples of varying mean length. Each composite was bagged separately and frozen at -80 °C until dissected. The numbers of individuals per sample are listed in tables 3-9. Upon dissection, soft tissues were removed from shells, pooled by size, weighed, refrozen, and then freeze-dried (VirTis Freezemobile 12ES). Freeze-dried samples were further ground into a coarse powder using a ball-mill (SPEX CertiPrep 5100).

For Se analysis, approximately 100–200 mg of ground tissue was weighed out into an open Teflon® beaker and then digested using a modification of the procedure described in Elrick and Horowitz (1985). Specifically, Lefort aqua regia was substituted for nitric acid in the first step of the digestion, and nitric acid was substituted for hydrofluoric acid in the second addition of $HF\text{-}HClO_4$. Samples were then brought up to volume in 0.5% HNO_3. A 5-mL aliquot was taken and mixed with 5 mL 12M HCl to reduce the Se to the most favorable valence for hydride generation. The Se digestates were analyzed by hydride generation atomic absorption spectroscopy (HGAAS) during the period 1995 through mid-2001 and more recently by inductively coupled plasma atomic emission spectroscopy (ICP-AES). Selenium concentrations are expressed as micrograms per gram (µg/g) on a dry weight (dw) basis.

Stable isotopes of carbon (C) and nitrogen (N) in soft tissues of *C. amurensis* were measured beginning in summer 1999 (Canuel and others, 1995). Stable isotope ratios of nitrogen ($\delta^{15}N$) provide a spatially and temporally integrated measure of trophic relationships in a food web (that is, primary producers → invertebrates → fish) because $\delta^{15}N$ becomes enriched by 2.5–5 per mil (‰) between prey and predator (Peterson and Fry, 1987). Stable isotope ratios of carbon ($\delta^{13}C$) show little or no enrichment (<1‰) with each trophic level, but can help identify contributions of different Se sources that affect clam tissues (France, 1995).

A subsample of freeze-dried clam soft tissues was analyzed for carbon and nitrogen isotope ratios and masses at the Stable Isotope Facility, University of California, Davis, using a Europa Scientific Hydra 20/20 continuous flow isotope ratio mass spectrometer and Europa ANCA-SL elemental analyzer. Results are presented as deviations from standards, expressed as $\delta^{13}C$ and $\delta^{15}N$:

$$\delta X = [R_{sample}/R_{standard} - 1] \times 10^3 \text{ ‰}$$

where X is ^{13}C or ^{15}N and R is $^{13}C/^{12}C$ or $^{15}N/^{14}N$. The standard for carbon is Peedee Belemnite, and for nitrogen, it is atmospheric diatomic nitrogen. Instrument precision was 0.1‰ for carbon and 0.3‰ for nitrogen based on replicate analyses of standard reference materials (Cloern and others, 2002).

Quality Assurance

All glassware and plasticware used for sample collection, preparation, and analysis were first cleaned to remove contamination. The cleaning process included several sequential steps including a detergent wash, a rinse in deionized water, a 15-percent nitric acid wash, and a thorough rinse in double-deionized water (approximately 18 MΩ resistivity). Materials were dried in a dust-free positive pressure environment, sealed, and stored in a dust-free cabinet.

Quality assurance/quality control (QA/QC) for the determination of Se was through the co-digestion and analysis of various standard reference materials (SRMs) from several sources, including the National Institute of Science and Technology (NIST), the National Research Council Canada (NRCC), and the International Atomic Energy Agency (IAEA). SRM samples accounted for 20 percent of each assay. Ten percent of the clam tissue samples in each assay were analyzed in duplicate. Reagent blanks were processed to ensure the purity of the acids and other reagents. Observed concentrations fell within the range of certified values for these materials (table 2).

Results

Tables 3-9 give Se concentrations, stable isotope (C and N) values, element compositions (% C and N, molar C:N), clam shell lengths, and dry weights for clam sample composites from USGS benthic stations listed in numerical sequence of stations (that is, station 4.1, table 3; station 6.1, table 4; station 8.1,table 5; station 12.5, table 6; station 405.1, table 7; station 411.1, station 8; and station 415.1, table 9.

Clam Se concentrations ranged from a low of 2 to a high of 22 micrograms per gram dry weight with strong spatial and seasonal variation over the period of study.

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Table 2. Observed and certified concentrations of selenium (µg/g dw) in standard reference materials (SRM) analyzed.

[The certified concentration as reported by the National Institute of Standards and Technology (NIST), the International Atomic Energy Agency (IAEA), and the National Research Council Canada (NRCC) are the mean and 95-percent confidence interval. The observed concentrations are the mean and 1 standard deviation (n=1-7; --, no data]

Analysis date	NIST 1566A	NIST 1566B	NIST 2709	NIST 2976	IAEA MA-A-1/TM	IAEA MA-A-2/TM	IAEA MA-B-3/TM	NRCC TORT-1	NRCC TORT-2	NRCC DORM-1	NRCC DORM-2	NRCC DOLT-2	NRCC DOLT-3	NRCC MESS-2
	Certified Se Concentration													
	2.2 ± 0.2	2.1 ± 0.2	1.6 ± 0.1	1.8 ± 0.2	2.9 ± 0.5	1.7 ± 0.3	1.5 ± 0.2	6.9 ± 0.5	5.6 ± 0.7	1.6 ± 0.1	1.4 ± 0.1	6.1 ± 0.5	7.1 ± 0.5	0.7 ± 0.1
	Observed Se Concentration													
Oct-99	2.1 ± 0.1	--	--	1.6 ± 0.04	2.9 ± 0.07	--	1.5 ± 0.07	--	5.1 ± 0.3	--	1.3 ± 0.0	5.7 ± 0.07	--	--
Dec-99	2.3 ± 0.2	--	1.6	--	3.0	--	1.4 ± 0.1	--	4.7	--	1.2 ± 0.3	6.2 ± 0.3	--	--
June-00	2.2 ± 0.1	--	1.4	1.8 ± 0.2	2.7 ± 0.3	--	1.4 ± 0.03	--	5.2 ± 0.3	--	1.4 ± 0.1	5.8 ± 0.3	--	0.8
Aug-00	--	--	--	1.8 ± 0.1	--	--	1.4	--	4.9 + 1.0	--	1.4 ± 0.1	5.9 ± 0.2	--	--
Feb-01	--	--	--	2.1 ± 0.2	3.1 ± 0.2	1.3 ± 0.1	1.4 ± 0.1	6.8 ± 0.3	6.3 ± 0.3	--	1.5 ± 0.1	5.9 ± 0.4	--	--
Jan-02	--	--	--	1.9 ± 0.3	--	--	1.7 ± 0.2	--	5.8 ± 0.0	--	1.4 ± 0.1	6.4 ± 0.1	--	--
May-02	--	--	--	1.8 ± 0.1	3.1 ± 0.3	--	1.5 ± 0.2	--	5.3 ± 0.6	--	1.6 ± 0.1	5.9 ± 0.4	--	--
Nov-02	--	--	--	1.8 ± 0.2	3.1 ± 0.2	1.0 ± 0.1	1.2 ± 0.1	--	5.4 ± 0.4	--	1.3 ± 0.1	5.7 ± 0.3	--	--
Sept-03	--	2.0 ± 0.1	--	1.9 ± 0.1	3.0 ± 0.1	--	1.4 ± 0.1	--	5.8 ± 0.1	--	1.4 ± 0.1	6.0 ± 0.2	--	--
May-04	--	2.5 ± 0.07	--	2.0	2.8	--	1.8 ± 0.07	6.4 ± 0.1	6.0 ± 0.5	1.8	1.6 ± 0.07	6.2 ± 0.2	--	--
Dec-08	--	2.0 ± 0.2	--	2.0	2.8	--	1.4	--	5.6 ± 0.2	--	1.3	5.6	6.9	--
Mar-09	--	2.0 ± 0.2	--	1.7 ± 0.1	--	--	--	--	5.5 ± 0.01	--	1.4 ± 0.1	5.8 ± 0	7.0 ± 0.2	--
Apr-09	--	2.0 ± 0.1	--	1.7 ± 0.1	--	--	--	--	5.5	--	1.4 ± 0.1	5.7	7.0 ± 0.5	--
Oct-09	--	--	--	-	--	--	--	--	--	--	--	--	6.7	--
Apr-10	--	2.3	--	1.6	--	--	--	--	--	--	1.5	--	6.6	--
July-10	--	--	--	-	--	--	--	--	6.2	--	1.3	--	7.4	--
July-10	--	2.1 ± 0.1	--	1.8 ± 0.2	--	--	--	1.4 ± 0.1	5.4 ± 0.4	--	6.2	5.7 ± 0.1	7.2 ± 0.1	--

Table 3. Concentrations of selenium and stable isotopes of carbon and nitrogen in the clam *Corbula amurensis* at USGS benthic station 4.1, northern San Francisco Bay, California, October 1996–February 2010.

[Abbreviations: mm, millimeter; g, gram; µg/g, microgram per gram; δ, per mil; %, percent; --, no data; dw, dry weight]

Date	Sample replicate	Individuals per sample	Average shell length (mm)	Total dry weight (g)	Average dry weight (g)	Se (µg/g dw)	% C	% N	Molar C:N	δ ^{13}C	δ ^{15}N
10/17/1996	1	10	23.27	0.446	0.045	10.6	--	--	--	--	--
10/17/1996	2	12	21.46	0.481	0.040	11.2	--	--	--	--	--
10/17/1996	3	14	20.44	1.001	0.072	11.2	--	--	--	--	--
10/17/1996	4	19	19.65	0.615	0.032	9.2	--	--	--	--	--
10/17/1996	5	20	18.38	0.513	0.026	10.6	--	--	--	--	--
10/17/1996	6	28	17.63	0.632	0.023	12.6	--	--	--	--	--
10/17/1996	7	19	16.27	0.342	0.018	11.4	--	--	--	--	--
11/5/1997	1	31	17.09	0.909	0.029	12.4	--	--	--	--	--
11/5/1997	2	35	21.03	1.885	0.054	11.2	--	--	--	--	--
11/5/1997	3	28	23.40	2.076	0.074	11.2	--	--	--	--	--
10/12/1998	1	5	22.20	0.210	0.042	5.7	--	--	--	--	--
10/12/1998	2	5	24.20	0.280	0.056	5.4	--	--	--	--	--
11/27/2001	1	71	9.97	0.318	0.004	16.0	47.0	12.1	4.52	-27.19	13.09
11/27/2001	2	58	11.60	0.388	0.007	16.0	45.7	11.5	4.64	-27.11	12.94
12/18/2001	1	85	10.00	0.322	0.004	14.0	43.6	10.4	4.89	-26.60	12.17
12/18/2001	2	73	11.82	0.435	0.006	12.0	43.6	10.5	4.85	-26.39	12.61
3/23/2002	1	56	9.97	0.358	0.006	8.0	49.7	12.8	4.53	-27.16	12.92
3/23/2002	2	6	19.98	0.268	0.045	6.6	39.9	9.6	4.84	-29.45	6.72
5/8/2002	1	74	8.55	0.408	0.006	5.0	32.1	8.2	4.57	-28.35	8.71
5/8/2002	2	45	9.49	0.332	0.007	5.0	61.3	15.1	4.74	-26.39	9.67
6/5/2002	1	50	9.51	0.218	0.004	6.0	44.3	11.1	4.70	-26.65	10.29
6/5/2002	2	38	10.46	0.221	0.006	5.9	42.2	10.7	4.71	-26.74	10.19
6/5/2002	3	34	11.44	0.256	0.008	5.3	42.8	10.6	4.65	-26.64	10.22
7/17/2002	1	35	10.58	0.177	0.005	13.0	54.2	14.1	4.47	-27.08	11.30
7/17/2002	2	28	11.41	0.177	0.006	13.0	44.2	10.9	4.72	-26.71	12.34
7/17/2002	3	21	12.45	0.172	0.008	13.0	36.2	9.3	4.52	-26.67	12.76
8/22/2002	1	32	11.40	0.257	0.008	11.0	40.1	9.6	4.86	-26.94	11.89
8/22/2002	2	19	13.53	0.211	0.011	12.0	27.6	6.9	4.69	-26.01	11.78
8/22/2002	3	17	14.45	0.228	0.013	11.0	46.6	10.9	4.98	-26.92	11.98
9/11/2002	1	21	13.49	0.269	0.013	10.2	41.4	9.8	4.70	-26.20	11.86
9/11/2002	2	14	15.58	0.250	0.018	10.8	40.7	9.8	4.69	-26.22	11.73

Date	Sample replicate	Individuals per sample	Average shell length (mm)	Total dry weight (g)	Average dry weight (g)	Se (µg/g dw)	% C	% N	Molar C:N	δ ^{13}C	δ ^{15}N
9/11/2002	3	10	17.35	0.245	0.024	10.4	40.6	9.9	4.85	-26.22	11.88
10/9/2002	1	24	12.45	0.253	0.011	10.1	41.4	9.8	4.98	-26.38	11.99
10/9/2002	2	18	13.57	0.209	0.012	10.1	41.0	9.6	4.81	-26.29	11.99
10/9/2002	3	17	14.44	0.220	0.013	8.9	41.0	9.5	4.95	-26.44	12.14
11/14/2002	1	28	14.99	0.459	0.016	11.0	51.7	12.7	4.74	-26.86	11.43
11/14/2002	2	20	16.97	0.377	0.019	10.0	42.1	10.2	4.84	-26.43	12.15
12/11/2002	1	12	17.55	0.315	0.026	11.0	33.4	7.7	5.06	-26.35	12.75
12/11/2002	2	7	19.18	0.221	0.032	10.0	64.6	14.2	5.29	-26.95	12.44
12/11/2002	3	6	20.47	0.227	0.038	10.0	37.5	9.2	4.75	-26.74	11.55
1/8/2003	1	18	13.80	0.223	0.012	8.9	35.0	8.6	4.74	-23.88	11.19
1/8/2003	2	10	17.60	0.228	0.023	7.9	45.9	11.6	4.63	-26.85	11.54
1/8/2003	3	6	20.29	0.190	0.032	7.8	53.6	14.0	4.46	-26.56	11.97
2/20/2003	1	6	16.50	0.098	0.016	7.8	46.7	12.0	4.57	-27.78	10.13
2/20/2003	2	6	17.44	0.107	0.018	8.0	48.1	11.6	4.85	-27.64	10.42
2/20/2003	3	6	19.27	0.145	0.024	7.9	46.5	11.9	4.55	-27.53	10.30
3/19/2003	1	33	10.98	0.225	0.007	7.6	45.6	11.8	4.51	-29.67	7.10
3/19/2003	2	10	16.40	0.207	0.021	6.0	44.8	11.8	4.44	-28.71	8.16
3/19/2003	3	4	19.39	0.111	0.028	7.0	44.3	11.6	4.45	-28.26	8.96
7/16/2003	1	35	11.49	0.234	0.007	6.2	44.7	11.1	4.68	-28.05	10.20
7/16/2003	2	20	12.53	0.180	0.009	6.7	42.5	10.8	4.61	-27.95	9.91
7/16/2003	3	15	13.55	0.179	0.012	6.7	42.2	10.7	4.60	-27.84	9.91
8/13/2003	1	22	11.52	0.179	0.008	6.2	43.6	10.5	4.85	-27.57	11.03
8/13/2003	2	26	12.56	0.268	0.010	6.4	42.9	10.5	4.75	-27.67	10.94
8/13/2003	3	22	13.52	0.247	0.011	6.2	43.9	10.8	4.73	-27.56	11.16
9/10/2003	1	21	12.55	0.219	0.010	7.5	42.3	10.5	4.66	-27.31	11.03
9/10/2003	2	17	13.56	0.222	0.013	7.7	43.5	10.4	4.89	-27.40	11.11
9/10/2003	3	10	17.51	0.243	0.024	7.3	41.6	10.3	4.72	-27.19	10.91
10/16/2003	1	14	16.52	0.300	0.021	8.0	39.9	9.9	4.69	-26.76	12.33
10/16/2003	2	10	17.37	0.242	0.024	8.4	40.1	9.6	4.88	-26.67	12.26
10/16/2003	3	5	20.38	0.216	0.043	7.1	39.9	9.4	4.96	-26.72	12.42
11/19/2003	1	47	10.50	0.244	0.005	10.7	39.5	9.4	4.98	-27.40	10.95
11/19/2003	2	37	11.38	0.245	0.007	9.7	39.1	9.4	5.07	-27.37	10.99
11/19/2003	3	7	16.59	0.178	0.025	7.7	38.5	9.5	5.35	-27.14	11.56
12/17/2003	1	8	15.45	0.161	0.020	7.9	42.4	9.7	5.08	-27.27	10.91
12/17/2003	2	10	17.68	0.270	0.027	7.9	43.3	9.8	5.17	-27.28	11.08
12/17/2003	3	10	18.51	0.289	0.029	7.8	43.5	9.7	5.22	-27.27	11.23

Date	Sample replicate	Individuals per sample	Average shell length (mm)	Total dry weight (g)	Average dry weight (g)	Se (µg/g dw)	% C	% N	Molar C:N	δ ^{13}C	δ ^{15}N
1/13/2004	1	22	11.54	0.151	0.007	7.1	43.9	10.8	4.73	-27.29	10.71
1/13/2004	2	13	14.52	0.205	0.016	6.2	43.7	10.1	5.07	-27.22	11.04
1/13/2004	3	15	16.46	0.318	0.021	7.1	44.7	10.2	5.08	-27.18	10.85
2/11/2004	1	35	11.48	0.234	0.007	6.8	42.9	10.5	4.76	-27.91	9.52
2/11/2004	2	19	13.45	0.223	0.012	6.4	43.3	10.4	4.83	-27.51	10.03
2/11/2004	3	10	16.39	0.203	0.020	6.7	43.9	10.3	4.98	-27.38	10.46
3/10/2004	1	47	10.38	0.299	0.006	5.5	44.6	10.8	4.83	-28.65	8.28
3/10/2004	2	33	11.36	0.262	0.008	5.5	43.4	10.4	4.89	-28.58	7.99
4/21/2004	1	49	10.01	0.377	0.008	4.4	46.1	10.3	5.23	-29.89	5.69
4/21/2004	2	44	11.95	0.539	0.012	3.9	46.5	10.3	5.27	-29.78	5.72
4/21/2004	3	14	16.43	0.404	0.029	4.8	44.9	10.8	4.83	-29.24	7.20
5/19/2004	1	83	9.30	0.423	0.005	4.8	44.2	10.3	5.03	-26.57	8.87
5/19/2004	2	45	10.82	0.345	0.008	4.9	43.6	10.2	4.98	-26.69	8.78
5/19/2004	3	23	13.07	0.321	0.014	5.1	43.8	10.1	5.05	-26.81	8.96
6/23/2004	1	63	10.21	0.337	0.005	9.1	42.1	10.4	4.69	-27.12	10.45
6/23/2004	2	34	11.50	0.251	0.007	8.2	41.7	10.4	4.67	-27.08	10.38
6/23/2004	3	27	12.47	0.248	0.009	8.7	42.7	10.5	4.72	-27.25	10.31
6/23/2004	4	21	13.28	0.230	0.011	7.8	41.6	10.4	4.67	-27.18	10.46
6/23/2004	5	17	14.51	0.252	0.015	7.8	40.9	10.0	4.75	-27.21	10.14
7/27/2004	1	28	11.43	0.207	0.007	8.3	43.3	10.7	4.70	-27.23	10.82
7/27/2004	2	27	12.47	0.243	0.009	9.3	43.7	10.9	4.67	-27.15	10.89
7/27/2004	3	17	14.57	0.222	0.013	7.9	44.4	11.0	4.72	-27.10	10.49
8/25/2004	1	29	11.49	0.211	0.007	8.2	43.9	10.5	4.82	-26.74	10.89
8/25/2004	2	27	12.45	0.237	0.009	9.5	44.1	11.0	4.69	-26.68	10.74
8/25/2004	3	31	13.49	0.339	0.011	8.7	43.6	10.7	4.75	-26.70	10.80
9/15/2004	1	19	13.57	0.248	0.013	7.3	41.7	9.8	4.97	-26.13	11.38
9/15/2004	2	11	15.38	0.207	0.019	7.3	41.8	9.6	5.10	-26.18	11.43
9/15/2004	3	7	16.55	0.162	0.023	6.8	42.1	9.5	5.15	-26.13	11.38
11/4/2004	1	17	14.06	0.249	0.015	6.8	42.1	9.3	5.28	-26.61	11.24
11/4/2004	2	11	16.61	0.248	0.023	6.7	41.4	9.0	5.34	-26.54	11.05
11/4/2004	3	8	18.34	0.239	0.030	5.6	40.4	8.7	5.39	-26.55	10.98
12/14/2004	1	13	14.49	0.195	0.015	8.0	42.6	9.9	4.90	-26.87	10.80
12/14/2004	2	11	15.43	0.179	0.016	8.3	44.3	9.9	5.23	-27.01	10.46
12/14/2004	3	9	16.36	0.175	0.019	7.9	42.0	9.6	5.11	-26.88	10.48
1/12/2005	1	14	15.36	0.221	0.016	6.4	41.9	10.0	4.88	-27.00	9.93
1/12/2005	2	11	16.47	0.208	0.019	6.3	42.0	10.1	4.84	-26.98	9.85

Date	Sample replicate	Individuals per sample	Average shell length (mm)	Total dry weight (g)	Average dry weight (g)	Se (µg/g dw)	% C	% N	Molar C:N	δ ^{13}C	δ ^{15}N
1/12/2005	3	8	17.41	0.187	0.023	5.6	66.3	15.4	5.03	-26.92	9.84
2/24/2005	1	24	13.25	0.221	0.009	6.3	42.5	10.8	4.60	-27.50	8.59
2/24/2005	2	14	15.57	0.200	0.014	7.0	41.8	10.4	4.68	-27.22	9.34
2/24/2005	3	15	16.79	0.266	0.018	6.1	43.0	11.0	4.56	-27.25	9.64
3/23/2005	1	25	12.37	0.220	0.009	5.0	43.8	10.9	4.69	-28.89	7.82
3/23/2005	2	10	15.91	0.156	0.016	5.6	43.2	11.0	4.57	-28.32	8.67
3/23/2005	3	6	17.88	0.133	0.022	5.7	43.0	10.9	4.62	-28.30	8.49
4/13/2005	1	28	11.94	0.272	0.010	5.1	44.1	10.3	4.98	-30.13	6.36
4/13/2005	2	18	15.39	0.307	0.017	5.2	43.7	10.9	4.68	-28.93	7.55
4/13/2005	3	11	16.27	0.281	0.026	4.7	35.4	8.6	4.79	-28.81	7.75
5/11/2005	1	70	8.50	0.388	0.006	3.3	44.9	9.3	5.62	-28.58	7.05
5/11/2005	2	50	9.51	0.379	0.008	3.1	44.6	9.7	5.38	-28.51	7.21
5/11/2005	3	37	10.45	0.359	0.010	3.4	44.3	9.8	5.29	-28.40	7.19
6/22/2005	1	75	9.19	0.382	0.005	3.8	45.1	9.7	5.45	-29.19	6.91
6/22/2005	2	40	10.96	0.348	0.009	4.0	44.9	9.2	5.70	-29.16	7.06
6/22/2005	3	20	13.02	0.268	0.013	4.1	42.7	9.0	5.56	-28.93	7.25
8/10/2005	1	34	12.10	0.326	0.010	7.8	40.9	10.3	4.62	-27.84	9.87
8/10/2005	2	21	14.15	0.301	0.014	7.2	41.2	10.2	4.71	-27.87	9.83
8/10/2005	3	9	17.77	0.246	0.027	6.7	40.1	9.5	4.93	-27.70	9.80
9/8/2005	1	21	14.02	0.355	0.017	7.7	42.5	10.5	4.71	-27.31	9.81
9/8/2005	2	14	15.49	0.287	0.021	8.2	42.3	10.7	4.61	-27.37	10.02
9/8/2005	3	9	17.71	0.266	0.030	7.2	41.3	10.1	4.75	-27.20	9.77
10/13/2005	1	15	14.09	0.258	0.017	7.7	43.3	9.5	5.35	-27.45	9.62
10/13/2005	2	10	16.39	0.226	0.023	7.2	43.4	9.9	5.10	-27.61	9.50
10/13/2005	3	8	17.57	0.210	0.026	6.8	43.1	9.7	5.16	-27.53	9.79
11/9/2005	1	19	14.38	0.351	0.018	7.8	41.0	9.3	5.17	-27.29	9.92
11/9/2005	2	10	17.51	0.266	0.027	7.5	41.3	9.6	5.02	-27.35	9.91
11/9/2005	3	7	18.96	0.244	0.035	7.0	40.9	9.0	5.32	-27.29	9.96
12/8/2005	1	16	16.19	0.360	0.022	8.3	41.6	9.6	5.07	-27.43	9.73
12/8/2005	2	10	17.43	0.264	0.026	7.6	41.3	9.4	5.14	-27.29	9.86
12/8/2005	3	8	18.47	0.242	0.030	7.6	41.1	9.7	4.93	-27.34	10.02
1/11/2006	1	22	11.22	0.146	0.007	6.5	44.3	10.4	4.96	-27.40	8.86
1/11/2006	2	11	16.48	0.235	0.021	6.1	43.8	9.9	5.16	-27.25	9.49
1/11/2006	3	6	18.48	0.159	0.026	6.1	44.2	10.4	4.95	-27.22	9.64
2/15/2006	1	46	10.18	0.258	0.006	4.9	43.9	10.1	5.05	-29.63	8.00
2/15/2006	2	24	13.19	0.291	0.012	5.3	44.3	10.4	4.97	-29.06	8.48

Date	Sample replicate	Individuals per sample	Average shell length (mm)	Total dry weight (g)	Average dry weight (g)	Se (µg/g dw)	% C	% N	Molar C:N	δ ^{13}C	δ ^{15}N
2/15/2006	3	8	17.46	0.201	0.025	4.2	44.5	10.7	4.85	-28.59	8.69
3/16/2006	1	32	10.93	0.302	0.009	3.9	44.9	10.5	4.99	-30.63	7.11
3/16/2006	2	8	16.94	0.223	0.028	3.7	42.0	11.0	4.46	-29.15	8.03
3/16/2006	3	5	19.56	0.218	0.044	3.9	41.5	10.7	4.51	-29.57	7.54
5/10/2006	1	45	9.08	0.273	0.006	2.9	47.5	10.2	5.44	-31.70	6.90
5/10/2006	2	21	11.59	0.287	0.014	2.9	47.7	10.8	5.13	-31.55	6.85
5/10/2006	3	8	13.68	0.185	0.023	2.0	46.3	10.3	5.24	-31.27	6.73
8/16/2006	1	14	13.57	0.285	0.020	4.4	45.0	9.6	5.49	-26.93	7.50
8/16/2006	2	9	16.57	0.243	0.027	4.9	44.0	10.1	5.08	-26.61	7.39
8/16/2006	3	7	17.47	0.215	0.031	5.0	43.8	10.1	5.07	-26.66	7.39
9/13/2006	1	43	9.94	0.258	0.006	6.2	42.4	10.5	4.69	-27.15	8.20
9/13/2006	2	14	15.50	0.233	0.017	6.0	41.1	10.5	4.56	-26.76	8.17
9/13/2006	3	10	17.34	0.221	0.022	6.3	42.1	10.7	4.58	-26.58	8.33
10/18/2006	1	10	14.56	0.146	0.015	5.9	42.5	10.2	4.85	-27.27	8.74
10/18/2006	2	7	17.32	0.159	0.023	5.8	41.9	10.4	4.72	-27.15	8.93
10/18/2006	3	6	18.25	0.171	0.029	5.4	42.5	10.0	4.94	-27.15	8.95
11/15/2006	1	21	12.80	0.202	0.010	7.4	41.4	10.3	4.70	-27.39	9.21
11/15/2006	2	10	17.58	0.222	0.022	6.3	40.7	9.9	4.79	-27.17	8.91
11/15/2006	3	8	18.62	0.218	0.027	6.2	40.5	9.7	4.86	-27.17	8.99
12/13/2006	1	44	10.66	0.269	0.006	6.3	40.9	10.0	4.78	-28.09	8.76
12/13/2006	2	13	15.23	0.236	0.018	6.5	39.9	9.6	4.83	-27.59	8.93
12/13/2006	3	10	17.42	0.240	0.024	6.1	39.8	9.6	4.82	-27.53	8.87
1/10/2007	1	58	9.01	0.225	0.004	8.2	42.8	10.3	4.86	-28.54	8.11
1/10/2007	2	17	12.83	0.190	0.011	6.7	42.0	10.1	4.84	-27.84	8.71
1/10/2007	3	9	16.71	0.199	0.022	6.3	42.0	10.1	4.84	-27.73	8.74
2/7/2007	1	46	9.04	0.168	0.004	8.0	43.0	10.6	4.73	-28.51	8.25
2/7/2007	2	22	11.36	0.151	0.007	8.2	43.6	10.7	4.76	-28.02	8.45
2/7/2007	3	6	17.18	0.138	0.023	6.4	41.8	10.2	4.77	-27.68	8.51
4/4/2007	1	80	8.83	0.258	0.003	5.6	44.2	10.7	4.81	-29.32	7.24
4/4/2007	2	30	10.97	0.167	0.006	5.9	43.2	10.8	4.64	-28.93	7.67
4/4/2007	3	12	15.62	0.189	0.016	5.3	43.4	11.4	4.44	-28.17	8.18
7/17/2007	1	79	8.53	0.216	0.003	7.2	43.1	10.2	4.91	-27.57	9.86
7/17/2007	2	60	9.53	0.224	0.004	8.3	43.5	10.5	4.81	-27.57	9.84
7/17/2007	3	40	10.42	0.181	0.005	9.2	43.5	10.6	4.80	-27.27	10.03
8/21/2007	1	81	9.28	0.300	0.004	9.8	43.4	9.9	5.14	-27.16	10.03
8/21/2007	2	40	11.42	0.258	0.006	9.6	43.8	10.0	5.14	-27.02	10.10

Date	Sample replicate	Individuals per sample	Average shell length (mm)	Total dry weight (g)	Average dry weight (g)	Se (µg/g dw)	% C	% N	Molar C:N	δ ^{13}C	δ ^{15}N
8/21/2007	3	28	12.40	0.218	0.008	7.4	43.3	10.4	4.87	-26.84	10.14
9/12/2007	1	27	10.48	0.166	0.006	9.1	43.0	9.7	5.19	-26.61	10.46
9/12/2007	2	28	11.46	0.204	0.007	9.4	42.5	9.5	5.23	-26.47	10.52
9/12/2007	3	21	12.38	0.188	0.009	9.0	41.9	9.6	5.09	-26.40	10.36
10/24/2007	1	42	10.18	0.212	0.005	10.0	43.9	9.8	5.22	-27.01	10.12
10/24/2007	2	27	12.43	0.227	0.008	10.0	43.3	9.8	5.14	-26.86	10.27
10/24/2007	3	13	14.51	0.167	0.013	9.9	43.4	9.7	5.23	-26.69	10.41
11/15/2007	1	35	11.48	0.232	0.007	10.0	41.9	9.5	5.13	-26.71	10.22
11/15/2007	2	30	12.47	0.240	0.008	10.0	41.7	9.7	5.02	-26.87	10.20
11/15/2007	3	25	13.41	0.231	0.009	8.5	42.2	9.8	5.00	-26.83	10.19
12/12/2007	1	48	9.86	0.223	0.005	12.0	43.1	10.1	4.99	-26.94	10.06
12/12/2007	2	25	12.51	0.215	0.009	11.0	41.7	9.8	4.96	-26.84	10.16
12/12/2007	3	22	13.32	0.220	0.010	10.0	42.8	9.7	5.14	-26.81	10.03
2/13/2008	1	35	10.46	0.152	0.004	8.6	43.8	11.6	4.38	-27.14	10.16
2/13/2008	2	30	11.50	0.171	0.006	8.4	43.5	11.4	4.44	-27.03	10.28
2/13/2008	3	21	13.37	0.180	0.009	7.5	42.7	11.0	4.54	-27.21	10.03
5/7/2008	1	58	9.47	0.390	0.007	7.4	40.6	10.0	4.72	-27.32	9.16
5/7/2008	2	40	10.64	0.360	0.009	8.2	41.7	10.6	4.59	-27.43	9.52
5/7/2008	3	10	14.30	0.180	0.018	9.2	40.2	10.5	4.46	-27.41	9.44
6/18/2008	1	52	9.62	0.254	0.005	13.0	39.6	10.3	4.47	-27.08	11.36
6/18/2008	2	31	11.82	0.261	0.008	12.0	38.9	10.2	4.44	-26.98	10.89
6/18/2008	3	8	15.63	0.145	0.018	12.0	39.2	10.3	4.46	-26.79	10.92
7/16/2008	1	42	10.64	0.280	0.007	12.0	39.3	9.9	4.63	-26.77	11.53
7/16/2008	2	30	12.88	0.329	0.011	12.0	38.9	10.1	4.51	-26.60	11.71
7/16/2008	3	18	14.18	0.267	0.015	12.0	38.7	9.7	4.67	-26.66	11.21
9/17/2008	1	75	9.93	0.452	0.006	11.0	39.0	9.0	5.04	-26.97	11.75
9/17/2008	2	22	12.48	0.254	0.012	9.6	39.7	9.2	5.05	-26.94	11.49
9/17/2008	3	13	15.35	0.284	0.022	10.0	37.9	8.8	5.02	-26.60	11.74
10/16/2008	1	28	12.44	0.286	0.010	8.6	36.2	8.1	5.20	-26.93	11.87
10/16/2008	2	17	14.73	0.306	0.018	7.9	36.7	8.4	5.11	-26.68	11.30
10/16/2008	3	9	16.30	0.216	0.024	8.0	36.7	8.0	5.37	-26.82	12.05
11/19/2008	1	30	12.90	0.331	0.011	8.7	37.6	8.8	4.99	-26.93	11.71
11/19/2008	2	17	14.43	0.261	0.015	9.0	36.9	8.2	5.25	-26.77	11.63
11/19/2008	3	11	16.40	0.257	0.023	8.5	36.6	7.8	5.48	-26.89	11.33
12/17/2008	1	60	9.89	0.304	0.005	12.0	37.1	8.9	4.87	-27.20	11.97
12/17/2008	2	23	13.15	0.260	0.011	10.0	35.8	8.7	4.78	-26.85	11.72

Date	Sample replicate	Individuals per sample	Average shell length (mm)	Total dry weight (g)	Average dry weight (g)	Se (µg/g dw)	% C	% N	Molar C:N	δ ^{13}C	δ ^{15}N
12/17/2008	3	12	15.40	0.219	0.018	11.0	36.3	8.6	4.94	-26.72	11.82
1/14/2009	1	62	9.43	0.204	0.003	10.0	43.1	10.5	4.81	-27.51	11.40
1/14/2009	2	42	11.10	0.225	0.005	13.0	42.5	10.4	4.75	-27.33	11.44
1/14/2009	3	19	14.50	0.220	0.012	10.0	41.9	10.1	4.84	-27.14	11.70
2/11/2009	1	53	8.47	0.157	0.003	13.0	44.3	10.9	4.74	-28.59	9.69
2/11/2009	2	37	10.38	0.179	0.005	12.0	45.4	11.3	4.70	-28.31	10.05
2/11/2009	3	18	12.50	0.148	0.008	11.0	42.9	10.6	4.72	-28.13	10.11
3/11/2009	1	56	9.13	0.185	0.003	7.2	45.3	11.4	4.64	-28.17	9.67
3/11/2009	2	35	11.28	0.198	0.006	7.6	45.6	11.2	4.75	-28.17	10.10
3/11/2009	3	14	15.08	0.191	0.014	6.5	45.3	11.3	4.69	-27.99	9.71
4/15/2009	1	56	9.00	0.174	0.003	11.0	46.1	11.8	4.56	-28.90	8.99
4/15/2009	2	37	10.46	0.176	0.005	9.3	45.2	11.7	4.52	-28.87	8.99
4/15/2009	3	16	12.33	0.115	0.007	9.6	45.5	11.9	4.44	-27.98	10.47
5/20/2009	1	53	8.59	0.199	0.004	6.4	46.1	11.8	4.56	-28.90	8.99
5/20/2009	2	27	10.39	0.161	0.006	6.8	45.2	11.7	4.52	-28.87	8.99
5/20/2009	3	16	12.82	0.156	0.010	6.9	45.5	11.9	4.44	-27.98	10.47
6/24/2009	1	56	9.15	0.225	0.004	8.9	42.5	10.3	4.79	-28.10	9.85
6/24/2009	2	40	10.53	0.232	0.006	8.7	40.9	10.1	4.73	-28.05	10.13
6/24/2009	3	24	12.05	0.187	0.008	8.9	42.1	10.3	4.77	-27.79	10.03
7/22/2009	1	63	9.09	0.245	0.004	11.0	44.7	10.9	4.77	-27.70	10.42
7/22/2009	2	46	10.56	0.283	0.006	12.0	41.8	10.3	4.73	-27.66	10.57
7/22/2009	3	27	12.22	0.234	0.009	10.0	41.5	10.2	4.73	-27.47	10.55
8/26/2009	1	62	9.71	0.291	0.005	9.1	44.4	10.4	4.99	-26.97	11.16
8/26/2009	2	40	11.93	0.314	0.008	8.9	43.6	10.2	4.98	-26.89	11.25
8/26/2009	3	21	13.49	0.228	0.011	7.9	43.3	10.3	4.92	-26.87	11.28
9/23/2009	1	32	12.03	0.253	0.008	10.0	42.8	9.9	5.04	-26.75	11.05
9/23/2009	2	21	13.44	0.225	0.011	9.7	42.3	9.8	5.02	-26.82	11.22
9/23/2009	3	15	14.91	0.217	0.014	8.6	43.8	10.0	5.10	-26.84	11.46
10/28/2009	1	27	11.54	0.184	0.007	10.0	43.3	10.0	5.03	-26.75	10.89
10/28/2009	2	26	13.21	0.263	0.010	9.9	43.5	10.1	5.01	-26.67	11.18
10/28/2009	3	13	15.05	0.187	0.014	8.8	42.9	10.1	4.95	-26.64	11.51
11/17/2009	1	52	10.77	0.288	0.006	9.9	42.8	9.8	5.09	-27.02	10.95
11/17/2009	2	27	12.62	0.214	0.008	9.7	42.7	9.7	5.13	-27.00	10.95
11/17/2009	3	20	13.89	0.211	0.011	8.9	42.5	9.9	4.99	-26.85	11.15
12/2/2009	1	28	12.53	0.254	0.009	9.8	39.6	9.5	4.86	-27.08	10.90
12/2/2009	2	21	13.50	0.229	0.011	10.0	39.3	9.5	4.83	-26.99	11.10

Date	Sample replicate	Individuals per sample	Average shell length (mm)	Total dry weight (g)	Average dry weight (g)	Se (µg/g dw)	% C	% N	Molar C:N	δ ^{13}C	δ ^{15}N
12/2/2009	3	16	14.85	0.209	0.013	9.8	35.2	9.0	4.58	-27.06	12.40
1/6/2010	1	27	12.48	0.226	0.008	11.0	39.4	9.7	4.74	-27.21	10.62
1/6/2010	2	22	13.96	0.254	0.012	10.0	42.9	10.6	4.72	-27.16	10.90
1/6/2010	3	10	15.47	0.147	0.015	11.0	41.4	10.3	4.68	-27.09	11.11
2/24/2010	1	25	12.00	0.159	0.006	7.4	43.1	10.7	4.68	-27.73	10.17
2/24/2010	2	17	13.60	0.152	0.009	6.2	43.5	11.1	4.57	-27.52	10.34
2/24/2010	3	11	15.27	0.131	0.012	5.9	44.7	11.4	4.57	-27.29	11.00

Table 4. Concentrations of selenium and stable isotopes of carbon and nitrogen in the clam *Corbula amurensis* at USGS benthic station 6.1, northern San Francisco Bay, California, October 1995–August 2000.

[Abbreviations: mm, millimeter; g, gram; µg/g, microgram per gram; δ, per mil; --, no data; dw, dry weight]

Date	Sample replicate	Individuals per sample	Average shell length (mm)	Total dry weight (g)	Average dry weight (g)	Se (µg/g dw)	% C	% N	Molar C:N	δ ^{13}C	δ ^{15}N
10/23/1995	1	9	21.97	0.457	0.051	16.5	--	--	--	--	--
10/23/1995	2	11	19.85	0.449	0.041	13.4	--	--	--	--	--
10/23/1995	3	10	17.98	0.306	0.031	13.6	--	--	--	--	--
10/17/1996	1	16	20.93	0.652	0.041	15.0	--	--	--	--	--
10/17/1996	2	19	20.18	0.727	0.038	15.0	--	--	--	--	--
10/17/1996	3	42	17.10	0.950	0.023	17.0	--	--	--	--	--
10/17/1996	4	53	15.08	0.782	0.015	18.0	--	--	--	--	--
10/17/1996	5	67	13.66	0.755	0.011	18.0	--	--	--	--	--
11/5/1997	1	29	18.76	1.043	0.036	14.6	--	--	--	--	--
11/5/1997	2	34	21.01	1.737	0.051	14.0	--	--	--	--	--
11/5/1997	3	21	22.64	1.214	0.058	13.4	--	--	--	--	--
6/16/1998	1	24	11.96	0.376	0.016	4.7	--	--	--	--	--
6/16/1998	2	12	19.73	0.684	0.057	4.4	--	--	--	--	--
6/16/1998	3	9	22.23	0.739	0.082	6.2	--	--	--	--	--
10/12/1998	1	29	13.61	0.351	0.012	12.0	--	--	--	--	--
10/12/1998	2	32	16.23	0.524	0.016	12.0	--	--	--	--	--
10/12/1998	3	14	17.60	0.298	0.021	13.0	--	--	--	--	--
3/10/1999	1	7	20.00	--	--	7.4	--	--	--	--	--
4/13/1999	1	18	14.66	--	--	7.8	--	--	--	--	--
4/13/1999	2	14	17.24	--	--	7.0	--	--	--	--	--
4/13/1999	3	12	20.54	--	--	7.6	--	--	--	--	--
5/4/1999	1	38	7.91	--	--	3.5	--	--	--	--	--
5/4/1999	2	14	18.98	--	--	6.6	--	--	--	--	--
5/4/1999	3	6	21.18	--	--	7.0	--	--	--	--	--
6/8/1999	1	50	11.51	--	--	6.8	--	--	--	--	--
7/7/1999	1	45	13.18	0.463	0.010	10.8	43.0	9.0	5.50	-24.81	11.50
8/18/1999	1	36	13.76	0.442	0.012	10.5	38.0	9.0	4.81	-24.33	12.29
8/18/1999	2	30	15.97	0.490	0.016	9.5	41.0	10.0	4.75	-24.34	12.54
9/15/1999	1	50	10.88	0.376	0.007	10.6	42.0	10.0	5.02	-24.02	11.74
9/15/1999	2	30	15.04	0.541	0.018	8.2	36.0	8.0	5.04	-24.08	11.94
10/20/1999	1	37	13.05	0.320	0.009	14.0	41.0	9.0	5.05	-25.06	11.44

Date	Sample replicate	Individuals per sample	Average shell length (mm)	Total dry weight (g)	Average dry weight (g)	Se (µg/g dw)	% C	% N	Molar C:N	δ ^{13}C	δ ^{15}N
10/20/1999	2	18	17.66	0.478	0.026	11.0	42.0	10.0	5.07	-24.93	11.91
10/20/1999	3	9	19.49	0.248	0.028	13.0	42.0	10.0	4.97	-24.83	12.08
11/10/1999	1	30	15.08	0.449	0.015	12.5	40.0	9.0	5.10	-24.98	11.58
11/10/1999	2	25	18.11	0.553	0.022	13.0	40.0	9.0	5.17	-24.99	11.59
11/10/1999	3	10	21.00	0.420	0.042	12.0	39.0	9.0	5.27	-25.16	11.67
8/9/2000	1	63	10.51	0.236	0.004	13.1	44.0	10.0	4.88	-25.14	10.55
8/9/2000	2	43	13.27	0.339	0.008	10.8	44.0	10.0	4.95	-25.00	10.51

Table 5. Concentrations of selenium and stable isotopes of carbon and nitrogen in the clam *Corbula amurensis* at USGS benthic station 8.1, northern San Francisco Bay, California, May 1995–February 2010.

[Abbreviations: mm, millimeter; g, gram; µg/g, microgram per gram; δ, per mil; %, percent; --, no data; dw, dry weight]

Date	Sample replicate	Individuals per sample	Average shell length (mm)	Total dry weight (g)	Average dry weight (g)	Se (µg/g dw)	% C	% N	Molar C:N	δ ^{13}C	δ ^{15}N
5/3/1995	1	15	13.02	0.325	0.022	7.6	--	--	--	--	--
5/3/1995	2	13	11.46	0.207	0.016	7.0	--	--	--	--	--
5/3/1995	3	26	9.86	0.264	0.010	6.8	--	--	--	--	--
10/23/1995	1	9	17.46	0.264	0.029	14.5	--	--	--	--	--
10/23/1995	2	19	15.55	0.393	0.021	14.9	--	--	--	--	--
10/23/1995	3	19	12.56	0.211	0.011	16.8	--	--	--	--	--
12/15/1995	1	21	13.63	0.274	0.013	16.9	--	--	--	--	--
1/12/1996	1	14	17.00	0.315	0.023	13.2	--	--	--	--	--
1/12/1996	2	18	15.36	0.297	0.016	16.3	--	--	--	--	--
1/12/1996	3	35	13.33	0.410	0.012	16.7	--	--	--	--	--
2/8/1996	1	13	17.29	0.300	0.023	18.6	--	--	--	--	--
2/8/1996	2	15	15.67	0.270	0.018	18.6	--	--	--	--	--
2/8/1996	3	19	14.36	0.268	0.014	19.5	--	--	--	--	--
3/7/1996	1	24	15.28	0.363	0.015	11.4	--	--	--	--	--
3/7/1996	2	23	12.92	0.223	0.010	11.1	--	--	--	--	--
4/4/1996	1	15	16.80	0.546	0.036	13.3	--	--	--	--	--
4/4/1996	2	19	15.42	0.522	0.027	12.3	--	--	--	--	--
4/4/1996	3	20	14.50	0.542	0.027	12.9	--	--	--	--	--
5/2/1996	1	12	17.83	0.444	0.037	10.6	--	--	--	--	--
5/2/1996	2	16	16.39	0.444	0.028	11.6	--	--	--	--	--
5/2/1996	3	20	15.35	0.490	0.024	11.1	--	--	--	--	--
6/13/1996	1	12	18.63	0.500	0.042	11.3	--	--	--	--	--
6/13/1996	2	25	15.32	0.530	0.021	10.4	--	--	--	--	--
6/13/1996	3	35	11.21	0.250	0.007	13.1	--	--	--	--	--
7/18/1996	1	25	18.12	0.735	0.029	10.3	--	--	--	--	--
7/18/1996	2	23	16.13	0.481	0.021	11.4	--	--	--	--	--
7/18/1996	3	41	11.28	0.274	0.007	13.0	--	--	--	--	--
8/14/1996	1	29	17.76	0.881	0.030	10.8	--	--	--	--	--
8/14/1996	2	27	14.46	0.414	0.015	12.4	--	--	--	--	--
8/14/1996	3	43	10.69	0.250	0.006	14.8	--	--	--	--	--
9/19/1996	1	15	17.80	0.404	0.027	12.4	--	--	--	--	--
9/19/1996	2	31	11.73	0.277	0.009	15.6	--	--	--	--	--
10/17/1996	1	39	15.71	0.717	0.018	17.0	--	--	--	--	--

Date	Sample replicate	Individuals per sample	Average shell length (mm)	Total dry weight (g)	Average dry weight (g)	Se (µg/g dw)	% C	% N	Molar C:N	δ ^{13}C	δ ^{15}N
10/17/1996	2	42	13.40	0.479	0.011	20.0	--	--	--	--	--
10/17/1996	3	69	12.49	0.613	0.009	20.0	--	--	--	--	--
10/17/1996	4	51	10.76	0.323	0.006	22.0	--	--	--	--	--
11/1/1996	1	40	18.50	1.202	0.030	16.0	--	--	--	--	--
11/1/1996	2	43	15.44	0.693	0.016	18.0	--	--	--	--	--
11/1/1996	3	40	11.68	0.309	0.008	19.0	--	--	--	--	--
12/18/1996	1	20	18.21	0.522	0.026	13.7	--	--	--	--	--
12/18/1996	2	22	15.65	0.346	0.016	12.8	--	--	--	--	--
12/18/1996	3	53	11.81	0.371	0.007	17.8	--	--	--	--	--
1/29/1997	1	14	17.16	0.261	0.019	11.2	--	--	--	--	--
1/29/1997	2	25	13.85	0.246	0.010	11.6	--	--	--	--	--
1/29/1997	3	53	11.16	0.286	0.005	12.2	--	--	--	--	--
4/23/1997	1	10	19.63	0.764	0.076	11.0	--	--	--	--	--
4/23/1997	2	16	16.86	0.812	0.051	10.6	--	--	--	--	--
4/23/1997	3	19	14.86	0.641	0.034	10.4	--	--	--	--	--
5/15/1997	1	14	21.73	1.916	0.137	6.4	--	--	--	--	--
5/15/1997	2	27	19.82	2.754	0.102	5.9	--	--	--	--	--
5/15/1997	3	36	16.77	2.523	0.070	6.4	--	--	--	--	--
6/11/1997	1	18	19.73	1.476	0.082	6.9	--	--	--	--	--
6/11/1997	2	42	15.83	1.350	0.032	8.0	--	--	--	--	--
6/11/1997	3	58	13.42	0.920	0.016	10.1	--	--	--	--	--
7/16/1997	1	14	21.74	1.293	0.092	7.4	--	--	--	--	--
7/16/1997	2	25	17.60	1.041	0.042	8.4	--	--	--	--	--
7/16/1997	3	46	12.39	0.393	0.009	13.0	--	--	--	--	--
8/6/1997	1	17	18.86	0.869	0.051	8.0	--	--	--	--	--
8/6/1997	2	46	13.14	0.452	0.010	13.0	--	--	--	--	--
8/6/1997	3	81	10.83	0.400	0.005	15.0	--	--	--	--	--
10/1/1997	1	--	--	0.601	--	21.0	--	--	--	--	--
10/1/1997	2	--	--	0.547	--	16.0	--	--	--	--	--
10/1/1997	3	--	--	0.559	--	9.5	--	--	--	--	--
11/5/1997	1	47	13.71	0.580	0.012	18.8	--	--	--	--	--
11/5/1997	2	23	17.01	0.597	0.026	15.2	--	--	--	--	--
11/5/1997	3	21	20.78	1.114	0.053	12.0	--	--	--	--	--
9/2/1998	1	45	10.14	0.370	0.008	16.0	--	--	--	--	--
9/2/1998	2	37	11.76	0.448	0.012	15.0	--	--	--	--	--
10/12/1998	1	29	10.24	0.150	0.005	11.0	--	--	--	--	--
10/12/1998	2	36	11.97	0.292	0.008	14.0	--	--	--	--	--
10/12/1998	3	20	14.03	0.275	0.014	14.0	--	--	--	--	--

Date	Sample replicate	Individuals per sample	Average shell length (mm)	Total dry weight (g)	Average dry weight (g)	Se (µg/g dw)	% C	% N	Molar C:N	δ ^{13}C	δ ^{15}N
11/11/1998	1	45	10.31	0.376	0.008	14.0	--	--	--	--	--
11/11/1998	2	18	14.83	0.469	0.026	14.0	--	--	--	--	--
6/8/1999	1	50	9.05	--	--	11.0	--	--	--	--	--
6/8/1999	2	46	10.01	--	--	10.0	--	--	--	--	--
6/8/1999	3	45	11.04	--	--	6.5	--	--	--	--	--
7/7/1999	1	60	10.52	0.358	0.006	14.8	46.0	10.0	5.27	-23.23	11.06
7/7/1999	2	39	12.39	0.351	0.009	10.2	41.0	9.0	5.51	-23.13	11.17
7/7/1999	3	39	13.62	0.497	0.013	11.0	44.0	9.0	5.55	-23.18	10.90
8/18/1999	1	40	12.43	0.326	0.008	9.7	42.0	10.0	4.90	-23.28	11.55
8/18/1999	2	34	13.47	0.342	0.010	11.7	42.0	10.0	4.82	-23.16	11.80
8/18/1999	3	30	14.75	0.416	0.014	9.9	51.0	12.0	4.84	-23.04	11.76
9/15/1999	1	30	13.44	0.327	0.011	7.5	44.0	11.0	4.76	-23.17	11.77
9/15/1999	2	24	14.37	0.298	0.012	8.9	36.0	8.0	4.92	-22.94	11.68
9/15/1999	3	19	15.41	0.297	0.016	8.6	34.0	8.0	4.87	-22.92	11.72
10/20/1999	1	35	13.37	0.342	0.010	16.0	42.0	10.0	4.82	-23.32	11.42
10/20/1999	2	25	15.45	0.365	0.015	16.0	44.0	11.0	4.85	-23.20	11.56
10/20/1999	3	19	16.74	0.421	0.022	14.0	42.0	10.0	4.85	-23.13	11.58
11/9/1999	1	61	10.48	0.325	0.005	17.0	38.0	9.0	5.00	-23.51	10.73
11/9/1999	2	32	13.25	0.326	0.010	14.0	41.0	10.0	4.97	-23.31	11.10
11/9/1999	3	26	15.20	0.396	0.015	13.0	38.0	9.0	4.91	-23.25	11.31
1/11/2000	1	56	10.04	0.320	0.006	14.0	41.0	10.0	5.00	-24.15	9.63
1/11/2000	2	44	12.55	0.435	0.010	12.0	38.0	9.0	4.83	-23.90	10.02
1/11/2000	3	32	15.11	0.541	0.017	12.0	42.0	10.0	4.80	-23.70	10.09
2/9/2000	1	80	8.91	0.284	0.004	17.0	44.0	10.0	4.94	-24.38	9.64
3/8/2000	1	54	9.97	0.272	0.005	8.1	42.0	10.0	4.78	-24.76	9.32
3/8/2000	2	37	11.75	0.305	0.008	7.7	42.0	10.0	4.83	-24.63	9.44
3/8/2000	3	18	14.44	0.262	0.015	7.9	37.0	9.0	4.66	-24.40	9.61
5/17/2000	1	55	9.07	0.381	0.007	5.4	--	--	--	--	--
6/14/2000	1	66	10.16	0.364	0.005	9.0	41.0	9.0	5.25	-23.22	11.28
6/14/2000	2	49	11.79	0.440	0.009	8.6	33.0	8.0	5.12	-22.99	11.24
6/14/2000	3	21	13.85	0.356	0.017	7.8	34.0	7.0	5.32	-23.18	11.21
7/19/2000	1	60	10.48	0.306	0.005	11.7	41.0	10.0	5.01	-23.12	10.21
7/19/2000	2	50	11.95	0.369	0.007	9.6	43.0	10.0	5.14	-23.00	10.24
7/19/2000	3	34	14.27	0.518	0.015	9.8	40.0	9.0	5.08	-22.96	10.84
8/9/2000	1	66	9.81	0.248	0.004	14.4	45.0	11.0	4.94	-23.20	10.01
8/9/2000	2	54	11.49	0.335	0.006	11.8	42.0	10.0	4.86	-22.98	11.65
8/9/2000	3	42	13.11	0.411	0.010	11.8	42.0	10.0	5.06	-23.02	10.85
9/6/2000	1	79	9.90	0.321	0.004	18.8	45.0	11.0	4.94	-23.12	10.05

Date	Sample replicate	Individuals per sample	Average shell length (mm)	Total dry weight (g)	Average dry weight (g)	Se (µg/g dw)	% C	% N	Molar C:N	δ ^{13}C	δ ^{15}N
9/6/2000	2	44	11.84	0.281	0.006	16.8	43.0	10.0	4.95	-23.06	11.37
9/6/2000	3	22	14.57	0.293	0.013	12.4	40.0	9.0	5.04	-22.88	11.53
10/11/2000	1	57	11.23	0.383	0.007	13.0	41.0	10.0	4.92	-23.06	10.99
10/11/2000	2	35	12.56	0.323	0.009	12.2	44.0	10.0	4.94	-22.97	11.07
10/11/2000	3	16	14.98	0.245	0.015	12.3	40.0	10.0	4.95	-22.89	10.94
11/8/2000	1	56	9.74	0.247	0.004	13.9	40.0	10.0	4.81	-23.44	10.32
11/8/2000	2	43	11.55	0.318	0.007	12.1	36.0	9.0	4.79	-23.30	10.61
11/8/2000	3	41	13.17	0.451	0.011	11.4	35.0	8.0	4.82	-23.13	11.68
12/13/2000	1	43	10.07	0.211	0.005	14.4	41.0	10.0	4.67	-23.22	11.09
2/6/2001	1	54	9.19	0.232	0.004	18.0	--	--	--	--	--
2/26/2001	1	77	8.90	0.296	0.004	20.0	47.0	11.9	4.61	-24.12	9.86
3/22/2001	1	94	8.70	0.365	0.004	17.0	35.2	8.8	4.66	-24.12	10.50
3/22/2001	2	51	9.79	0.250	0.005	16.0	46.8	12.1	4.50	-23.88	10.76
4/24/2001	1	77	9.17	0.409	0.005	15.0	46.0	11.3	4.75	-23.14	11.39
4/24/2001	2	64	10.47	0.471	0.007	15.0	44.1	10.7	4.81	-23.32	11.35
4/24/2001	3	27	11.89	0.263	0.010	15.0	48.1	12.4	4.54	-22.92	11.61
5/22/2001	1	31	12.42	0.465	0.015	9.2	45.3	10.3	5.12	-20.59	11.73
6/19/2001	1	63	10.73	0.468	0.007	14.0	46.0	11.5	4.69	-22.08	11.78
6/19/2001	2	50	12.91	0.620	0.012	9.3	36.1	8.9	4.72	-22.07	11.67
6/19/2001	3	17	14.72	0.323	0.019	9.6	38.0	9.4	4.74	-21.90	11.91
7/18/2001	1	56	12.64	0.678	0.012	12.0	40.3	10.0	4.73	-22.73	11.53
7/18/2001	2	46	14.78	0.755	0.016	13.0	40.7	10.0	4.75	-22.48	11.97
7/18/2001	3	11	16.77	0.273	0.025	11.0	40.0	9.7	4.80	-22.32	11.99
9/11/2001	1	65	12.29	0.630	0.010	16.5	40.0	10.3	4.54	-22.86	12.27
9/11/2001	2	47	14.77	0.753	0.016	13.0	39.8	10.2	4.56	-22.66	12.34
9/11/2001	3	19	16.09	0.356	0.019	17.0	33.5	8.5	4.60	-22.58	12.29
10/16/2001	1	47	10.74	0.678	0.014	16.0	38.8	10.2	4.45	-23.16	12.09
10/16/2001	2	37	12.60	0.349	0.009	14.0	37.4	9.7	4.49	-22.85	12.15
10/16/2001	3	41	13.69	0.510	0.012	10.0	39.9	10.0	4.64	-22.80	12.31
11/27/2001	1	24	11.68	0.157	0.007	18.0	37.7	9.8	4.47	-22.93	12.14
11/27/2001	2	14	15.56	0.190	0.014	12.0	31.0	8.1	4.47	-22.84	12.11
12/18/2001	1	33	12.10	0.284	0.009	17.0	44.7	11.7	4.44	-23.01	12.41
5/8/2002	1	52	8.52	0.213	0.004	12.0	47.6	11.7	4.72	-26.01	9.80
5/8/2002	2	40	9.63	0.236	0.006	12.0	30.7	7.7	4.67	-23.55	11.34
6/5/2002	1	72	8.52	0.273	0.004	14.0	46.1	11.1	4.67	-23.88	11.33
6/5/2002	2	49	9.44	0.234	0.005	13.7	45.2	11.2	4.62	-23.88	11.12
6/5/2002	3	37	10.44	0.249	0.007	11.7	44.7	11.1	4.69	-23.73	11.18
7/17/2002	1	52	9.51	0.247	0.005	15.0	44.7	10.8	4.84	-26.51	12.15

Date	Sample replicate	Individuals per sample	Average shell length (mm)	Total dry weight (g)	Average dry weight (g)	Se (µg/g dw)	% C	% N	Molar C:N	δ ^{13}C	δ ^{15}N
7/17/2002	2	35	10.53	0.224	0.006	16.0	29.3	7.1	4.81	-26.40	12.15
7/17/2002	3	31	11.47	0.271	0.009	15.0	32.1	8.3	4.51	-26.48	12.50
8/22/2002	1	47	9.50	0.210	0.004	16.0	59.9	15.6	4.47	-26.11	12.40
8/22/2002	2	46	10.49	0.275	0.006	16.0	29.1	7.8	4.35	-23.67	12.35
8/22/2002	3	35	11.45	0.267	0.008	15.0	40.5	10.6	4.46	-23.74	12.25
9/11/2002	1	54	9.54	0.304	0.006	12.6	42.6	9.9	4.91	-22.89	11.78
9/11/2002	2	37	10.48	0.268	0.007	10.0	41.4	9.4	4.82	-22.91	11.59
9/11/2002	3	28	11.33	0.261	0.009	9.9	41.7	9.7	4.79	-22.97	11.69
10/9/2002	1	43	10.56	0.268	0.006	12.5	43.4	9.8	4.91	-23.30	11.57
10/9/2002	2	34	11.52	0.265	0.008	11.7	43.1	9.3	4.99	-23.37	11.69
10/9/2002	3	30	12.50	0.313	0.010	8.9	43.8	9.6	5.01	-23.37	11.79
11/14/2002	1	60	10.52	0.423	0.007	13.0	35.1	8.4	4.84	-26.51	12.19
11/14/2002	2	40	11.43	0.417	0.010	12.0	53.8	13.1	4.79	-26.66	12.25
11/14/2002	3	29	12.47	0.337	0.012	11.0	30.6	7.5	4.76	-23.39	11.46
12/11/2002	1	50	9.55	0.280	0.006	13.0	51.3	11.8	5.06	-26.89	12.01
12/11/2002	2	38	10.45	--	--	15.0	33.2	8.0	4.81	-24.04	10.70
12/11/2002	3	30	11.43	0.294	0.010	14.0	45.9	11.7	4.58	-24.02	11.27
1/8/2003	1	44	10.56	0.309	0.007	15.0	45.3	11.5	4.60	-26.90	10.40
1/8/2003	2	30	11.45	0.276	0.009	16.0	36.8	9.1	4.70	-24.22	9.60
1/8/2003	3	21	12.45	0.246	0.012	14.0	45.0	11.3	4.66	-24.07	11.19
2/20/2003	1	43	9.60	0.200	0.005	13.8	46.5	11.9	4.57	-25.09	9.54
2/20/2003	2	37	10.50	0.190	0.005	15.8	41.9	9.9	4.96	-25.61	11.08
2/20/2003	3	21	12.58	0.170	0.008	19.4	40.6	9.4	5.01	-25.53	11.00
3/19/2003	1	50	9.45	0.264	0.005	13.6	46.0	11.6	4.58	-25.41	9.81
3/19/2003	2	40	10.57	0.302	0.008	14.6	45.3	11.6	4.54	-25.20	9.86
3/19/2003	3	22	11.53	0.195	0.009	14.9	46.4	11.9	4.54	-25.17	10.03
6/18/2003	1	40	9.49	0.161	0.004	12.1	37.9	9.0	4.88	-25.60	11.71
6/18/2003	2	40	10.47	0.194	0.005	12.2	40.2	10.0	4.70	-25.39	11.75
6/18/2003	3	29	11.41	0.184	0.006	11.8	39.5	9.4	4.89	-25.52	12.04
7/16/2003	1	38	9.54	0.154	0.004	11.0	42.5	10.4	4.74	-24.81	11.07
7/16/2003	2	46	10.55	0.253	0.006	10.9	42.4	10.3	4.78	-24.83	10.99
7/16/2003	3	35	11.39	0.245	0.007	10.6	41.8	10.1	4.82	-24.69	11.07
8/13/2003	1	40	9.54	0.151	0.004	12.8	43.9	10.5	4.86	-25.06	11.22
8/13/2003	2	30	10.42	0.140	0.005	11.8	44.6	10.6	4.89	-25.00	11.49
8/13/2003	3	30	11.47	0.186	0.006	11.2	43.8	10.5	4.62	-25.01	11.53
9/10/2003	1	34	11.54	0.223	0.007	12.8	41.9	10.2	4.79	-24.44	11.36
9/10/2003	2	30	12.45	0.266	0.009	12.3	41.7	10.2	4.77	-24.34	11.45
9/10/2003	3	25	13.45	0.289	0.012	10.3	41.1	10.0	4.80	-24.31	11.62

Date	Sample replicate	Individuals per sample	Average shell length (mm)	Total dry weight (g)	Average dry weight (g)	Se (µg/g dw)	% C	% N	Molar C:N	δ ^{13}C	δ ^{15}N
10/16/2003	1	30	11.53	0.246	0.008	10.5	38.5	9.5	4.71	-23.09	11.99
10/16/2003	2	27	12.53	0.294	0.011	9.3	37.9	9.3	4.73	-23.23	12.18
10/16/2003	3	21	13.54	0.270	0.013	8.9	37.6	9.2	4.77	-23.04	12.21
11/19/2003	1	65	9.50	0.281	0.004	11.2	41.4	8.5	4.91	-23.49	11.28
11/19/2003	2	43	10.44	0.258	0.006	11.5	42.0	8.9	4.85	-23.40	11.34
11/19/2003	3	20	12.47	0.203	0.010	9.0	39.2	7.5	4.74	-23.36	11.59
12/17/2003	1	31	10.48	0.183	0.006	10.7	38.3	9.4	4.74	-23.30	11.46
12/17/2003	2	26	11.46	0.179	0.007	11.4	36.1	8.9	4.71	-23.33	11.80
12/17/2003	3	15	14.83	0.249	0.017	9.4	35.9	9.1	4.62	-23.36	11.87
1/13/2004	1	61	9.53	0.284	0.005	13.6	41.4	10.3	4.67	-23.60	11.12
1/13/2004	2	45	10.43	0.268	0.006	13.7	39.5	9.8	4.71	-23.55	11.10
1/13/2004	3	28	11.44	0.208	0.007	13.4	40.6	10.1	4.69	-23.58	11.18
2/11/2004	1	39	9.59	0.206	0.005	14.2	43.3	10.8	4.67	-24.32	9.90
2/11/2004	2	26	10.42	0.194	0.007	14.7	42.9	10.6	4.73	-24.43	9.95
2/11/2004	3	26	11.36	0.231	0.009	12.5	43.4	11.1	4.58	-24.16	10.06
4/21/2004	1	62	10.11	0.538	0.009	6.7	45.4	10.1	5.27	-25.06	9.56
4/21/2004	2	40	11.46	0.464	0.012	7.7	43.7	10.2	4.98	-24.73	9.74
4/21/2004	3	30	12.56	0.456	0.015	7.4	44.0	10.1	5.07	-24.85	9.40
5/19/2004	1	46	10.49	0.329	0.007	9.3	44.5	10.1	5.09	-24.07	10.48
5/19/2004	2	35	11.41	0.306	0.009	9.0	44.3	10.6	4.88	-23.92	10.64
5/19/2004	3	27	12.46	0.321	0.012	8.7	43.8	10.0	5.12	-24.04	10.49
5/19/2004	4	21	13.51	0.317	0.015	8.7	43.2	9.6	5.24	-24.07	10.30
6/23/2004	1	33	11.42	0.263	0.008	10.8	41.0	10.0	4.77	-23.76	11.08
6/23/2004	2	27	12.53	0.272	0.010	10.4	40.0	9.4	4.94	-23.64	11.14
6/23/2004	3	21	13.47	0.257	0.012	8.9	41.0	9.8	4.86	-23.79	11.18
7/27/2004	1	27	11.56	0.232	0.009	12.7	40.5	9.8	4.83	-23.77	11.19
7/27/2004	2	26	12.46	0.277	0.011	12.2	40.2	9.6	4.86	-23.68	11.15
7/27/2004	3	21	13.44	0.273	0.013	11.2	38.6	9.3	4.86	-23.73	11.22
8/25/2004	1	42	11.52	0.387	0.009	10.6	72.5	17.3	4.90	-23.01	11.39
8/25/2004	2	30	13.51	0.418	0.014	10.4	40.3	9.4	4.98	-22.95	11.55
8/25/2004	3	18	15.34	0.345	0.019	10.9	40.1	9.4	4.96	-23.04	11.63
9/15/2004	1	19	12.49	0.277	0.015	9.2	41.3	9.3	5.15	-22.05	11.81
9/15/2004	2	16	14.57	0.344	0.021	9.3	41.6	9.2	5.25	-22.03	11.66
9/15/2004	3	11	15.56	0.274	0.025	9.1	41.3	9.5	5.10	-22.11	11.70
11/4/2004	1	17	14.49	0.308	0.018	8.4	38.3	8.7	5.11	-22.52	11.13
11/4/2004	2	14	15.46	0.325	0.023	7.3	38.6	8.8	5.12	-22.35	11.38
11/4/2004	3	11	16.44	0.290	0.026	8.7	38.5	8.7	5.17	-22.60	11.37
12/14/2004	1	17	13.61	0.269	0.016	10.1	39.2	9.2	4.96	-23.06	10.99

Date	Sample replicate	Individuals per sample	Average shell length (mm)	Total dry weight (g)	Average dry weight (g)	Se (µg/g dw)	% C	% N	Molar C:N	δ ^{13}C	δ ^{15}N
12/14/2004	2	17	14.54	0.313	0.018	10.1	39.2	9.6	4.76	-22.98	11.08
12/14/2004	3	11	16.43	0.278	0.025	9.6	39.0	8.8	5.15	-22.98	11.05
1/12/2005	1	16	11.89	0.140	0.009	12.0	42.4	10.3	4.79	-23.08	10.55
1/12/2005	2	10	14.36	0.152	0.015	10.5	42.1	10.3	4.79	-23.11	10.83
1/12/2005	3	8	15.47	0.153	0.019	9.9	41.4	10.2	4.74	-23.00	10.79
3/23/2005	1	23	12.24	0.225	0.010	12.3	41.1	10.4	4.61	-24.87	10.27
3/23/2005	2	13	15.07	0.224	0.017	12.2	40.9	10.7	4.48	-24.42	10.51
3/23/2005	3	8	16.51	0.171	0.021	11.8	39.6	9.9	4.64	-24.53	10.61
4/13/2005	1	63	8.64	0.386	0.006	6.3	44.8	10.3	5.10	-26.15	9.97
4/13/2005	2	21	13.05	0.386	0.018	7.3	44.1	10.4	4.93	-25.39	10.19
4/13/2005	3	6	16.74	0.179	0.030	7.8	44.2	10.9	4.73	-24.86	10.42
5/11/2005	1	55	9.13	0.319	0.006	6.5	44.0	10.1	5.09	-25.22	10.17
5/11/2005	2	46	10.49	0.384	0.008	6.7	43.5	9.7	5.21	-25.13	10.00
5/11/2005	3	35	11.83	0.399	0.011	6.6	44.4	10.3	5.04	-24.91	10.40
6/22/2005	1	68	10.06	0.406	0.006	6.7	43.9	10.1	5.09	-26.09	10.02
6/22/2005	2	50	11.48	0.412	0.008	7.0	44.1	10.5	4.90	-25.81	10.13
6/22/2005	3	50	12.81	0.569	0.011	7.4	44.7	10.7	4.86	-25.82	10.29
8/10/2005	1	44	11.56	0.407	0.009	9.4	39.9	9.5	4.88	-24.94	10.83
8/10/2005	2	22	13.47	0.314	0.014	8.7	39.1	9.3	4.90	-24.69	11.03
8/10/2005	3	16	15.06	0.306	0.019	8.2	38.4	9.0	4.97	-24.66	11.07
9/8/2005	1	64	8.96	0.266	0.004	11.0	40.0	9.5	4.92	-24.54	10.92
9/8/2005	2	30	12.33	0.323	0.011	9.7	38.8	9.3	4.86	-24.55	11.02
9/8/2005	3	18	14.44	0.304	0.017	9.8	37.7	9.1	4.82	-24.49	11.08
10/13/2005	1	63	9.40	0.306	0.005	11.1	41.1	9.6	5.01	-24.26	10.73
10/13/2005	2	34	11.48	0.302	0.009	10.9	39.2	9.2	5.00	-24.33	10.82
10/13/2005	3	21	13.92	0.324	0.015	9.6	38.6	9.0	4.99	-24.33	11.03
11/9/2005	1	53	9.55	0.276	0.005	11.6	37.8	9.0	4.88	-24.24	10.49
11/9/2005	2	32	12.08	0.311	0.010	9.1	36.9	9.0	4.80	-24.24	10.75
11/9/2005	3	17	14.45	0.287	0.017	8.8	36.0	8.6	4.87	-24.44	10.87
12/8/2005	1	49	9.83	0.260	0.005	11.7	38.0	9.1	4.84	-24.13	10.56
12/8/2005	2	29	11.97	0.266	0.009	10.2	36.2	9.0	4.68	-24.10	10.69
12/8/2005	3	23	13.71	0.287	0.012	9.9	35.3	8.6	4.79	-24.17	10.74
1/11/2006	1	45	9.00	0.165	0.004	9.3	45.2	10.5	5.01	-24.32	10.25
1/11/2006	2	24	10.80	0.139	0.006	9.8	45.0	10.3	5.11	-24.32	10.49
1/11/2006	3	15	12.95	0.142	0.009	9.6	44.8	10.5	4.97	-24.25	10.61
2/15/2006	1	39	9.02	0.228	0.006	7.5	46.7	10.9	5.02	-27.82	8.81
2/15/2006	2	28	10.27	0.236	0.008	6.6	46.6	10.9	4.99	-27.56	8.81
2/15/2006	3	13	12.66	0.186	0.014	5.5	46.9	10.8	5.07	-27.66	9.00

Date	Sample replicate	Individuals per sample	Average shell length (mm)	Total dry weight (g)	Average dry weight (g)	Se (µg/g dw)	% C	% N	Molar C:N	δ ^{13}C	δ ^{15}N
3/16/2006	1	48	9.19	0.315	0.007	5.1	45.0	10.7	4.89	-27.02	8.30
3/16/2006	2	25	11.48	0.296	0.012	5.2	44.7	10.9	4.78	-27.03	8.36
3/16/2006	3	11	12.83	0.192	0.017	5.4	44.0	10.9	4.71	-26.76	8.52
11/15/2006	1	67	8.93	0.283	0.004	10.0	38.6	9.3	4.84	-24.50	9.77
11/15/2006	2	35	11.23	0.300	0.009	9.6	36.4	8.9	4.77	-24.24	9.94
11/15/2006	3	11	16.70	0.326	0.030	6.4	36.9	8.9	4.86	-24.32	10.33
4/4/2007	1	85	8.51	0.365	0.004	8.5	44.1	10.1	5.09	-23.44	10.44
4/4/2007	2	52	9.36	0.317	0.006	8.5	43.5	9.8	5.19	-23.46	10.51
4/4/2007	3	27	10.44	0.247	0.009	8.0	43.5	9.6	5.27	-23.55	9.84
7/17/2007	1	70	8.61	0.204	0.003	15.0	41.6	9.8	4.97	-23.68	10.90
7/17/2007	2	50	9.49	0.189	0.004	13.0	41.3	9.7	4.98	-23.72	10.83
7/17/2007	3	30	10.46	0.151	0.005	9.3	42.0	9.7	5.05	-23.46	11.00
8/21/2007	1	65	9.56	0.280	0.004	14.0	41.0	9.6	5.01	-23.53	10.68
8/21/2007	2	50	10.51	0.278	0.006	9.2	40.9	9.6	4.95	-23.41	10.72
8/21/2007	3	24	11.47	0.175	0.007	13.0	40.8	9.5	4.99	-23.38	10.89
9/12/2007	1	76	9.16	0.314	0.004	16.5	41.8	9.7	5.03	-23.33	10.74
9/12/2007	2	48	10.56	0.288	0.006	15.0	41.1	9.4	5.09	-23.21	10.73
9/12/2007	3	31	11.89	0.257	0.008	14.0	41.7	9.5	5.14	-23.10	10.93
10/24/2007	1	54	9.57	0.262	0.005	15.0	40.7	9.4	5.05	-23.37	10.50
10/24/2007	2	46	10.50	0.292	0.006	15.0	40.6	9.5	5.01	-23.34	10.57
10/24/2007	3	42	11.47	0.326	0.008	14.0	40.0	9.5	4.93	-23.35	10.57
11/15/2007	1	49	10.50	0.313	0.006	8.8	40.1	9.6	4.89	-23.55	10.40
11/15/2007	2	35	11.41	0.290	0.008	15.0	40.5	9.6	4.90	-23.54	10.42
11/15/2007	3	30	12.45	0.288	0.010	14.0	39.4	9.4	4.89	-23.45	10.51
12/12/2007	1	70	9.29	0.345	0.005	16.5	40.9	9.8	4.89	-23.73	10.12
12/12/2007	2	46	10.48	0.310	0.007	16.0	39.4	9.5	4.83	-23.73	10.25
12/12/2007	3	29	11.93	0.276	0.010	16.0	40.7	9.8	4.86	-23.65	10.11
2/13/2008	1	49	8.54	0.219	0.004	19.0	41.2	10.5	4.56	-24.59	9.79
2/13/2008	2	39	10.55	0.307	0.008	19.0	41.6	10.7	4.54	-24.41	9.82
2/13/2008	3	15	12.36	0.185	0.012	16.0	40.9	10.5	4.56	-24.40	10.02
5/7/2008	1	60	10.00	0.445	0.007	17.0	40.0	10.2	4.57	-23.59	11.12
5/7/2008	2	30	11.44	0.311	0.010	16.0	39.2	10.2	4.47	-23.50	11.07
5/7/2008	3	18	12.80	0.241	0.013	16.0	38.4	9.9	4.53	-23.32	10.94
6/18/2008	1	45	10.62	0.329	0.007	15.0	37.6	9.5	4.60	-24.38	11.21
6/18/2008	2	35	11.42	0.330	0.009	12.0	38.6	9.7	4.63	-24.33	11.32
6/18/2008	3	31	13.09	0.424	0.014	15.0	38.0	9.7	4.58	-24.07	11.71
7/16/2008	1	57	9.94	0.348	0.006	11.0	37.1	9.0	4.81	-24.65	11.05
7/16/2008	2	30	12.51	0.360	0.012	13.0	37.1	8.9	4.84	-24.50	11.24

Date	Sample replicate	Individuals per sample	Average shell length (mm)	Total dry weight (g)	Average dry weight (g)	Se (µg/g dw)	% C	% N	Molar C:N	δ ^{13}C	δ ^{15}N
7/16/2008	3	33	13.44	0.478	0.014	14.0	37.4	9.3	4.68	-24.28	11.30
9/17/2008	1	45	11.06	0.359	0.008	12.0	36.1	8.7	4.84	-24.31	11.23
9/17/2008	2	21	13.48	0.301	0.014	11.0	35.6	8.8	4.71	-24.03	11.78
9/17/2008	3	17	14.41	0.287	0.017	11.0	34.9	8.1	5.02	-24.10	11.08
10/16/2008	1	59	9.70	0.339	0.006	13.0	34.5	8.5	4.75	-24.32	11.32
10/16/2008	2	31	11.81	0.313	0.010	11.0	34.0	8.2	4.83	-24.20	10.93
10/16/2008	3	16	14.11	0.262	0.016	11.0	33.6	8.2	4.77	-24.04	11.53
11/19/2008	1	41	10.83	0.306	0.007	13.0	34.2	8.4	4.75	-24.51	11.09
11/19/2008	2	22	12.76	0.244	0.011	13.0	33.6	8.4	4.66	-24.24	11.39
11/19/2008	3	18	14.82	0.301	0.017	12.0	26.5	6.9	4.48	-23.96	11.54
12/17/2008	1	27	10.51	0.166	0.006	14.0	35.0	8.9	4.57	-24.37	11.17
12/17/2008	2	16	12.49	0.157	0.010	13.0	34.3	9.1	4.37	-24.11	11.74
12/17/2008	3	8	15.04	0.135	0.017	11.0	32.4	8.3	4.53	-23.98	11.51
1/14/2009	1	54	8.50	0.194	0.004	13.0	41.5	10.1	4.79	-24.92	10.50
1/14/2009	2	24	10.57	0.144	0.006	11.0	41.8	10.2	4.80	-24.71	10.80
1/14/2009	3	11	12.85	0.109	0.010	10.0	38.1	9.7	4.60	-24.39	11.02
2/11/2009	1	71	8.54	0.336	0.005	14.0	45.8	11.2	4.75	-25.73	9.26
2/11/2009	2	49	9.56	0.311	0.006	14.0	46.4	11.2	4.82	-25.71	9.39
2/11/2009	3	12	12.14	0.121	0.010	16.0	43.6	11.0	4.60	-25.04	9.88
5/20/2009	1	53	8.60	0.198	0.004	15.0	43.3	10.6	4.77	-24.76	11.34
5/20/2009	2	54	9.50	0.268	0.005	15.0	43.1	10.3	4.88	-24.72	11.27
5/20/2009	3	37	10.37	0.242	0.007	14.0	42.6	10.1	4.94	-24.75	11.30
6/24/2009	1	53	8.93	0.230	0.004	14.0	43.2	10.5	4.78	-24.55	11.41
6/24/2009	2	46	10.57	0.315	0.007	15.0	42.4	10.1	4.91	-24.51	11.28
6/24/2009	3	35	11.49	0.306	0.009	14.0	41.7	10.2	4.78	-24.39	11.43
7/22/2009	1	43	10.80	0.367	0.009	9.5	44.6	10.2	5.08	-23.99	11.24
7/22/2009	2	33	12.10	0.386	0.012	10.0	44.3	10.4	4.95	-23.94	11.18
7/22/2009	3	17	13.80	0.264	0.016	9.8	42.4	9.8	5.03	-23.91	11.39
8/26/2009	1	36	11.48	0.355	0.010	11.0	41.1	9.6	5.00	-23.75	11.43
8/26/2009	2	30	12.52	0.353	0.012	12.0	41.5	9.6	5.03	-23.77	11.60
8/26/2009	3	21	13.88	0.334	0.016	9.9	39.8	9.1	5.10	-23.77	11.56
9/23/2009	1	26	12.57	0.301	0.012	10.0	40.5	9.4	5.03	-23.76	11.33
9/23/2009	2	21	13.50	0.299	0.014	8.2	40.0	8.8	5.28	-23.75	11.06
9/23/2009	3	17	14.28	0.269	0.016	9.3	39.8	9.2	5.04	-23.78	11.30
10/28/2009	1	19	12.57	0.215	0.011	9.6	39.1	9.1	5.00	-23.76	11.61
10/28/2009	2	17	13.50	0.251	0.015	10.0	40.4	9.4	5.03	-23.62	11.66
10/28/2009	3	14	14.32	0.236	0.017	11.0	40.1	9.2	5.11	-23.65	11.75
11/17/2009	1	27	12.59	0.292	0.011	12.0	39.6	9.3	4.98	-23.79	11.55

Date	Sample replicate	Individuals per sample	Average shell length (mm)	Total dry weight (g)	Average dry weight (g)	Se (µg/g dw)	% C	% N	Molar C:N	δ ^{13}C	δ ^{15}N
11/17/2009	2	21	13.35	0.270	0.013	10.0	39.5	9.2	5.04	-23.75	11.50
11/17/2009	3	17	14.41	0.280	0.016	11.0	38.5	8.9	5.02	-23.78	11.69
12/2/2009	1	62	9.43	0.307	0.005	8.2	39.6	9.6	4.81	-24.16	10.92
12/2/2009	2	28	13.30	0.375	0.013	7.6	39.9	9.5	4.91	-23.93	11.42
12/2/2009	3	15	14.36	0.264	0.018	7.5	40.2	9.6	4.87	-23.86	11.45
1/6/2010	1	64	8.58	0.197	0.003	15.0	41.5	10.6	4.55	-24.23	10.76
1/6/2010	2	25	13.13	0.306	0.012	13.0	38.9	9.7	4.67	-23.85	11.38
1/6/2010	3	16	14.40	0.248	0.016	12.0	38.3	9.3	4.79	-23.83	11.54
2/24/2010	1	71	8.49	0.266	0.004	14.0	44.6	11.0	4.73	-25.69	10.02
2/24/2010	2	35	11.00	0.273	0.008	14.0	44.1	11.1	4.63	-25.47	10.18
2/24/2010	3	19	13.44	0.258	0.014	12.0	44.4	11.3	4.57	-24.90	10.91

Table 6. Concentrations of selenium and stable isotopes of carbon and nitrogen in the clam *Corbula amurensis* at USGS benthic station 12.5, northern San Francisco Bay, California, October 1995–November 1999.

[Abbreviations: mm, millimeter; g, gram; µg/g, microgram per gram; δ, per mil; %, percent; --, no data; dw, dry weight]

Date	Sample replicate	Individuals per sample	Average shell length (mm)	Total dry weight (g)	Average dry weight (g)	Se (µg/g dw)	% C	% N	Molar C:N	δ ^{13}C	δ ^{15}N
10/23/1995	1	16	15.87	0.348	0.022	10.2	--	--	--	--	--
10/23/1995	2	23	13.92	0.294	0.013	10.5	--	--	--	--	--
10/23/1995	3	26	12.42	0.270	0.010	12.3	--	--	--	--	--
10/23/1995	4	28	11.42	0.263	0.009	12.1	--	--	--	--	--
10/23/1995	5	36	10.40	0.247	0.007	13.0	--	--	--	--	--
4/4/1996	1	14	15.39	0.279	0.020	8.6	--	--	4.83	-22.47	10.74
4/4/1996	2	32	14.43	0.538	0.017	9.5	--	--	4.86	-22.56	10.60
4/4/1996	3	39	13.47	0.566	0.015	9.7	--	--	4.83	-22.33	10.58
4/4/1996	4	31	12.56	0.387	0.012	9.6	--	--	5.04	-22.56	10.58
4/4/1996	5	22	11.56	0.224	0.010	9.3	--	--	5.00	-22.56	10.38
4/4/1996	6	23	10.49	0.179	0.008	11.0	--	--	5.03	-22.78	10.31
6/13/1996	1	24	15.54	0.643	0.027	9.8	--	--	--	--	--
6/13/1996	2	20	14.52	0.473	0.024	9.1	--	--	--	--	--
6/13/1996	3	18	13.54	0.357	0.020	10.2	--	--	--	--	--
6/13/1996	4	28	12.33	0.395	0.014	11.0	--	--	--	--	--
7/18/1996	1	53	14.86	1.236	0.023	8.8	--	--	--	--	--
7/18/1996	2	80	12.80	1.151	0.014	10.0	--	--	--	--	--
8/14/1996	1	39	15.28	0.972	0.025	7.9	--	--	--	--	--
8/14/1996	2	50	12.41	0.671	0.013	8.1	--	--	--	--	--
9/17/1996	1	25	15.07	0.583	0.023	8.5	--	--	--	--	--
9/17/1996	2	47	13.61	0.771	0.016	6.4	--	--	--	--	--
10/17/1996	1	27	16.79	0.947	0.035	9.3	--	--	--	--	--
10/17/1996	2	63	15.43	1.854	0.029	5.2	--	--	--	--	--
10/17/1996	3	59	14.50	1.293	0.022	9.8	--	--	--	--	--
10/17/1996	4	55	13.44	0.956	0.017	10.5	--	--	--	--	--
12/18/1996	1	67	14.65	1.167	0.017	12.0	--	--	--	--	--
12/18/1996	2	43	13.57	0.589	0.014	8.9	--	--	--	--	--
12/18/1996	3	42	12.38	0.472	0.011	10.4	--	--	--	--	--
11/5/1997	1	63	11.14	0.654	0.010	17.2	--	--	--	--	--
11/5/1997	2	43	13.01	0.705	0.016	14.0	--	--	--	--	--

Date	Sample replicate	Individuals per sample	Average shell length (mm)	Total dry weight (g)	Average dry weight (g)	Se (µg/g dw)	% C	% N	Molar C:N	δ ^{13}C	δ ^{15}N
11/5/1997	3	17	16.56	0.564	0.033	13.6	--	--	--	--	--
6/16/1998	1	62	11.10	0.669	0.011	5.8	--	--	--	--	--
6/16/1998	2	16	12.80	0.449	0.028	5.8	--	--	--	--	--
9/2/1998	1	37	10.96	0.414	0.011	11.0	--	--	--	--	--
9/2/1998	2	36	13.03	0.622	0.017	10.0	--	--	--	--	--
10/12/1998	1	35	11.55	0.308	0.009	10.0	--	--	--	--	--
10/12/1998	2	28	12.46	0.307	0.011	9.5	--	--	--	--	--
10/12/1998	3	25	13.45	0.350	0.014	9.2	--	--	--	--	--
9/15/1999	1	79	9.34	0.467	0.006	7.2	41.0	9.0	5.05	-22.77	10.80
10/20/1999	1	46	10.58	0.390	0.009	10.0	40.0	9.0	5.10	-22.52	10.42
10/20/1999	2	40	11.48	0.524	0.013	10.5	40.0	9.0	5.11	-22.64	10.50
10/20/1999	3	35	13.06	0.573	0.016	10.0	44.0	10.0	5.02	-22.74	10.54
11/10/1999	1	60	10.70	0.401	0.007	11.0	37.0	8.0	5.14	-22.69	9.99
11/10/1999	2	40	12.01	0.416	0.010	11.0	40.0	9.0	5.25	-22.67	10.09
11/10/1999	3	30	13.45	0.509	0.017	11.0	39.0	9.0	5.22	-22.58	10.27

Table 7. Concentrations of selenium and stable isotopes of carbon and nitrogen in the clam *Corbula amurensis* at USGS benthic station 405.1, northern San Francisco Bay, California, July 1999–February 2000.

[Abbreviations: mm, millimeter; g, gram; µg/g, microgram per gram; %, percent; δ, per mil; dw, dry weight]

Date	Sample replicate	Individuals per sample	Average shell length (mm)	Total dry weight (g)	Average dry weight (g)	Se (µg/g dw)	% C	% N	Molar C:N	δ ^{13}C	δ ^{15}N
7/6/1999	1	59	9.36	0.242	0.004	9.9	43.0	9.0	5.61	-23.59	11.46
7/6/1999	2	46	10.48	0.269	0.006	9.5	42.0	9.0	5.46	-23.32	11.22
7/6/1999	3	39	11.46	0.288	0.007	9.2	41.0	9.0	5.41	-23.20	11.57
8/17/1999	1	55	10.04	0.239	0.004	12.4	43.0	10.0	4.86	-23.27	12.10
8/17/1999	2	45	11.43	0.276	0.006	11.6	39.0	9.0	4.89	-23.13	12.14
8/17/1999	3	30	13.06	0.283	0.009	10.5	45.0	10.0	5.13	-23.12	11.99
9/14/1999	1	52	10.38	0.305	0.006	11.3	38.0	9.0	5.04	-22.89	11.68
9/14/1999	2	29	11.95	0.318	0.011	9.4	19.0	4.0	5.30	-22.83	11.25
10/19/1999	1	44	11.36	0.235	0.005	18.0	41.0	10.0	4.81	-23.23	11.71
10/19/1999	2	40	12.53	0.295	0.007	16.0	41.0	10.0	4.83	-23.22	11.74
10/19/1999	3	36	13.53	0.359	0.010	16.0	45.0	11.0	4.77	-23.24	11.71
11/9/1999	1	51	11.40	0.301	0.006	16.0	41.0	10.0	4.74	-23.33	11.52
11/9/1999	2	43	12.47	0.335	0.008	15.0	41.0	10.0	4.77	-23.33	11.44
11/9/1999	3	35	14.03	0.344	0.010	15.0	42.0	10.0	4.84	-23.35	11.44
2/8/2000	1	32	13.08	0.379	0.119	14.0	42.0	10.0	4.83	-24.26	9.98

Table 8. Concentrations of selenium and stable isotopes of carbon and nitrogen in the clam *Corbula amurensis* at USGS benthic station 411.1, northern San Francisco Bay, California, July 1999–January 2000.

[Abbreviations: mm, millimeter; g, gram; µg/g, microgram per gram; %, percent; δ, per mil; dw, dry weight]

Date	Sample replicate	Individuals per sample	Average shell length (mm)	Total dry weight (g)	Average dry weight (g)	Se (µg/g dw)	% C	% N	Molar C:N	δ ^{13}C	δ ^{15}N
7/6/1999	1	58	9.98	0.316	0.005	9.6	41.0	8.0	5.86	-24.66	11.12
7/6/1999	2	50	11.12	0.354	0.007	9.5	45.0	9.0	5.54	-24.73	11.03
7/6/1999	3	38	11.73	0.297	0.008	9.8	39.0	8.0	5.59	-24.91	10.91
8/17/1999	1	39	12.39	0.299	0.008	8.9	43.0	11.0	4.71	-24.46	12.50
8/17/1999	2	39	13.45	0.388	0.010	10.6	46.0	11.0	4.72	-24.40	12.67
8/17/1999	3	36	14.56	0.413	0.012	10.4	41.0	10.0	4.76	-24.43	12.54
9/14/1999	1	35	13.47	0.458	0.013	9.2	39.0	9.0	5.16	-23.63	12.05
9/14/1999	2	30	14.84	0.488	0.016	8.0	41.0	10.0	4.97	-23.90	12.14
9/14/1999	3	24	15.71	0.458	0.019	8.1	39.0	9.0	5.09	-23.72	12.10
10/19/1999	1	25	15.05	0.457	0.018	12.0	39.0	9.0	5.24	-24.54	12.17
10/19/1999	2	18	17.53	0.445	0.025	11.0	38.0	9.0	5.24	-24.46	12.19
10/19/1999	3	12	19.16	0.371	0.031	11.0	37.0	8.0	5.06	-24.49	12.13
11/9/1999	1	65	10.12	0.288	0.004	14.0	41.0	10.0	4.96	-24.86	11.37
11/9/1999	2	25	15.80	0.382	0.015	10.0	47.0	11.0	5.10	-24.64	11.96
11/9/1999	3	12	18.06	0.257	0.021	11.0	41.0	9.0	5.04	-24.65	11.95
12/14/1999	1	54	9.93	0.171	0.003	15.0	43.0	10.0	4.91	-25.67	10.62
12/14/1999	2	29	15.12	0.313	0.011	13.0	44.0	10.0	4.96	-25.10	11.36
12/14/1999	3	15	18.03	0.270	0.018	12.0	43.0	10.0	5.06	-25.07	11.31
1/11/2000	1	92	9.50	0.412	0.004	15.0	43.0	10.0	5.13	-26.41	9.64
1/11/2000	2	12	17.03	0.280	0.023	11.0	39.0	9.0	4.83	-25.67	10.79

Table 9. Concentrations of selenium and stable isotopes of carbon and nitrogen in the clam *Corbula amurensis* at USGS benthic station 415.1, northern San Francisco Bay, California, July 1999–November 2003.

[Abbreviations: mm, millimeter; g, gram; µg/g, microgram per gram; %, percent; δ, per mil; dw, dry weight]

Date	Sample replicate	Individuals per sample	Average shell length (mm)	Total dry weight (g)	Average dry weight (g)	Se (µg/g dw)	% C	% N	Molar C:N	δ ^{13}C	δ ^{15}N
7/6/1999	1	51	12.58	0.610	0.012	7.4	46.0	10.0	5.47	-26.07	11.95
8/17/1999	1	31	13.54	0.403	0.013	10.4	47.0	11.0	4.84	-25.32	12.67
8/17/1999	2	29	15.46	0.487	0.017	10.6	48.0	12.0	4.76	-25.38	12.72
8/17/1999	3	19	17.08	0.440	0.023	9.7	46.0	11.0	4.75	-25.58	12.76
9/14/1999	1	59	9.57	0.355	0.006	8.8	41.0	10.0	4.92	-24.57	10.76
9/14/1999	2	29	14.32	0.581	0.020	8.5	38.0	9.0	5.04	-24.93	11.21
9/14/1999	3	17	17.62	0.537	0.032	7.7	41.0	9.0	5.11	-24.91	11.11
10/19/1999	1	53	9.79	0.366	0.007	9.6	47.0	11.0	5.04	-26.52	11.42
10/19/1999	2	39	11.76	0.440	0.011	9.9	31.0	7.0	5.17	-26.32	11.61
10/19/1999	3	13	17.81	0.535	0.041	9.1	44.0	9.0	5.68	-26.12	12.02
11/9/1999	1	56	10.26	0.264	0.005	8.9	45.0	10.0	5.04	-26.52	10.86
11/9/1999	2	36	11.99	0.272	0.008	8.4	37.0	9.0	4.93	-26.45	10.78
11/9/1999	3	9	18.56	0.454	0.051	6.3	42.0	8.0	6.33	-26.32	11.98
12/12/2000	1	50	11.17	0.383	0.008	8.8	41.0	9.0	5.21	-26.53	11.60
12/12/2000	2	47	12.86	0.552	0.012	8.1	49.0	10.0	5.45	-26.47	10.86
2/26/2001	1	58	10.92	0.479	0.008	8.6	49.6	12.3	4.69	-27.96	10.52
2/26/2001	2	17	14.39	0.248	0.015	8.0	40.4	10.2	4.62	-27.19	11.25
3/22/2001	1	28	9.51	0.108	0.004	8.6	48.1	12.5	4.48	-27.19	11.24
4/24/2001	1	42	10.79	0.183	0.004	10.0	49.1	12.7	4.51	-27.45	11.22
5/22/2001	1	72	8.84	0.220	0.003	9.9	46.4	11.3	4.77	-27.66	11.68
5/22/2001	2	37	11.34	0.232	0.006	11.0	43.9	10.9	4.68	-27.00	12.16
6/19/2001	1	69	9.03	0.234	0.003	12.0	45.6	11.2	4.76	-27.53	12.51
7/18/2001	1	99	9.74	0.552	0.006	9.6	46.4	10.9	4.97	-25.52	12.04
9/11/2001	1	67	8.98	0.251	0.004	11.0	42.8	10.2	4.87	-24.91	13.94
9/11/2001	2	48	10.90	0.295	0.006	11.0	41.6	10.1	4.80	-24.98	14.04
10/16/2001	1	91	9.93	0.526	0.006	11.0	36.8	8.8	4.86	-25.35	13.80
11/27/2001	1	42	8.94	0.151	0.004	14.0	46.6	11.1	4.89	-26.58	12.39
12/18/2001	1	68	10.17	0.219	0.003	12.0	41.7	10.8	4.50	-26.93	13.41
12/18/2001	2	14	13.09	0.134	0.010	12.0	44.2	11.8	4.37	-26.72	13.59
5/7/2002	1	17	9.40	0.079	0.005	8.3	81.1	20.9	4.53	-23.61	11.56
6/4/2002	1	64	8.52	0.175	0.003	8.6	45.9	11.4	4.84	-27.50	11.45

Date	Sample replicate	Individuals per sample	Average shell length (mm)	Total dry weight (g)	Average dry weight (g)	Se (µg/g dw)	% C	% N	Molar C:N	δ ^{13}C	δ ^{15}N
6/4/2002	2	49	9.50	0.204	0.004	8.5	46.2	11.4	4.72	-27.52	11.59
6/4/2002	3	44	10.75	0.250	0.006	9.3	45.5	11.4	4.71	-27.50	11.46
7/16/2002	1	58	9.52	0.270	0.005	12.0	49.8	12.7	4.58	-24.45	11.85
7/16/2002	2	37	10.43	0.223	0.006	9.9	27.4	6.9	4.67	-24.20	11.85
7/16/2002	3	28	11.42	0.207	0.007	12.0	68.1	16.0	4.96	-27.02	12.23
8/21/2002	1	56	8.95	0.217	0.004	9.8	60.5	15.3	4.62	-23.96	12.23
8/21/2002	2	27	11.48	0.212	0.008	9.4	42.5	10.2	4.84	-25.05	12.11
9/10/2002	1	37	10.49	0.240	0.006	9.7	39.3	9.7	5.01	-25.55	12.20
9/10/2002	2	28	11.64	0.251	0.009	7.5	39.6	9.8	5.13	-25.62	12.10
9/10/2002	3	21	12.51	0.223	0.011	7.8	38.7	9.3	5.00	-25.51	12.22
10/8/2002	1	26	10.47	0.154	0.006	9.6	42.9	10.1	5.16	-26.02	12.36
10/8/2002	2	37	11.47	0.337	0.009	8.5	40.8	9.9	5.38	-26.19	12.34
10/8/2002	3	21	12.46	0.208	0.010	8.6	41.8	9.8	5.34	-26.03	12.56
11/13/2002	1	24	11.45	0.192	0.008	8.8	36.4	8.6	4.96	-25.45	12.11
11/13/2002	2	27	12.61	0.315	0.012	8.2	27.3	6.0	5.32	-26.60	12.23
11/13/2002	3	21	13.52	0.290	0.014	8.7	36.5	7.9	5.39	-26.55	12.23
12/10/2002	1	21	12.50	0.217	0.010	8.4	46.6	10.6	5.11	-26.48	12.56
12/10/2002	2	14	14.33	0.231	0.016	7.6	38.9	9.5	4.77	-23.46	11.86
12/10/2002	3	11	15.53	0.226	0.021	7.4	31.1	7.1	5.15	-26.46	12.04
11/18/2003	1	29	10.48	0.184	0.006	5.9	43.1	10.1	5.70	-26.79	11.49
11/18/2003	2	32	11.45	0.269	0.008	5.9	42.5	9.8	5.48	-26.70	11.82
11/18/2003	3	9	15.69	0.192	0.021	4.9	42.5	9.3	6.07	-26.22	11.74

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