

Seafood

THE GOOD FOOD II



Oil profiles for further Australian
seafoods, and influencing factors



B.D. Mooney, P.D. Nichols and N.G. Elliott

FRDC Project 1999/331

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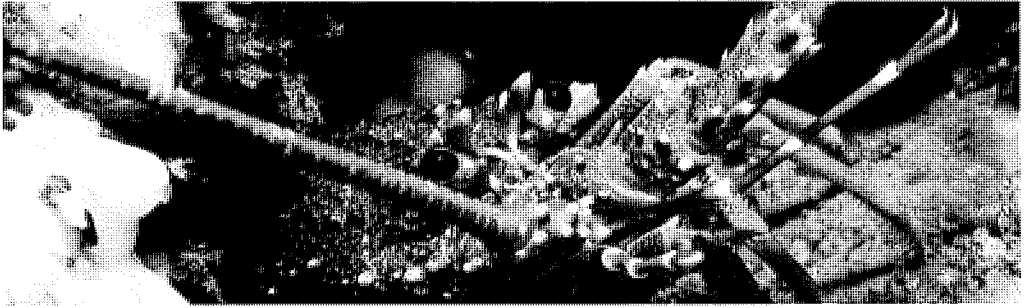
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Chapter 1



**Seafood the Good Food II
Introduction**

Seafood the Good Food II – Introduction

Australians increased their seafood intake during the 1990s, encouraged by nutritionists and medical authorities keen to promote the high levels of nutritionally-important omega-3 polyunsaturated fatty acids (PUFA) contained in seafood oils.

Seafood the Good Food II summarises CSIRO research into factors that may influence the 'good oils' we consume, such as how seafood is produced, and how it is prepared for consumption. The oil content and composition of 79 seafood species is also outlined, providing a companion volume to *Seafood the Good Food*, which reported on 189 Australian finfish and shellfish.

The information is intended to help the seafood industry, nutritionists and consumer groups to communicate the health benefits of eating wild-caught and farmed Australian seafood.

Seafood oils

In seafood, oils are the second largest component after protein. The most important seafood oils are triglycerides, which serve as an energy store, and polar oils and cholesterol, which are structural components of cell membranes.

The main components of seafood oils are saturated and unsaturated fatty acids. EPA (eicosapentaenoic acid) and DHA (docosahexaenoic acid) are the main beneficial long-chain omega-3 PUFA. AA (arachidonic acid) is an omega-6 PUFA, a precursor of prostaglandins (modulators of hormone activity) and other eicosanoids (physiologically active compounds). The human body manufactures only small amounts of these PUFA, so we need to source them from our diet.

Omega-3 PUFA from seafood oils have a wide range of potential health benefits, particularly in preventing coronary heart disease, stroke and rheumatoid arthritis. They also may guard against some forms of cancer, and promote infant brain and retina function and development. Detailed information on these health benefits is available in *What's so healthy about seafood? A guide for seafood marketers*.

Summary of research findings

Seafood the Good Food and *Seafood the Good Food II* are based on the results of two studies by CSIRO Marine Research (see references). Here are the key findings.

- Relative to other food groups, wild-caught, cultured and value-added seafood are the best and most readily available source of EPA and DHA.
- Most Australian finfish have high levels of omega-3 PUFA (average 235 mg/100 g; range 13 to 3760 mg/100 g) and low levels of cholesterol (average 28 mg/100 g).
- Prawns have lower levels of omega-3 PUFA (average 130 mg/100 g) and higher levels of cholesterol (average 130 mg/100 g) than fish.
- Australian fish generally have higher relative levels of DHA than fish from the Northern Hemisphere.
- Fish from warmer waters generally have lower omega-3/omega-6 ratios than fish from temperate waters, largely due to higher relative levels of AA.
- Finfish generally contain polar oil and/or triglyceride, although a few species have an unusually high content of wax ester, hydrocarbon or diacylglyceryl ether.
- Aquafeeds can be tailored to optimise omega-3 PUFA content in cultured (farmed) seafood.
- Cooking and processing have no discernable effects on the content and composition of omega-3 PUFA in seafood.

Methods

Sample collection

Commercially important finfish and shellfish species were selected in consultation with seafood industry and state fisheries managers. Most samples were provided through the *Australian Seafood Handbook* project. Others were sourced from commercial fishers, aquaculture farms, research facilities and cruises, and seafood markets.

White muscle (flesh) tissue was sampled immediately after capture, after purchase, or after being sent, frozen, to the laboratory. For most species, 5–10 animals were available, from which three were randomly selected for analysis. All finfish muscle samples were taken from the right 'shoulder' region, an area normally included in a fillet. In Atlantic salmon, the oil profile of this sample region was compared with other parts of the fillet (Chapter 3, pages 24 and 25). Skin and subcutaneous fat were excluded. Samples were taken from the abdomen (or tail) of crustaceans, the mantle of cephalopods, either the whole body or foot of univalves, and the adductor muscle of bivalve molluscs. All tissues were frozen until analysed.

Sample preparation and analysis

Briefly, oil (fat) was extracted with solvents and the fatty acid fractions prepared from a portion of the oil. The fatty acids were analysed using gas chromatography and mass spectrometry, techniques used routinely for detecting and identifying drugs in medical research. The sample preparation and analysis methods used here are detailed in Nichols *et al.* (1998b and 2002).

Abbreviations

- AA** Arachidonic acid, 20:4 ω 6, also termed 20:4(n-6).
- CSIRO** Commonwealth Scientific and Industrial Research Organisation.
- DHA** Docosahexaenoic acid, 22:6 ω 3, also termed 22:6(n-3).
- EPA** Eicosapentaenoic acid, 20:5 ω 3, also termed 20:5(n-3).
- FRDC** Fisheries Research and Development Corporation.
- MUFA** Monounsaturated fatty acids containing one carbon-carbon unsaturated centre, generally with *cis* configuration: for example, oleic acid [18:1 ω 9c, also termed 18:1(n-9)c].
- n-3** Polyunsaturated acids with two or more *cis*-unsaturated centres, separated from each other by one methylene group and having the first unsaturated centre located three carbons distant from the end methyl. Also termed omega-3.
- n-6** Polyunsaturated acids with two or more *cis*-unsaturated centres, separated from each other by one methylene group and having the first unsaturated centre located six carbons distant from the end methyl. Also termed omega-6.
- PUFA** Polyunsaturated fatty acids (see also n-3 and n-6).
- SAT** Saturated fatty acids without carbon-carbon unsaturation: for example, myristic (14:0) and palmitic (16:0) acids.

Explanation of results and definitions (Chapters 2 and 3)

- Oil (fat) content is expressed as a percentage (%) of the wet mass of flesh.
- Low oil content is defined as less than 2%, moderate oil content as 2–5%, and high oil as more than 5%.
- The content of the major PUFA – arachidonic acid (AA), eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) – is expressed as milligrams per 100 gram wet mass of flesh (in each horizontal bar).
- The average relative percentages of fats in seafood – saturated fatty acids (SAT), monounsaturated fatty acids (MUFA) and polyunsaturated fatty acids (PUFA) – are expressed as a percentage of the total fatty acids.
- All data presented for fishes are for flesh without skin and are generally the average of three specimens. Variation may exist between individual specimens, and is generally higher for species with higher oil contents.
- A wider discussion of the results summarised in these graphs and tables can be found in Nichols *et al.* (1998b and 2002).

Chapter 2



The oil composition of cultured seafood

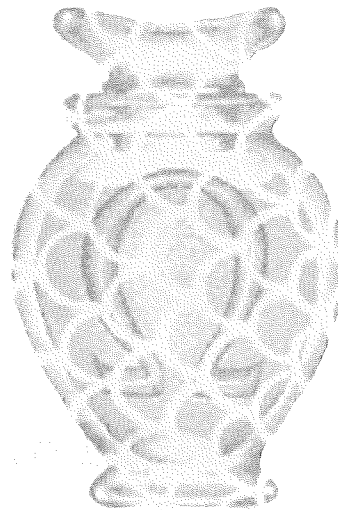
The oil composition of cultured seafood

The contribution of aquaculture to total seafood production rose from 10% to 30% between 1986 and 2000 and is expected to exceed the wild catch in the next decade.

This Chapter reports on the oil content and composition of several cultured (farmed) Australian products, and compares them to their wild-caught counterparts.

In general, cultured finfish grown on contemporary feeds had a higher oil and omega-3 PUFA content than wild-caught products. In contrast, cultured banana prawns contained lower levels of omega-3 PUFA, in particular DHA, relative to wild specimens.

Oil content and composition in aquafeeds can be tailored to influence PUFA profiles in the cultured product. Considerable potential therefore exists to enhance the nutritional quality of cultured seafood.



The effects of culture on major PUFA: cultured versus wild

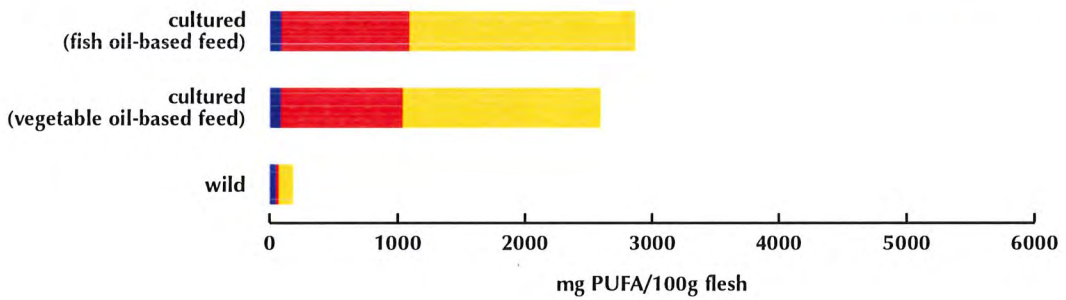
striped trumpeter *Latris lineata*



barramundi *Lates calcarifer*



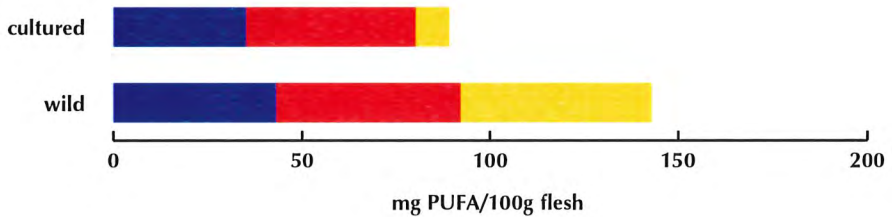
barramundi cod *Cromileptes altivelis*



Murray cod *Maccullochella peelii*



white banana prawn *Fenneropenaeus merguensis*



The effects of culture on total oil content and relative percentages of oils: cultured versus wild

species	sample	total oil content (% of wet mass)	percentage of oils		
			SAT %	MUFA %	PUFA %
striped trumpeter <i>Latris lineata</i>	cultured	31.1	26.8	42.4	30.8
	wild	0.9	24.5	20.2	54.8
barramundi <i>Lates calcarifer</i>	cultured	10.0	31.1	37.0	30.3
	wild	0.4	39.3	17.7	43.0
barramundi cod <i>Cromileptes altivelis</i>	cultured (fish oil)	22.2	26.9	44.1	29.0
	cultured (vegetable oil)	18.8	28.3	36.5	35.1
	wild	1.0	37.7	21.7	40.7
Murray cod <i>Maccullochella peelii</i>	cultured	0.8	36.3	19.2	43.8
	wild	0.7	29.0	25.8	45.3
white banana prawn <i>Fenneropenaeus merguensis</i>	cultured	1.4	35.6	35.4	29.0
	wild	0.9	36.6	23.8	39.6

▲ The effects of culture on total oil content and relative percentages of oils: cultured versus wild

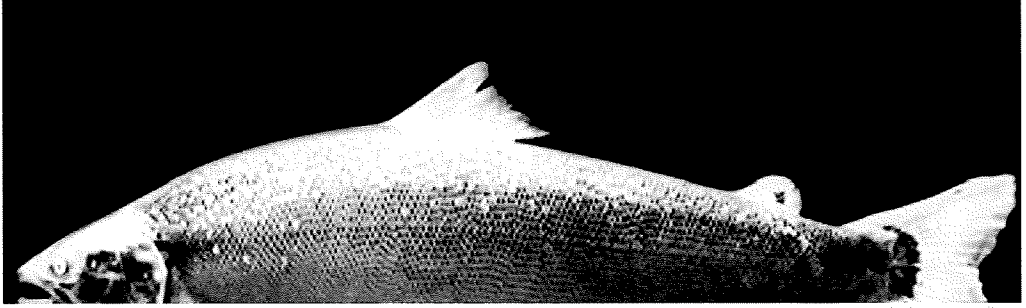
Cultured striped trumpeter, barramundi and barramundi cod had much higher total oils than wild specimens. These cultured fish also had higher relative proportions of MUFA and lower PUFA, unlike cultured Murray cod, which contained higher relative proportions of SAT and lower MUFA than wild specimens. Cultured banana prawns had more total oil, and higher relative proportions of MUFA and lower PUFA than wild specimens. Oils used in aquafeeds may influence the oil profile of the cultured product. For example, barramundi cod raised on fish oil had higher relative proportions of MUFA and lower PUFA than those fed on vegetable oil.

Note: The study also found that cultured and wild prawns had similar cholesterol contents (higher than other seafoods).

◀ The effects of culture on major PUFA: cultured versus wild

Striped trumpeter, barramundi and barramundi cod raised on manufactured feeds had a much higher omega-3 PUFA content than their wild counterparts. Striped trumpeter had the highest omega-3 PUFA content reported. The wild specimens had a higher DHA to EPA ratio than the cultured fish, possibly reflecting the Northern Hemisphere origin of oil in the feed. Cultured and wild Murray cod differed little in PUFA content. Cultured banana prawns contained less omega-3 PUFA than wild specimens, in particular DHA.

Chapter 3



The effects of processing and environment on the oil composition of seafood

The effects of processing and environment on the oil composition of seafood

Considerable information exists on the oil content and composition of Australian seafood. Factors that may affect these oil profiles, however, have not been widely studied. This Chapter presents some examples of how oil profiles varied in relation to cooking, value-adding, sampling technique and environmental conditions.

Cooking

The cooking methods investigated were pan frying, deep frying, grilling, steaming and microwaving. None of the methods affected omega-3 PUFA content. Three commercial packaged soups containing seafood by-products were also examined. They contained beneficial omega-3 PUFA, but at lower levels than in fresh and cooked fillets.

Value-adding

Value-added products developed from cultured (farmed) Atlantic salmon were examined. Oil content and composition was not affected by cold smoking, hot smoking, ishanabe (brine solution curing), or the salting and storing of roe. By-products from filleting – mince, skin, head, frame, viscera and trim – emerged as excellent sources of omega-3 PUFA.

Sampling technique

In Atlantic salmon, oil content and composition was found to vary along the fillet. This indicates that the standardised use of right shoulder samples may under-represent the oil content of a whole fillet in some species.

Environmental conditions

Some variation was observed with season and location for selected finfish and shellfish, but the differences had little effect on oil quality.

The effects of cooking on major PUFA

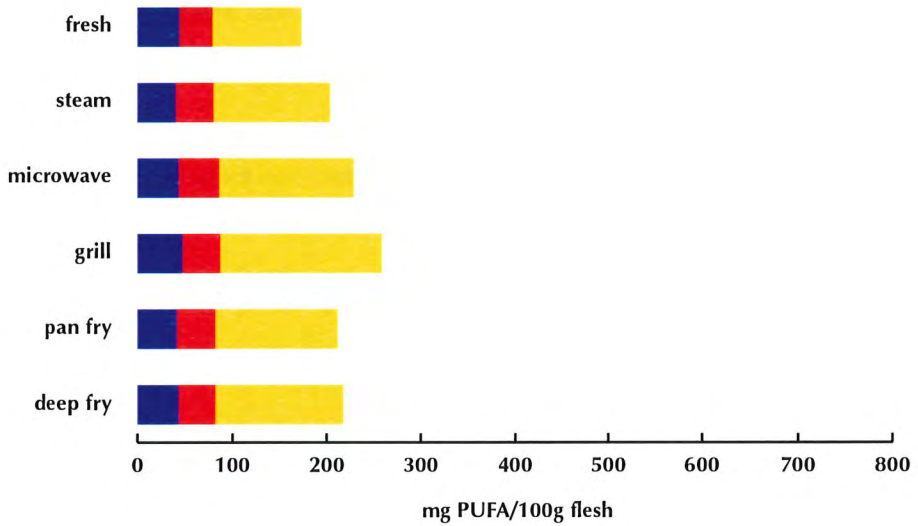
blue-eye trevalla *Hyperoglyphe antarctica*



spikey dogfish *Squalus megalops*



gummy shark *Mustelus antarcticus*



The effects of cooking on total and relative percentage of oils

species	cooking method	total oil content (% of wet mass)	percentage of oils		
			SAT %	MUFA %	PUFA %
blue-eye trevalla <i>Hyperoglyphe antarctica</i>	fresh	1.4	27.9	31.1	41.0
	steam	1.1	26.5	21.7	51.8
	microwave	1.5	26.3	22.6	51.2
	grill	1.9	17.5	44.9	37.5
	pan fry	2.3	15.8	51.3	32.8
	deep fry	5.3	26.5	22.0	51.6
spikey dogfish <i>Squalus megalops</i>	fresh	3.5	21.8	33.6	40.0
	deep fry	7.1	23.5	29.8	43.6
gummy shark <i>Mustelus antarcticus</i>	fresh	0.9	31.4	18.1	50.5
	steam	0.9	29.3	19.7	51.0
	microwave	1.0	27.7	20.9	51.4
	grill	1.3	22.2	33.8	44.0
	pan fry	3.8	13.1	58.0	28.9
	deep fry	3.8	27.1	21.6	51.4

▲ The effects of cooking on total and relative percentage of oils

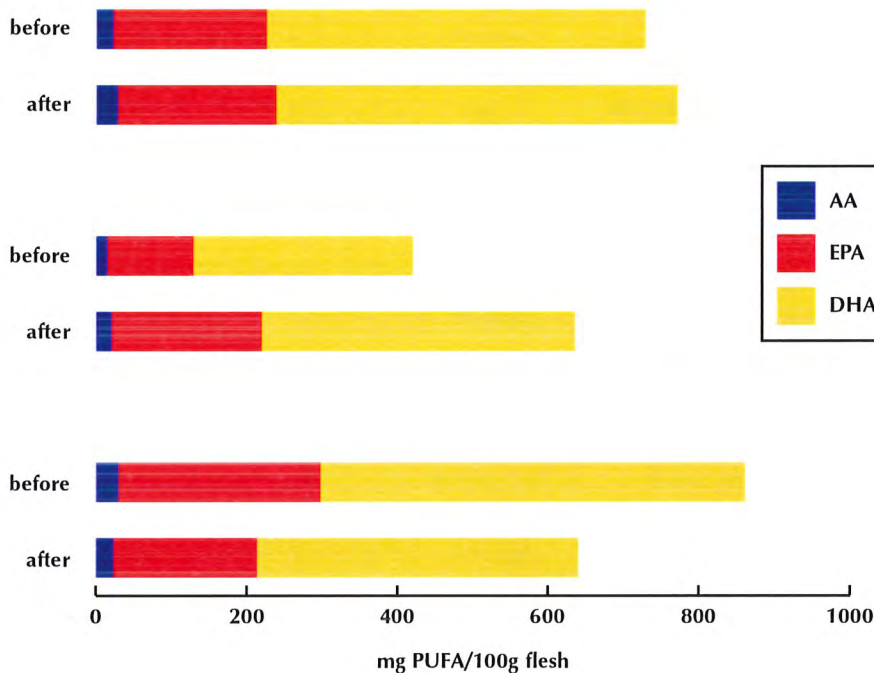
The uptake of oils by fish fillets will vary according to cooking procedure, the type and quantity of cooking oil, and possibly the quality of the fillet. For all species examined, deep frying showed the highest oil content, followed by pan frying. The SAT/MUFA/PUFA profile of the cooked fillet will also reflect the oil profile of the cooking oil. In this study, pan frying and grilling in cottonseed oil increased MUFA, and deep frying in peanut oil increased omega-6 PUFA in the cooked fillet.

◀ The effects of cooking on omega-3 PUFA content

In the fillets examined, the content of nutritionally-important omega-3 PUFA (EPA and DHA) was not adversely affected by any form of cooking investigated.

Atlantic salmon (*Salmo salar*): variation in major PUFA with curing

cold smoked



Atlantic salmon (*Salmo salar*): variation in total oil content and relative percentages of oils with curing

curing method	sample	total oil content (% of wet mass)	percentage of oils		
			SAT %	MUFA %	PUFA %
cold smoked	before	2.5	28.2	22.6	49.2
	after	2.3	27.4	20.0	52.6
hot smoked	before	1.7	30.2	21.8	48.1
	after	3.0	27.8	28.9	43.2
ishanabe	before	3.1	27.6	25.8	46.6
	after	2.0	27.6	22.8	49.6

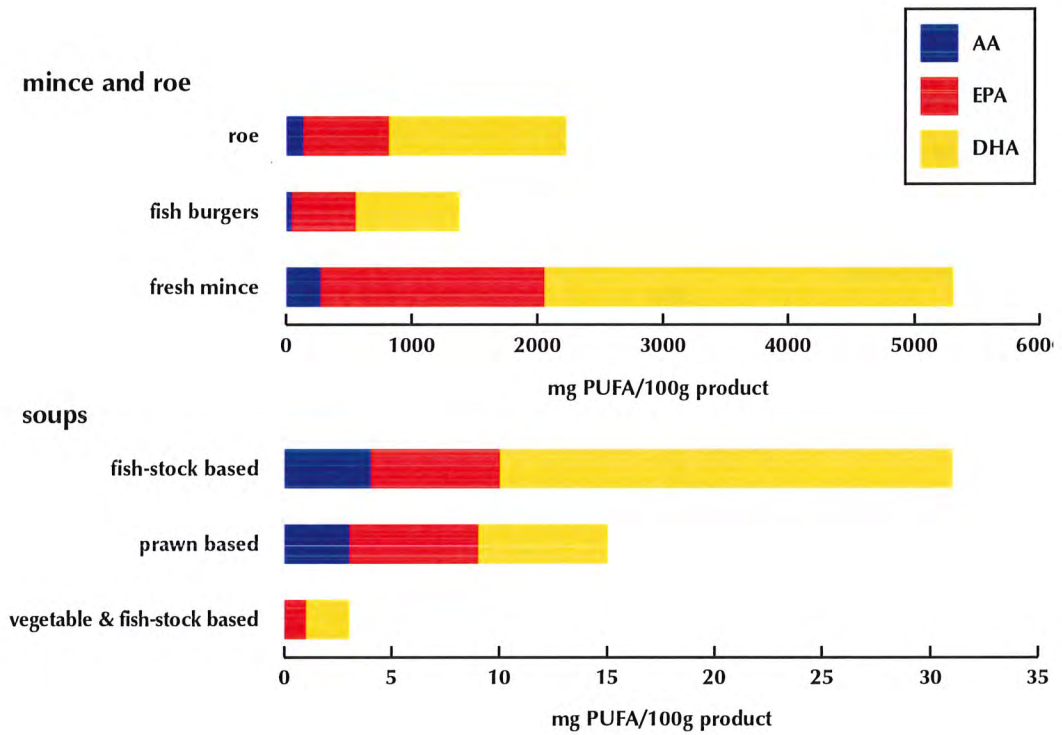
▲ Atlantic salmon (*Salmo salar*): variation in total oil content and relative percentages of oils with curing

The curing process caused little variation in the relative proportions of fats. The small variation that was observed may be due to between sample differences, or changes in water content.

◀ Atlantic salmon (*Salmo salar*): variation in major PUFA with curing

None of these treatments adversely affect omega-3 PUFA content in Atlantic salmon. The slight decrease in omega-3 PUFA content in the ishanabe treatment (soaking in brine solution), was largely due to the uptake of water. The slight increase in omega-3 PUFA content after hot and cold smoking was probably due to water loss during processing. For all samples, DHA was two to threefold greater than EPA. These are mean trends; some variation was observed between individuals.

Atlantic salmon (*Salmo salar*): variation in major PUFA in commercial products



Atlantic salmon (*Salmo salar*): variation in total oil content and relative proportion of oils in commercial products

product	sample	total oil content (% of wet mass)	percentage of oils		
			SAT %	MUFA %	PUFA %
mince and roe	roe	10.6	19.5	33.8	54.6
	fish burgers	9.8	16.8	47.4	37.6
	fresh mince	25.3	21.1	35.5	48.6
soups	fish-stock based	1.1	53.4	36.0	10.6
	prawn based	2.3	67.7	26.8	5.5
	veg & fish-stock based	0.1	28.9	43.2	27.9

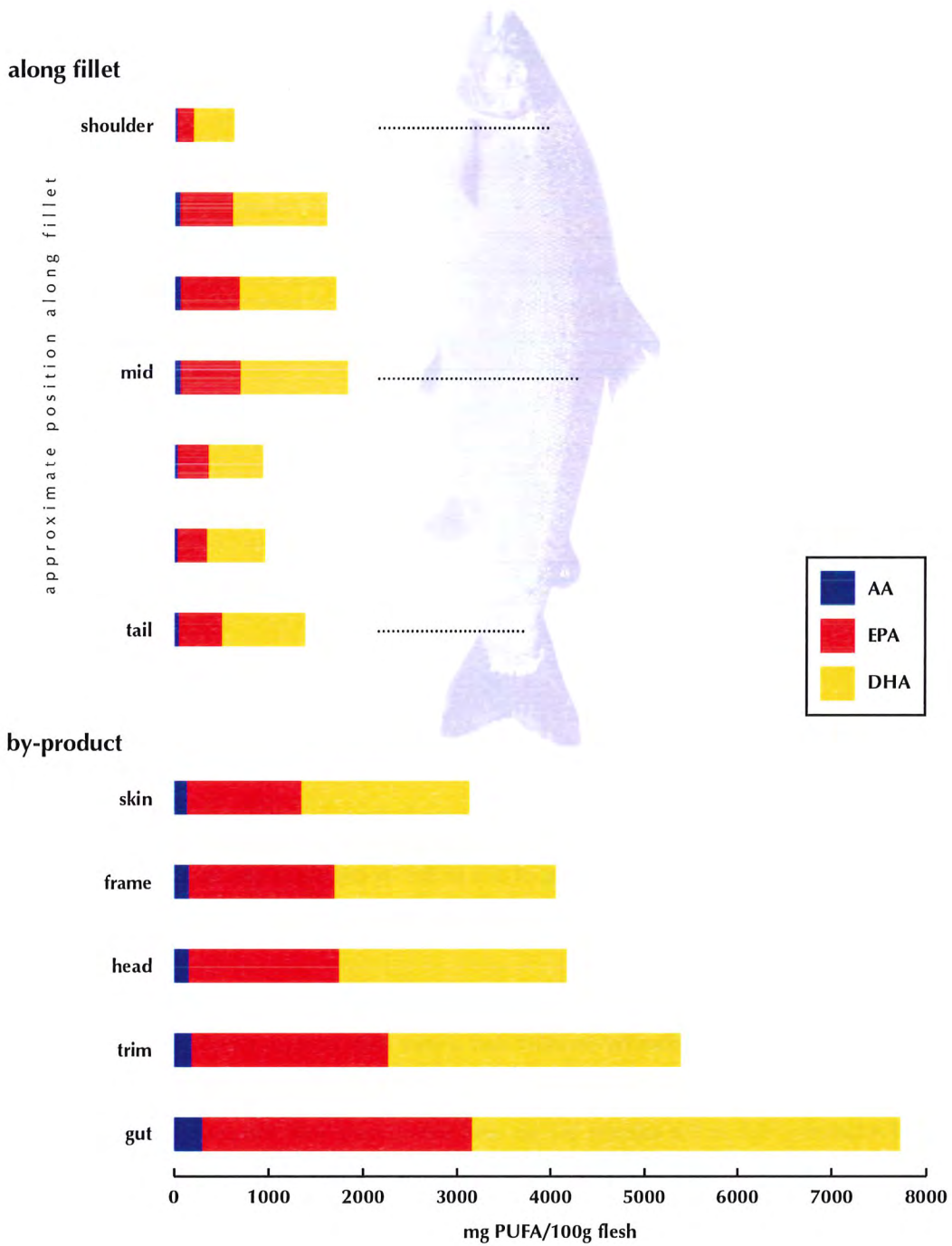
▲ Atlantic salmon (*Salmo salar*): variation in total oil content and relative proportion of oils in commercial products

Salmon mince, a commercial burger product made from salmon mince, and roe, had a high total oil content. Packaged soups containing seafood by-product had low total oil contents. The relative proportions of oils in the by-products and soups varied, largely due to the presence of other ingredients.

◀ Atlantic salmon (*Salmo salar*): variation in major PUFA in commercial products

Salmon mince derived from by-product had a very high omega-3 PUFA content, and therefore has potential as a nutritional value-added product. As in the fresh fillet, DHA was greater than EPA in the salmon mince. The amount of omega-3 PUFA was still relatively high in the salmon burger, and would vary with the proportion of salmon mince included. Roe also contained high omega-3 PUFA, and greater DHA than EPA. Packaged soups produced using seafood by-product contained low amounts of omega-3 PUFA, and varied according to the source of stock.

Atlantic salmon (*Salmo salar*): variation in major PUFA in the fillet and by-product



Atlantic salmon (*Salmo salar*): variation in total oil content and relative percentages of oils in the fillet and by-product

Atlantic salmon	sample	total oil content (% of wet mass)	mean percentage of oils		
			SAT %	MUFA %	PUFA %
along fillet <i>shoulder to tail</i>	shoulder	2.2	30.1	27.1	42.8
		6.5			
		7.6			
	mid	7.6			
		5.9			
		4.1			
	tail	5.5			
by-product	skin	14.2	26.8	30.6	42.7
	frame	17.6			
	head	18.9			
	trim	23.4			
	gut	36.2			

▲ Atlantic salmon (*Salmo salar*): variation in total oil content and relative percentages of oils in the fillet and by-product

Oil content was in the moderate to high range in all fillet samples, with the highest values observed mid-fillet. By-products from the processing of Atlantic salmon had very high total oil contents compared with the fillet. Little variation occurred in the relative proportions of oils, either between by-products, or along the fillet.

◀ Atlantic salmon (*Salmo salar*): variation in major PUFA in the fillet and by-product

Omega-3 PUFA content varied about threefold along the fillet of Atlantic salmon, with the highest values observed mid-fillet. By-product from Atlantic salmon processing had a very high omega-3 PUFA content compared with the fillet, and have considerable potential for value-adding. DHA was greater than EPA in all fillet and by-product samples.

Seasonal variation in major PUFA

redthroat emperor *Lethrinus miniatus*



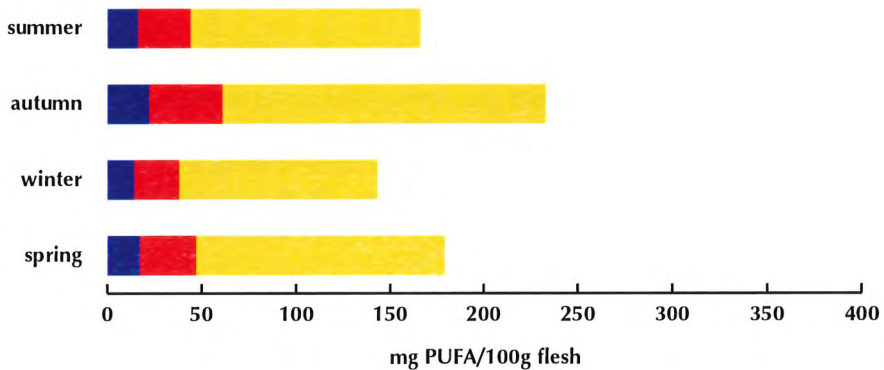
stripey seaperch *Lutjanus carponotatus*



northern sand flathead *Platycephalus arenarius*



blue-eye trevalla *Hyperoglyphe antarctica*



Seasonal variation in total oil content and relative proportion of oils

species	season	total oil content (% of wet mass)	percentage of oils		
			SAT %	MUFA %	PUFA %
redthroat emperor <i>Lethrinus miniatus</i>	summer	0.5	37.8	15.4	46.8
	autumn	1.8	36.8	24.7	38.5
	winter	0.4	30.4	14.4	55.2
	spring	0.5	36.3	13.2	50.5
stripey seaperch <i>Lutjanus carponotatus</i>	summer	0.4	37.1	18.1	44.8
	autumn	0.4	34.2	15.0	50.8
	winter	0.4	32.7	15.3	52.0
	spring	0.5	40.2	20.7	39.2
northern sand flathead <i>Platycephalus arenarius</i>	summer	0.5	49.0	12.7	38.3
	autumn	0.6	31.7	16.8	51.4
	winter	0.6	28.8	12.2	59.0
	spring	0.9	28.9	13.2	58.0
blue-eye trevalla <i>Hyperoglyphe antarctica</i>	summer	1.0	30.5	20.6	47.6
	autumn	1.0	31.9	23.9	44.2
	winter	0.6	28.9	14.8	56.3
	spring	0.8	37.9	23.3	38.8

▲ Seasonal variation in total oil content and relative proportion of oils

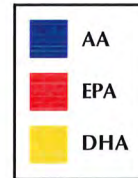
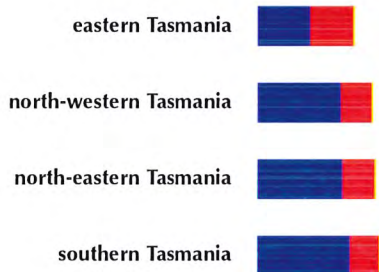
Redthroat emperor had a moderate oil content in autumn, and a low oil content for the rest of the year. The other three species had low total oil content in all seasons. All four species recorded only slight seasonal differences in the relative proportions of oils.

◀ Seasonal variation in major PUFA

Redthroat emperor and blue-eye trevalla had a greater omega-3 PUFA content in autumn. Stripey seaperch and northern sand flathead had a greater omega-3 PUFA content in spring. All species showed a high DHA to EPA ratio. High levels of AA were observed in redthroat emperor and northern sand flathead, probably due to dietary preferences.

Regional variation in major PUFA

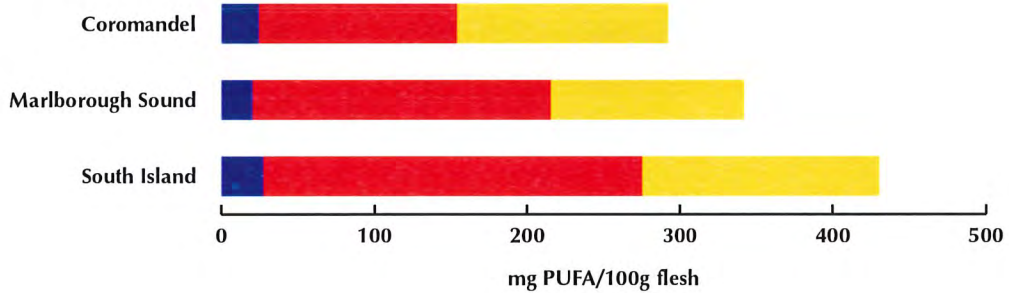
abalone *Haliotis rubra*



blue mussel *Mytilus edulis*



green mussel *Perna canaliculus*



Regional variation in total oil content and relative proportion of oils

species	region	total oil content (% of wet mass)	percentage of oils		
			SAT %	MUFA %	PUFA %
abalone <i>Haliotis rubra</i>	eastern Tas.	0.7	34.3	22.3	43.4
	north-western Tas.	0.9	30.7	25.0	44.4
	north-eastern Tas.	0.8	31.6	24.0	44.4
	southern Tas.	0.8	32.1	23.4	44.5
blue mussel <i>Mytilus edulis</i>	Deep Bay 2	1.0	29.4	10.3	49.3
	Great Oyster Bay	1.2	30.4	9.6	50.1
	Deep Bay 1	1.6	28.9	11.9	44.0
green mussel <i>Perna canaliculus</i>	Coromandel	1.5	27.6	18.4	43.7
	Marlborough Sound	1.9	28.6	18.2	44.4
	South Island	2.6	27.8	18.1	44.6

▲ Regional variation in total oil content and relative proportion of oils

Abalone had a low total oil content, with blue and green mussels low to moderate. Oil content was similar for abalone collected at four Tasmanian locations. Variation in oil content occurred for both mussels. Blue mussel collected around Tasmania contained slightly lower total oil than the green mussel from New Zealand. Variation in oil content was greater for the green mussel. The relative proportions of oils differed only slightly by region.

◀ Regional variation in major PUFA

The PUFA content was generally similar between sites for abalone, with AA levels highest. Abalone from one site showed lower AA and higher EPA. The omega-3 PUFA content of both blue and green mussels varied between sites. Blue mussel collected around Tasmania contained a higher DHA to EPA ratio than the green mussel from New Zealand.

Chapter 4



The oil composition of further seafood species

The oil composition of further seafood species

This Chapter provides oil compositional data for 79 seafood species and complements the data on 189 species in *Seafood the Good Food*.

A summary of the average content of omega-3 PUFA in various food groups is shown below. Results from the two volumes of *Seafood the Good Food* indicate that seafood contains considerably more beneficial omega-3 oils than other food groups.

Average omega-3 PUFA in Australian seafood and other food groups

food group	omega-3 PUFA (mg/100 g wet mass)
fish	235
oysters	150
prawns	130
lobster	105
turkey	35
beef	22
chicken	19
lamb	18
pork	0
veal	0

Data for non-seafood items from references cited in Nichols *et al* (1998).

The major oil classes in most seafood are polar oil or triglyceride. In this study, however, several species contained mainly wax ester or diacylglyceryl ether or hydrocarbon. Further research on the oil profiles of these groups is needed, including a comparison of geographic and seasonal variation between and within species.

How to use the information sheets in Chapter 4

Marketing name

Species are presented by their approved marketing name.

Code for Australian Aquatic Biota (CAAB) used in fisheries data analysis (www.marine.csiro.au/caab).

Photograph of commercial-size specimen.

Scientific name

Summary

- oil content in percentage (%) of wet mass
- content of arachidonic acid, eicosapentaenoic acid and docosahexaenoic acid (mg/100 g wet mass)
- ratio of (n-3)/(n-6) PUFA

Data are for flesh without skin and are the average of three specimens.

Oil content (mg/100 g wet mass) of the classes of oil.

Fatty acid content (mg/100 g) of:

- total saturated fatty acids (no double bonds)
- total monounsaturated fatty acids (one double bond)
- total PUFA (two or more double bonds)
- total (n-3) and (n-6) PUFA


Fatty acid nomenclature

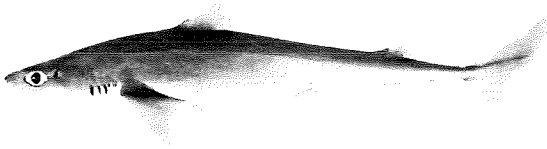
Fatty acids are designated X:Y(n-Z), where X indicates number of carbon atoms, Y indicates number of double bonds and Z indicates number of carbon atoms from the terminal methyl (n) end of the molecule to the first double bond. (n-3) is equivalent to omega-3 (also ω3) for PUFA.

Proportion of each fatty acid as a percentage (%) of total fatty acids. Total % for saturated, monounsaturated and PUFA are shown and may include minor % of fatty acids not listed.

nd = not determined

Seafood the Good Food II – Chapter 4

ruby snapper <i>Etelis coruscans</i>		37 346038
		
Summary		
Oil	0.6 %	
mg/100g (wet)		
20:4(n-6) AA	21	
20:5(n-3) EPA	15	
22:6(n-3) DHA	155	
(n-3)/(n-6)	4.9	
Fatty Acid Composition		
Fatty Acid	Percent (%)	
Saturates		
14:0	0.3	
16:0	0.3	
16:1	21.6	
17:0	0.8	
18:0	8.4	
20:0	0.2	
22:0	0.1	
24:0	0.1	
Total	31.8	
Monounsaturates		
16:1(n-7)	0.1	
18:1(n-7)	0.6	
18:1(n-9)	0.0	
17:1(n-8)	0.1	
18:1(n-7)	1.7	
18:1(n-9)	5.5	
20:1(n-7)	0.1	
20:1(n-9+n-11)	1.3	
22:1	0.2	
24:1	0.9	
Total	10.8	
Polyunsaturates		
18:2(n-6)	0.5	
18:3(n-3)	0.0	
18:3(n-6)	0.1	
18:4(n-3)	0.1	
20:2(n-6)	0.3	
20:3(n-6)	0.1	
20:4(n-3)	0.1	
20:4(n-6) AA	5.2	
20:5(n-3) EPA	1.6	
22:4(n-3)	0.0	
22:4(n-6)	0.4	
22:5(n-3)	1.2	
22:5(n-6)	2.2	
22:6(n-3) DHA	38.3	
Total	52.2	
* Includes hydrocarbon and sterol ester		
© CSIRO Marine Research 2002 FRDC Project 1999/331		

spikey dogfish *Squalus megalops***37 020006****Summary**

Oil	0.7 %
	mg/100g (wet)
20:4(n-6) AA	19
20:5(n-3) EPA	7
22:6(n-3) DHA	165
(n-3)/(n-6)	6.6

Oil Content

Oil Class	mg/100g (wet)
Total oil	735
Wax ester*	0
Triglyceride	1
Free fatty acid	9
Cholesterol	15
Polar oil	710

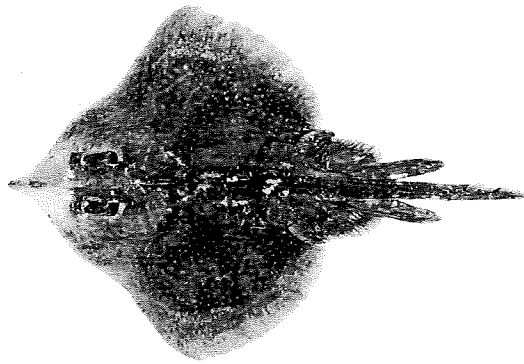
Fatty Acids

Total fatty acids	402
Total saturates	120
Total monounsaturates	71
Total polyunsaturates	211
Total (n-3)	183
Total (n-6)	28

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	0.1
15:0	0.1
16:0	20.1
17:0	0.8
18:0	8.3
20:0	0.0
22:0	0.0
24:0	0.0
Total	29.8
Monounsaturates	
16:1(n-5)	0.0
16:1(n-7)	0.7
16:1(n-9)	0.1
17:1(n-8)	0.4
18:1(n-7)	3.1
18:1(n-9)	11.7
20:1(n-7)	0.0
20:1(n-9+n-11)	1.0
22:1	0.3
24:1	0.3
Total	17.8
Polyunsaturates	
18:2(n-6)	0.3
18:3(n-3)	0.0
18:3(n-6)	0.0
18:4(n-3)	0.5
20:2(n-6)	0.2
20:3(n-6)	0.1
20:4(n-3)	0.2
20:4(n-6) AA	4.8
20:5(n-3) EPA	1.7
22:3(n-3)	0.1
22:4(n-6)	0.7
22:5(n-3)	2.1
22:5(n-6)	0.8
22:6(n-3) DHA	41.0
Total	52.4

skate *Raja* sp.**37 031005****Summary**

Oil	0.7 %
	mg/100g (wet)
20:4(n-6) AA	30
20:5(n-3) EPA	19
22:6(n-3) DHA	103
(n-3)/(n-6)	3.0

Oil Content

Oil Class	mg/100g (wet)
Total oil	723
Wax ester*	0
Triglyceride	2
Free fatty acid	1
Cholesterol	47
Polar oil	674

Fatty Acids

Total fatty acids	386
Total saturates	124
Total monounsaturates	78
Total polyunsaturates	184
Total (n-3)	138
Total (n-6)	46

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	0.4
15:0	0.2
16:0	21.2
17:0	0.9
18:0	8.7
20:0	0.1
22:0	0.2
24:0	0.1
Total	32.2
Monounsaturates	
16:1(n-5)	0.1
16:1(n-7)	1.2
16:1(n-9)	0.3
17:1(n-8)	1.1
18:1(n-7)	3.1
18:1(n-9)	11.2
20:1(n-7)	0.2
20:1(n-9+n-11)	0.8
22:1	0.8
24:1	1.3
Total	20.2
Polyunsaturates	
18:2(n-6)	0.9
18:3(n-3)	0.0
18:3(n-6)	0.3
18:4(n-3)	0.3
20:2(n-6)	0.3
20:3(n-6)	0.1
20:4(n-3)	0.2
20:4(n-6) AA	7.8
20:5(n-3) EPA	4.8
22:3(n-3)	0.1
22:4(n-6)	1.6
22:5(n-3)	3.8
22:5(n-6)	1.0
22:6(n-3) DHA	26.5
Total	47.6

elephant fish *Callorhynchus milii*

37 043001



Summary

Oil	1.1 %
	mg/100g (wet)
20:4(n-6) AA	35
20:5(n-3) EPA	52
22:6(n-3) DHA	155
(n-3)/(n-6)	3.8

Oil Content

Oil Class	mg/100g (wet)
Total oil	1101
Wax ester*	0
Triglyceride	3
Free fatty acid	9
Cholesterol	18
Polar oil	1071

Fatty Acids

Total fatty acids	613
Total saturates	189
Total monounsaturates	113
Total polyunsaturates	311
Total (n-3)	246
Total (n-6)	65

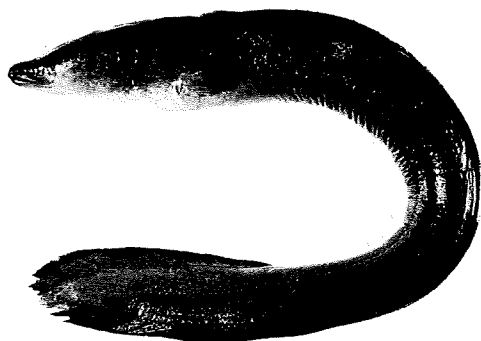
Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	0.4
15:0	0.6
16:0	20.4
17:0	1.4
18:0	7.0
20:0	0.1
22:0	0.1
24:0	0.0
Total	31.0
Monounsaturates	
16:1(n-5)	0.2
16:1(n-7)	2.2
16:1(n-9)	0.3
17:1(n-8)	0.8
18:1(n-7)	4.6
18:1(n-9)	8.5
20:1(n-7)	0.4
20:1(n-9+n-11)	0.7
22:1	0.3
24:1	0.1
Total	18.4
Polyunsaturates	
18:2(n-6)	0.7
18:3(n-3)	0.0
18:3(n-6)	0.0
18:4(n-3)	0.6
20:2(n-6)	1.3
20:3(n-6)	0.5
20:4(n-3)	0.7
20:4(n-6) AA	5.7
20:5(n-3) EPA	8.4
22:3(n-3)	0.3
22:4(n-6)	1.3
22:5(n-3)	4.8
22:5(n-6)	1.1
22:6(n-3) DHA	25.3
Total	50.6

*includes hydrocarbon and steryl ester

longfin eel *Anguilla reinhardtii*

37 056002



Summary

Oil	1.3 %
	mg/100g (wet)
20:4(n-6) AA	62
20:5(n-3) EPA	22
22:6(n-3) DHA	106
(n-3)/(n-6)	1.2

Oil Content

Oil Class	mg/100g (wet)
Total oil	1342
Wax ester*	39
Triglyceride	644
Free fatty acid	9
Cholesterol	33
Polar oil	617

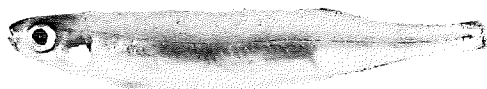
Fatty Acids

Total fatty acids	918
Total saturates	285
Total monounsaturates	321
Total polyunsaturates	312
Total (n-3)	169
Total (n-6)	142

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	1.9
15:0	1.3
16:0	17.7
17:0	1.7
18:0	6.5
20:0	0.1
22:0	0.1
24:0	0.1
Total	30.9
Monounsaturates	
16:1(n-5)	0.4
16:1(n-7)	4.7
16:1(n-9)	0.8
17:1(n-8)	1.6
18:1(n-7)	4.6
18:1(n-9)	19.5
20:1(n-7)	0.1
20:1(n-9+n-11)	1.8
22:1	0.9
24:1	0.6
Total	35.0
Polyunsaturates	
18:2(n-6)	4.6
18:3(n-3)	0.0
18:3(n-6)	0.2
18:4(n-3)	0.3
20:2(n-6)	0.6
20:3(n-6)	0.7
20:4(n-3)	1.0
20:4(n-6) AA	6.6
20:5(n-3) EPA	2.3
22:3(n-3)	0.0
22:4(n-6)	1.2
22:5(n-3)	3.3
22:5(n-6)	1.4
22:6(n-3) DHA	11.8
Total	34.1

whitebait *Galaxias maculatus***37 102006****Summary**

Oil	3.3 %
	mg/100g (wet)
20:4(n-6) AA	70
20:5(n-3) EPA	186
22:6(n-3) DHA	409
(n-3)/(n-6)	3.1

Oil Content

Oil Class	mg/100g (wet)
Total oil	3304
Wax ester*	97
Triglyceride	797
Free fatty acid	661
Cholesterol	226
Polar oil	1522
Fatty Acids	
Total fatty acids	2199
Total saturates	685
Total monounsaturates	602
Total polyunsaturates	912
Total (n-3)	687
Total (n-6)	219

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	4.2
15:0	0.6
16:0	18.8
17:0	0.8
18:0	5.2
20:0	0.2
22:0	0.1
24:0	0.1
Total	31.3
Monounsaturates	
16:1(n-5)	0.5
16:1(n-7)	5.9
16:1(n-9)	1.0
17:1(n-8)	0.8
18:1(n-7)	3.9
18:1(n-9)	12.8
20:1(n-7)	0.2
20:1(n-9+n-11)	0.5
22:1	0.4
24:1	0.6
Total	27.2
Polyunsaturates	
18:2(n-6)	4.9
18:3(n-3)	0.0
18:3(n-6)	0.2
18:4(n-3)	0.7
20:2(n-6)	0.4
20:3(n-6)	0.6
20:4(n-3)	1.1
20:4(n-6) AA	3.2
20:5(n-3) EPA	8.4
22:3(n-3)	0.0
22:4(n-6)	0.2
22:5(n-3)	2.4
22:5(n-6)	0.5
22:6(n-3) DHA	18.7
Total	41.4

whitebait *Lovettia sealii***37 103002****Summary**

Oil	2.6 %
------------	--------------

	mg/100g (wet)
--	----------------------

20:4(n-6) AA	32
20:5(n-3) EPA	221
22:6(n-3) DHA	405
(n-3)/(n-6)	10.6

Oil Content

Oil Class	mg/100g (wet)
------------------	----------------------

Total oil	2584
Wax ester*	67
Triglyceride	447
Free fatty acid	370
Cholesterol	179
Polar oil	1520

Fatty Acids

Total fatty acids	1630
Total saturates	497
Total monounsaturates	327
Total polyunsaturates	806
Total (n-3)	734
Total (n-6)	70

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
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Saturates

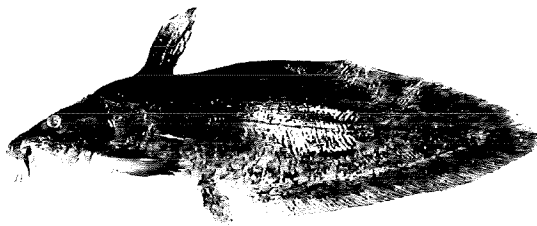
14:0	2.0
15:0	0.7
16:0	20.8
17:0	0.7
18:0	5.5
20:0	0.1
22:0	0.1
24:0	0.2
Total	30.5

Monounsaturates

16:1(n-5)	0.2
16:1(n-7)	3.3
16:1(n-9)	0.2
17:1(n-8)	0.4
18:1(n-7)	2.0
18:1(n-9)	10.6
20:1(n-7)	0.1
20:1(n-9+n-11)	0.6
22:1	0.6
24:1	1.6
Total	20.0

Polyunsaturates

18:2(n-6)	1.6
18:3(n-3)	0.0
18:3(n-6)	0.1
18:4(n-3)	5.1
20:2(n-6)	0.2
20:3(n-6)	0.0
20:4(n-3)	0.7
20:4(n-6) AA	2.0
20:5(n-3) EPA	13.6
22:3(n-3)	0.0
22:4(n-6)	0.0
22:5(n-3)	0.8
22:5(n-6)	0.3
22:6(n-3) DHA	24.9
Total	49.5

freshwater catfish*Tandanus tandanus***37 192006****Summary**

Oil	1.0 %
	mg/100g (wet)
20:4(n-6) AA	42
20:5(n-3) EPA	30
22:6(n-3) DHA	78
(n-3)/(n-6)	1.2

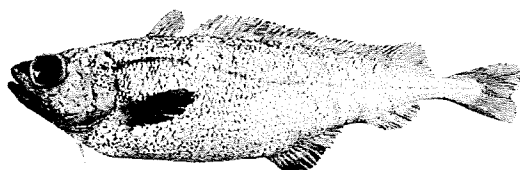
Oil Content

Oil Class	mg/100g (wet)
Total oil	971
Wax ester*	0
Triglyceride	297
Free fatty acid	29
Cholesterol	25
Polar oil	620
Fatty Acids	
Total fatty acids	704
Total saturates	213
Total monounsaturates	243
Total polyunsaturates	248
Total (n-3)	133
Total (n-6)	115

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	1.5
15:0	0.4
16:0	18.1
17:0	0.9
18:0	7.9
20:0	0.2
22:0	0.1
24:0	0.1
Total	30.3
Monounsaturates	
16:1(n-5)	0.3
16:1(n-7)	4.7
16:1(n-9)	0.5
17:1(n-8)	0.7
18:1(n-7)	3.8
18:1(n-9)	20.2
20:1(n-7)	0.1
20:1(n-9+n-11)	2.2
22:1	0.9
24:1	0.3
Total	34.0
Polyunsaturates	
18:2(n-6)	6.1
18:3(n-3)	0.0
18:3(n-6)	0.2
18:4(n-3)	0.1
20:2(n-6)	0.7
20:3(n-6)	1.2
20:4(n-3)	0.7
20:4(n-6) AA	6.3
20:5(n-3) EPA	4.2
22:3(n-3)	0.0
22:4(n-6)	0.9
22:5(n-3)	2.7
22:5(n-6)	1.4
22:6(n-3) DHA	11.2
Total	35.7

ribaldo *Mora moro***37 224002****Summary**

Oil	0.4 %
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	mg/100g (wet)
--	----------------------

20:4(n-6) AA	7
20:5(n-3) EPA	19
22:6(n-3) DHA	148
(n-3)/(n-6)	12.6

Oil Content

Oil Class	mg/100g (wet)
------------------	----------------------

Total oil	449
Wax ester*	0
Triglyceride	0
Free fatty acid	119
Cholesterol	23
Polar oil	307

Fatty Acids

Total fatty acids	327
Total saturates	91
Total monounsaturates	45
Total polyunsaturates	192
Total (n-3)	178
Total (n-6)	14

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
-------------------	--------------------

Saturates

14:0	0.4
15:0	0.2
16:0	20.7
17:0	0.3
18:0	5.3
20:0	0.0
22:0	0.0
24:0	0.4
Total	27.7

Monounsaturates

16:1(n-5)	0.1
16:1(n-7)	0.9
16:1(n-9)	0.1
17:1(n-8)	0.2
18:1(n-7)	1.1
18:1(n-9)	6.7
20:1(n-7)	0.0
20:1(n-9+n-11)	2.6
22:1	0.6
24:1	1.3
Total	13.6

Polyunsaturates

18:2(n-6)	0.5
18:3(n-3)	0.0
18:3(n-6)	0.0
18:4(n-3)	0.2
20:2(n-6)	0.1
20:3(n-6)	0.1
20:4(n-3)	0.7
20:4(n-6) AA	2.2
20:5(n-3) EPA	5.9
22:3(n-3)	0.0
22:4(n-6)	0.3
22:5(n-3)	2.2
22:5(n-6)	1.0
22:6(n-3) DHA	45.3
Total	58.7

southern rockcod*Pseudophycis barbata***37 224003****Summary**

Oil	0.5 %
	mg/100g (wet)
20:4(n-6) AA	15
20:5(n-3) EPA	30
22:6(n-3) DHA	153
(n-3)/(n-6)	7.5

Oil Content

Oil Class	mg/100g (wet)
Total oil	509
Wax ester*	0
Triglyceride	0
Free fatty acid	172
Cholesterol	25
Polar oil	312

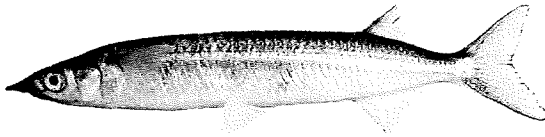
Fatty Acids

Total fatty acids	378
Total saturates	108
Total monounsaturates	53
Total polyunsaturates	217
Total (n-3)	192
Total (n-6)	26

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	0.6
15:0	0.3
16:0	19.6
17:0	0.6
18:0	6.4
20:0	0.0
22:0	0.0
24:0	0.7
Total	28.6
Monounsaturates	
16:1(n-5)	0.1
16:1(n-7)	1.2
16:1(n-9)	0.2
17:1(n-8)	0.4
18:1(n-7)	2.1
18:1(n-9)	7.7
20:1(n-7)	0.0
20:1(n-9+n-11)	0.7
22:1	0.3
24:1	1.1
Total	13.9
Polyunsaturates	
18:2(n-6)	0.8
18:3(n-3)	0.0
18:3(n-6)	0.0
18:4(n-3)	0.2
20:2(n-6)	0.1
20:3(n-6)	0.1
20:4(n-3)	0.4
20:4(n-6) AA	4.0
20:5(n-3) EPA	7.8
22:3(n-3)	0.0
22:4(n-6)	0.6
22:5(n-3)	1.9
22:5(n-6)	1.3
22:6(n-3) DHA	40.4
Total	57.5

garfish *Arrhamphus sclerolepis***37 234006****Summary**

Oil	1.0 %
------------	--------------

	mg/100g (wet)
--	----------------------

20:4(n-6) AA	30
20:5(n-3) EPA	16
22:6(n-3) DHA	106
(n-3)/(n-6)	1.5

Oil Content

Oil Class	mg/100g (wet)
------------------	----------------------

Total oil	957
Wax ester*	15
Triglyceride	12
Free fatty acid	46
Cholesterol	45
Polar oil	839

Fatty Acids

Total fatty acids	528
Total saturates	190
Total monounsaturates	103
Total polyunsaturates	234
Total (n-3)	141
Total (n-6)	93

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
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Saturates

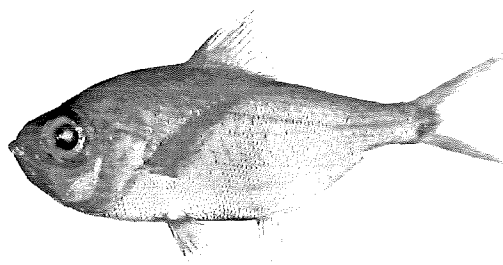
14:0	0.2
15:0	0.3
16:0	26.8
17:0	0.8
18:0	7.2
20:0	0.2
22:0	0.2
24:0	0.2
Total	36.0

Monounsaturates

16:1(n-5)	0.0
16:1(n-7)	1.4
16:1(n-9)	0.2
17:1(n-8)	0.2
18:1(n-7)	1.3
18:1(n-9)	14.6
20:1(n-7)	0.0
20:1(n-9+n-11)	1.2
22:1	0.1
24:1	0.3
Total	19.4

Polyunsaturates

18:2(n-6)	8.8
18:3(n-3)	0.0
18:3(n-6)	0.3
18:4(n-3)	0.3
20:2(n-6)	0.2
20:3(n-6)	1.5
20:4(n-3)	0.4
20:4(n-6) AA	5.6
20:5(n-3) EPA	3.0
22:3(n-3)	0.0
22:4(n-6)	0.3
22:5(n-3)	3.0
22:5(n-6)	1.0
22:6(n-3) DHA	20.2
Total	44.5

alfonsino *Beryx splendens***37 258002****Summary**

Oil	5.2 %
	mg/100g (wet)
20:4(n-6) AA	34
20:5(n-3) EPA	167
22:6(n-3) DHA	507
(n-3)/(n-6)	7.1

Oil Content

Oil Class	mg/100g (wet)
Total oil	5211
Wax ester*	0
Triglyceride	4424
Free fatty acid	0
Cholesterol	20
Polar oil	767

Fatty Acids

Total fatty acids	4106
Total saturates	1189
Total monounsaturates	2010
Total polyunsaturates	907
Total (n-3)	796
Total (n-6)	111

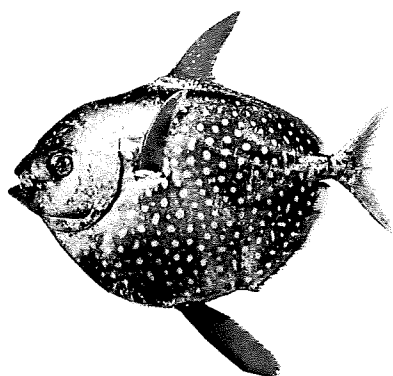
*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	2.6
15:0	0.5
16:0	18.5
17:0	0.7
18:0	5.7
20:0	0.2
22:0	0.1
24:0	0.0
Total	28.9
Monounsaturates	
16:1(n-5)	0.2
16:1(n-7)	3.9
16:1(n-9)	0.3
17:1(n-8)	0.9
18:1(n-7)	3.4
18:1(n-9)	28.5
20:1(n-7)	0.3
20:1(n-9+n-11)	8.1
22:1	2.3
24:1	0.8
Total	49.0
Polyunsaturates	
18:2(n-6)	1.1
18:3(n-3)	0.0
18:3(n-6)	0.0
18:4(n-3)	0.3
20:2(n-6)	0.3
20:3(n-6)	0.1
20:4(n-3)	1.3
20:4(n-6) AA	0.8
20:5(n-3) EPA	4.1
22:3(n-3)	0.0
22:4(n-6)	0.1
22:5(n-3)	1.4
22:5(n-6)	0.3
22:6(n-3) DHA	12.3
Total	22.1

moonfish *Lampris guttatus*

37 268001



Summary

Oil	1.4 %
	mg/100g (wet)
20:4(n-6) AA	18
20:5(n-3) EPA	51
22:6(n-3) DHA	223
(n-3)/(n-6)	7.1

Oil Content

Oil Class	mg/100g (wet)
Total oil	1352
Wax ester*	0
Triglyceride	944
Free fatty acid	13
Cholesterol	14
Polar oil	381

Fatty Acids

Total fatty acids	1124
Total saturates	334
Total monounsaturates	440
Total polyunsaturates	350
Total (n-3)	307
Total (n-6)	43

*includes hydrocarbon and steryl ester

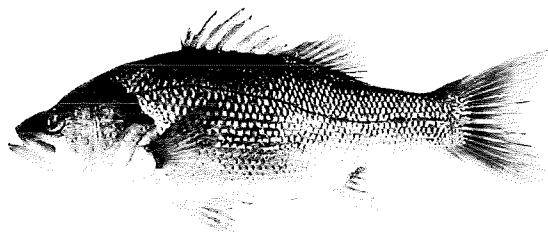
Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	1.6
15:0	0.5
16:0	20.9
17:0	0.8
18:0	6.9
20:0	0.2
22:0	0.1
24:0	0.1
Total	31.3
Monounsaturates	
16:1(n-5)	0.1
16:1(n-7)	3.1
16:1(n-9)	0.3
17:1(n-8)	0.5
18:1(n-7)	2.2
18:1(n-9)	18.1
20:1(n-7)	0.1
20:1(n-9+n-11)	4.3
22:1	1.5
24:1	1.5
Total	31.9
Polyunsaturates	
18:2(n-6)	0.9
18:3(n-3)	0.0
18:3(n-6)	0.0
18:4(n-3)	0.3
20:2(n-6)	0.3
20:3(n-6)	0.1
20:4(n-3)	0.8
20:4(n-6) AA	2.4
20:5(n-3) EPA	4.5
22:3(n-3)	0.0
22:4(n-6)	0.3
22:5(n-3)	1.5
22:5(n-6)	0.7
22:6(n-3) DHA	25.0
Total	36.8

Australian bass

Macquaria novemaculeata

37 311034



Summary

Oil	1.5 %
	mg/100g (wet)
20:4(n-6) AA	67
20:5(n-3) EPA	37
22:6(n-3) DHA	157
(n-3)/(n-6)	1.9

Oil Content

Oil Class	mg/100g (wet)
Total oil	1462
Wax ester*	0
Triglyceride	811
Free fatty acid	3
Cholesterol	27
Polar oil	621

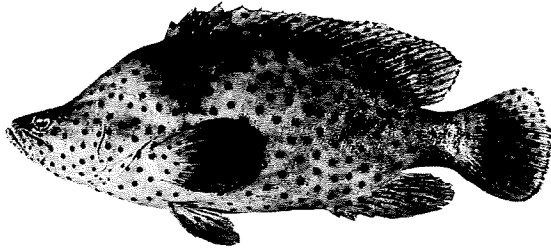
Fatty Acids

Total fatty acids	1120
Total saturates	354
Total monounsaturates	366
Total polyunsaturates	400
Total (n-3)	260
Total (n-6)	137

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	2.8
15:0	0.4
16:0	21.6
17:0	0.5
18:0	4.7
20:0	0.3
22:0	0.1
24:0	0.1
Total	31.5
Monounsaturates	
16:1(n-5)	0.3
16:1(n-7)	7.6
16:1(n-9)	0.6
17:1(n-8)	0.8
18:1(n-7)	3.4
18:1(n-9)	17.4
20:1(n-7)	0.2
20:1(n-9+n-11)	1.1
22:1	0.1
24:1	0.5
Total	32.5
Polyunsaturates	
18:2(n-6)	2.8
18:3(n-3)	0.0
18:3(n-6)	0.3
18:4(n-3)	1.3
20:2(n-6)	0.4
20:3(n-6)	0.4
20:4(n-3)	0.7
20:4(n-6) AA	6.4
20:5(n-3) EPA	3.3
22:3(n-3)	0.0
22:4(n-6)	1.0
22:5(n-3)	3.6
22:5(n-6)	1.6
22:6(n-3) DHA	14.0
Total	36.0

barramundi cod *Cromileptes altivelis***37 311044****Summary**

Oil	1.0 %
	mg/100g (wet)
20:4(n-6) AA	45
20:5(n-3) EPA	22
22:6(n-3) DHA	112
(n-3)/(n-6)	1.9

Oil Content

Oil Class	mg/100g (wet)
Total oil	994
Wax ester*	0
Triglyceride	447
Free fatty acid	5
Cholesterol	29
Polar oil	513

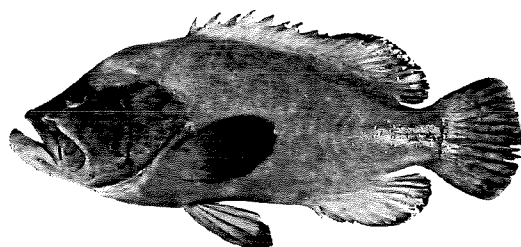
Fatty Acids

Total fatty acids	670
Total saturates	263
Total monounsaturates	154
Total polyunsaturates	253
Total (n-3)	165
Total (n-6)	88

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	2.9
15:0	0.7
16:0	22.8
17:0	1.1
18:0	9.1
20:0	0.3
22:0	0.2
24:0	0.2
Total	37.7
Monounsaturates	
16:1(n-5)	0.2
16:1(n-7)	4.4
16:1(n-9)	0.3
17:1(n-8)	0.5
18:1(n-7)	2.4
18:1(n-9)	11.7
20:1(n-7)	0.2
20:1(n-9+n-11)	1.1
22:1	0.2
24:1	0.8
Total	21.7
Polyunsaturates	
18:2(n-6)	1.7
18:3(n-3)	0.0
18:3(n-6)	0.4
18:4(n-3)	0.6
20:2(n-6)	0.3
20:3(n-6)	0.8
20:4(n-3)	0.8
20:4(n-6) AA	8.9
20:5(n-3) EPA	3.4
22:3(n-3)	0.1
22:4(n-6)	1.8
22:5(n-3)	3.4
22:5(n-6)	2.1
22:6(n-3) DHA	16.4
Total	40.7

coral cod *Cephalopholis sonnerati***37 311045****Summary**

Oil	0.6 %
	mg/100g (wet)
20:4(n-6) AA	23
20:5(n-3) EPA	11
22:6(n-3) DHA	101
(n-3)/(n-6)	2.6

Oil Content

Oil Class	mg/100g (wet)
Total oil	600
Wax ester*	0
Triglyceride	53
Free fatty acid	0
Cholesterol	19
Polar oil	528

Fatty Acids

Total fatty acids	370
Total saturates	139
Total monounsaturates	64
Total polyunsaturates	166
Total (n-3)	120
Total (n-6)	46

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	1.1
15:0	0.4
16:0	23.8
17:0	0.7
18:0	10.6
20:0	0.2
22:0	0.2
24:0	0.2
Total	37.5
Monounsaturates	
16:1(n-5)	0.0
16:1(n-7)	2.4
16:1(n-9)	0.1
17:1(n-8)	0.4
18:1(n-7)	1.9
18:1(n-9)	10.4
20:1(n-7)	0.1
20:1(n-9+n-11)	0.9
22:1	0.1
24:1	1.0
Total	17.4
Polyunsaturates	
18:2(n-6)	1.0
18:3(n-3)	0.0
18:3(n-6)	0.2
18:4(n-3)	0.2
20:2(n-6)	0.2
20:3(n-6)	0.3
20:4(n-3)	0.4
20:4(n-6) AA	6.2
20:5(n-3) EPA	3.0
22:3(n-3)	0.1
22:4(n-6)	1.1
22:5(n-3)	1.6
22:5(n-6)	3.4
22:6(n-3) DHA	27.4
Total	45.1

*includes hydrocarbon and steryl ester

Murray cod

Maccullochella peelii

37 311076



Summary

Oil 0.7 %

mg/100g (wet)

20:4(n-6) AA	23
20:5(n-3) EPA	31
22:6(n-3) DHA	112
(n-3)/(n-6)	3.1

Oil Content

Oil Class mg/100g (wet)

Total oil	704
Wax ester*	0
Triglyceride	92
Free fatty acid	18
Cholesterol	31
Polar oil	563

Fatty Acids

Total fatty acids	518
Total saturates	150
Total monounsaturates	140
Total polyunsaturates	228
Total (n-3)	172
Total (n-6)	55

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid Percent (%)

Saturates

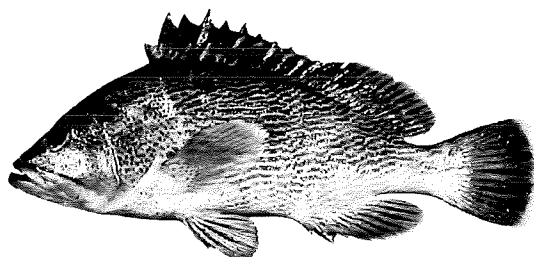
14:0	1.0
15:0	0.2
16:0	19.3
17:0	0.6
18:0	7.1
20:0	0.2
22:0	0.1
24:0	0.1
Total	29.0

Monounsaturates

16:1(n-5)	0.2
16:1(n-7)	4.3
16:1(n-9)	0.3
17:1(n-8)	0.4
18:1(n-7)	3.1
18:1(n-9)	14.6
20:1(n-7)	0.1
20:1(n-9+n-11)	1.5
22:1	0.4
24:1	0.6
Total	25.8

Polyunsaturates

18:2(n-6)	4.4
18:3(n-3)	0.0
18:3(n-6)	0.3
18:4(n-3)	0.9
20:2(n-6)	0.2
20:3(n-6)	0.3
20:4(n-3)	0.7
20:4(n-6) AA	5.2
20:5(n-3) EPA	6.1
22:3(n-3)	0.0
22:4(n-6)	0.5
22:5(n-3)	4.1
22:5(n-6)	0.7
22:6(n-3) DHA	21.8
Total	45.3

Maori rockcod*Epinephelus undulatostratus***37 311086****Summary**

Oil	0.6 %
	mg/100g (wet)
20:4(n-6) AA	19
20:5(n-3) EPA	10
22:6(n-3) DHA	98
(n-3)/(n-6)	3.0

Oil Content

Oil Class	mg/100g (wet)
Total oil	633
Wax ester*	0
Triglyceride	36
Free fatty acid	14
Cholesterol	30
Polar oil	553

Fatty Acids

Total fatty acids	360
Total saturates	124
Total monounsaturates	78
Total polyunsaturates	158
Total (n-3)	119
Total (n-6)	39

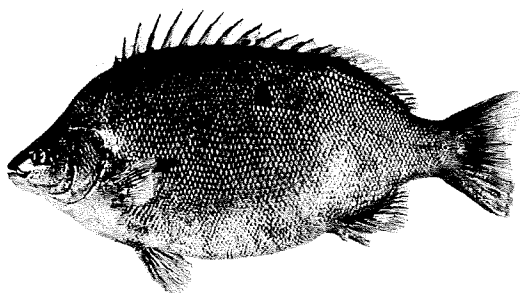
*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	0.7
15:0	0.3
16:0	22.5
17:0	0.7
18:0	9.6
20:0	0.2
22:0	0.1
24:0	0.3
Total	34.6
Monounsaturates	
16:1(n-5)	0.1
16:1(n-7)	3.4
16:1(n-9)	0.1
17:1(n-8)	0.4
18:1(n-7)	1.9
18:1(n-9)	13.1
20:1(n-7)	0.1
20:1(n-9+n-11)	0.8
22:1	0.1
24:1	1.6
Total	21.6
Polyunsaturates	
18:2(n-6)	1.0
18:3(n-3)	0.0
18:3(n-6)	0.1
18:4(n-3)	0.1
20:2(n-6)	0.3
20:3(n-6)	0.2
20:4(n-3)	0.4
20:4(n-6) AA	5.3
20:5(n-3) EPA	2.7
22:3(n-3)	0.0
22:4(n-6)	1.4
22:5(n-3)	2.3
22:5(n-6)	2.4
22:6(n-3) DHA	27.6
Total	43.9

striped perch[†] *Scortum barcoo***37 321025**

†cultured samples

**Summary****Oil** 16.3 %

mg/100g (wet)

20:4(n-6) AA 97

20:5(n-3) EPA 1190

22:6(n-3) DHA 1540

(n-3)/(n-6) 5.8

Oil Content**Oil Class** mg/100g (wet)**Total oil** 16329

Wax ester* 0

Triglyceride 16023

Free fatty acid 20

Cholesterol 37

Polar oil 250

Fatty Acids**Total fatty acids** 15785

Total saturates 5437

Total monounsaturates 5267

Total polyunsaturates 4938

Total (n-3) 3869

Total (n-6) 667

*includes hydrocarbon and steryl ester

Fatty Acid Composition**Fatty Acid** **Percent (%)****Saturates**

14:0 6.1

15:0 0.4

16:0 21.9

17:0 0.3

18:0 4.3

20:0 0.2

22:0 0.1

24:0 0.1

Total 34.5**Monounsaturates**

16:1(n-5) 0.1

16:1(n-7) 7.8

16:1(n-9) 0.3

17:1(n-8) 0.4

18:1(n-7) 2.8

18:1(n-9) 20.2

20:1(n-7) 0.2

20:1(n-9+n-11) 1.0

22:1 0.5

24:1 0.3

Total 33.7**Polyunsaturates**

18:2(n-6) 2.6

18:3(n-3) 0.0

18:3(n-6) 0.2

18:4(n-3) 2.2

20:2(n-6) 0.1

20:3(n-6) 0.2

20:4(n-3) 1.0

20:4(n-6) AA 0.6

20:5(n-3) EPA 7.4

22:3(n-3) 0.0

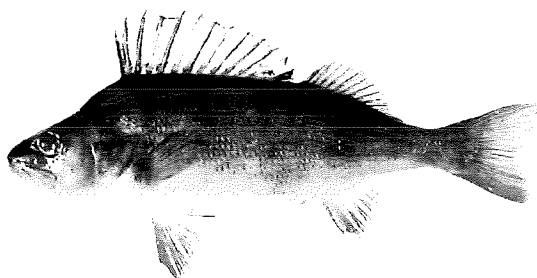
22:4(n-6) 0.2

22:5(n-3) 3.9

22:5(n-6) 0.2

22:6(n-3) DHA 9.7

Total 30.8

redfin *Perca fluviatilis***37 329001****Summary**

Oil	1.2 %
	mg/100g (wet)
20:4(n-6) AA	49
20:5(n-3) EPA	73
22:6(n-3) DHA	107
(n-3)/(n-6)	2.4

Oil Content

Oil Class	mg/100g (wet)
Total oil	1186
Wax ester*	30
Triglyceride	147
Free fatty acid	44
Cholesterol	65
Polar oil	900

Fatty Acids

Total fatty acids	661
Total saturates	195
Total monounsaturates	167
Total polyunsaturates	297
Total (n-3)	209
Total (n-6)	87

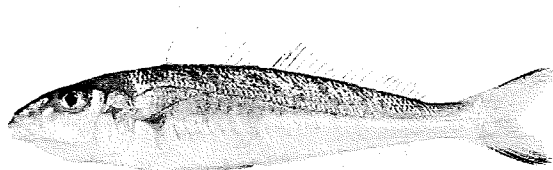
*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	0.8
15:0	0.6
16:0	20.3
17:0	0.9
18:0	6.0
20:0	0.2
22:0	0.2
24:0	0.1
Total	29.6
Monounsaturates	
16:1(n-5)	0.6
16:1(n-7)	7.0
16:1(n-9)	0.5
17:1(n-8)	1.1
18:1(n-7)	4.9
18:1(n-9)	9.3
20:1(n-7)	0.2
20:1(n-9+n-11)	0.5
22:1	0.4
24:1	0.5
Total	25.3
Polyunsaturates	
18:2(n-6)	2.5
18:3(n-3)	0.2
18:3(n-6)	0.4
18:4(n-3)	0.5
20:2(n-6)	0.2
20:3(n-6)	0.4
20:4(n-3)	0.3
20:4(n-6) AA	7.4
20:5(n-3) EPA	11.0
22:3(n-3)	0.0
22:4(n-6)	0.9
22:5(n-3)	3.4
22:5(n-6)	1.2
22:6(n-3) DHA	16.2
Total	45.0

school whiting *Sillago bassensis*

37 330002



Summary

Oil **0.7 %**

mg/100g (wet)

20:4(n-6) AA	53
20:5(n-3) EPA	43
22:6(n-3) DHA	115
(n-3)/(n-6)	2.1

Oil Content

Oil Class **mg/100g (wet)**

Total oil	698
Wax ester*	31
Triglyceride	12
Free fatty acid	34
Cholesterol	33
Polar oil	588

Fatty Acids

Total fatty acids	464
Total saturates	135
Total monounsaturates	66
Total polyunsaturates	262
Total (n-3)	179
Total (n-6)	84

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid **Percent (%)**

Saturates

14:0	0.8
15:0	0.6
16:0	17.4
17:0	1.0
18:0	7.9
20:0	0.2
22:0	0.2
24:0	0.2
Total	29.1

Monounsaturates

16:1(n-5)	0.3
16:1(n-7)	2.1
16:1(n-9)	0.2
17:1(n-8)	0.7
18:1(n-7)	2.1
18:1(n-9)	6.7
20:1(n-7)	0.3
20:1(n-9+n-11)	1.0
22:1	0.2
24:1	0.5
Total	14.3

Polyunsaturates

18:2(n-6)	1.0
18:3(n-3)	0.0
18:3(n-6)	0.1
18:4(n-3)	0.4
20:2(n-6)	0.5
20:3(n-6)	0.4
20:4(n-3)	0.5
20:4(n-6) AA	11.4
20:5(n-3) EPA	9.3
22:3(n-3)	0.2
22:4(n-6)	2.7
22:5(n-3)	3.4
22:5(n-6)	1.8
22:6(n-3) DHA	24.8
Total	56.6

black kingfish*Rachycentron canadum***37 335001****Summary**

Oil	0.7 %
	mg/100g (wet)
20:4(n-6) AA	48
20:5(n-3) EPA	16
22:6(n-3) DHA	83
(n-3)/(n-6)	1.5

Oil Content

Oil Class	mg/100g (wet)
Total oil	732
Wax ester*	0
Triglyceride	23
Free fatty acid	8
Cholesterol	21
Polar oil	680

Fatty Acids

Total fatty acids	399
Total saturates	131
Total monounsaturates	86
Total polyunsaturates	183
Total (n-3)	109
Total (n-6)	73

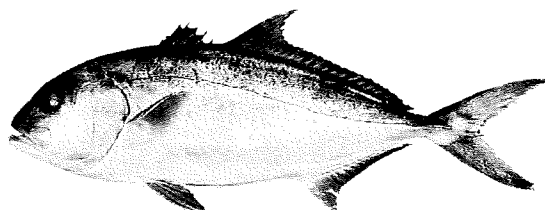
Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	0.6
15:0	0.4
16:0	17.3
17:0	0.9
18:0	12.6
20:0	0.2
22:0	0.2
24:0	0.2
Total	32.8
Monounsaturates	
16:1(n-5)	0.1
16:1(n-7)	2.7
16:1(n-9)	0.1
17:1(n-8)	0.6
18:1(n-7)	2.4
18:1(n-9)	12.7
20:1(n-7)	0.2
20:1(n-9+n-11)	1.0
22:1	0.9
24:1	0.7
Total	21.5
Polyunsaturates	
18:2(n-6)	0.8
18:3(n-3)	0.0
18:3(n-6)	0.1
18:4(n-3)	0.3
20:2(n-6)	0.3
20:3(n-6)	0.3
20:4(n-3)	0.2
20:4(n-6) AA	12.1
20:5(n-3) EPA	4.0
22:3(n-3)	0.2
22:4(n-6)	2.0
22:5(n-3)	2.0
22:5(n-6)	2.8
22:6(n-3) DHA	20.7
Total	45.8

*includes hydrocarbon and steryl ester

samson fish *Seriola hippos*

37 337007



Summary

Oil	1.4 %
	mg/100g (wet)
20:4(n-6) AA	19
20:5(n-3) EPA	31
22:6(n-3) DHA	207
(n-3)/(n-6)	5.7

Oil Content

Oil Class	mg/100g (wet)
Total oil	1418
Wax ester*	0
Triglyceride	522
Free fatty acid	10
Cholesterol	33
Polar oil	853

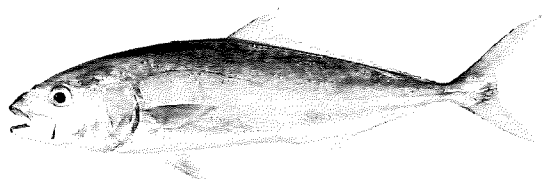
Fatty Acids

Total fatty acids	786
Total saturates	261
Total monounsaturates	211
Total polyunsaturates	314
Total (n-3)	267
Total (n-6)	47

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	1.0
15:0	0.4
16:0	19.8
17:0	0.9
18:0	9.6
20:0	0.3
22:0	0.2
24:0	0.1
Total	32.6
Monounsaturates	
16:1(n-5)	0.1
16:1(n-7)	2.7
16:1(n-9)	0.2
17:1(n-8)	0.4
18:1(n-7)	2.7
18:1(n-9)	12.6
20:1(n-7)	0.2
20:1(n-9+n-11)	0.7
22:1	0.7
24:1	0.9
Total	21.3
Polyunsaturates	
18:2(n-6)	1.0
18:3(n-3)	0.1
18:3(n-6)	0.0
18:4(n-3)	0.6
20:2(n-6)	0.3
20:3(n-6)	0.2
20:4(n-3)	0.4
20:4(n-6) AA	3.4
20:5(n-3) EPA	4.4
22:3(n-3)	0.0
22:4(n-6)	0.8
22:5(n-3)	2.6
22:5(n-6)	1.9
22:6(n-3) DHA	30.3
Total	46.1

samson fish *Seriola dumerili***37 337025****Summary****Oil** **0.9 %****mg/100g (wet)**

20:4(n-6) AA	26
20:5(n-3) EPA	20
22:6(n-3) DHA	139
(n-3)/(n-6)	3.2

Oil Content**Oil Class** **mg/100g (wet)**

Total oil	895
Wax ester*	0
Triglyceride	110
Free fatty acid	9
Cholesterol	32
Polar oil	744

Fatty Acids

Total fatty acids	486
Total saturates	186
Total monounsaturates	79
Total polyunsaturates	221
Total (n-3)	167
Total (n-6)	53

Fatty Acid Composition**Fatty Acid** **Percent (%)****Saturates**

14:0	0.9
15:0	0.5
16:0	25.4
17:0	0.9
18:0	10.8
20:0	0.2
22:0	0.2
24:0	0.2
Total	39.5

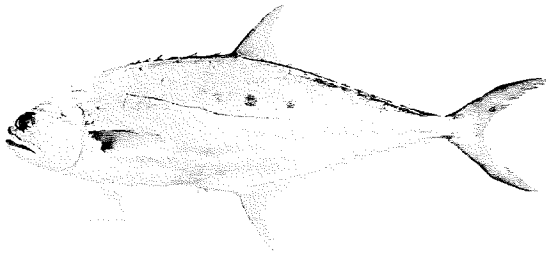
Monounsaturates

16:1(n-5)	0.1
16:1(n-7)	1.8
16:1(n-9)	0.2
17:1(n-8)	0.4
18:1(n-7)	2.4
18:1(n-9)	8.0
20:1(n-7)	0.1
20:1(n-9+n-11)	0.6
22:1	0.4
24:1	1.0
Total	15.1

Polyunsaturates

18:2(n-6)	0.8
18:3(n-3)	0.0
18:3(n-6)	0.2
18:4(n-3)	0.2
20:2(n-6)	0.2
20:3(n-6)	0.2
20:4(n-3)	0.3
20:4(n-6) AA	5.4
20:5(n-3) EPA	4.0
22:3(n-3)	0.0
22:4(n-6)	1.8
22:5(n-3)	1.6
22:5(n-6)	2.1
22:6(n-3) DHA	28.3
Total	45.3

*includes hydrocarbon and steryl ester

queenfish *Scomberoides commersonianus***37 337032****Summary**

Oil	0.6 %
	mg/100g (wet)
20:4(n-6) AA	29
20:5(n-3) EPA	11
22:6(n-3) DHA	120
(n-3)/(n-6)	2.7

Oil Content

Oil Class	mg/100g (wet)
Total oil	621
Wax ester*	0
Triglyceride	13
Free fatty acid	20
Cholesterol	25
Polar oil	563

Fatty Acids

Total fatty acids	362
Total saturates	122
Total monounsaturates	48
Total polyunsaturates	192
Total (n-3)	140
Total (n-6)	52

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	0.2
15:0	0.3
16:0	17.4
17:0	1.0
18:0	13.9
20:0	0.1
22:0	0.2
24:0	0.4
Total	33.8
Monounsaturates	
16:1(n-5)	0.1
16:1(n-7)	0.9
16:1(n-9)	0.0
17:1(n-8)	0.4
18:1(n-7)	2.1
18:1(n-9)	7.5
20:1(n-7)	0.1
20:1(n-9+n-11)	0.5
22:1	0.5
24:1	1.1
Total	13.2
Polyunsaturates	
18:2(n-6)	0.6
18:3(n-3)	0.0
18:3(n-6)	0.1
18:4(n-3)	0.2
20:2(n-6)	0.2
20:3(n-6)	0.3
20:4(n-3)	0.2
20:4(n-6) AA	7.9
20:5(n-3) EPA	3.1
22:3(n-3)	0.0
22:4(n-6)	1.5
22:5(n-3)	2.1
22:5(n-6)	3.7
22:6(n-3) DHA	33.2
Total	53.0

turrum *Carangoides fulvoguttatus***37 337037****Summary**

Oil	0.9 %
	mg/100g (wet)
20:4(n-6) AA	27
20:5(n-3) EPA	15
22:6(n-3) DHA	149
(n-3)/(n-6)	3.3

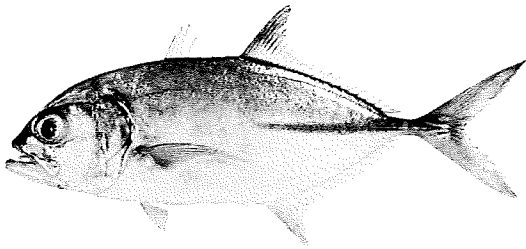
Oil Content

Oil Class	mg/100g (wet)
Total oil	947
Wax ester*	0
Triglyceride	67
Free fatty acid	7
Cholesterol	38
Polar oil	835
Fatty Acids	
Total fatty acids	473
Total saturates	171
Total monounsaturates	75
Total polyunsaturates	226
Total (n-3)	174
Total (n-6)	52

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	0.5
15:0	0.4
16:0	21.6
17:0	0.9
18:0	11.7
20:0	0.2
22:0	0.2
24:0	0.4
Total	36.2
Monounsaturates	
16:1(n-5)	0.1
16:1(n-7)	1.6
16:1(n-9)	0.1
17:1(n-8)	0.4
18:1(n-7)	2.3
18:1(n-9)	9.1
20:1(n-7)	0.1
20:1(n-9+n-11)	0.4
22:1	0.5
24:1	1.1
Total	15.6
Polyunsaturates	
18:2(n-6)	0.7
18:3(n-3)	0.0
18:3(n-6)	0.2
18:4(n-3)	0.2
20:2(n-6)	0.2
20:3(n-6)	0.3
20:4(n-3)	0.2
20:4(n-6) AA	5.7
20:5(n-3) EPA	3.1
22:3(n-3)	0.0
22:4(n-6)	1.1
22:5(n-3)	1.7
22:5(n-6)	2.7
22:6(n-3) DHA	32.0
Total	48.2

bigeye trevally *Caranx sexfasciatus***37 337039****Summary**

Oil	4.7 %
	mg/100g (wet)
20:4(n-6) AA	119
20:5(n-3) EPA	185
22:6(n-3) DHA	375
(n-3)/(n-6)	2.5

Oil Content

Oil Class	mg/100g (wet)
Total oil	4748
Wax ester*	0
Triglyceride	3844
Free fatty acid	14
Cholesterol	32
Polar oil	858

Fatty Acids

Total fatty acids	3758
Total saturates	1483
Total monounsaturates	1275
Total polyunsaturates	1000
Total (n-3)	709
Total (n-6)	282

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	1.0
15:0	0.4
16:0	22.7
17:0	1.1
18:0	11.2
20:0	0.4
22:0	0.4
24:0	0.3
Total	38.2
Monounsaturates	
16:1(n-5)	0.1
16:1(n-7)	3.8
16:1(n-9)	0.2
17:1(n-8)	0.6
18:1(n-7)	3.1
18:1(n-9)	18.2
20:1(n-7)	0.2
20:1(n-9+n-11)	0.8
22:1	0.4
24:1	0.6
Total	28.2
Polyunsaturates	
18:2(n-6)	1.5
18:3(n-3)	0.0
18:3(n-6)	0.1
18:4(n-3)	0.6
20:2(n-6)	0.3
20:3(n-6)	0.3
20:4(n-3)	0.5
20:4(n-6) AA	4.7
20:5(n-3) EPA	4.4
22:3(n-3)	0.2
22:4(n-6)	1.0
22:5(n-3)	2.4
22:5(n-6)	1.7
22:6(n-3) DHA	15.8
Total	33.7

dart *Trachinotus botla***37 337066****Summary****Oil** 1.2 %

mg/100g (wet)

20:4(n-6) AA	21
20:5(n-3) EPA	22
22:6(n-3) DHA	151
(n-3)/(n-6)	3.9

Oil Content**Oil Class** mg/100g (wet)

Total oil	1196
Wax ester*	0
Triglyceride	388
Free fatty acid	18
Cholesterol	34
Polar oil	756

Fatty Acids

Total fatty acids	641
Total saturates	247
Total monounsaturates	139
Total polyunsaturates	255
Total (n-3)	202
Total (n-6)	52

*includes hydrocarbon and steryl ester

Fatty Acid Composition**Fatty Acid** **Percent (%)****Saturates**

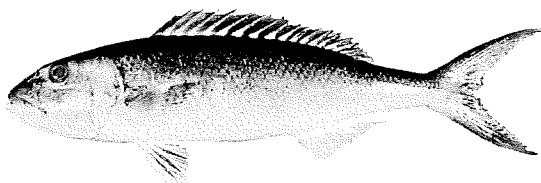
14:0	1.8
15:0	0.6
16:0	21.9
17:0	1.1
18:0	10.8
20:0	0.4
22:0	0.4
24:0	0.3
Total	38.1

Monounsaturates

16:1(n-5)	0.1
16:1(n-7)	2.9
16:1(n-9)	0.2
17:1(n-8)	0.5
18:1(n-7)	2.1
18:1(n-9)	12.2
20:1(n-7)	0.2
20:1(n-9+n-11)	1.0
22:1	0.5
24:1	0.9
Total	20.5

Polyunsaturates

18:2(n-6)	1.6
18:3(n-3)	0.0
18:3(n-6)	0.2
18:4(n-3)	0.7
20:2(n-6)	0.6
20:3(n-6)	0.2
20:4(n-3)	0.5
20:4(n-6) AA	3.5
20:5(n-3) EPA	3.4
22:3(n-3)	0.1
22:4(n-6)	0.7
22:5(n-3)	3.1
22:5(n-6)	1.7
22:6(n-3) DHA	25.1
Total	41.3

green jobfish *Aprion virescens***37 346027****Summary**

Oil	0.4 %
	mg/100g (wet)
20:4(n-6) AA	33
20:5(n-3) EPA	5
22:6(n-3) DHA	88
(n-3)/(n-6)	1.5

Oil Content

Oil Class	mg/100g (wet)
Total oil	432
Wax ester*	0
Triglyceride	3
Free fatty acid	65
Cholesterol	22
Polar oil	342

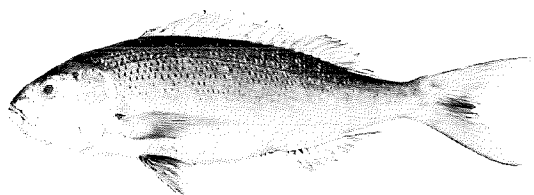
Fatty Acids

Total fatty acids	303
Total saturates	80
Total monounsaturates	55
Total polyunsaturates	167
Total (n-3)	99
Total (n-6)	68

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	0.2
15:0	0.3
16:0	13.3
17:0	0.7
18:0	10.0
20:0	0.2
22:0	0.2
24:0	0.6
Total	26.6
Monounsaturates	
16:1(n-5)	0.0
16:1(n-7)	3.1
16:1(n-9)	0.0
17:1(n-8)	0.4
18:1(n-7)	2.5
18:1(n-9)	9.3
20:1(n-7)	0.1
20:1(n-9+n-11)	0.4
22:1	0.1
24:1	2.2
Total	18.2
Polyunsaturates	
18:2(n-6)	1.2
18:3(n-3)	0.0
18:3(n-6)	0.6
18:4(n-3)	0.1
20:2(n-6)	0.5
20:3(n-6)	0.4
20:4(n-3)	0.2
20:4(n-6) AA	10.7
20:5(n-3) EPA	1.7
22:3(n-3)	0.0
22:4(n-6)	2.3
22:5(n-3)	1.6
22:5(n-6)	6.7
22:6(n-3) DHA	29.2
Total	55.2

king snapper*Pristipomoides filamentosus***37 346032****Summary**

Oil	0.5 %
	mg/100g (wet)
20:4(n-6) AA	14
20:5(n-3) EPA	5
22:6(n-3) DHA	72
(n-3)/(n-6)	2.0

Oil Content

Oil Class	mg/100g (wet)
Total oil	509
Wax ester*	0
Triglyceride	5
Free fatty acid	36
Cholesterol	21
Polar oil	446

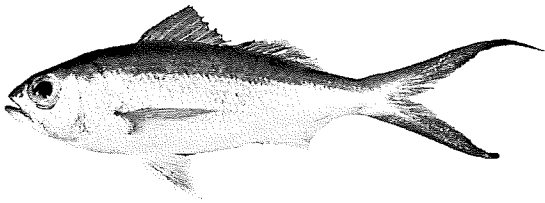
Fatty Acids

Total fatty acids	253
Total saturates	99
Total monounsaturates	32
Total polyunsaturates	120
Total (n-3)	82
Total (n-6)	38

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	0.5
15:0	0.6
16:0	25.5
17:0	0.9
18:0	10.5
20:0	0.4
22:0	0.2
24:0	0.2
Total	39.1
Monounsaturates	
16:1(n-5)	0.1
16:1(n-7)	0.8
16:1(n-9)	0.1
17:1(n-8)	0.3
18:1(n-7)	1.3
18:1(n-9)	7.3
20:1(n-7)	0.1
20:1(n-9+n-11)	0.6
22:1	0.5
24:1	1.6
Total	12.7
Polyunsaturates	
18:2(n-6)	1.2
18:3(n-3)	0.0
18:3(n-6)	0.2
18:4(n-3)	0.1
20:2(n-6)	0.4
20:3(n-6)	0.3
20:4(n-3)	0.2
20:4(n-6) AA	5.7
20:5(n-3) EPA	1.9
22:3(n-3)	0.0
22:4(n-6)	1.3
22:5(n-3)	1.8
22:5(n-6)	6.0
22:6(n-3) DHA	28.9
Total	48.1

ruby snapper *Etelis coruscans***37 346038****Summary**

Oil	0.6 %
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	mg/100g (wet)
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20:4(n-6) AA	21
20:5(n-3) EPA	15
22:6(n-3) DHA	155
(n-3)/(n-6)	4.9

Oil Content

Oil Class	mg/100g (wet)
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Total oil	557
Wax ester*	1
Triglyceride	1
Free fatty acid	59
Cholesterol	22
Polar oil	474

Fatty Acids

Total fatty acids	384
Total saturates	129
Total monounsaturates	44
Total polyunsaturates	211
Total (n-3)	175
Total (n-6)	36

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
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Saturates

14:0	0.3
15:0	0.3
16:0	21.6
17:0	0.8
18:0	8.4
20:0	0.2
22:0	0.1
24:0	0.1

Total	31.8
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Monounsaturates

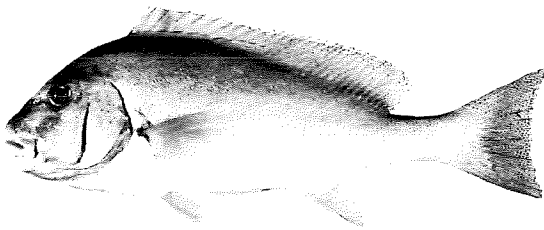
16:1(n-5)	0.1
16:1(n-7)	0.8
16:1(n-9)	0.0
17:1(n-8)	0.3
18:1(n-7)	1.7
18:1(n-9)	5.5
20:1(n-7)	0.1
20:1(n-9+n-11)	1.3
22:1	0.2
24:1	0.9

Total	10.8
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Polyunsaturates

18:2(n-6)	0.5
18:3(n-3)	0.0
18:3(n-6)	0.1
18:4(n-3)	0.1
20:2(n-6)	0.3
20:3(n-6)	0.1
20:4(n-3)	0.1
20:4(n-6) AA	5.2
20:5(n-3) EPA	3.6
22:3(n-3)	0.0
22:4(n-6)	0.4
22:5(n-3)	1.2
22:5(n-6)	2.2
22:6(n-3) DHA	38.3

Total	52.2
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sweetlip bream*Diagramma labiosum***37 350003****Summary**

Oil	0.7 %
	mg/100g (wet)
20:4(n-6) AA	30
20:5(n-3) EPA	15
22:6(n-3) DHA	133
(n-3)/(n-6)	2.5

Oil Content

Oil Class	mg/100g (wet)
Total oil	701
Wax ester*	0
Triglyceride	2
Free fatty acid	19
Cholesterol	37
Polar oil	644

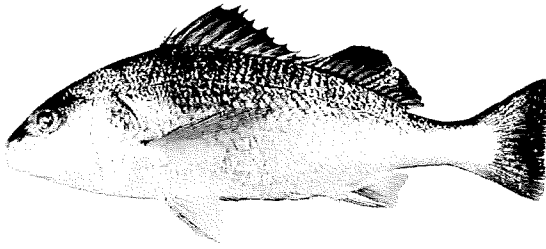
Fatty Acids

Total fatty acids	391
Total saturates	112
Total monounsaturates	56
Total polyunsaturates	223
Total (n-3)	160
Total (n-6)	63

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	0.4
15:0	0.4
16:0	14.1
17:0	1.0
18:0	11.0
20:0	0.2
22:0	0.3
24:0	0.7
Total	28.6
Monounsaturates	
16:1(n-5)	0.1
16:1(n-7)	1.3
16:1(n-9)	0.1
17:1(n-8)	0.5
18:1(n-7)	2.0
18:1(n-9)	8.0
20:1(n-7)	0.1
20:1(n-9+n-11)	0.4
22:1	0.2
24:1	1.6
Total	14.3
Polyunsaturates	
18:2(n-6)	1.2
18:3(n-3)	0.0
18:3(n-6)	0.4
18:4(n-3)	0.2
20:2(n-6)	0.4
20:3(n-6)	0.4
20:4(n-3)	0.2
20:4(n-6) AA	7.8
20:5(n-3) EPA	3.9
22:3(n-3)	0.0
22:4(n-6)	2.4
22:5(n-3)	2.8
22:5(n-6)	3.7
22:6(n-3) DHA	33.9
Total	57.2

grunter bream *Pomadasys kaakan***37 350011****Summary**

Oil	0.8 %
	mg/100g (wet)
20:4(n-6) AA	40
20:5(n-3) EPA	21
22:6(n-3) DHA	123
(n-3)/(n-6)	2.2

Oil Content

Oil Class	mg/100g (wet)
Total oil	790
Wax ester*	0
Triglyceride	175
Free fatty acid	4
Cholesterol	24
Polar oil	587

Fatty Acids

Total fatty acids	548
Total saturates	187
Total monounsaturates	118
Total polyunsaturates	242
Total (n-3)	166
Total (n-6)	76

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	1.0
15:0	0.4
16:0	19.4
17:0	0.9
18:0	10.7
20:0	0.3
22:0	0.2
24:0	0.2
Total	33.4
Monounsaturates	
16:1(n-5)	0.1
16:1(n-7)	2.7
16:1(n-9)	0.1
17:1(n-8)	0.5
18:1(n-7)	2.2
18:1(n-9)	12.9
20:1(n-7)	0.1
20:1(n-9+n-11)	0.8
22:1	0.2
24:1	0.5
Total	20.3
Polyunsaturates	
18:2(n-6)	1.1
18:3(n-3)	0.0
18:3(n-6)	0.3
18:4(n-3)	0.3
20:2(n-6)	0.3
20:3(n-6)	0.4
20:4(n-3)	0.5
20:4(n-6) AA	7.8
20:5(n-3) EPA	4.0
22:3(n-3)	0.1
22:4(n-6)	1.9
22:5(n-3)	3.1
22:5(n-6)	2.8
22:6(n-3) DHA	23.6
Total	46.3

mulloway *Argyrosomus hololepidotus***37 354001****Summary****Oil** **0.6 %****mg/100g (wet)**

20:4(n-6) AA	29
20:5(n-3) EPA	17
22:6(n-3) DHA	72
(n-3)/(n-6)	2.5

Oil Content**Oil Class** **mg/100g (wet)**

Total oil	635
Wax ester*	0
Triglyceride	96
Free fatty acid	16
Cholesterol	22
Polar oil	501

Fatty Acids

Total fatty acids	315
Total saturates	98
Total monounsaturates	69
Total polyunsaturates	148
Total (n-3)	105
Total (n-6)	42

*includes hydrocarbon and steryl ester

Fatty Acid Composition**Fatty Acid** **Percent (%)****Saturates**

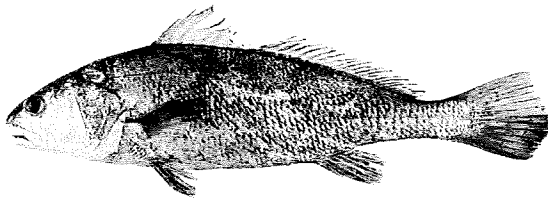
14:0	0.5
15:0	0.3
16:0	18.8
17:0	0.5
18:0	10.3
20:0	0.2
22:0	0.1
24:0	0.1
Total	30.8

Monounsaturates

16:1(n-5)	0.2
16:1(n-7)	2.5
16:1(n-9)	0.2
17:1(n-8)	0.4
18:1(n-7)	2.3
18:1(n-9)	11.6
20:1(n-7)	0.1
20:1(n-9+n-11)	1.4
22:1	0.5
24:1	1.8
Total	21.1

Polyunsaturates

18:2(n-6)	0.0
18:3(n-3)	1.4
18:3(n-6)	0.2
18:4(n-3)	0.3
20:2(n-6)	0.4
20:3(n-6)	0.3
20:4(n-3)	0.4
20:4(n-6) AA	9.9
20:5(n-3) EPA	5.5
22:3(n-3)	0.0
22:4(n-6)	1.6
22:5(n-3)	2.9
22:5(n-6)	1.8
22:6(n-3) DHA	23.3
Total	48.1

black jewfish *Protonibea diacanthus***37 354003****Summary**

Oil	0.6 %
	mg/100g (wet)
20:4(n-6) AA	26
20:5(n-3) EPA	9
22:6(n-3) DHA	44
(n-3)/(n-6)	1.5

Oil Content

Oil Class	mg/100g (wet)
Total oil	588
Wax ester*	0
Triglyceride	2
Free fatty acid	10
Cholesterol	33
Polar oil	543

Fatty Acids

Total fatty acids	206
Total saturates	67
Total monounsaturates	42
Total polyunsaturates	97
Total (n-3)	58
Total (n-6)	38

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	1.5
15:0	0.3
16:0	17.4
17:0	0.7
18:0	11.9
20:0	0.1
22:0	0.2
24:0	0.2
Total	32.6
Monounsaturates	
16:1(n-5)	0.1
16:1(n-7)	1.6
16:1(n-9)	0.1
17:1(n-8)	0.5
18:1(n-7)	2.0
18:1(n-9)	11.0
20:1(n-7)	0.1
20:1(n-9+n-11)	1.0
22:1	1.5
24:1	2.5
Total	20.4
Polyunsaturates	
18:2(n-6)	0.3
18:3(n-3)	0.3
18:3(n-6)	0.1
18:4(n-3)	0.1
20:2(n-6)	0.3
20:3(n-6)	0.2
20:4(n-3)	0.2
20:4(n-6) AA	12.7
20:5(n-3) EPA	4.2
22:3(n-3)	0.0
22:4(n-6)	2.1
22:5(n-3)	2.2
22:5(n-6)	2.9
22:6(n-3) DHA	21.3
Total	47.0

boarfish *Pentaceropsis recurvirostris***37 367003****Summary**

Oil	0.8 %
	mg/100g (wet)
20:4(n-6) AA	52
20:5(n-3) EPA	61
22:6(n-3) DHA	107
(n-3)/(n-6)	2.8

Oil Content

Oil Class	mg/100g (wet)
Total oil	827
Wax ester*	0
Triglyceride	133
Free fatty acid	35
Cholesterol	29
Polar oil	631

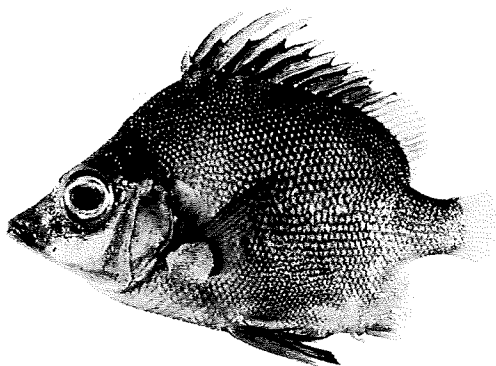
Fatty Acids

Total fatty acids	569
Total saturates	178
Total monounsaturates	136
Total polyunsaturates	255
Total (n-3)	188
Total (n-6)	67

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	1.5
15:0	0.3
16:0	17.7
17:0	0.7
18:0	10.2
20:0	0.2
22:0	0.1
24:0	0.2
Total	31.3
Monounsaturates	
16:1(n-5)	0.1
16:1(n-7)	2.6
16:1(n-9)	0.1
17:1(n-8)	0.4
18:1(n-7)	2.4
18:1(n-9)	12.1
20:1(n-7)	0.1
20:1(n-9+n-11)	2.4
22:1	1.1
24:1	1.1
Total	22.6
Polyunsaturates	
18:2(n-6)	0.5
18:3(n-3)	0.0
18:3(n-6)	0.2
18:4(n-3)	0.4
20:2(n-6)	0.4
20:3(n-6)	0.2
20:4(n-3)	0.4
20:4(n-6) AA	9.2
20:5(n-3) EPA	10.7
22:3(n-3)	0.1
22:4(n-6)	0.7
22:5(n-3)	2.9
22:5(n-6)	0.6
22:6(n-3) DHA	19.7
Total	46.1

bigspine boarfish *Pentaceros decacanthus***37 367004****Summary**

Oil	1.5 %
	mg/100g (wet)
20:4(n-6) AA	58
20:5(n-3) EPA	63
22:6(n-3) DHA	269
(n-3)/(n-6)	3.8

Oil Content

Oil Class	mg/100g (wet)
Total oil	1485
Wax ester*	0
Triglyceride	475
Free fatty acid	232
Cholesterol	41
Polar oil	737

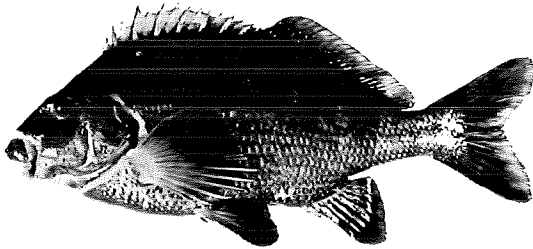
Fatty Acids

Total fatty acids	997
Total saturates	306
Total monounsaturates	245
Total polyunsaturates	447
Total (n-3)	354
Total (n-6)	92

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	2.6
15:0	0.8
16:0	19.9
17:0	0.9
18:0	5.9
20:0	0.2
22:0	0.0
24:0	0.0
Total	30.7
Monounsaturates	
16:1(n-5)	0.2
16:1(n-7)	2.3
16:1(n-9)	0.3
17:1(n-8)	0.7
18:1(n-7)	2.6
18:1(n-9)	12.3
20:1(n-7)	0.6
20:1(n-9+n-11)	2.4
22:1	1.7
24:1	0.8
Total	24.1
Polyunsaturates	
18:2(n-6)	0.9
18:3(n-3)	0.0
18:3(n-6)	0.1
18:4(n-3)	0.7
20:2(n-6)	0.3
20:3(n-6)	0.1
20:4(n-3)	0.3
20:4(n-6) AA	5.9
20:5(n-3) EPA	6.3
22:3(n-3)	0.0
22:4(n-6)	0.4
22:5(n-3)	1.3
22:5(n-6)	1.7
22:6(n-3) DHA	27.1
Total	45.2

banded morwong*Cheilodactylus spectabilis***37 377006****Summary**

Oil	3.2 %
	mg/100g (wet)
20:4(n-6) AA	184
20:5(n-3) EPA	298
22:6(n-3) DHA	296
(n-3)/(n-6)	2.3

Oil Content

Oil Class	mg/100g (wet)
Total oil	3169
Wax ester*	0
Triglyceride	2767
Free fatty acid	197
Cholesterol	30
Polar oil	176

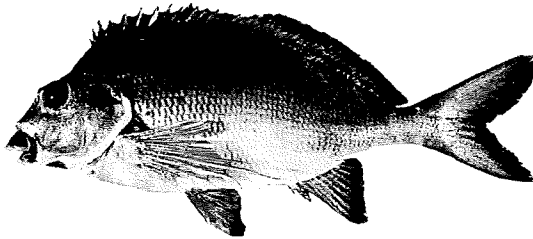
Fatty Acids

Total fatty acids	3287
Total saturates	889
Total monounsaturates	1215
Total polyunsaturates	1182
Total (n-3)	820
Total (n-6)	360

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	2.1
15:0	0.4
16:0	14.7
17:0	0.8
18:0	7.4
20:0	0.4
22:0	0.2
24:0	0.3
Total	27.1
Monounsaturates	
16:1(n-5)	0.1
16:1(n-7)	3.6
16:1(n-9)	0.4
17:1(n-8)	0.5
18:1(n-7)	3.9
18:1(n-9)	23.0
20:1(n-7)	0.6
20:1(n-9+n-11)	3.4
22:1	0.8
24:1	0.6
Total	37.0
Polyunsaturates	
18:2(n-6)	1.3
18:3(n-3)	0.0
18:3(n-6)	0.4
18:4(n-3)	0.4
20:2(n-6)	0.7
20:3(n-6)	0.5
20:4(n-3)	1.1
20:4(n-6) AA	5.9
20:5(n-3) EPA	8.5
22:3(n-3)	0.6
22:4(n-6)	2.0
22:5(n-3)	5.1
22:5(n-6)	0.5
22:6(n-3) DHA	8.9
Total	36.0

red morwong*Cheilodactylus fuscus***37 377009****Summary**

Oil	0.5 %
	mg/100g (wet)
20:4(n-6) AA	43
20:5(n-3) EPA	68
22:6(n-3) DHA	44
(n-3)/(n-6)	1.9

Oil Content

Oil Class	mg/100g (wet)
Total oil	470
Wax ester*	0
Triglyceride	29
Free fatty acid	250
Cholesterol	45
Polar oil	145

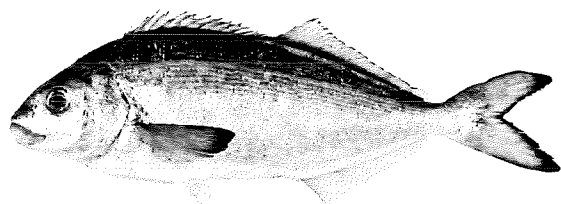
Fatty Acids

Total fatty acids	418
Total saturates	111
Total monounsaturates	121
Total polyunsaturates	186
Total (n-3)	123
Total (n-6)	63

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	1.7
15:0	1.0
16:0	12.0
17:0	1.3
18:0	7.9
20:0	1.2
22:0	0.6
24:0	0.0
Total	26.5
Monounsaturates	
16:1(n-5)	0.3
16:1(n-7)	5.9
16:1(n-9)	0.2
17:1(n-8)	1.4
18:1(n-7)	3.7
18:1(n-9)	14.5
20:1(n-7)	0.3
20:1(n-9+n-11)	2.1
22:1	0.3
24:1	0.0
Total	29.0
Polyunsaturates	
18:2(n-6)	1.7
18:3(n-3)	0.0
18:3(n-6)	0.6
18:4(n-3)	0.3
20:2(n-6)	0.6
20:3(n-6)	0.9
20:4(n-3)	0.5
20:4(n-6) AA	10.4
20:5(n-3) EPA	16.2
22:3(n-3)	0.0
22:4(n-6)	0.6
22:5(n-3)	1.8
22:5(n-6)	0.4
22:6(n-3) DHA	10.6
Total	44.5

trumpeter *Latridopsis forsteri***37 378002****Summary**

Oil	2.6 %
	mg/100g (wet)
20:4(n-6) AA	47
20:5(n-3) EPA	79
22:6(n-3) DHA	100
(n-3)/(n-6)	2.4

Oil Content

Oil Class	mg/100g (wet)
Total oil	2610
Wax ester*	0
Triglyceride	1670
Free fatty acid	238
Cholesterol	50
Polar oil	652

Fatty Acids

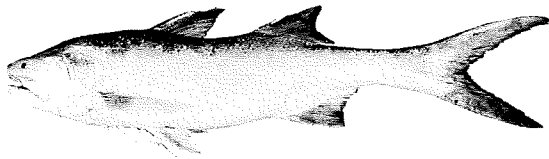
Total fatty acids	1542
Total saturates	560
Total monounsaturates	629
Total polyunsaturates	353
Total (n-3)	247
Total (n-6)	103

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	3.0
15:0	0.5
16:0	24.3
17:0	1.0
18:0	7.4
20:0	0.3
22:0	0.2
24:0	0.1
Total	37.7
Monounsaturates	
16:1(n-5)	0.2
16:1(n-7)	4.1
16:1(n-9)	0.6
17:1(n-8)	0.7
18:1(n-7)	4.0
18:1(n-9)	22.2
20:1(n-7)	0.5
20:1(n-9+n-11)	2.7
22:1	0.8
24:1	0.7
Total	36.8
Polyunsaturates	
18:2(n-6)	1.5
18:3(n-3)	0.3
18:3(n-6)	0.3
18:4(n-3)	0.5
20:2(n-6)	0.5
20:3(n-6)	0.3
20:4(n-3)	0.9
20:4(n-6) AA	3.8
20:5(n-3) EPA	4.8
22:3(n-3)	0.1
22:4(n-6)	0.7
22:5(n-3)	2.2
22:5(n-6)	0.5
22:6(n-3) DHA	8.9
Total	25.5

king threadfin *Polydactylus macrochir*

37 383005


Summary

Oil 0.6 %
mg/100g (wet)

20:4(n-6) AA	34
20:5(n-3) EPA	16
22:6(n-3) DHA	62
(n-3)/(n-6)	1.7

Oil Content

Oil Class mg/100g (wet)

Total oil	562
Wax ester*	0
Triglyceride	64
Free fatty acid	14
Cholesterol	34
Polar oil	450

Fatty Acids

Total fatty acids	350
Total saturates	128
Total monounsaturates	63
Total polyunsaturates	153
Total (n-3)	96
Total (n-6)	57

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid Percent (%)

Saturates

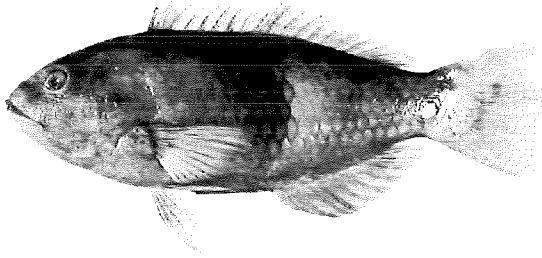
14:0	0.7
15:0	0.6
16:0	19.6
17:0	1.3
18:0	12.6
20:0	0.3
22:0	0.3
24:0	0.2
Total	37.7

Monounsaturates

16:1(n-5)	0.1
16:1(n-7)	2.7
16:1(n-9)	0.2
17:1(n-8)	0.9
18:1(n-7)	3.1
18:1(n-9)	7.3
20:1(n-7)	0.1
20:1(n-9+n-11)	0.9
22:1	0.1
24:1	0.7
Total	16.1

Polyunsaturates

18:2(n-6)	2.2
18:3(n-3)	3.2
18:3(n-6)	0.3
18:4(n-3)	0.2
20:2(n-6)	0.5
20:3(n-6)	0.4
20:4(n-3)	0.3
20:4(n-6) AA	9.7
20:5(n-3) EPA	4.7
22:3(n-3)	0.0
22:4(n-6)	1.2
22:5(n-3)	2.1
22:5(n-6)	1.9
22:6(n-3) DHA	19.3
Total	46.2

wrasse *Notolabrus tetricus***37 384003****Summary**

Oil	0.4 %
	mg/100g (wet)
20:4(n-6) AA	22
20:5(n-3) EPA	20
22:6(n-3) DHA	56
(n-3)/(n-6)	2.3

Oil Content

Oil Class	mg/100g (wet)
Total oil	392
Wax ester*	4
Triglyceride	39
Free fatty acid	143
Cholesterol	71
Polar oil	135

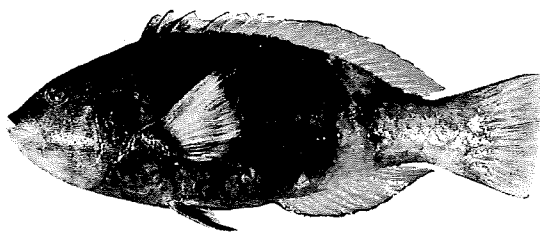
Fatty Acids

Total fatty acids	285
Total saturates	94
Total monounsaturates	69
Total polyunsaturates	122
Total (n-3)	85
Total (n-6)	37

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	0.5
15:0	0.3
16:0	17.6
17:0	1.1
18:0	11.9
20:0	0.5
22:0	0.4
24:0	0.4
Total	33.4
Monounsaturates	
16:1(n-5)	0.1
16:1(n-7)	2.9
16:1(n-9)	0.2
17:1(n-8)	0.6
18:1(n-7)	3.5
18:1(n-9)	19.9
20:1(n-7)	0.2
20:1(n-9+n-11)	0.9
22:1	0.3
24:1	0.9
Total	29.7
Polyunsaturates	
18:2(n-6)	5.8
18:3(n-3)	0.0
18:3(n-6)	0.2
18:4(n-3)	0.2
20:2(n-6)	0.5
20:3(n-6)	0.3
20:4(n-3)	0.2
20:4(n-6) AA	8.3
20:5(n-3) EPA	6.0
22:3(n-3)	0.0
22:4(n-6)	0.6
22:5(n-3)	1.6
22:5(n-6)	1.1
22:6(n-3) DHA	12.0
Total	36.9

wrasse *Notolabrus gymnogenis***37 384041****Summary**

Oil	0.6 %
	mg/100g (wet)
20:4(n-6) AA	29
20:5(n-3) EPA	35
22:6(n-3) DHA	141
(n-3)/(n-6)	3.9

Oil Content

Oil Class	mg/100g (wet)
Total oil	623
Wax ester*	0
Triglyceride	64
Free fatty acid	49
Cholesterol	23
Polar oil	487

Fatty Acids

Total fatty acids	452
Total saturates	130
Total monounsaturates	76
Total polyunsaturates	246
Total (n-3)	196
Total (n-6)	50

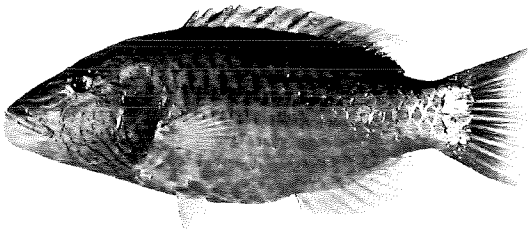
*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	1.1
15:0	0.4
16:0	17.9
17:0	0.7
18:0	7.3
20:0	0.2
22:0	0.1
24:0	0.2
Total	28.4
Monounsaturates	
16:1(n-5)	0.1
16:1(n-7)	1.7
16:1(n-9)	0.2
17:1(n-8)	0.3
18:1(n-7)	2.2
18:1(n-9)	8.5
20:1(n-7)	0.2
20:1(n-9+n-11)	1.1
22:1	0.2
24:1	1.4
Total	15.8
Polyunsaturates	
18:2(n-6)	1.1
18:3(n-3)	0.0
18:3(n-6)	0.3
18:4(n-3)	0.1
20:2(n-6)	0.3
20:3(n-6)	0.3
20:4(n-3)	0.3
20:4(n-6) AA	6.7
20:5(n-3) EPA	7.8
22:3(n-3)	0.4
22:4(n-6)	1.4
22:5(n-3)	3.6
22:5(n-6)	1.1
22:6(n-3) DHA	32.6
Total	55.9

Maori wrasse *Oxycheilinus digramma*

37 384065



Summary

Oil **0.3 %**

mg/100g (wet)

20:4(n-6) AA	24
20:5(n-3) EPA	11
22:6(n-3) DHA	93
(n-3)/(n-6)	2.5

Oil Content

Oil Class **mg/100g (wet)**

Total oil	324
Wax ester*	0
Triglyceride	0
Free fatty acid	100
Cholesterol	20
Polar oil	204

Fatty Acids

Total fatty acids	277
Total saturates	81
Total monounsaturates	41
Total polyunsaturates	156
Total (n-3)	112
Total (n-6)	44

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid **Percent (%)**

Saturates

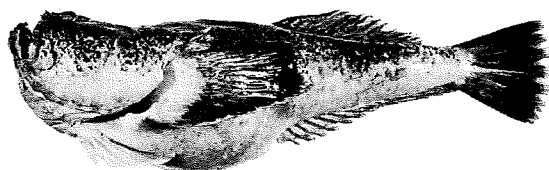
14:0	0.6
15:0	0.3
16:0	17.1
17:0	0.8
18:0	9.3
20:0	0.1
22:0	0.1
24:0	0.3
Total	29.0

Monounsaturates

16:1(n-5)	0.1
16:1(n-7)	1.6
16:1(n-9)	0.1
17:1(n-8)	0.4
18:1(n-7)	1.7
18:1(n-9)	8.8
20:1(n-7)	0.1
20:1(n-9+n-11)	0.5
22:1	0.1
24:1	1.4
Total	14.8

Polyunsaturates

18:2(n-6)	1.4
18:3(n-3)	0.0
18:3(n-6)	0.4
18:4(n-3)	0.2
20:2(n-6)	0.2
20:3(n-6)	0.6
20:4(n-3)	0.4
20:4(n-6) AA	8.5
20:5(n-3) EPA	3.9
22:3(n-3)	0.0
22:4(n-6)	2.0
22:5(n-3)	2.4
22:5(n-6)	2.9
22:6(n-3) DHA	33.4
Total	56.2

stargazer *Kathetostoma canaster***37 400018****Summary**

Oil	0.4 %
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	mg/100g (wet)
--	----------------------

20:4(n-6) AA	13
20:5(n-3) EPA	24
22:6(n-3) DHA	67
(n-3)/(n-6)	4.9

Oil Content

Oil Class	mg/100g (wet)
------------------	----------------------

Total oil	395
Wax ester*	2
Triglyceride	2
Free fatty acid	4
Cholesterol	16
Polar oil	371

Fatty Acids

Total fatty acids	223
Total saturates	60
Total monounsaturates	44
Total polyunsaturates	119
Total (n-3)	99
Total (n-6)	20

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
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Saturates

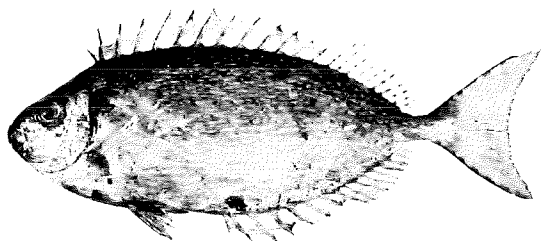
14:0	1.2
15:0	0.4
16:0	16.6
17:0	0.6
18:0	8.0
20:0	0.1
22:0	0.0
24:0	0.0
Total	27.1

Monounsaturates

16:1(n-5)	0.1
16:1(n-7)	2.2
16:1(n-9)	0.2
17:1(n-8)	0.4
18:1(n-7)	2.4
18:1(n-9)	10.8
20:1(n-7)	0.1
20:1(n-9+n-11)	1.5
22:1	0.4
24:1	1.6
Total	19.7

Polyunsaturates

18:2(n-6)	1.3
18:3(n-3)	0.0
18:3(n-6)	0.1
18:4(n-3)	0.3
20:2(n-6)	0.1
20:3(n-6)	0.1
20:4(n-3)	0.5
20:4(n-6) AA	5.8
20:5(n-3) EPA	10.6
22:3(n-3)	0.0
22:4(n-6)	0.5
22:5(n-3)	2.7
22:5(n-6)	1.0
22:6(n-3) DHA	30.2
Total	53.2

rabbitfish *Siganus nebulosus***37 438001****Summary**

Oil	0.6 %
	mg/100g (wet)
20:4(n-6) AA	40
20:5(n-3) EPA	5
22:6(n-3) DHA	49
(n-3)/(n-6)	0.9

Oil Content

Oil Class	mg/100g (wet)
Total oil	576
Wax ester*	0
Triglyceride	16
Free fatty acid	46
Cholesterol	22
Polar oil	492

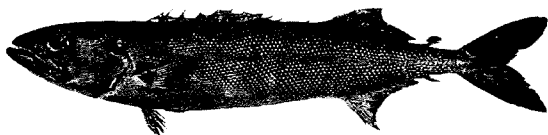
Fatty Acids

Total fatty acids	294
Total saturates	125
Total monounsaturates	41
Total polyunsaturates	128
Total (n-3)	62
Total (n-6)	66

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	1.0
15:0	1.0
16:0	27.1
17:0	1.5
18:0	14.1
20:0	0.2
22:0	0.2
24:0	0.3
Total	46.0
Monounsaturates	
16:1(n-5)	0.1
16:1(n-7)	1.7
16:1(n-9)	0.1
17:1(n-8)	0.5
18:1(n-7)	2.3
18:1(n-9)	8.1
20:1(n-7)	0.2
20:1(n-9+n-11)	0.3
22:1	0.7
24:1	0.9
Total	14.9
Polyunsaturates	
18:2(n-6)	0.7
18:3(n-3)	0.1
18:3(n-6)	0.0
18:4(n-3)	0.3
20:2(n-6)	0.3
20:3(n-6)	0.3
20:4(n-3)	0.3
20:4(n-6) AA	12.4
20:5(n-3) EPA	1.3
22:3(n-3)	0.0
22:4(n-6)	1.6
22:5(n-3)	2.0
22:5(n-6)	5.2
22:6(n-3) DHA	14.6
Total	39.1

escolar *Ruvettus pretiosus***37 439003****Summary****Oil** 17.8 %

mg/100g (wet)

20:4(n-6) AA	118
20:5(n-3) EPA	201
22:6(n-3) DHA	584
(n-3)/(n-6)	2.9

Oil Content**Oil Class** mg/100g (wet)

Total oil	17759
Wax ester*	17118
Triglyceride	30
Free fatty acid	89
Cholesterol	81
Polar oil	441

Fatty Acids

Total fatty acids	9321
Total saturates	489
Total monounsaturates	7461
Total polyunsaturates	1371
Total (n-3)	1019
Total (n-6)	351

*includes hydrocarbon and steryl ester

Fatty Acid Composition**Fatty Acid** **Percent (%)****Saturates**

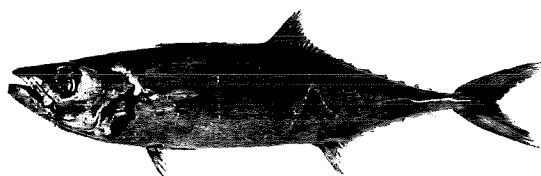
14:0	0.1
15:0	0.0
16:0	2.3
17:0	0.6
18:0	2.0
20:0	0.1
22:0	0.1
24:0	0.1
Total	5.3

Monounsaturates

16:1(n-5)	0.0
16:1(n-7)	1.6
16:1(n-9)	0.5
17:1(n-8)	0.5
18:1(n-7)	4.8
18:1(n-9)	59.5
20:1(n-7)	0.4
20:1(n-9+n-11)	10.2
22:1	1.1
24:1	0.9
Total	79.7

Polyunsaturates

18:2(n-6)	0.9
18:3(n-3)	0.0
18:3(n-6)	0.0
18:4(n-3)	0.0
20:2(n-6)	0.4
20:3(n-6)	0.2
20:4(n-3)	0.8
20:4(n-6) AA	1.3
20:5(n-3) EPA	2.1
22:3(n-3)	0.0
22:4(n-6)	0.5
22:5(n-3)	1.7
22:5(n-6)	0.4
22:6(n-3) DHA	6.4
Total	15.0

escolar *Lepidocybium flavobrunneum***37 439008****Summary**

Oil	19.2 %
	mg/100g (wet)
20:4(n-6) AA	130
20:5(n-3) EPA	165
22:6(n-3) DHA	434
(n-3)/(n-6)	1.9

Oil Content

Oil Class	mg/100g (wet)
Total oil	19195
Wax ester*	18642
Triglyceride	0
Free fatty acid	71
Cholesterol	44
Polar oil	438

Fatty Acids

Total fatty acids	10269
Total saturates	369
Total monounsaturates	8804
Total polyunsaturates	1095
Total (n-3)	717
Total (n-6)	378

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	0.1
15:0	0.0
16:0	1.6
17:0	0.5
18:0	1.0
20:0	0.0
22:0	0.1
24:0	0.1
Total	3.6
Monounsaturates	
16:1(n-5)	0.0
16:1(n-7)	2.6
16:1(n-9)	0.2
17:1(n-8)	0.7
18:1(n-7)	4.7
18:1(n-9)	70.3
20:1(n-7)	0.2
20:1(n-9+n-11)	6.1
22:1	0.4
24:1	0.5
Total	85.8
Polyunsaturates	
18:2(n-6)	1.3
18:3(n-3)	0.0
18:3(n-6)	0.0
18:4(n-3)	0.0
20:2(n-6)	0.2
20:3(n-6)	0.2
20:4(n-3)	0.4
20:4(n-6) AA	1.3
20:5(n-3) EPA	1.6
22:3(n-3)	0.0
22:4(n-6)	0.2
22:5(n-3)	0.7
22:5(n-6)	0.5
22:6(n-3) DHA	4.2
Total	10.6

*includes hydrocarbon and steryl ester

ribbonfish *Lepidopus caudatus*

37 440002



Summary

Oil	0.7 %
	mg/100g (wet)
20:4(n-6) AA	16
20:5(n-3) EPA	17
22:6(n-3) DHA	167
(n-3)/(n-6)	6.9

Oil Content

Oil Class	mg/100g (wet)
Total oil	738
Wax ester*	0
Triglyceride	24
Free fatty acid	12
Cholesterol	33
Polar oil	669

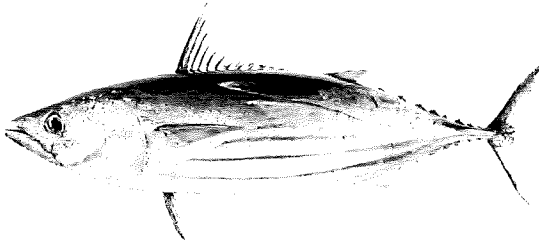
Fatty Acids

Total fatty acids	418
Total saturates	120
Total monounsaturates	76
Total polyunsaturates	222
Total (n-3)	194
Total (n-6)	28

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	0.4
15:0	0.2
16:0	18.0
17:0	0.5
18:0	9.2
20:0	0.1
22:0	0.1
24:0	0.1
Total	28.7
Monounsaturates	
16:1(n-5)	0.0
16:1(n-7)	0.8
16:1(n-9)	0.1
17:1(n-8)	0.3
18:1(n-7)	2.0
18:1(n-9)	10.7
20:1(n-7)	0.1
20:1(n-9+n-11)	1.3
22:1	0.6
24:1	1.6
Total	17.7
Polyunsaturates	
18:2(n-6)	0.7
18:3(n-3)	0.0
18:3(n-6)	0.1
18:4(n-3)	0.2
20:2(n-6)	0.2
20:3(n-6)	0.2
20:4(n-3)	0.5
20:4(n-6) AA	3.9
20:5(n-3) EPA	4.1
22:3(n-3)	0.0
22:4(n-6)	0.3
22:5(n-3)	1.6
22:5(n-6)	1.5
22:6(n-3) DHA	40.4
Total	53.6

skipjack tuna *Katsuwonus pelamis***37 441003****Summary****Oil** **0.4 %****mg/100g (wet)**

20:4(n-6) AA	15
20:5(n-3) EPA	13
22:6(n-3) DHA	96
(n-3)/(n-6)	4.0

Oil Content**Oil Class** **mg/100g (wet)**

Total oil	410
Wax ester*	0
Triglyceride	4
Free fatty acid	49
Cholesterol	18
Polar oil	339

Fatty Acids

Total fatty acids	286
Total saturates	104
Total monounsaturates	41
Total polyunsaturates	140
Total (n-3)	112
Total (n-6)	28

*includes hydrocarbon and steryl ester

Fatty Acid Composition**Fatty Acid** **Percent (%)****Saturates**

14:0	0.2
15:0	0.3
16:0	22.3
17:0	1.0
18:0	12.2
20:0	0.1
22:0	0.2
24:0	0.3
Total	36.7

Monounsaturates

16:1(n-5)	0.1
16:1(n-7)	0.9
16:1(n-9)	0.0
17:1(n-8)	0.4
18:1(n-7)	1.7
18:1(n-9)	8.0
20:1(n-7)	0.0
20:1(n-9+n-11)	0.4
22:1	0.3
24:1	2.3
Total	14.1

Polyunsaturates

18:2(n-6)	0.7
18:3(n-3)	0.0
18:3(n-6)	0.2
18:4(n-3)	0.1
20:2(n-6)	0.2
20:3(n-6)	0.1
20:4(n-3)	0.1
20:4(n-6) AA	5.1
20:5(n-3) EPA	4.7
22:3(n-3)	0.0
22:4(n-6)	0.3
22:5(n-3)	0.7
22:5(n-6)	3.0
22:6(n-3) DHA	34.0
Total	49.2

slender tuna *Allothunnus fallai***37 441021****Summary****Oil** 16.5 %

mg/100g (wet)

20:4(n-6) AA	95
20:5(n-3) EPA	965
22:6(n-3) DHA	2199
(n-3)/(n-6)	9.0

Oil Content**Oil Class** mg/100g (wet)

Total oil	16527
Wax ester*	88
Triglyceride	15583
Free fatty acid	90
Cholesterol	59
Polar oil	707

Fatty Acids

Total fatty acids	13248
Total saturates	2753
Total monounsaturates	6316
Total polyunsaturates	4179
Total (n-3)	3759
Total (n-6)	418

*includes hydrocarbon and steryl ester

Fatty Acid Composition**Fatty Acid** Percent (%)**Saturates**

14:0	5.8
15:0	0.6
16:0	10.8
17:0	0.4
18:0	2.6
20:0	0.1
22:0	0.0
24:0	0.0
Total	20.8

Monounsaturates

16:1(n-5)	0.3
16:1(n-7)	3.1
16:1(n-9)	0.2
17:1(n-8)	0.4
18:1(n-7)	3.0
18:1(n-9)	9.5
20:1(n-7)	0.4
20:1(n-9+n-11)	21.1
22:1	8.5
24:1	0.7
Total	47.9

Polyunsaturates

18:2(n-6)	1.5
18:3(n-3)	0.0
18:3(n-6)	0.1
18:4(n-3)	0.3
20:2(n-6)	0.4
20:3(n-6)	0.1
20:4(n-3)	2.8
20:4(n-6) AA	0.7
20:5(n-3) EPA	7.2
22:3(n-3)	0.0
22:4(n-6)	0.1
22:5(n-3)	1.4
22:5(n-6)	0.3
22:6(n-3) DHA	16.4
Total	31.3

rudderfish *Tubbia tasmanica***37 445002****Summary**

Oil	15.7 %
	mg/100g (wet)
20:4(n-6) AA	50
20:5(n-3) EPA	49
22:6(n-3) DHA	167
(n-3)/(n-6)	1.2

Oil Content

Oil Class	mg/100g (wet)
Total oil	15742
Diacylglycerol ether*	13501
Triglyceride	1490
Free fatty acid	162
Cholesterol	24
Polar oil	564

Fatty Acids

Total fatty acids	7587
Total saturates	1995
Total monounsaturates	5103
Total polyunsaturates	489
Total (n-3)	269
Total (n-6)	221

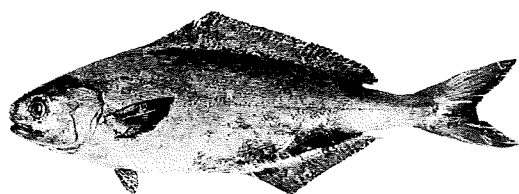
*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	2.4
15:0	0.8
16:0	13.6
17:0	0.8
18:0	7.0
20:0	0.3
22:0	0.2
24:0	0.0
Total	25.8
Monounsaturates	
16:1(n-5)	0.1
16:1(n-7)	2.6
16:1(n-9)	0.5
17:1(n-8)	0.8
18:1(n-7)	5.1
18:1(n-9)	49.6
20:1(n-7)	0.6
20:1(n-9+n-11)	5.7
22:1	1.7
24:1	0.7
Total	67.6
Polyunsaturates	
18:2(n-6)	1.7
18:3(n-3)	0.0
18:3(n-6)	0.5
18:4(n-3)	0.2
20:2(n-6)	0.1
20:3(n-6)	0.0
20:4(n-3)	0.2
20:4(n-6) AA	0.7
20:5(n-3) EPA	0.7
22:3(n-3)	0.0
22:4(n-6)	0.1
22:5(n-3)	0.3
22:5(n-6)	0.0
22:6(n-3) DHA	2.3
Total	6.6

rudderfish *Centrolophus niger*

37 445004



Summary

Oil 14.4 %

mg/100g (wet)

20:4(n-6) AA 66

20:5(n-3) EPA 70

22:6(n-3) DHA 236

(n-3)/(n-6) 1.6

Oil Content

Oil Class mg/100g (wet)

Total oil 14394

Diacylglycerol ether* 12891

Triglyceride 1090

Free fatty acid 122

Cholesterol 59

Polar oil 190

Fatty Acids

Total fatty acids 8061

Total saturates 2808

Total monounsaturates 4572

Total polyunsaturates 682

Total (n-3) 415

Total (n-6) 267

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid **Percent (%)**

Saturates

14:0 2.4

15:0 0.9

16:0 23.1

17:0 0.8

18:0 5.5

20:0 0.9

22:0 0.4

24:0 0.1

Total 34.8

Monounsaturates

16:1(n-5) 0.1

16:1(n-7) 4.9

16:1(n-9) 0.7

17:1(n-8) 0.8

18:1(n-7) 3.0

18:1(n-9) 40.2

20:1(n-7) 0.8

20:1(n-9+n-11) 6.0

22:1 0.0

24:1 0.1

Total 56.7

Polyunsaturates

18:2(n-6) 1.9

18:3(n-3) 0.0

18:3(n-6) 0.1

18:4(n-3) 0.4

20:2(n-6) 0.1

20:3(n-6) 0.1

20:4(n-3) 0.5

20:4(n-6) AA 0.8

20:5(n-3) EPA 0.8

22:3(n-3) 0.0

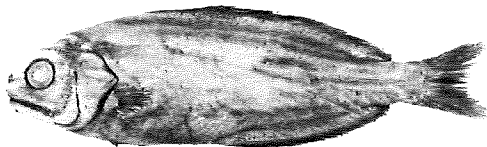
22:4(n-6) 0.2

22:5(n-3) 0.4

22:5(n-6) 0.2

22:6(n-3) DHA 2.9

Total 8.4

rudderfish *Tubbia* sp.**37 445903****Summary**

Oil	13.3 %
	mg/100g (wet)
20:4(n-6) AA	26
20:5(n-3) EPA	29
22:6(n-3) DHA	148
(n-3)/(n-6)	3.4

Oil Content

Oil Class	mg/100g (wet)
Total oil	13269
Hydrocarbon*	12002
Triglyceride	716
Free fatty acid	86
Cholesterol	19
Polar oil	447

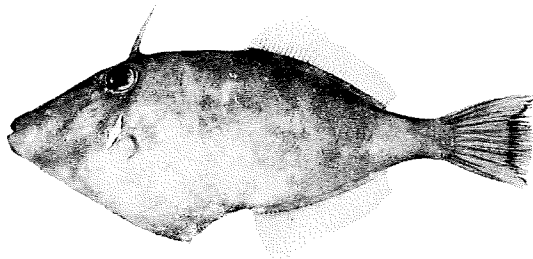
Fatty Acids

Total fatty acids	1694
Total saturates	485
Total monounsaturates	937
Total polyunsaturates	272
Total (n-3)	210
Total (n-6)	61

*includes diacylglyceryl ether and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	2.0
15:0	0.9
16:0	15.1
17:0	0.7
18:0	7.7
20:0	0.5
22:0	0.3
24:0	0.1
Total	28.1
Monounsaturates	
16:1(n-5)	0.1
16:1(n-7)	1.9
16:1(n-9)	0.9
17:1(n-8)	0.6
18:1(n-7)	3.9
18:1(n-9)	34.9
20:1(n-7)	0.8
20:1(n-9+n-11)	8.5
22:1	1.5
24:1	0.6
Total	53.8
Polyunsaturates	
18:2(n-6)	1.5
18:3(n-3)	0.0
18:3(n-6)	0.3
18:4(n-3)	0.2
20:2(n-6)	0.1
20:3(n-6)	0.0
20:4(n-3)	0.3
20:4(n-6) AA	1.8
20:5(n-3) EPA	2.4
22:3(n-3)	0.0
22:4(n-6)	0.2
22:5(n-3)	0.9
22:5(n-6)	0.1
22:6(n-3) DHA	10.3
Total	18.1

velvet leatherjacket *Meuschenia scaber***37 465005****Summary**

Oil	0.6 %
	mg/100g (wet)
20:4(n-6) AA	53
20:5(n-3) EPA	31
22:6(n-3) DHA	118
(n-3)/(n-6)	2.3

Oil Content

Oil Class	mg/100g (wet)
Total oil	590
Wax ester*	0
Triglyceride	0
Free fatty acid	8
Cholesterol	18
Polar oil	564

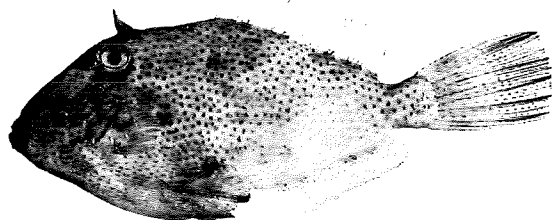
Fatty Acids

Total fatty acids	389
Total saturates	118
Total monounsaturates	41
Total polyunsaturates	231
Total (n-3)	161
Total (n-6)	70

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	0.3
15:0	0.6
16:0	19.3
17:0	1.1
18:0	8.3
20:0	0.1
22:0	0.0
24:0	0.1
Total	30.3
Monounsaturates	
16:1(n-5)	0.1
16:1(n-7)	0.8
16:1(n-9)	0.0
17:1(n-8)	0.4
18:1(n-7)	2.7
18:1(n-9)	4.9
20:1(n-7)	0.2
20:1(n-9+n-11)	0.3
22:1	0.5
24:1	0.4
Total	10.4
Polyunsaturates	
18:2(n-6)	0.6
18:3(n-3)	0.0
18:3(n-6)	0.1
18:4(n-3)	0.4
20:2(n-6)	0.2
20:3(n-6)	0.1
20:4(n-3)	0.2
20:4(n-6) AA	13.2
20:5(n-3) EPA	7.8
22:3(n-3)	0.2
22:4(n-6)	0.7
22:5(n-3)	2.5
22:5(n-6)	2.5
22:6(n-3) DHA	30.7
Total	59.3

leatherjacket*Pseudomonacanthus peroni***37 465020****Summary**

Oil	0.5 %
	mg/100g (wet)
20:4(n-6) AA	44
20:5(n-3) EPA	17
22:6(n-3) DHA	80
(n-3)/(n-6)	1.5

Oil Content

Oil Class	mg/100g (wet)
Total oil	533
Wax ester*	0
Triglyceride	1
Free fatty acid	9
Cholesterol	16
Polar oil	508

Fatty Acids

Total fatty acids	281
Total saturates	79
Total monounsaturates	33
Total polyunsaturates	169
Total (n-3)	103
Total (n-6)	67

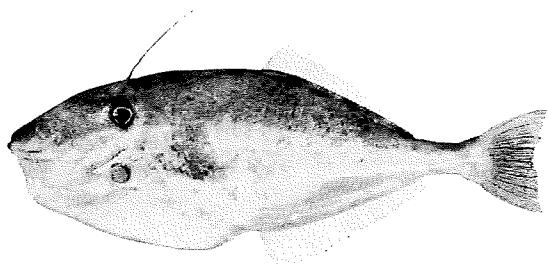
*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	0.3
15:0	0.4
16:0	14.7
17:0	1.6
18:0	10.4
20:0	0.2
22:0	0.1
24:0	0.1
Total	28.2
Monounsaturates	
16:1(n-5)	0.1
16:1(n-7)	0.6
16:1(n-9)	0.0
17:1(n-8)	0.4
18:1(n-7)	2.6
18:1(n-9)	6.6
20:1(n-7)	0.1
20:1(n-9+n-11)	0.6
22:1	0.3
24:1	0.2
Total	11.6
Polyunsaturates	
18:2(n-6)	0.3
18:3(n-3)	0.0
18:3(n-6)	0.4
18:4(n-3)	0.3
20:2(n-6)	0.3
20:3(n-6)	0.2
20:4(n-3)	0.1
20:4(n-6) AA	15.5
20:5(n-3) EPA	6.1
22:3(n-3)	0.0
22:4(n-6)	1.4
22:5(n-3)	1.7
22:5(n-6)	5.6
22:6(n-3) DHA	28.3
Total	60.2

leatherjacket *Aluterus monoceros*

37 465022



Summary

Oil	0.6 %
	mg/100g (wet)
20:4(n-6) AA	50
20:5(n-3) EPA	12
22:6(n-3) DHA	68
(n-3)/(n-6)	1.1

Oil Content

Oil Class	mg/100g (wet)
Total oil	620
Wax ester*	0
Triglyceride	2
Free fatty acid	6
Cholesterol	19
Polar oil	593

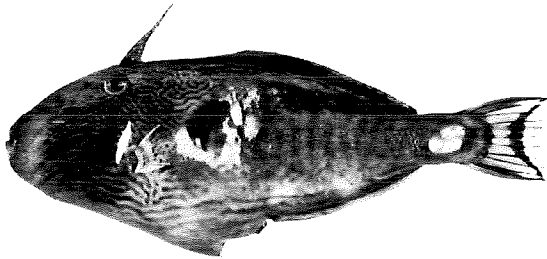
Fatty Acids

Total fatty acids	313
Total saturates	95
Total monounsaturates	43
Total polyunsaturates	175
Total (n-3)	92
Total (n-6)	83

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	0.3
15:0	0.7
16:0	15.7
17:0	1.7
18:0	11.0
20:0	0.3
22:0	0.1
24:0	0.1
Total	30.3
Monounsaturates	
16:1(n-5)	0.0
16:1(n-7)	1.2
16:1(n-9)	0.7
17:1(n-8)	0.4
18:1(n-7)	2.4
18:1(n-9)	7.4
20:1(n-7)	0.3
20:1(n-9+n-11)	0.6
22:1	0.4
24:1	0.3
Total	13.7
Polyunsaturates	
18:2(n-6)	0.6
18:3(n-3)	0.0
18:3(n-6)	0.4
18:4(n-3)	0.2
20:2(n-6)	0.5
20:3(n-6)	0.2
20:4(n-3)	0.2
20:4(n-6) AA	15.9
20:5(n-3) EPA	3.9
22:3(n-3)	0.0
22:4(n-6)	4.4
22:5(n-3)	3.1
22:5(n-6)	4.7
22:6(n-3) DHA	21.8
Total	56.0

reef leatherjacket *Meuschenia freycineti***37 465036****Summary**

Oil	0.5 %
	mg/100g (wet)
20:4(n-6) AA	44
20:5(n-3) EPA	49
22:6(n-3) DHA	64
(n-3)/(n-6)	2.4

Oil Content

Oil Class	mg/100g (wet)
Total oil	527
Wax ester*	0
Triglyceride	1
Free fatty acid	11
Cholesterol	22
Polar oil	493

Fatty Acids

Total fatty acids	321
Total saturates	88
Total monounsaturates	46
Total polyunsaturates	187
Total (n-3)	131
Total (n-6)	56

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	0.4
15:0	0.4
16:0	18.0
17:0	0.7
18:0	7.3
20:0	0.1
22:0	0.0
24:0	0.0
Total	27.5
Monounsaturates	
16:1(n-5)	0.1
16:1(n-7)	1.8
16:1(n-9)	0.1
17:1(n-8)	0.7
18:1(n-7)	2.4
18:1(n-9)	7.3
20:1(n-7)	0.2
20:1(n-9+n-11)	0.6
22:1	0.5
24:1	0.5
Total	14.2
Polyunsaturates	
18:2(n-6)	0.6
18:3(n-3)	0.0
18:3(n-6)	0.1
18:4(n-3)	0.2
20:2(n-6)	0.2
20:3(n-6)	0.1
20:4(n-3)	0.2
20:4(n-6) AA	13.6
20:5(n-3) EPA	15.5
22:3(n-3)	0.1
22:4(n-6)	1.4
22:5(n-3)	5.0
22:5(n-6)	1.3
22:6(n-3) DHA	19.9
Total	58.2

school prawn *Metapenaeus macleayi*

28 711029



Summary

Oil **0.9 %**

mg/100g (wet)

20:4(n-6) AA	57
20:5(n-3) EPA	59
22:6(n-3) DHA	45
(n-3)/(n-6)	1.1

Oil Content

Oil Class **mg/100g (wet)**

Total oil	897
Wax ester*	0
Triglyceride	0
Free fatty acid	5
Cholesterol	85
Polar oil	807

Fatty Acids

Total fatty acids	508
Total saturates	175
Total monounsaturates	109
Total polyunsaturates	224
Total (n-3)	115
Total (n-6)	108

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid **Percent (%)**

Saturates

14:0	0.6
15:0	1.1
16:0	15.5
17:0	2.9
18:0	9.2
20:0	0.6
22:0	0.7
24:0	0.7
Total	34.5

Monounsaturates

16:1(n-5)	0.3
16:1(n-7)	4.7
16:1(n-9)	0.1
17:1(n-8)	2.3
18:1(n-7)	3.7
18:1(n-9)	7.8
20:1(n-7)	0.3
20:1(n-9+n-11)	1.4
22:1	0.4
24:1	0.3
Total	21.5

Polyunsaturates

18:2(n-6)	4.6
18:3(n-3)	0.0
18:3(n-6)	0.8
18:4(n-3)	0.2
20:2(n-6)	0.7
20:3(n-6)	0.4
20:4(n-3)	0.5
20:4(n-6) AA	11.3
20:5(n-3) EPA	11.7
22:3(n-3)	0.0
22:4(n-6)	0.6
22:5(n-3)	1.4
22:5(n-6)	2.9
22:6(n-3) DHA	8.9
Total	44.0

royal red prawn*Haliporoides sibogae***28 714005****Summary**

Oil	1.0 %
	mg/100g (wet)
20:4(n-6) AA	35
20:5(n-3) EPA	97
22:6(n-3) DHA	116
(n-3)/(n-6)	3.5

Oil Content

Oil Class	mg/100g (wet)
Total oil	1009
Wax ester*	0
Triglyceride	0
Free fatty acid	6
Cholesterol	119
Polar oil	884
Fatty Acids	
Total fatty acids	595
Total saturates	151
Total monounsaturates	149
Total polyunsaturates	295
Total (n-3)	230
Total (n-6)	65

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	0.7
15:0	0.9
16:0	13.3
17:0	1.6
18:0	5.4
20:0	0.4
22:0	0.3
24:0	1.1
Total	25.3
Monounsaturates	
16:1(n-5)	0.2
16:1(n-7)	3.2
16:1(n-9)	0.2
17:1(n-8)	1.3
18:1(n-7)	5.0
18:1(n-9)	11.1
20:1(n-7)	0.9
20:1(n-9+n-11)	1.4
22:1	1.0
24:1	0.3
Total	25.0
Polyunsaturates	
18:2(n-6)	1.0
18:3(n-3)	0.0
18:3(n-6)	0.1
18:4(n-3)	0.6
20:2(n-6)	1.8
20:3(n-6)	0.2
20:4(n-3)	0.4
20:4(n-6) AA	5.9
20:5(n-3) EPA	16.4
22:3(n-3)	0.1
22:4(n-6)	0.6
22:5(n-3)	1.8
22:5(n-6)	1.3
22:6(n-3) DHA	19.5
Total	49.7

freshwater prawn*Macrobrachium rosenbergii***28 756002****Summary**

Oil	1.3 %
	mg/100g (wet)
20:4(n-6) AA	35
20:5(n-3) EPA	45
22:6(n-3) DHA	9
(n-3)/(n-6)	0.4

Oil Content

Oil Class	mg/100g (wet)
Total oil	1278
Wax ester*	0
Triglyceride	0
Free fatty acid	21
Cholesterol	86
Polar oil	1171

Fatty Acids

Total fatty acids	721
Total saturates	257
Total monounsaturates	256
Total polyunsaturates	209
Total (n-3)	60
Total (n-6)	149

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	0.7
15:0	0.3
16:0	19.9
17:0	0.9
18:0	12.3
20:0	0.5
22:0	0.3
24:0	0.1
Total	35.6
Monounsaturates	
16:1(n-5)	0.1
16:1(n-7)	4.1
16:1(n-9)	0.1
17:1(n-8)	0.6
18:1(n-7)	4.5
18:1(n-9)	25.0
20:1(n-7)	0.0
20:1(n-9+n-11)	0.7
22:1	0.1
24:1	0.1
Total	35.4
Polyunsaturates	
18:2(n-6)	14.2
18:3(n-3)	0.0
18:3(n-6)	0.3
18:4(n-3)	0.0
20:2(n-6)	0.5
20:3(n-6)	0.2
20:4(n-3)	0.1
20:4(n-6) AA	4.8
20:5(n-3) EPA	6.2
22:3(n-3)	0.0
22:4(n-6)	0.3
22:5(n-3)	0.7
22:5(n-6)	0.4
22:6(n-3) DHA	1.2
Total	29.0

scampi *Metanephrops boschmai***28 786002****Summary****Oil** **0.7 %****mg/100g (wet)**

20:4(n-6) AA	19
20:5(n-3) EPA	49
22:6(n-3) DHA	68
(n-3)/(n-6)	4.1

Oil Content**Oil Class** **mg/100g (wet)**

Total oil	667
Wax ester*	0
Triglyceride	0
Free fatty acid	4
Cholesterol	66
Polar oil	597

Fatty Acids

Total fatty acids	332
Total saturates	83
Total monounsaturates	99
Total polyunsaturates	150
Total (n-3)	120
Total (n-6)	29

*includes hydrocarbon and steryl ester

Fatty Acid Composition**Fatty Acid** **Percent (%)****Saturates**

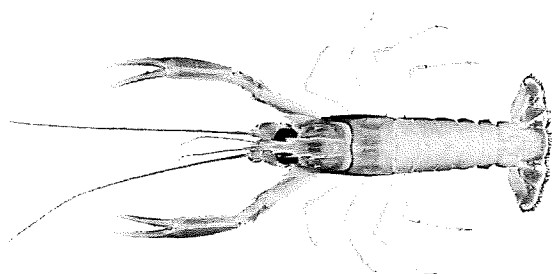
14:0	0.4
15:0	0.5
16:0	14.3
17:0	1.0
18:0	7.4
20:0	0.7
22:0	0.5
24:0	0.0
Total	25.2

Monounsaturates

16:1(n-5)	0.0
16:1(n-7)	3.6
16:1(n-9)	0.1
17:1(n-8)	0.9
18:1(n-7)	3.3
18:1(n-9)	19.4
20:1(n-7)	0.1
20:1(n-9+n-11)	0.9
22:1	1.0
24:1	0.2
Total	29.5

Polyunsaturates

18:2(n-6)	1.3
18:3(n-3)	0.0
18:3(n-6)	0.2
18:4(n-3)	0.4
20:2(n-6)	0.6
20:3(n-6)	0.1
20:4(n-3)	0.2
20:4(n-6) AA	5.7
20:5(n-3) EPA	14.9
22:3(n-3)	0.0
22:4(n-6)	0.1
22:5(n-3)	0.6
22:5(n-6)	1.0
22:6(n-3) DHA	20.3
Total	45.3

scampi *Metanephrops velutinus***28 786005****Summary****Oil** 0.7 %

mg/100g (wet)

20:4(n-6) AA	20
20:5(n-3) EPA	48
22:6(n-3) DHA	78
(n-3)/(n-6)	4.0

Oil Content**Oil Class** mg/100g (wet)

Total oil	654
Wax ester*	0
Triglyceride	0
Free fatty acid	9
Cholesterol	58
Polar oil	586

Fatty Acids

Total fatty acids	328
Total saturates	75
Total monounsaturates	89
Total polyunsaturates	164
Total (n-3)	131
Total (n-6)	33

*includes hydrocarbon and steryl ester

Fatty Acid Composition**Fatty Acid** **Percent (%)****Saturates**

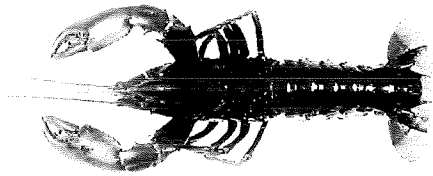
14:0	0.6
15:0	0.6
16:0	12.4
17:0	1.2
18:0	6.8
20:0	0.6
22:0	0.4
24:0	0.0
Total	22.9

Monounsaturates

16:1(n-5)	0.0
16:1(n-7)	2.8
16:1(n-9)	0.1
17:1(n-8)	0.9
18:1(n-7)	3.3
18:1(n-9)	17.4
20:1(n-7)	0.1
20:1(n-9+n-11)	1.1
22:1	1.0
24:1	0.3
Total	27.2

Polyunsaturates

18:2(n-6)	1.2
18:3(n-3)	0.0
18:3(n-6)	0.2
18:4(n-3)	0.5
20:2(n-6)	0.7
20:3(n-6)	0.1
20:4(n-3)	0.2
20:4(n-6) AA	6.2
20:5(n-3) EPA	14.8
22:3(n-3)	0.0
22:4(n-6)	0.2
22:5(n-3)	0.7
22:5(n-6)	1.4
22:6(n-3) DHA	23.7
Total	49.9

marron *Cherax tenuimanus***28 795007****Summary**

Oil	0.7 %
	mg/100g (wet)
20:4(n-6) AA	36
20:5(n-3) EPA	56
22:6(n-3) DHA	18
(n-3)/(n-6)	0.7

Oil Content

Oil Class	mg/100g (wet)
Total oil	726
Wax ester*	0
Triglyceride	0
Free fatty acid	3
Cholesterol	46
Polar oil	677

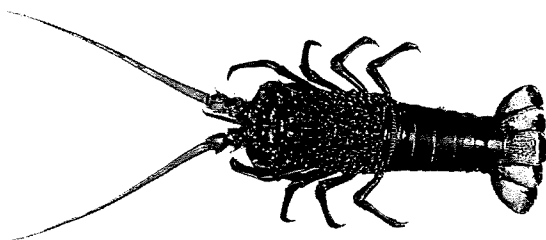
Fatty Acids

Total fatty acids	453
Total saturates	111
Total monounsaturates	154
Total polyunsaturates	188
Total (n-3)	75
Total (n-6)	113

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	0.3
15:0	0.2
16:0	13.0
17:0	0.5
18:0	8.3
20:0	1.3
22:0	0.7
24:0	0.0
Total	24.5
Monounsaturates	
16:1(n-5)	0.0
16:1(n-7)	2.8
16:1(n-9)	0.2
17:1(n-8)	0.6
18:1(n-7)	2.4
18:1(n-9)	27.1
20:1(n-7)	0.0
20:1(n-9+n-11)	0.7
22:1	0.0
24:1	0.0
Total	33.9
Polyunsaturates	
18:2(n-6)	14.6
18:3(n-3)	0.0
18:3(n-6)	0.2
18:4(n-3)	0.1
20:2(n-6)	1.6
20:3(n-6)	0.3
20:4(n-3)	0.1
20:4(n-6) AA	8.0
20:5(n-3) EPA	12.3
22:3(n-3)	0.0
22:4(n-6)	0.0
22:5(n-3)	0.1
22:5(n-6)	0.3
22:6(n-3) DHA	4.0
Total	41.6

eastern rocklobster *Jasus verreauxi***28 820002****Summary****Oil** 0.8 %

mg/100g (wet)

20:4(n-6) AA	53
20:5(n-3) EPA	82
22:6(n-3) DHA	54
(n-3)/(n-6)	2.0

Oil Content**Oil Class** mg/100g (wet)

Total oil	805
Wax ester*	0
Triglyceride	0
Free fatty acid	2
Cholesterol	25
Polar oil	778

Fatty Acids

Total fatty acids	503
Total saturates	132
Total monounsaturates	146
Total polyunsaturates	224
Total (n-3)	148
Total (n-6)	76

*includes hydrocarbon and steryl ester

Fatty Acid Composition**Fatty Acid** Percent (%)**Saturates**

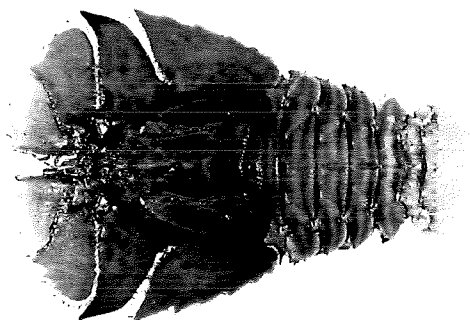
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15:0	1.0
16:0	12.0
17:0	1.3
18:0	8.0
20:0	1.1
22:0	0.6
24:0	0.0
Total	26.3

Monounsaturates

16:1(n-5)	0.3
16:1(n-7)	5.7
16:1(n-9)	0.1
17:1(n-8)	1.4
18:1(n-7)	3.7
18:1(n-9)	14.6
20:1(n-7)	0.3
20:1(n-9+n-11)	2.3
22:1	0.2
24:1	0.0
Total	29.1

Polyunsaturates

18:2(n-6)	1.4
18:3(n-3)	0.0
18:3(n-6)	0.5
18:4(n-3)	0.2
20:2(n-6)	0.5
20:3(n-6)	1.0
20:4(n-3)	0.4
20:4(n-6) AA	10.5
20:5(n-3) EPA	16.3
22:3(n-3)	0.0
22:4(n-6)	0.6
22:5(n-3)	1.8
22:5(n-6)	0.5
22:6(n-3) DHA	10.7
Total	44.6

Balmain bug *Ibacus peronii***28 821004****Summary**

Oil	0.7 %
	mg/100g (wet)
20:4(n-6) AA	29
20:5(n-3) EPA	49
22:6(n-3) DHA	44
(n-3)/(n-6)	2.1

Oil Content

Oil Class	mg/100g (wet)
Total oil	651
Wax ester*	0
Triglyceride	0
Free fatty acid	14
Cholesterol	44
Polar oil	592
Fatty Acids	
Total fatty acids	326
Total saturates	90
Total monounsaturates	90
Total polyunsaturates	146
Total (n-3)	99
Total (n-6)	47

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	1.2
15:0	1.0
16:0	11.7
17:0	1.3
18:0	9.3
20:0	1.9
22:0	0.3
24:0	0.1
Total	27.5
Monounsaturates	
16:1(n-5)	0.1
16:1(n-7)	5.5
16:1(n-9)	0.1
17:1(n-8)	1.1
18:1(n-7)	3.4
18:1(n-9)	14.9
20:1(n-7)	0.6
20:1(n-9+n-11)	1.1
22:1	0.3
24:1	0.0
Total	27.6
Polyunsaturates	
18:2(n-6)	1.9
18:3(n-3)	0.0
18:3(n-6)	0.4
18:4(n-3)	0.5
20:2(n-6)	1.3
20:3(n-6)	0.5
20:4(n-3)	0.3
20:4(n-6) AA	9.2
20:5(n-3) EPA	14.9
22:3(n-3)	0.1
22:4(n-6)	0.6
22:5(n-3)	0.9
22:5(n-6)	0.7
22:6(n-3) DHA	13.6
Total	44.8

sand crab *Ovalipes australiensis***28 911003****Summary**

Oil	0.8 %
	mg/100g (wet)
20:4(n-6) AA	44
20:5(n-3) EPA	126
22:6(n-3) DHA	94
(n-3)/(n-6)	3.3

Oil Content

Oil Class	mg/100g (wet)
Total oil	843
Wax ester*	0
Triglyceride	0
Free fatty acid	14
Cholesterol	30
Polar oil	799

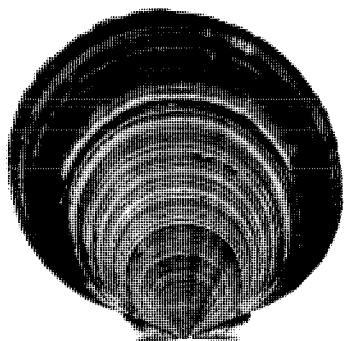
Fatty Acids

Total fatty acids	568
Total saturates	143
Total monounsaturates	123
Total polyunsaturates	302
Total (n-3)	231
Total (n-6)	71

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	0.1
15:0	0.5
16:0	12.9
17:0	1.7
18:0	8.1
20:0	0.4
22:0	0.3
24:0	0.2
Total	25.2
Monounsaturates	
16:1(n-5)	0.1
16:1(n-7)	3.4
16:1(n-9)	0.1
17:1(n-8)	1.6
18:1(n-7)	4.0
18:1(n-9)	11.1
20:1(n-7)	0.3
20:1(n-9+n-11)	0.6
22:1	0.3
24:1	0.0
Total	21.7
Polyunsaturates	
18:2(n-6)	2.2
18:3(n-3)	0.0
18:3(n-6)	0.2
18:4(n-3)	0.2
20:2(n-6)	1.0
20:3(n-6)	0.2
20:4(n-3)	0.2
20:4(n-6) AA	7.7
20:5(n-3) EPA	22.2
22:3(n-3)	0.0
22:4(n-6)	0.5
22:5(n-3)	1.5
22:5(n-6)	0.6
22:6(n-3) DHA	16.4
Total	53.1

scallop *Amusium balloti***23 270001****Summary****Oil** **0.7 %****mg/100g (wet)**

20:4(n-6) AA	33
20:5(n-3) EPA	43
22:6(n-3) DHA	151
(n-3)/(n-6)	3.1

Oil Content**Oil Class** **mg/100g (wet)**

Total oil	712
Wax ester*	0
Triglyceride	0
Free fatty acid	6
Cholesterol	90
Polar oil	617

Fatty Acids

Total fatty acids	476
Total saturates	160
Total monounsaturates	49
Total polyunsaturates	267
Total (n-3)	201
Total (n-6)	66

Fatty Acid Composition**Fatty Acid** **Percent (%)****Saturates**

14:0	0.6
15:0	0.3
16:0	18.5
17:0	3.0
18:0	10.0
20:0	0.1
22:0	0.1
24:0	0.5
Total	33.7

Monounsaturates

16:1(n-5)	0.1
16:1(n-7)	1.2
16:1(n-9)	0.1
17:1(n-8)	0.1
18:1(n-7)	3.6
18:1(n-9)	2.9
20:1(n-7)	0.1
20:1(n-9+n-11)	1.8
22:1	0.1
24:1	0.1
Total	10.3

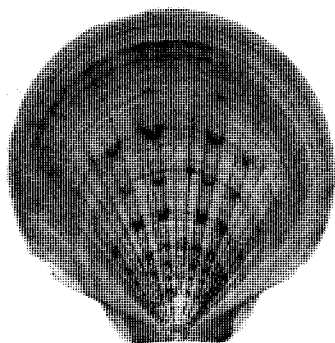
Polyunsaturates

18:2(n-6)	1.0
18:3(n-3)	0.0
18:3(n-6)	0.5
18:4(n-3)	0.4
20:2(n-6)	0.4
20:3(n-6)	0.5
20:4(n-3)	0.2
20:4(n-6) AA	6.9
20:5(n-3) EPA	9.1
22:3(n-3)	0.0
22:4(n-6)	0.8
22:5(n-3)	0.9
22:5(n-6)	3.7
22:6(n-3) DHA	31.6
Total	56.0

*includes hydrocarbon and steryl ester

scallop *Amusium pleuronectes*

23 270003



Summary

Oil **1.4 %**

mg/100g (wet)

20:4(n-6) AA	50
20:5(n-3) EPA	103
22:6(n-3) DHA	148
(n-3)/(n-6)	2.6

Oil Content

Oil Class **mg/100g (wet)**

Total oil	1368
Wax ester*	7
Triglyceride	242
Free fatty acid	53
Cholesterol	119
Polar oil	946

Fatty Acids

Total fatty acids	815
Total saturates	277
Total monounsaturates	144
Total polyunsaturates	393
Total (n-3)	281
Total (n-6)	108

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid **Percent (%)**

Saturates

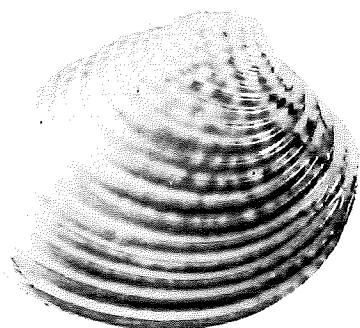
14:0	2.1
15:0	0.4
16:0	19.9
17:0	2.1
18:0	8.5
20:0	0.3
22:0	0.2
24:0	0.3
Total	34.3

Monounsaturates

16:1(n-5)	0.2
16:1(n-7)	5.5
16:1(n-9)	0.1
17:1(n-8)	0.1
18:1(n-7)	6.0
18:1(n-9)	3.4
20:1(n-7)	0.5
20:1(n-9+n-11)	1.2
22:1	0.2
24:1	0.1
Total	17.6

Polyunsaturates

18:2(n-6)	1.9
18:3(n-3)	0.0
18:3(n-6)	0.4
18:4(n-3)	2.3
20:2(n-6)	0.5
20:3(n-6)	0.5
20:4(n-3)	0.4
20:4(n-6) AA	6.1
20:5(n-3) EPA	12.5
22:3(n-3)	0.0
22:4(n-6)	0.6
22:5(n-3)	1.0
22:5(n-6)	3.2
22:6(n-3) DHA	18.1
Total	48.1

cockle *Katelysia scalarina***23 380004****Summary**

Oil	1.0 %
	mg/100g (wet)
20:4(n-6) AA	31
20:5(n-3) EPA	77
22:6(n-3) DHA	78
(n-3)/(n-6)	3.0

Oil Content

Oil Class	mg/100g (wet)
Total oil	984
Wax ester*	0
Triglyceride	56
Free fatty acid	66
Cholesterol	59
Polar oil	802
Fatty Acids	
Total fatty acids	664
Total saturates	254
Total monounsaturates	151
Total polyunsaturates	260
Total (n-3)	195
Total (n-6)	65

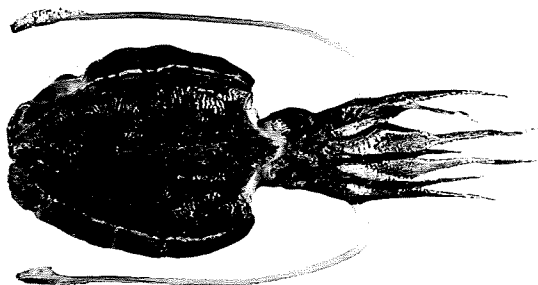
*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	2.3
15:0	0.6
16:0	20.6
17:0	1.6
18:0	7.9
20:0	0.1
22:0	0.0
24:0	0.0
Total	38.0
Monounsaturates	
16:1(n-5)	0.2
16:1(n-7)	4.7
16:1(n-9)	0.1
17:1(n-8)	1.4
18:1(n-7)	5.5
18:1(n-9)	5.1
20:1(n-7)	2.6
20:1(n-9+n-11)	2.6
22:1	0.0
24:1	0.0
Total	22.4
Polyunsaturates	
18:2(n-6)	0.8
18:3(n-3)	0.0
18:3(n-6)	0.4
18:4(n-3)	1.6
20:2(n-6)	1.1
20:3(n-6)	0.4
20:4(n-3)	1.7
20:4(n-6) AA	4.8
20:5(n-3) EPA	11.5
22:3(n-3)	0.5
22:4(n-6)	1.4
22:5(n-3)	2.2
22:5(n-6)	0.9
22:6(n-3) DHA	12.1
Total	39.6

cuttlefish *Sepia pharaonis*

23 607008



Summary

Oil 0.8 %

mg/100g (wet)

20:4(n-6) AA	38
20:5(n-3) EPA	45
22:6(n-3) DHA	124
(n-3)/(n-6)	3.8

Oil Content

Oil Class mg/100g (wet)

Total oil	802
Wax ester*	0
Triglyceride	2
Free fatty acid	1
Cholesterol	123
Polar oil	676

Fatty Acids

Total fatty acids	406
Total saturates	154
Total monounsaturates	33
Total polyunsaturates	219
Total (n-3)	173
Total (n-6)	46

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid **Percent (%)**

Saturates

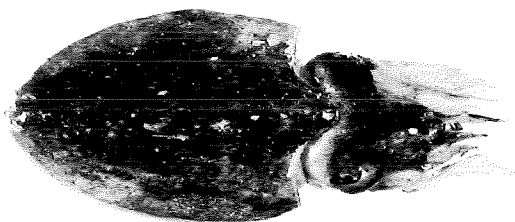
14:0	2.3
15:0	0.8
16:0	16.8
17:0	2.2
18:0	13.3
20:0	1.3
22:0	0.0
24:0	0.0
Total	37.2

Monounsaturates

16:1(n-5)	0.0
16:1(n-7)	0.5
16:1(n-9)	0.0
17:1(n-8)	0.2
18:1(n-7)	1.4
18:1(n-9)	4.1
20:1(n-7)	0.0
20:1(n-9+n-11)	2.0
22:1	0.0
24:1	0.0
Total	8.2

Polyunsaturates

18:2(n-6)	0.6
18:3(n-3)	0.0
18:3(n-6)	0.2
18:4(n-3)	0.1
20:2(n-6)	0.5
20:3(n-6)	0.1
20:4(n-3)	0.0
20:4(n-6) AA	9.4
20:5(n-3) EPA	11.2
22:3(n-3)	0.0
22:4(n-6)	0.6
22:5(n-3)	0.9
22:5(n-6)	0.0
22:6(n-3) DHA	31.1
Total	54.7

cuttlefish *Sepia hedleyi***23 607021****Summary**

Oil	1.5 %
	mg/100g (wet)
20:4(n-6) AA	24
20:5(n-3) EPA	125
22:6(n-3) DHA	191
(n-3)/(n-6)	9.6

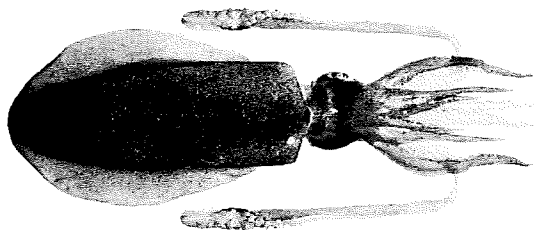
Oil Content

Oil Class	mg/100g (wet)
Total oil	1517
Wax ester*	0
Triglyceride	1
Free fatty acid	2
Cholesterol	197
Polar oil	1317
Fatty Acids	
Total fatty acids	694
Total saturates	248
Total monounsaturates	79
Total polyunsaturates	367
Total (n-3)	332
Total (n-6)	35

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	0.9
15:0	0.6
16:0	23.8
17:0	1.6
18:0	7.8
20:0	0.4
22:0	0.2
24:0	0.1
Total	35.8
Monounsaturates	
16:1(n-5)	0.2
16:1(n-7)	0.4
16:1(n-9)	0.2
17:1(n-8)	0.2
18:1(n-7)	1.6
18:1(n-9)	2.4
20:1(n-7)	0.3
20:1(n-9+n-11)	5.0
22:1	0.6
24:1	0.2
Total	11.4
Polyunsaturates	
18:2(n-6)	0.1
18:3(n-3)	0.0
18:3(n-6)	0.5
18:4(n-3)	0.2
20:2(n-6)	0.2
20:3(n-6)	0.1
20:4(n-3)	0.1
20:4(n-6) AA	3.4
20:5(n-3) EPA	18.1
22:3(n-3)	0.1
22:4(n-6)	0.3
22:5(n-3)	2.0
22:5(n-6)	0.3
22:6(n-3) DHA	27.5
Total	52.8

northern calamari *Sepioteuthis lessoniana***23 617006****Summary**

Oil	1.6 %
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	mg/100g (wet)
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20:4(n-6) AA	57
20:5(n-3) EPA	85
22:6(n-3) DHA	192
(n-3)/(n-6)	3.4

Oil Content

Oil Class	mg/100g (wet)
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Total oil	1580
Wax ester*	0
Triglyceride	5
Free fatty acid	3
Cholesterol	230
Polar oil	1342

Fatty Acids

Total fatty acids	770
Total saturates	331
Total monounsaturates	67
Total polyunsaturates	372
Total (n-3)	287
Total (n-6)	85

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
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Saturates

14:0	1.8
15:0	0.8
16:0	27.6
17:0	1.6
18:0	10.2
20:0	0.3
22:0	0.2
24:0	0.1
Total	42.9

Monounsaturates

16:1(n-5)	0.2
16:1(n-7)	0.7
16:1(n-9)	0.0
17:1(n-8)	0.2
18:1(n-7)	1.7
18:1(n-9)	3.0
20:1(n-7)	0.1
20:1(n-9+n-11)	2.0
22:1	0.5
24:1	0.2
Total	8.5

Polyunsaturates

18:2(n-6)	0.3
18:3(n-3)	0.0
18:3(n-6)	0.4
18:4(n-3)	0.1
20:2(n-6)	0.4
20:3(n-6)	0.1
20:4(n-3)	0.1
20:4(n-6) AA	7.3
20:5(n-3) EPA	10.9
22:3(n-3)	0.0
22:4(n-6)	0.9
22:5(n-3)	1.1
22:5(n-6)	1.5
22:6(n-3) DHA	25.4
Total	48.6

abalone *Haliotis conicopora***24 038002****Summary**

Oil	1.0 %
	mg/100g (wet)
20:4(n-6) AA	68
20:5(n-3) EPA	40
22:6(n-3) DHA	1
(n-3)/(n-6)	1.2

Oil Content

Oil Class	mg/100g (wet)
Total oil	972
Wax ester*	0
Triglyceride	0
Free fatty acid	3
Cholesterol	131
Polar oil	838

Fatty Acids

Total fatty acids	511
Total saturates	170
Total monounsaturates	103
Total polyunsaturates	237
Total (n-3)	131
Total (n-6)	106

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	2.6
15:0	2.1
16:0	18.5
17:0	2.6
18:0	6.5
20:0	0.1
22:0	0.0
24:0	0.3
Total	33.3
Monounsaturates	
16:1(n-5)	0.2
16:1(n-7)	1.1
16:1(n-9)	0.3
17:1(n-8)	0.7
18:1(n-7)	7.2
18:1(n-9)	7.4
20:1(n-7)	0.1
20:1(n-9+n-11)	3.0
22:1	0.3
24:1	0.0
Total	20.3
Polyunsaturates	
18:2(n-6)	0.6
18:3(n-3)	0.0
18:3(n-6)	1.4
18:4(n-3)	0.2
20:2(n-6)	0.3
20:3(n-6)	0.4
20:4(n-3)	0.2
20:4(n-6) AA	13.4
20:5(n-3) EPA	7.8
22:3(n-3)	5.1
22:4(n-6)	4.4
22:5(n-3)	12.2
22:5(n-6)	0.2
22:6(n-3) DHA	0.2
Total	46.4

abalone *Haliotis roei***24 038005****Summary**

Oil	0.9 %
	mg/100g (wet)
20:4(n-6) AA	49
20:5(n-3) EPA	25
22:6(n-3) DHA	1
(n-3)/(n-6)	1.6

Oil Content

Oil Class	mg/100g (wet)
Total oil	884
Wax ester*	0
Triglyceride	0
Free fatty acid	0
Cholesterol	87
Polar oil	796

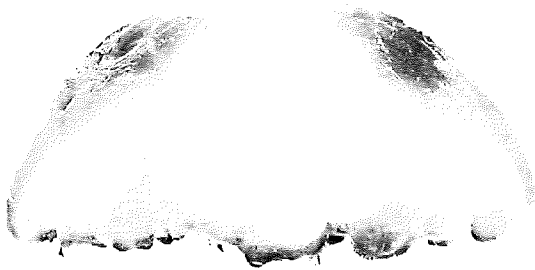
Fatty Acids

Total fatty acids	444
Total saturates	145
Total monounsaturates	101
Total polyunsaturates	198
Total (n-3)	122
Total (n-6)	76

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	1.2
15:0	1.0
16:0	19.9
17:0	2.1
18:0	7.1
20:0	0.1
22:0	0.1
24:0	0.6
Total	32.6
Monounsaturates	
16:1(n-5)	0.2
16:1(n-7)	1.2
16:1(n-9)	0.1
17:1(n-8)	0.6
18:1(n-7)	7.9
18:1(n-9)	10.1
20:1(n-7)	0.1
20:1(n-9+n-11)	2.3
22:1	0.3
24:1	0.0
Total	22.8
Polyunsaturates	
18:2(n-6)	0.8
18:3(n-3)	0.0
18:3(n-6)	1.0
18:4(n-3)	0.4
20:2(n-6)	0.3
20:3(n-6)	0.3
20:4(n-3)	0.3
20:4(n-6) AA	11.0
20:5(n-3) EPA	5.5
22:3(n-3)	5.9
22:4(n-6)	3.5
22:5(n-3)	14.9
22:5(n-6)	0.3
22:6(n-3) DHA	0.3
Total	44.6

jellyfish *Aurelia aurita***11 133001****Summary**

Oil	0.1 %
	mg/100g (wet)
20:4(n-6) AA	0.1
20:5(n-3) EPA	0.0
22:6(n-3) DHA	0.0
(n-3)/(n-6)	0.6

Oil Content

Oil Class	mg/100g (wet)
Total oil	133
Wax ester*	10
Triglyceride	5
Free fatty acid	42
Cholesterol	8
Polar oil	68

Fatty Acids

Total fatty acids	92.5
Total saturates	75.6
Total monounsaturates	15.7
Total polyunsaturates	1.1
Total (n-3)	0.4
Total (n-6)	0.7

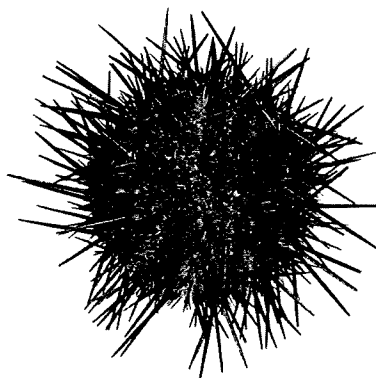
*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	4.9
15:0	1.9
16:0	53.6
17:0	3.4
18:0	14.7
20:0	0.6
22:0	0.3
24:0	0.8
Total	81.7
Monounsaturates	
16:1(n-5)	0.1
16:1(n-7)	3.7
16:1(n-9)	0.3
17:1(n-8)	0.3
18:1(n-7)	2.4
18:1(n-9)	6.8
20:1(n-7)	0.3
20:1(n-9+n-11)	0.9
22:1	1.3
24:1	0.8
Total	17.0
Polyunsaturates	
18:2(n-6)	0.2
18:3(n-3)	0.0
18:3(n-6)	0.0
18:4(n-3)	0.4
20:2(n-6)	0.5
20:3(n-6)	0.0
20:4(n-3)	0.0
20:4(n-6) AA	0.1
20:5(n-3) EPA	0.0
22:3(n-3)	0.0
22:4(n-6)	0.0
22:5(n-3)	0.0
22:5(n-6)	0.0
22:6(n-3) DHA	0.0
Total	1.2

sea urchin[†] *Heliocidaris erythrogramma***25 247001**

†roe

**Summary****Oil** 12.5 %

mg/100g (wet)

20:4(n-6) AA	219
20:5(n-3) EPA	300
22:6(n-3) DHA	16
(n-3)/(n-6)	0.7

Oil Content**Oil Class** mg/100g (wet)

Total oil	12487
Diacylglycerol ether*	6528
Triglyceride	3782
Free fatty acid	224
Cholesterol	168
Polar oil	1785

Fatty Acids

Total fatty acids	3687
Total saturates	1996
Total monounsaturates	769
Total polyunsaturates	922
Total (n-3)	387
Total (n-6)	535

*includes hydrocarbon and steryl ester

Fatty Acid Composition**Fatty Acid** **Percent (%)****Saturates**

14:0	31.1
15:0	0.5
16:0	17.3
17:0	0.1
18:0	3.8
20:0	0.5
22:0	0.0
24:0	0.7
Total	54.1

Monounsaturates

16:1(n-5)	0.0
16:1(n-7)	0.4
16:1(n-9)	0.2
17:1(n-8)	0.1
18:1(n-7)	1.6
18:1(n-9)	11.1
20:1(n-7)	3.0
20:1(n-9+n-11)	3.4
22:1	0.1
24:1	0.7
Total	20.6

Polyunsaturates

18:2(n-6)	5.7
18:3(n-3)	0.0
18:3(n-6)	0.8
18:4(n-3)	0.6
20:2(n-6)	1.1
20:3(n-6)	0.1
20:4(n-3)	0.9
20:4(n-6) AA	6.1
20:5(n-3) EPA	8.3
22:3(n-3)	0.0
22:4(n-6)	0.3
22:5(n-3)	0.5
22:5(n-6)	0.5
22:6(n-3) DHA	0.4
Total	25.2

beche-de-mer *Holothuria scabra***25 416004****Summary****Oil** **0.2 %****mg/100g (wet)**

20:4(n-6) AA 90

20:5(n-3) EPA 45

22:6(n-3) DHA 1

(n-3)/(n-6) 0.5

Oil Content**Oil Class** **mg/100g (wet)****Total oil** **173**

Wax ester* 0

Triglyceride 13

Free fatty acid 0

Cholesterol 2

Polar oil 158

Fatty Acids**Total fatty acids** **55**

Total saturates 17

Total monounsaturates 15

Total polyunsaturates 16

Total (n-3) 6

Total (n-6) 11

Fatty Acid Composition**Fatty Acid** **Percent (%)****Saturates**

14:0 0.7

15:0 0.9

16:0 9.7

17:0 1.4

18:0 10.6

20:0 4.2

22:0 3.0

24:0 1.6

Total **35.5****Monounsaturates**

16:1(n-5) 0.1

16:1(n-7) 2.4

16:1(n-9) 0.0

17:1(n-8) 0.7

18:1(n-7) 1.8

18:1(n-9) 2.2

20:1(n-7) 0.7

20:1(n-9+n-11) 12.5

22:1 5.0

24:1 5.8

Total **31.1****Polyunsaturates**

18:2(n-6) 0.5

18:3(n-3) 0.0

18:3(n-6) 0.2

18:4(n-3) 0.7

20:2(n-6) 1.1

20:3(n-6) 0.2

20:4(n-3) 0.1

20:4(n-6) AA 19.1

20:5(n-3) EPA 8.2

22:3(n-3) 0.0

22:4(n-6) 0.5

22:5(n-3) 0.2

22:5(n-6) 1.1

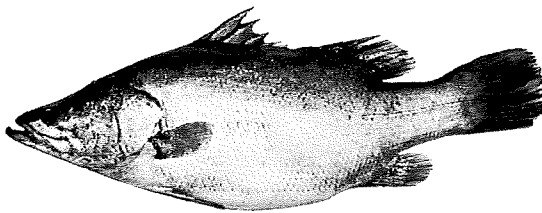
22:6(n-3) DHA 1.5

Total **33.4**

*includes hydrocarbon and steryl ester

Nile perch *Lates niloticus*

37 310790



Summary

Oil	0.8 %
	mg/100g (wet)
20:4(n-6) AA	32
20:5(n-3) EPA	20
22:6(n-3) DHA	85
(n-3)/(n-6)	2.2

Oil Content

Oil Class	mg/100g (wet)
Total oil	834
Wax ester*	0
Triglyceride	270
Free fatty acid	27
Cholesterol	33
Polar oil	504

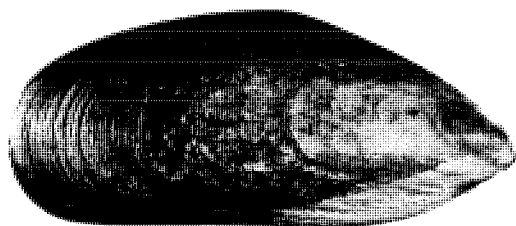
Fatty Acids

Total fatty acids	513
Total saturates	180
Total monounsaturates	131
Total polyunsaturates	199
Total (n-3)	136
Total (n-6)	62

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	1.5
15:0	0.3
16:0	20.9
17:0	1.0
18:0	9.2
20:0	0.2
22:0	0.1
24:0	0.3
Total	34.5
Monounsaturates	
16:1(n-5)	0.2
16:1(n-7)	6.5
16:1(n-9)	0.2
17:1(n-8)	0.6
18:1(n-7)	4.4
18:1(n-9)	10.2
20:1(n-7)	0.1
20:1(n-9+n-11)	0.4
22:1	0.1
24:1	0.6
Total	23.3
Polyunsaturates	
18:2(n-6)	1.2
18:3(n-3)	0.0
18:3(n-6)	0.3
18:4(n-3)	0.2
20:2(n-6)	0.2
20:3(n-6)	0.3
20:4(n-3)	0.2
20:4(n-6) AA	7.0
20:5(n-3) EPA	4.0
22:3(n-3)	0.0
22:4(n-6)	1.1
22:5(n-3)	5.8
22:5(n-6)	3.0
22:6(n-3) DHA	17.9
Total	41.3

green mussel*Perna canaliculus***23 220751****Summary**

Oil	1.8 %
	mg/100g (wet)
20:4(n-6) AA	24
20:5(n-3) EPA	191
22:6(n-3) DHA	140
(n-3)/(n-6)	7.1

Oil Content

Oil Class	mg/100g (wet)
Total oil	1790
Wax ester*	0
Triglyceride	376
Free fatty acid	211
Cholesterol	113
Polar oil	1076

Fatty Acids

Total fatty acids	1046
Total saturates	293
Total monounsaturates	212
Total polyunsaturates	463
Total (n-3)	390
Total (n-6)	55

*includes hydrocarbon and steryl ester

Fatty Acid Composition

Fatty Acid	Percent (%)
Saturates	
14:0	3.4
15:0	0.6
16:0	16.5
17:0	1.1
18:0	4.3
20:0	0.1
22:0	0.1
24:0	0.2
Total	28.5
Monounsaturates	
16:1(n-5)	0.2
16:1(n-7)	8.2
16:1(n-9)	0.1
17:1(n-8)	0.1
18:1(n-7)	3.2
18:1(n-9)	2.1
20:1(n-7)	1.5
20:1(n-9+n-11)	3.2
22:1	0.0
24:1	0.0
Total	20.3
Polyunsaturates	
18:2(n-6)	1.5
18:3(n-3)	0.0
18:3(n-6)	0.2
18:4(n-3)	1.8
20:2(n-6)	0.4
20:3(n-6)	0.2
20:4(n-3)	2.1
20:4(n-6) AA	2.4
20:5(n-3) EPA	17.9
22:3(n-3)	0.0
22:4(n-6)	0.4
22:5(n-3)	1.5
22:5(n-6)	0.3
22:6(n-3) DHA	13.5
Total	47.4

References

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Index of scientific names

All species included in volumes I and II of *Seafood the Good Food* are listed here by genus and species name. Species included in volume I are noted by 'I'. Page numbers are provided for species in this volume. In both volumes species are presented in order of their CAAB (Code for Australian Aquatic Biota).

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smallspot herring	I
smooth oreo	I
snapper	I,62,63
southern bluefin tuna	I
southern calamari	I
southern garfish	I
southern rockcod	42
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spangled emperor	I
Spanish mackerel	I
spanner crab	I
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spikey oreo dory	I
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spotted golden goatfish	I
spotted mackerel	I
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squid	I
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stout whiting	I
striped perch	51
striped trumpeter	I,12,13

stripsey seaperch	I,26,27
surf clam	I
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sweetlip bream	64
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Sydney rock oyster	I

T

tailor	I
tarwhine	I
teraglin	I
threadfin	I,73
threadfin blue	I
threadfin bream	I
threadfin emperor	I
threadfin pearl perch	I
tiger flathead	I
tiger prawn	I
toothfish	I
trevally	I,59
tropical rocklobster	I
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trumpeter	I,72
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V

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W

warehou	I
warty oreo	I
West Australian dhufish	I
Western Australian salmon	I
Western blue groper	I
western king prawn	I
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whiptail	I
white banana prawn	I,12,13
whitecheek shark	I
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Y

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yabby	I
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yelloweye mullet	I
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yellowfin tuna	I
yellowfin whiting	I
yellowtail emperor	I
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Seafood

THE GOOD FOOD II



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