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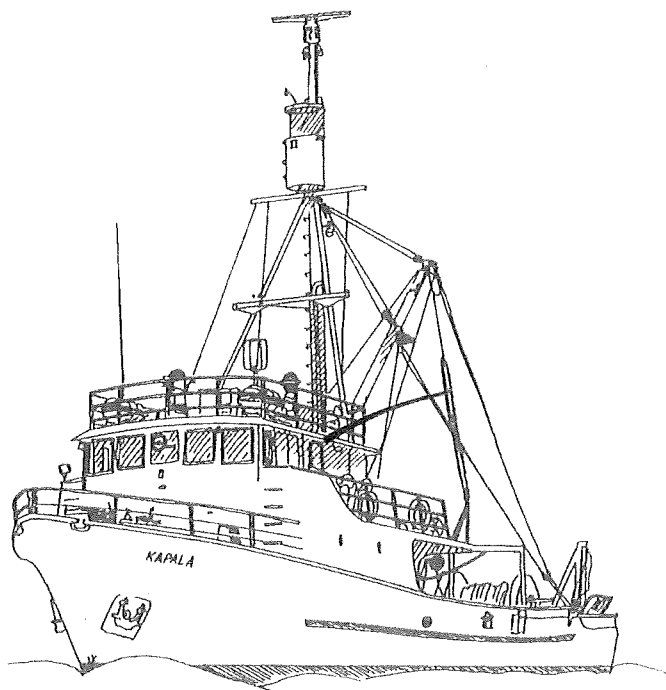
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# Fisheries Research Report Series: 2

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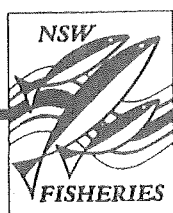
Trawl fish length-weight relationships from data  
collected during FRV *Kapala* surveys

K. J. Graham



April 1999

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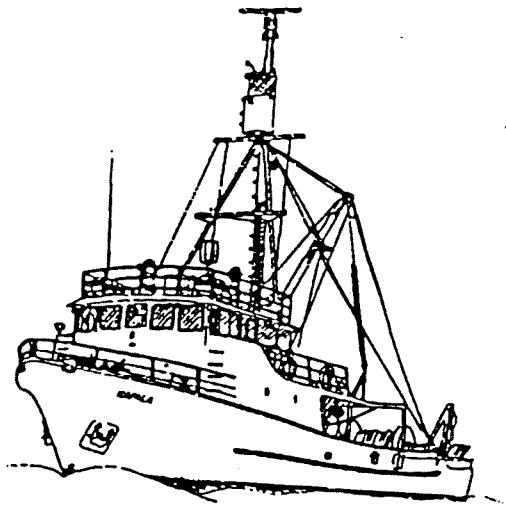
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# Fisheries Research Report Series: 2

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Trawl fish length-weight relationships from data  
collected during FRV *Kapala* surveys

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## TABLE OF CONTENTS

	Page
<b>Abstract</b> .....	1
<b>Introduction</b> .....	1
<b>Methods</b> .....	1
<b>Results</b> .....	2
<b>Data Report</b> .....	2
<b>Table 1.</b> List of species in taxonomic order. ....	3
<b>Table 2.</b> List of common names in alphabetic order .....	5
<b>Figures 1-65</b> (Length-weight graphs and regression coefficients) .....	7-105
 <b>Sharks and rays</b>	
Figure 1.1 <i>Mustelus antarcticus</i> .....	gummy shark 7
Figure 1.2 <i>Mustelus antarcticus</i> .....	gummy shark (m & f) 8
Figure 2.1 <i>Centrophorus harrissoni</i> .....	Harrissons dogshark 9
Figure 2.2 <i>Centrophorus harrissoni</i> .....	Harrissons dogshark (m & f) 10
Figure 3.1 <i>Centrophorus moluccensis</i> .....	Endeavour dogshark 11
Figure 3.2 <i>Centrophorus moluccensis</i> .....	Endeavour dogshark (m & f) 12
Figure 4.1 <i>Centrophorus uyato</i> .....	southern dogshark 13
Figure 4.2 <i>Centrophorus uyato</i> .....	southern dogshark (m & f) 14
Figure 5.1 <i>Centroscyllium kamohari</i> .....	bareskin dogshark 15
Figure 5.2 <i>Centroscyllium kamohari</i> .....	bareskin dogshark (m & f) 16
Figure 6 <i>Centroscymnus coelolepis</i> .....	Portuguese dogshark 17
Figure 7 <i>Centroscymnus crepidater</i> .....	golden dogshark 18
Figure 8.1 <i>Centroscymnus owstoni</i> .....	Owstons dogshark 19
Figure 8.2 <i>Centroscymnus owstoni</i> .....	Owstons dogshark (m & f) 20
Figure 9.1 <i>Deania calcea</i> .....	brier dogshark 21
Figure 9.2 <i>Deania calcea</i> .....	brier dogshark (m & f) 22
Figure 10.1 <i>Deania quadrispinosa</i> .....	longsnout dogshark 23
Figure 10.2 <i>Deania quadrispinosa</i> .....	longsnout dogshark (m & f) 24
Figure 11.1 <i>Etmopterus</i> sp.B .....	lantern dogshark 25
Figure 11.2 <i>Etmopterus</i> sp.B .....	lantern dogshark (m & f) 26
Figure 12.1 <i>Squalus megalops</i> .....	spiky dogshark 27
Figure 12.2 <i>Squalus megalops</i> .....	spiky dogshark (m & f) 28
Figure 13.1 <i>Squalus mitsukurii</i> /sp.F .....	greeneye dogshark 29
Figure 13.2 <i>Squalus mitsukurii</i> /sp.F .....	greeneye dogshark (m & f) 30
Figure 14.1 <i>Pristiophorus</i> sp.A .....	eastern sawshark 31
Figure 14.2 <i>Pristiophorus</i> sp.A .....	eastern sawshark (m & f) 32
Figure 15.1 <i>Squatina australis</i> .....	southern angel shark 33
Figure 15.2 <i>Squatina australis</i> .....	southern angel shark (m & f) 34
Figure 16.1 <i>Squatina</i> sp.A .....	eastern angel shark 35
Figure 16.2 <i>Squatina</i> sp.A .....	eastern angel shark (m & f) 36
Figure 17.1 <i>Aptychotrema rostrata</i> .....	east. shovelnose ray 37

Figure 17.2	<i>Aptychotrema rostrata</i>	east. shovelnose ray (m & f)	38
Figure 18.1	<i>Trygonorrhina</i> sp.A	eastern banjo ray	39
Figure 18.2	<i>Trygonorrhina</i> sp.A	eastern banjo ray (m & f)	40
Figure 19.1	<i>Myliobatus australis</i>	eagle ray	41
Figure 19.2	<i>Myliobatus australis</i>	eagle ray (m & f)	42
Figure 20.1	<i>Hydrolagus ogilbyi</i>	silver ghostshark	43
Figure 20.2	<i>Hydrolagus ogilbyi</i>	silver ghostshark (m & f)	44
<b>Teleosts</b>			
Figure 21.1	<i>Mora moro</i>	ribaldo	45
Figure 21.2	<i>Mora moro</i>	ribaldo (m & f)	46
Figure 22	<i>Macruronus novaezelandiae</i>	blue grenadier	47
Figure 23	<i>Genypterus blacodes</i>	ling	48
Figure 24.1	<i>Hoplostethus atlanticus</i>	orange roughy	49
Figure 24.2	<i>Hoplostethus atlanticus</i>	orange roughy (m & f)	50
Figure 25	<i>Hoplostethus melanopus</i>	blackfin roughy	51
Figure 26.1	<i>Centroberyx affinis</i>	redfish	52
Figure 26.2	<i>Centroberyx affinis</i>	redfish (m & f)	53
Figure 27	<i>Cyttus australis</i>	silver dory	54
Figure 28	<i>Cyttus traversi</i>	king dory	55
Figure 29	<i>Zenopsis nebulosus</i>	mirror dory	56
Figure 30.1	<i>Zeus faber</i>	john dory	57
Figure 30.2	<i>Zeus faber</i>	john dory (m & f)	58
Figure 31.1	<i>Allocyttus verrucosus</i>	warty oreo	59
Figure 31.2	<i>Allocyttus verrucosus</i>	warty oreo (m & f)	60
Figure 32.1	<i>Neocyttus rhomboidalis</i>	spiky oreo	61
Figure 32.2	<i>Neocyttus rhomboidalis</i>	spiky oreo (m & f)	62
Figure 33.1	<i>Pseudocyttus maculatus</i>	smooth oreo	63
Figure 33.2	<i>Pseudocyttus maculatus</i>	smooth oreo (m & f)	64
Figure 34	<i>Helicolenus barathri</i>	ocean perch	65
Figure 35	<i>Helicolenus percoides</i>	inshore ocean perch	66
Figure 36	<i>Trachyscorpia capensis</i>	deepsea perch	67
Figure 37.1	<i>Chelidonichthys kumu</i>	red gurnard	68
Figure 37.2	<i>Chelidonichthys kumu</i>	red gurnard (m & f)	69
Figure 38	<i>Pterygotrigla andertoni</i>	spotted gurnard	70
Figure 39.1	<i>Pterygotrigla polyommata</i>	latchet	71
Figure 39.2	<i>Pterygotrigla polyommata</i>	latchet (m & f)	72
Figure 40.1	<i>Neoplatycephalus richardsoni</i>	tiger flathead	73
Figure 40.2	<i>Neoplatycephalus richardsoni</i>	tiger flathead (m & f)	74
Figure 41.1	<i>Platycephalus caeruleopunctatus</i>	bluespot flathead	75
Figure 41.2	<i>Platycephalus caeruleopunctatus</i>	bluespot flathead (m & f)	76
Figure 42	<i>Platycephalus marmoratus</i>	marbled flathead	77
Figure 43	<i>Ratabulus diversidens</i>	spiky-head flathead	78
Figure 44	<i>Hoplichthys haswelli</i>	spiny (ghost) flathead	79
Figure 45	<i>Lepidoperca pulchella</i>	orange perch	80
Figure 46.1	<i>Sillago flindersi</i>	redspot whiting	81
Figure 46.2	<i>Sillago flindersi</i>	redspot whiting (m & f)	82
Figure 47	<i>Branchiostegus serratus</i>	serrate tilefish	83
Figure 48.1	<i>Pseudocaranx dentex</i>	silver trevally	84

Figure 48.2	<i>Pseudocaranx dentex</i>	silver trevally (m & f)	85
Figure 49	<i>Trachurus declivis</i>	jack mackerel	86
Figure 50	<i>Acanthopagrus australis</i>	yellowfin bream	87
Figure 51	<i>Allotaius spariformes</i>	Cape Moreton bream	88
Figure 52	<i>Upeneichthys lineatus</i>	red mullet / red goatfish	89
Figure 53	<i>Paristiopterus labiosus</i>	giant boarfish	90
Figure 54	<i>Nemadactylus douglasii</i>	rubberlip morwong	91
Figure 55.1	<i>Nemadactylus macropterus</i>	jackass morwong	92
Figure 55.2	<i>Nemadactylus macropterus</i>	jackass morwong (m & f)	93
Figure 56	<i>Gnathagnus innotabilis</i>	green stargazer	94
Figure 57	<i>Kathetostoma canaster</i>	speckled or yellow stargazer	95
Figure 58	<i>Rexea solandri</i>	gemfish	96
Figure 59	<i>Hyperoglyphe antarctica</i>	blue-eye	97
Figure 60.1	<i>Seriolella brama</i>	blue warehou	98
Figure 60.2	<i>Seriolella brama</i>	blue warehou (m & f)	99
Figure 61.1	<i>Seriolella punctata</i>	spotted warehou	100
Figure 61.2	<i>Seriolella punctata</i>	spotted warehou (m & f)	101
Figure 62	<i>Pseudorhombus arsius</i>	bigtoothed flounder	102
Figure 63	<i>Pseudorhombus jenynsii</i>	smalltooth flounder	103
Figure 64	<i>Pseudorhombus tenuirastrum</i>	smoothback flounder	104
Figure 65	<i>Meuschenia scaber</i>	velvet leatherjacket	105

## Abstract

**Length-weight data were collected for 70 species of fishes during research trawling off the NSW coast. There were sufficient data to compute length-weight relationships for 65 species. Graphs and regression coefficients are presented for 20 species of sharks and rays, and 45 species of teleosts. Raw data for all species are contained in a separate Data Report.**

### Introduction

Between 1972 and 1997, the NSW Fisheries Research Vessel *Kapala* completed numerous exploratory and resource assessment trawling surveys. These surveys were done in NSW continental shelf and slope waters across a depth range of 10 to 1200 m. During the course of these studies, length-weight data were collected for over seventy species of fishes. Most data were collected opportunistically and accumulated over time. For some species, in particular sharks and mid-slope teleosts, length-weights were extracted from datasets of biological information which included breeding condition (gonad weight and stage).

This report presents graphically the length-weight relationships for 45 teleosts and 20 species of sharks and rays. Separate male and female length-weight relationships are also given for 17 of the teleosts (principally SEF Quota species), and for most species of sharks and rays.

### Methods

Almost all fish were weighed and measured ashore. All measurements were made to the centimetre below (except for redfish <10 cm which were measured to the nearest mm). The length category (total, fork, standard) is shown on each graph; eagle rays were measured for total width, and ghost sharks were measured from the snout to the posterior of the second dorsal fin.

The degree of accuracy of weights varied with the size of the fish. In general, weights of fish greater than 50 cm (mainly sharks) were recorded to the nearest 100 g, those between 20 and 50 cm to the nearest 10 g, and fish smaller than 20 cm to the nearest 5 g.

Unsexed data and/or aggregated sexed data were used to calculate the length-weight relationships for each species. Separate male and female relationships were also computed for those species where sufficient sexed data were available. The relationships were computed and graphed using Sigma Plot 4.0.

Data were fitted to the non-linear model of the form:

$$\text{Weight} = a \cdot (\text{length})^b$$

## Results

Figures 1-65 show graphically the length-weight relationships for each species. Observed values and fitted regression lines are shown on the graph. Regression coefficients, adjusted  $R^2$  value, length range and number of observations are shown below each graph.

Sufficient data were collected for 45 species of teleosts, 16 sharks, 3 rays and a holocephalon (ghost shark) to compute and graph length-weight relationships. Separate male and female length-weight relationships were also calculated for 17 of the teleosts (principally South East Fishery Quota species), and for most species of sharks and rays.

Small numbers of observations were collected for five teleosts (alfonsino *Beryx splendens*, imperador *Beryx decadactylus*, oilfish *Ruvettus pretiosus*, rudderfish *Centrolophus niger* and tarwhine *Rhabdosargus sarba*) and these data are included in the Data Report.

The size range of observed data for each species was representative of the catches during the period the length-weight data were recorded. For some species, the data may not cover the known maximum size range.

The length-weight relationships for greeneye dogshark are derived from data now known to represent two very similar species (*Squalus* sp. F and *Squalus mitsukurii*) only recently distinguished by Last and Stevens 1994 (*Sharks and Rays of Australia*). The maximum size of *Squalus* sp. F is about 65 cm for males and 75 cm for females. Data for males >65 cm and females >75 cm almost certainly represent only *S. mitsukurii*; data from specimens below these sizes are for both species.

The graphs are presented in the usual taxonomic order of fish families. For cross referencing, Table 1 lists the species in alphabetic order of common names. Table 2 lists the species by family (in taxonomic order).

Taxonomic and most common names for sharks and rays follow "*Sharks and Rays of Australia*". The recommended marketing name, where applicable, is used for teleosts (ref. *Marketing Names for Fish and Seafood in Australia* 1995).

## Data Report

The raw data from which the relationships were calculated are in Tables 1-65 in Fisheries Data Report No. 1 (Graham 1999 *Trawl fish length-weight data collected during FRV Kapala surveys*), and also electronically on disk. The Data Report and disk are deposited in the NSW Fisheries Research Institute library.



**Table 1.** List of species in alphabetic order of common names (with figure no.).

<b>Sharks and Rays</b>		<b>Figure No.</b>
Dogshark-bareskin	<i>Centroscyllium kamohari</i>	5
Dogshark-brier	<i>Deania calcea</i>	9
Dogshark-Endeavour	<i>Centrophorus moluccensis</i>	3
Dogshark-golden	<i>Centroscymnus crepidater</i>	7
Dogshark-greeneye	<i>Squalus</i> sp.F & <i>S. mitsukurii</i>	13
Dogshark-Harrissons	<i>Centrophorus harrissoni</i>	2
Dogshark-lantern	<i>Etmopterus</i> sp.B ( <i>unicolor</i> )	11
Dogshark-longsnout	<i>Deania quadrispinosa</i>	10
Dogshark-Owstons	<i>Centroscymnus owstoni</i>	8
Dogshark-Portuguese	<i>Centroscymnus coelolepis</i>	6
Dogshark-southern	<i>Centrophorus uyato</i>	4
Dogshark-spiked	<i>Squalus megalops</i>	12
Ghostshark-silver (Ogilbys)	<i>Hydrolagus ogilbyi</i>	20
Ray-eagle	<i>Myliobatus australis</i>	19
Ray-east. banjo (fiddler)	<i>Trygonorrhina</i> sp.A	18
Ray-east. shovelnose	<i>Aptychotrema rostrata</i>	17
Shark-east. angel (offshore)	<i>Squatina</i> sp.A	16
Shark-east. saw	<i>Pristiophorus</i> sp.A	14
Shark-gummy	<i>Mustelus antarcticus</i>	1
Shark-sthn angel (inshore)	<i>Squatina australis</i>	15
<b>Teleosts</b>		<b>Figure No.</b>
Blue-eye	<i>Hyperoglyphe antarctica</i>	59
Boarfish-giant	<i>Paristiopeterus labiosus</i>	53
Bream-Cape Moreton	<i>Allotaius spariformes</i>	51
Bream-yellowfin	<i>Acanthopagrus australis</i>	50
Dory-john	<i>Zeus faber</i>	30
Dory-king	<i>Cyttus traversi</i>	28
Dory-mirror	<i>Zenopsis nebulosus</i>	29
Dory-silver	<i>Cyttus australis</i>	27
Flathead-east. bluespot	<i>Platycephalus caeruleopunctatus</i>	41
Flathead-marbled	<i>Platycephalus marmoratus</i>	42
Flathead-spikyhead	<i>Ratabulus diversidens</i>	43
Flathead-spiny	<i>Hoplichthys haswelli</i>	44
Flathead-tiger	<i>Neoplatycephalus richardsoni</i>	40
Flounder-bigtoothed	<i>Pseudorhombus arsius</i>	62
Flounder-smalltoothed	<i>Pseudorhombus jernynsii</i>	63
Flounder-smoothback	<i>Pseudorhombus tenuirastrum</i>	64
Gemfish	<i>Rexea solandri</i>	58
Grenadier-blue	<i>Macruronus novaezelandiae</i>	22
Gurnard-red	<i>Chelidonichthys kumu</i>	37
Gurnard-spotted	<i>Pterygotrigla andertoni</i>	38
Latchet	<i>Pterygotrigla polyommata</i>	39

**Table 1 (cont.).** List of species in alphabetic order of common names (with figure no.).

<b>Teleosts</b>		<b>Figure No.</b>
Leatherjacket-velvet	<i>Meuschenia scaber</i>	65
Ling	<i>Genypterus blacodes</i>	23
Mackerel-jack	<i>Trachurus declivis</i>	49
Morwong-jackass	<i>Nemadactylus macropterus</i>	55
Morwong-rubberlip/blue	<i>Nemadactylus douglasii</i>	54
Mullet-red (goatfish)	<i>Upeneichthys lineatus</i>	52
Perch-deepsea	<i>Trachyscorpia capensis</i>	36
Perch-inshore ocean	<i>Helicolenus percoides</i>	35
Perch-ocean	<i>Helicolenus barathri</i>	34
Perch-orange	<i>Lepidoperca pulchella</i>	45
Oreo-smooth	<i>Pseudocyttus maculatus</i>	33
Oreo-spiky	<i>Neocyttus rhomboidalis</i>	32
Oreo-warty	<i>Allocyttus verrucosus</i>	31
Redfish	<i>Centroberyx affinis</i>	26
Ribaldo	<i>Mora moro</i>	21
Roughy-blackfin	<i>Hoplostethus atlanticus</i>	24
Roughy-orange	<i>Hoplostethus melanopus</i>	25
Tilefish-serrate	<i>Branchiostegus serratus</i>	47
Trevally-silver	<i>Pseudocaranx dentex</i>	48
Stargazer-green	<i>Gnathagnus innotabilis</i>	56
Stargazer-speckled (yellow)	<i>Kathetostoma canaster</i>	57
Warehou-blue	<i>Seriolella brama</i>	60
Warehou-spotted	<i>Seriolella punctata</i>	61
Whiting-redspot (school)	<i>Sillago flindersi</i>	46

Table 2. List of species in taxonomic order with family name.

Family	Species	Common Name
<b>Sharks and Rays</b>		
Triakidae	<i>Mustelus antarcticus</i>	Shark-gummy
Squalidae	<i>Centrophorus harrissoni</i>	Dogshark-Harrissons
Squalidae	<i>Centrophorus moluccensis</i>	Dogshark-Endeavour
Squalidae	<i>Centrophorus uyato</i>	Dogshark-southern
Squalidae	<i>Centroscyllium kamohari</i>	Dogshark-bareskin
Squalidae	<i>Centroscymnus coelolepis</i>	Dogshark-Portuguese
Squalidae	<i>Centroscymnus crepidater</i>	Dogshark-golden
Squalidae	<i>Centroscymnus owstoni</i>	Dogshark-Owstons
Squalidae	<i>Deania calcea</i>	Dogshark-brier
Squalidae	<i>Deania quadrispinosa</i>	Dogshark-longsnout
Squalidae	<i>Etmopterus</i> sp.B ( <i>unicolor</i> )	Dogshark-lantern
Squalidae	<i>Squalus megalops</i>	Dogshark-spiked
Squalidae	<i>Squalus</i> sp.F & <i>S. mitsukurii</i>	Dogshark-greeneye
Pristiophoridae	<i>Pristiophorus</i> sp.A	Shark-east. saw
Squatinae	<i>Squatina</i> sp.A	Shark-east. angel (offshore)
Squatinae	<i>Squatina australis</i>	Shark-sthn angel (inshore)
Rhinobatidae	<i>Aptychotrema rostrata</i>	Ray-east. shovelnose
Rhinobatidae	<i>Trygonorrhina</i> sp.A	Ray-east. banjo (fiddler)
Myliobatidae	<i>Myliobatus australis</i>	Ray-eagle
Chimaeridae	<i>Hydrolagus ogilbyi</i>	Ghostshark-silver (Ogilbys)
Chimaeridae	<i>Hydrolagus ogilbyi</i>	Ghostshark-silver (Ogilbys)
<b>Teleosts</b>		
Moridae	<i>Mora moro</i>	Ribaldo
Merluciidae	<i>Macruronus novaezelandiae</i>	Grenadier-blue
Ophidiidae	<i>Genypterus blacodes</i>	Ling
Trachichthyidae	<i>Hoplostethus atlanticus</i>	Roughy-blackfin
Trachichthyidae	<i>Hoplostethus melanopus</i>	Roughy-orange
Berycidae	<i>Beryx decadactylus</i>	Imperador
Berycidae	<i>Beryx splendens</i>	Alfonsino
Berycidae	<i>Centroberyx affinis</i>	Redfish
Zeidae	<i>Cyttus australis</i>	Dory-silver
Zeidae	<i>Cyttus traversi</i>	Dory-king
Zeidae	<i>Zenopsis nebulosus</i>	Dory-mirror
Zeidae	<i>Zeus faber</i>	Dory-john
Oreosomatidae	<i>Pseudocyttus maculatus</i>	Oreo-smooth
Oreosomatidae	<i>Neocyttus rhomboidalis</i>	Oreo-spiky
Oreosomatidae	<i>Allocyttus verrucosus</i>	Oreo-warty
Scorpaenidae	<i>Helicolenus barathri</i>	Perch-ocean
Scorpaenidae	<i>Helicolenus percoides</i>	Perch-inshore ocean
Scorpaenidae	<i>Trachyscorpia capensis</i>	Perch-deepsea
Triglidae	<i>Chelidonichthys kumu</i>	Gurnard-red
Triglidae	<i>Pterygotrigla andertoni</i>	Gurnard-spotted
Triglidae	<i>Pterygotrigla polyommata</i>	Latchet

Table 2 (continued). List of species in taxonomic order with family name.

Family	Species	Common Name
Platycephalidae	<i>Neoplatycephalus richardsoni</i>	Flathead-tiger
Platycephalidae	<i>Platycephalus caeruleopunctatus</i>	Flathead-east. bluespot
Platycephalidae	<i>Platycephalus marmoratus</i>	Flathead-marbled
Platycephalidae	<i>Ratabulus diversidens</i>	Flathead-spikyhead
Hoplichthyidae	<i>Hoplichthys haswelli</i>	Flathead-spiny
Serranidae	<i>Lepidoperca pulchella</i>	Perch-orange
Sillaginidae	<i>Sillago flindersi</i>	Whiting-redspot (school)
Malacanthidae	<i>Branchiostegus serratus</i>	Tilefish-serrate
Carangidae	<i>Pseudocaranx dentex</i>	Trevally-silver
Carangidae	<i>Trachurus declivis</i>	Mackerel-jack
Sparidae	<i>Acanthopagrus australis</i>	Bream-yellowfin
Sparidae	<i>Allotaius spariformes</i>	Bream-Cape Moreton
Sparidae	<i>Rhabdosargus sarba</i>	Tarwhine
Mullidae	<i>Upeneichthys lineatus</i>	Mullet-red (goatfish)
Pentacerotidae	<i>Paristiopterus labiosus</i>	Boarfish-giant
Cheilodactylidae	<i>Nemadactylus macropterus</i>	Morwong-jackass
Cheilodactylidae	<i>Nemadactylus douglasii</i>	Morwong-rubberlip/blue
Uranoscopidae	<i>Gnathagnus innotabilis</i>	Stargazer-green
Uranoscopidae	<i>Kathetostoma canaster</i>	Stargazer-speckled (yellow)
Gempylidae	<i>Rexea solandri</i>	Gemfish
Centrolophidae	<i>Hyperoglyphe antarctica</i>	Blue-eye
Centrolophidae	<i>Seriolella brama</i>	Warehou-blue
Centrolophidae	<i>Seriolella punctata</i>	Warehou-spotted
Paralichthyidae	<i>Pseudorhombus arsius</i>	Flounder-bigtoothed
Paralichthyidae	<i>Pseudorhombus jenynsii</i>	Flounder-smalltoothed
Paralichthyidae	<i>Pseudorhombus tenuirastrum</i>	Flounder-smoothback
Monacanthidae	<i>Meuschenia scaber</i>	Leatherjacket-velvet

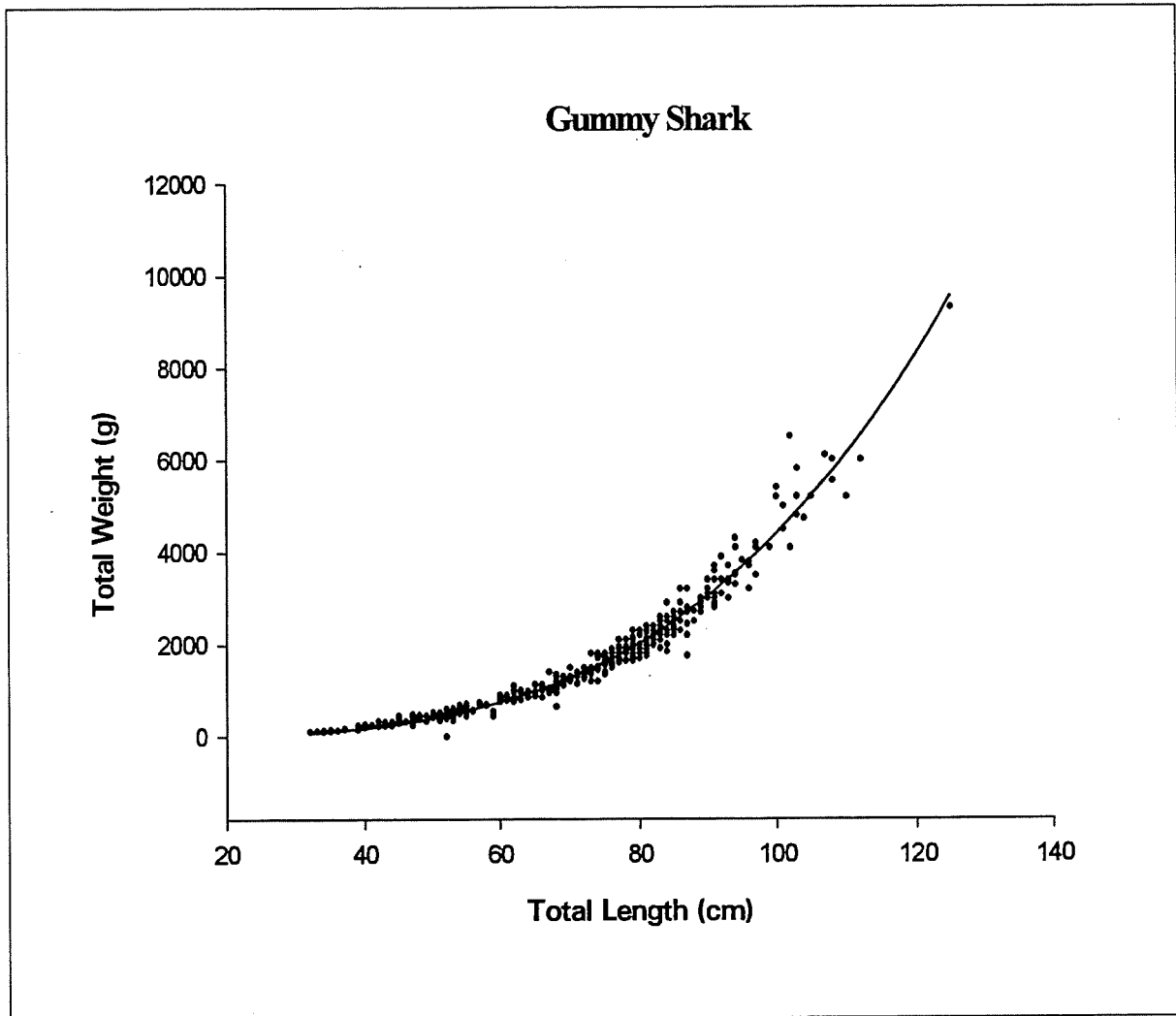
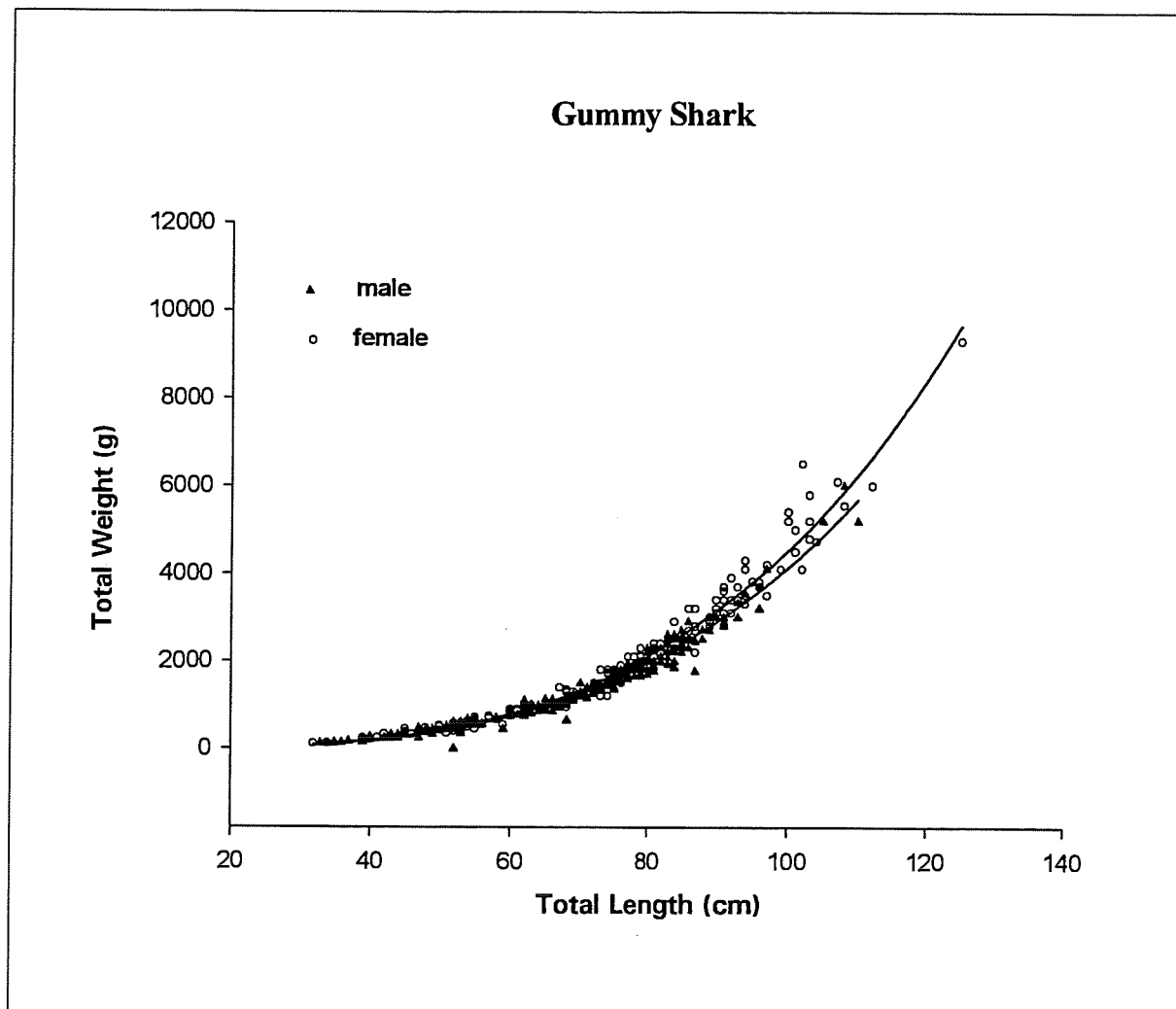


Figure 1.1: Length-weight relationship for gummy shark (*Mustelus antarcticus*).

	Coefficient	Std. Error	Adj Rsqr = 0.9691
a	0.0005	0.0001	Length range: 32-125 cm
b	3.4701	0.0342	n = 401



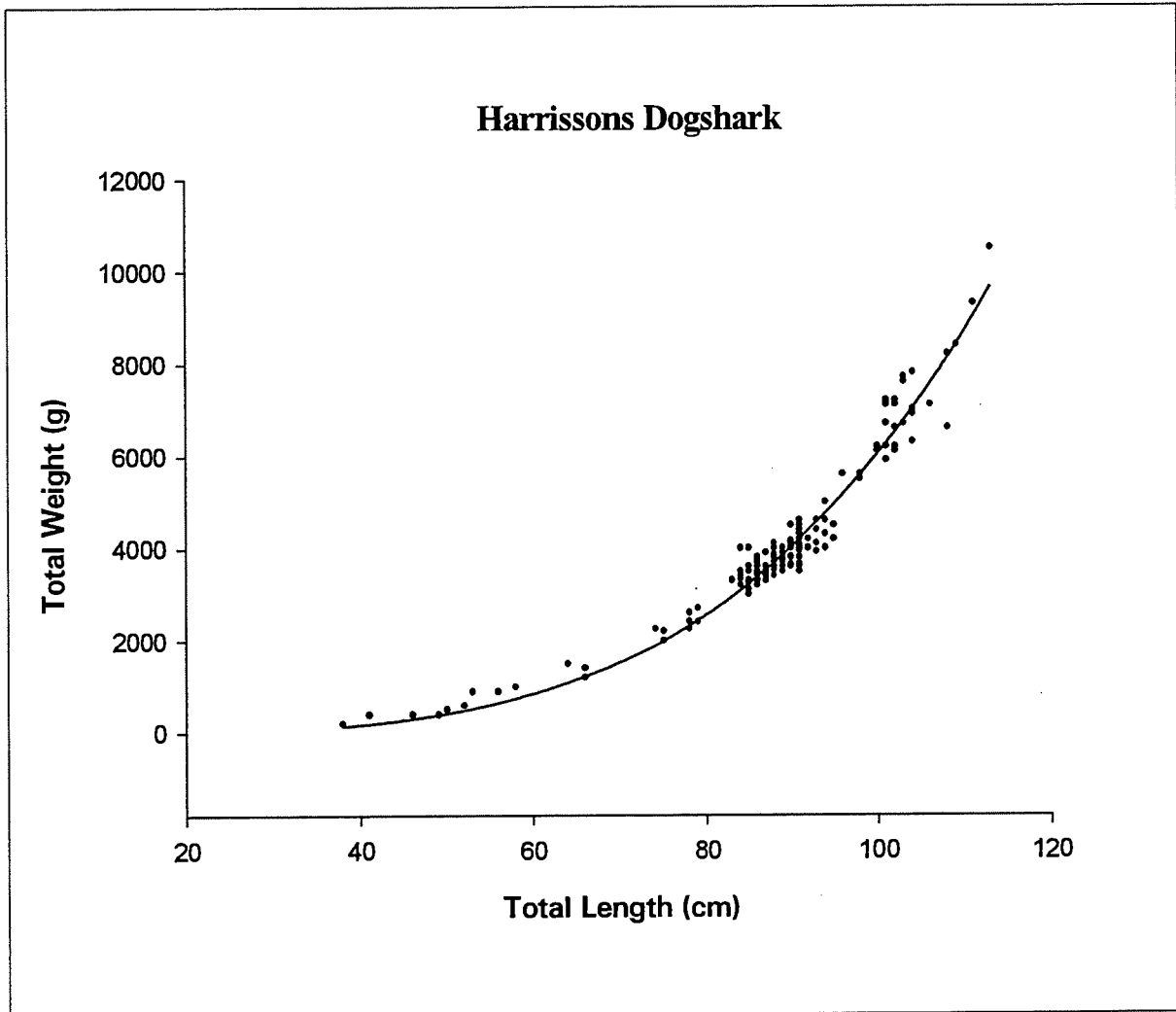
**Figure 1.2:** Length-weight relationships for male and female gummy shark (*Mustelus antarcticus*).

**Males:**

	Coefficient	Std. Error	Adj Rsqr = 0.9724
a	0.0008	0.0002	Length range: 33-110 cm
b	3.3615	0.0454	n = 216

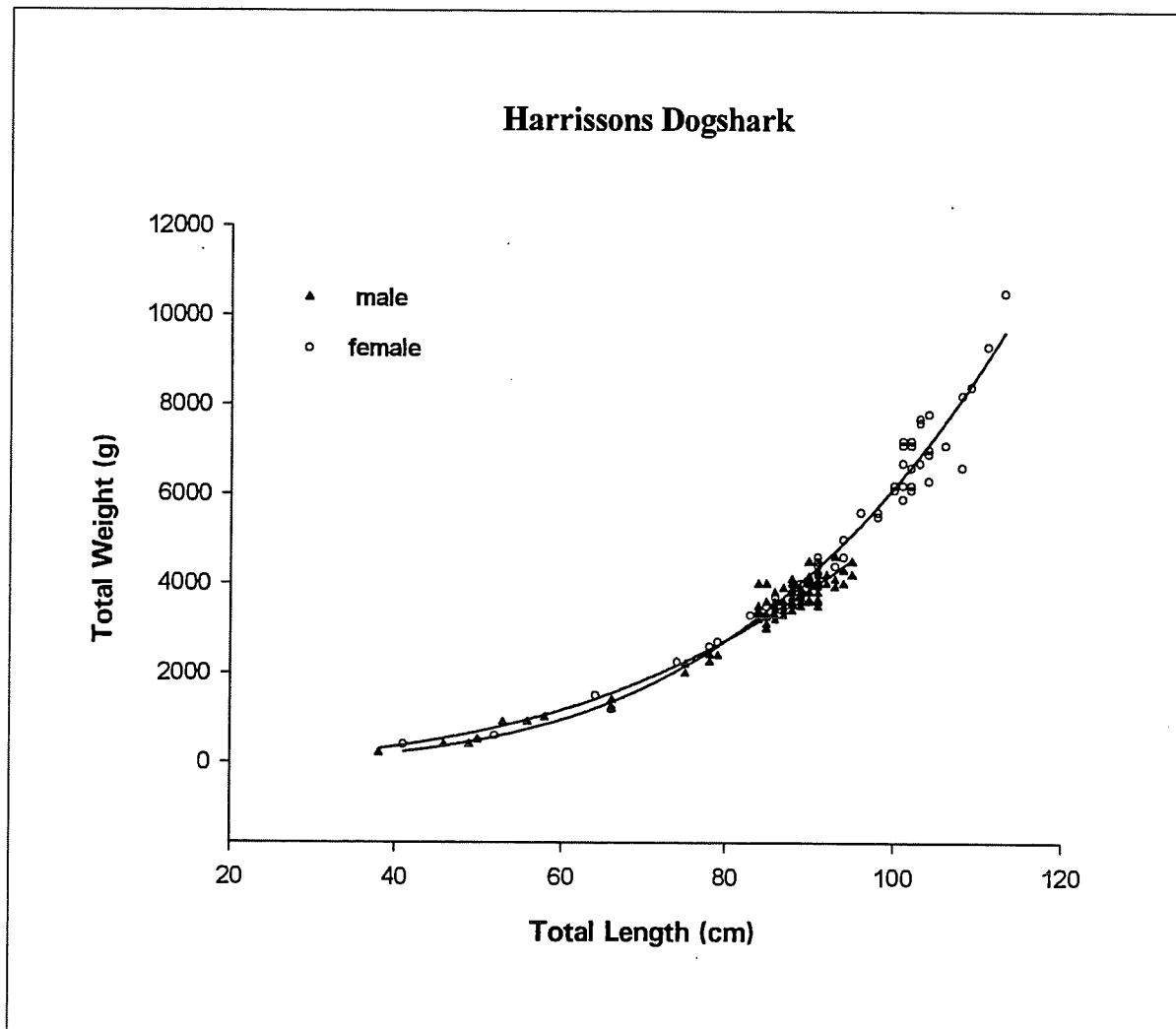
**Females:**

	Coefficient	Std. Error	Adj Rsqr = 0.9716
a	0.0007	0.0002	Length range: 32-125 cm
b	3.4054	0.0486	n = 185



**Figure 2.1:** Length-weight relationship for Harrissons dogshark (*Centrophorus harrissoni*).

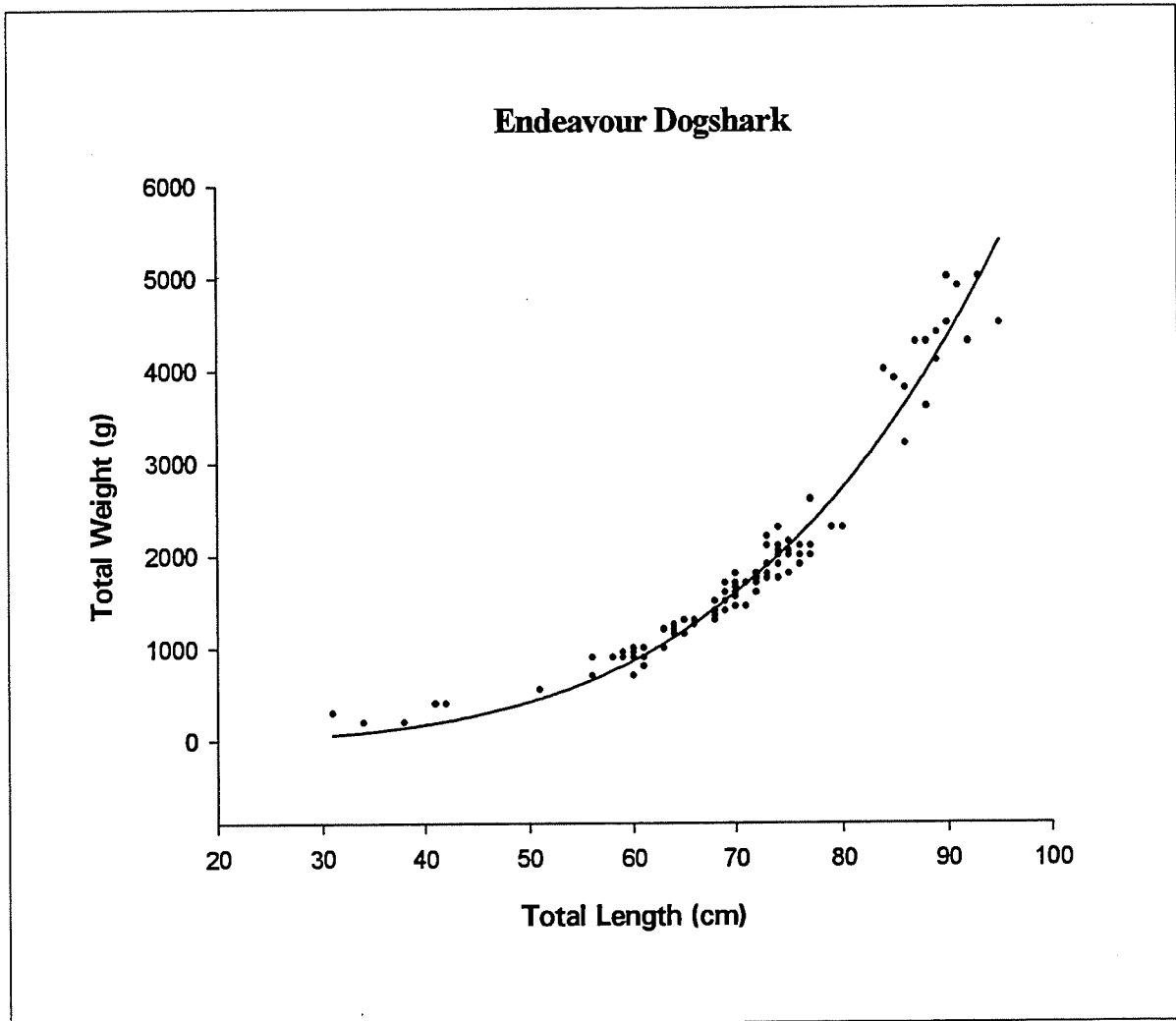
	Coefficient	Std. Error	Adj Rsqr = 0.9601
<b>a</b>	0.0001	0	Length range: 38-113 cm
<b>b</b>	3.8558	0.0783	n = 146



**Figure 2.2:** Length-weight relationships for male and female Harrissons dogshark (*Centrophorus harrissoni*).

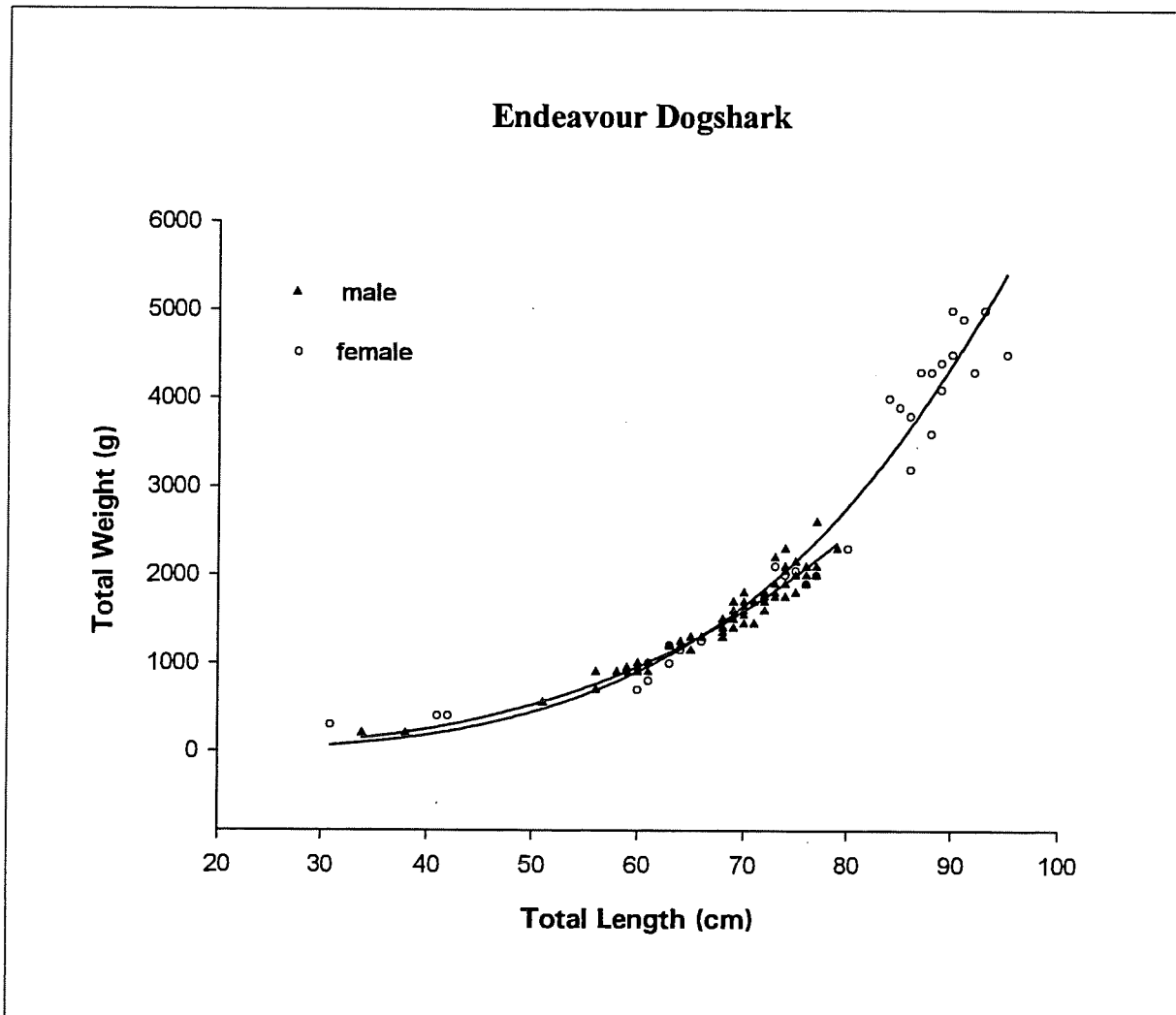
<b>Males:</b>		Coefficient	Std. Error	Adj Rsqr = 0.9425
<b>a</b>	0.0069	0.0042	Length range: 38-95 cm	
<b>b</b>	2.9432	0.1308	n = 96	
<b>Females:</b>		Coefficient	Std. Error	Adj Rsqr = 0.9592
<b>a</b>	0.0003	0.0002	Length range: 41-113 cm	
<b>b</b>	3.6494	0.1488	n = 50	





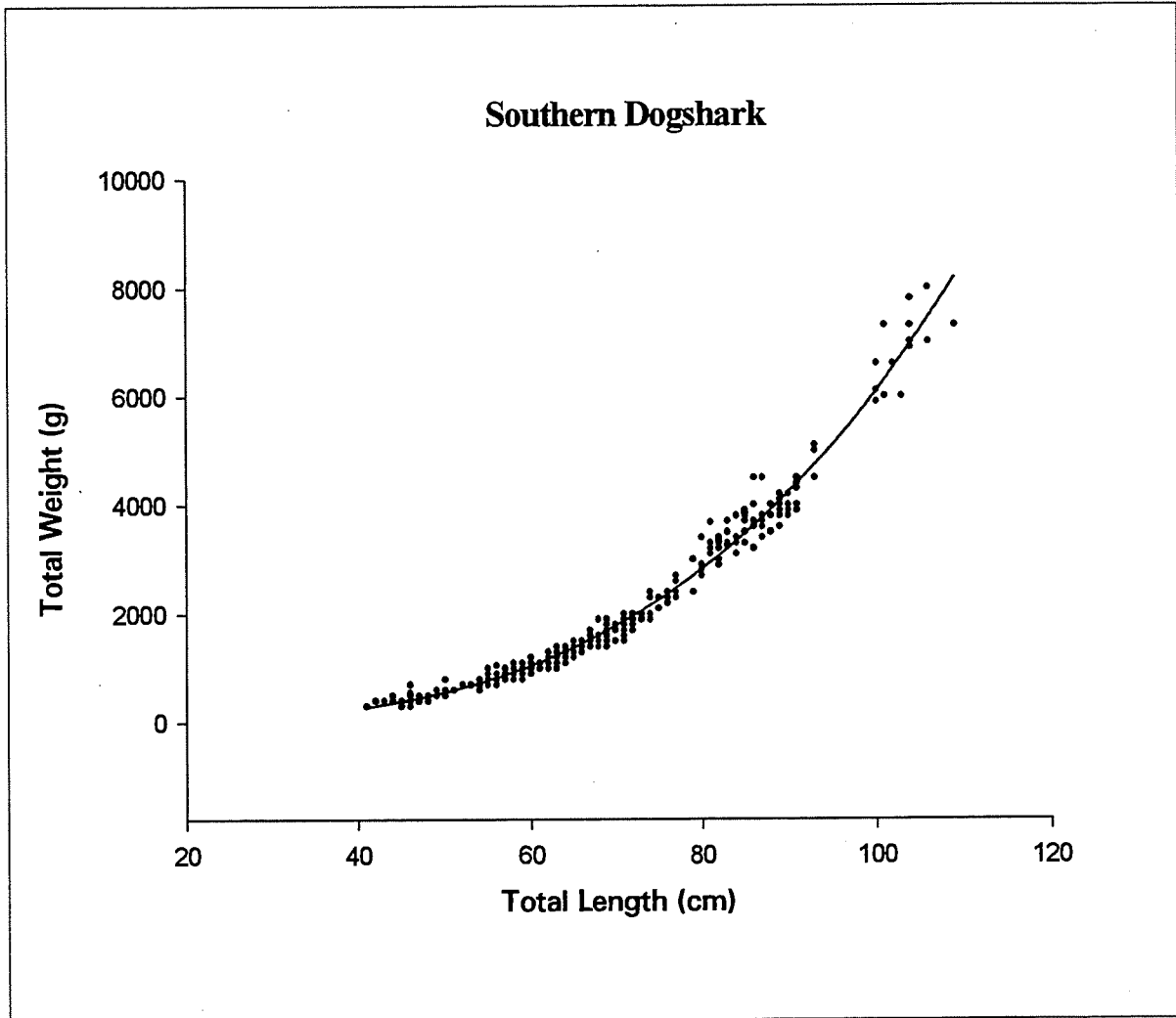
**Figure 3.1:** Length-weight relationship for Endeavour dogshark (*Centrophorus moluccensis*).

	Coefficient	Std. Error	Adj Rsqr = 0.9636
a	0.0001	0	Length range: 31-95 cm
b	3.9901	0.079	n = 113



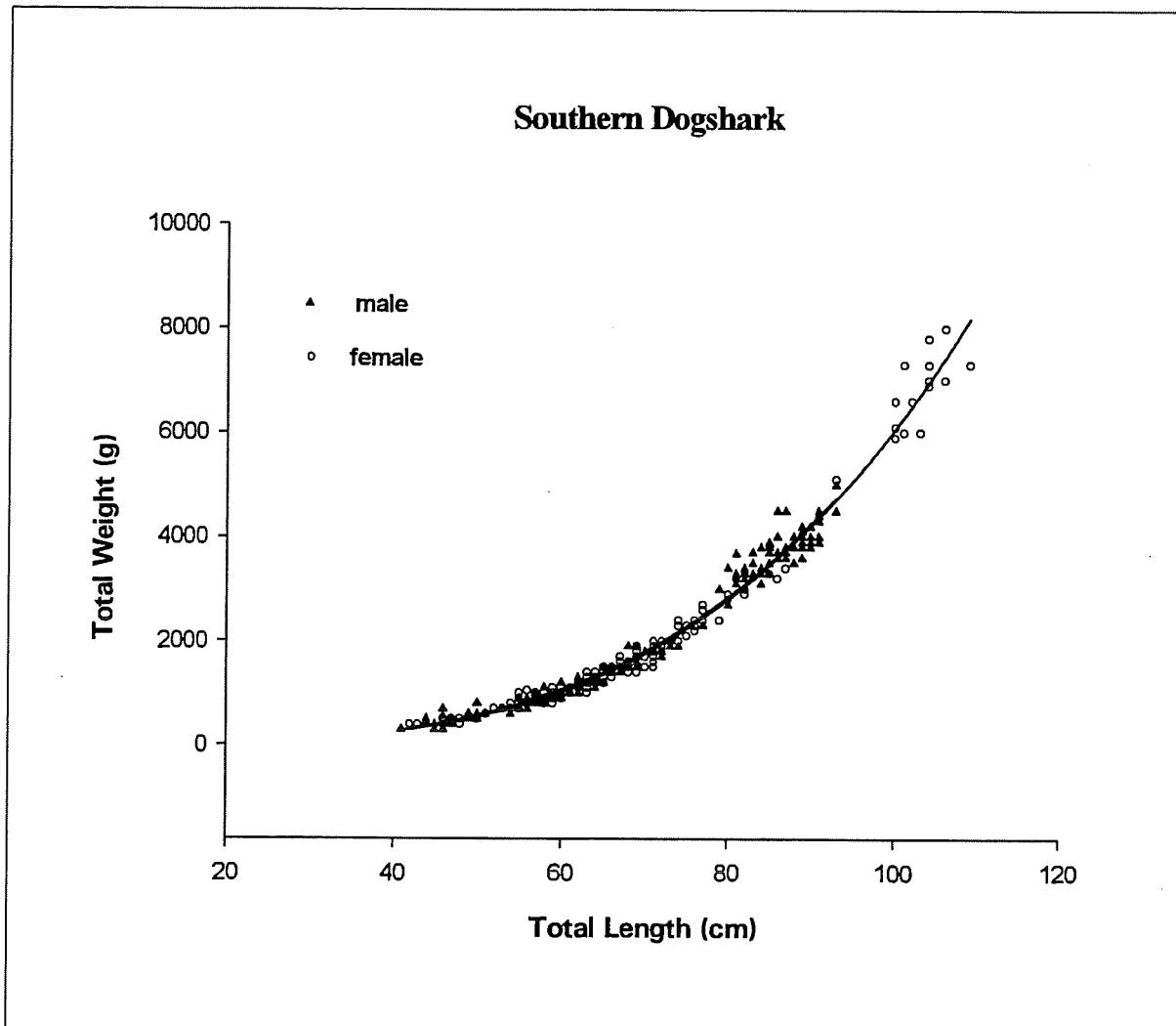
**Figure 3.2:** Length-weight relationships for male and female Endeavour dogshark (*Centrophorus moluccensis*).

<b>Males:</b>		Coefficient	Std. Error	Adj Rsqr = 0.9302
a		0.0014	0.0009	Length range: 34-79 cm
b		3.2763	0.1354	n = 77
<b>Females:</b>		Coefficient	Std. Error	Adj Rsqr = 0.9584
a		0.0001	0.0001	Length range: 31-95 cm
b		3.8889	0.2196	n = 36



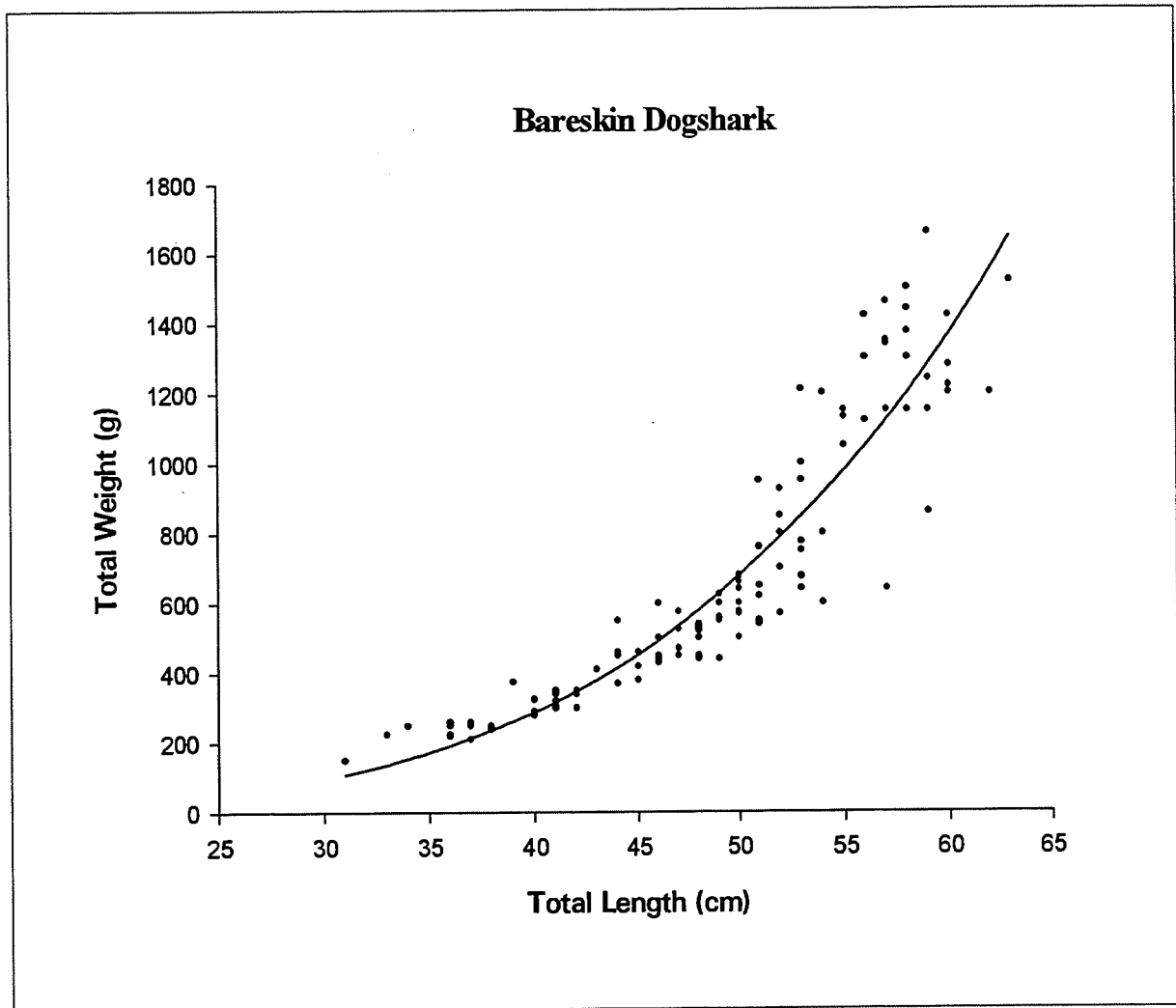
**Figure 4.1:** Length-weight relationship for southern dogshark (*Centrophorus uyato*).

	Coefficient	Std. Error	Adj Rsqr = 0.9821
<b>a</b>	0.0008	0.0001	Length range: 41-109 cm
<b>b</b>	3.4443	0.0294	n = 316



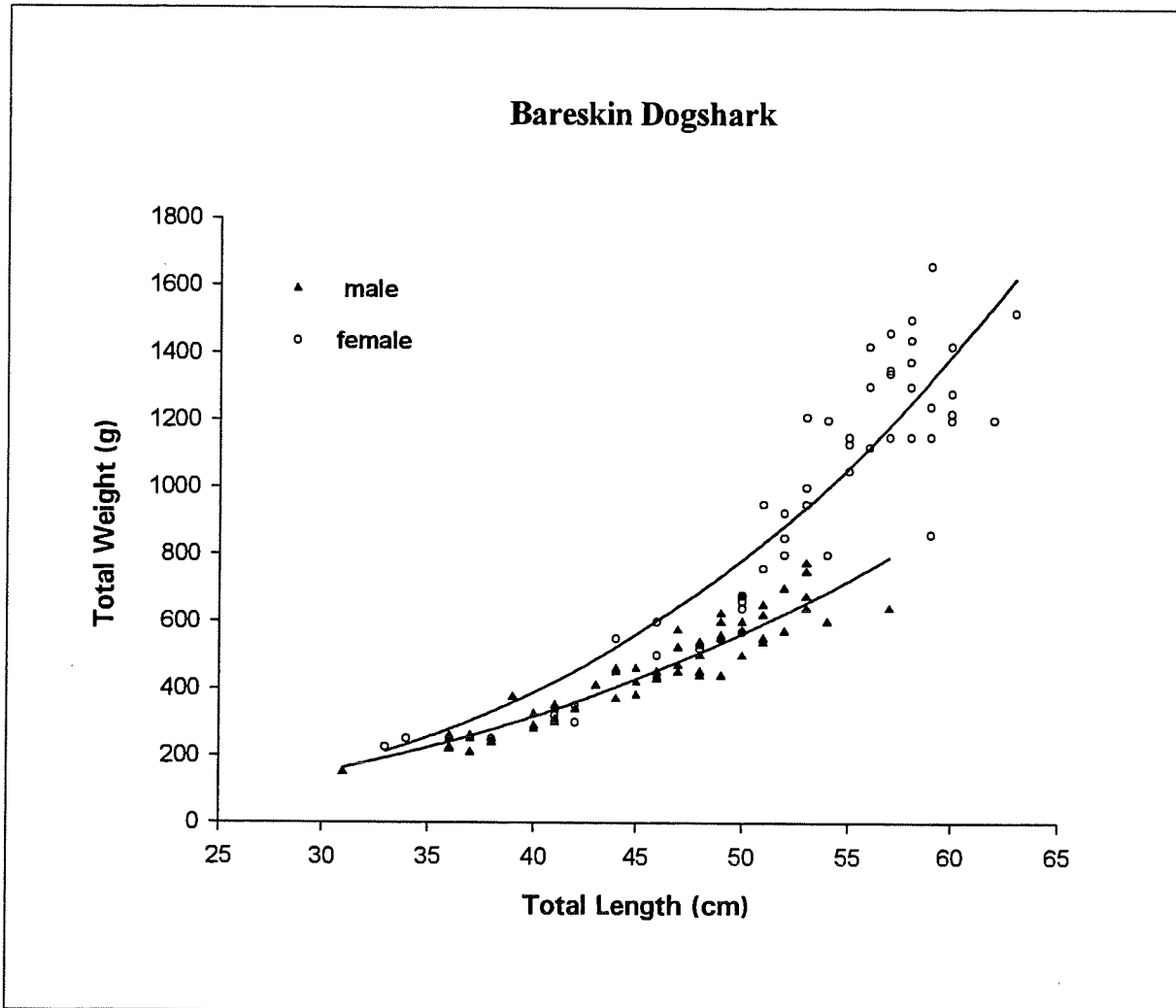
**Figure 4.2:** Length-weight relationships for male and female southern dogshark (*Centrophorus uyato*).

<b>Males:</b>		Coefficient	Std. Error	Adj Rsqr = 0.9755
a		0.001	0.0003	Length range: 41-93 cm
b		3.3977	0.0614	n = 162
<b>Females:</b>		Coefficient	Std. Error	Adj Rsqr = 0.9865
a		0.0007	0.0001	Length range: 42-109 cm
b		3.4777	0.035	n = 153



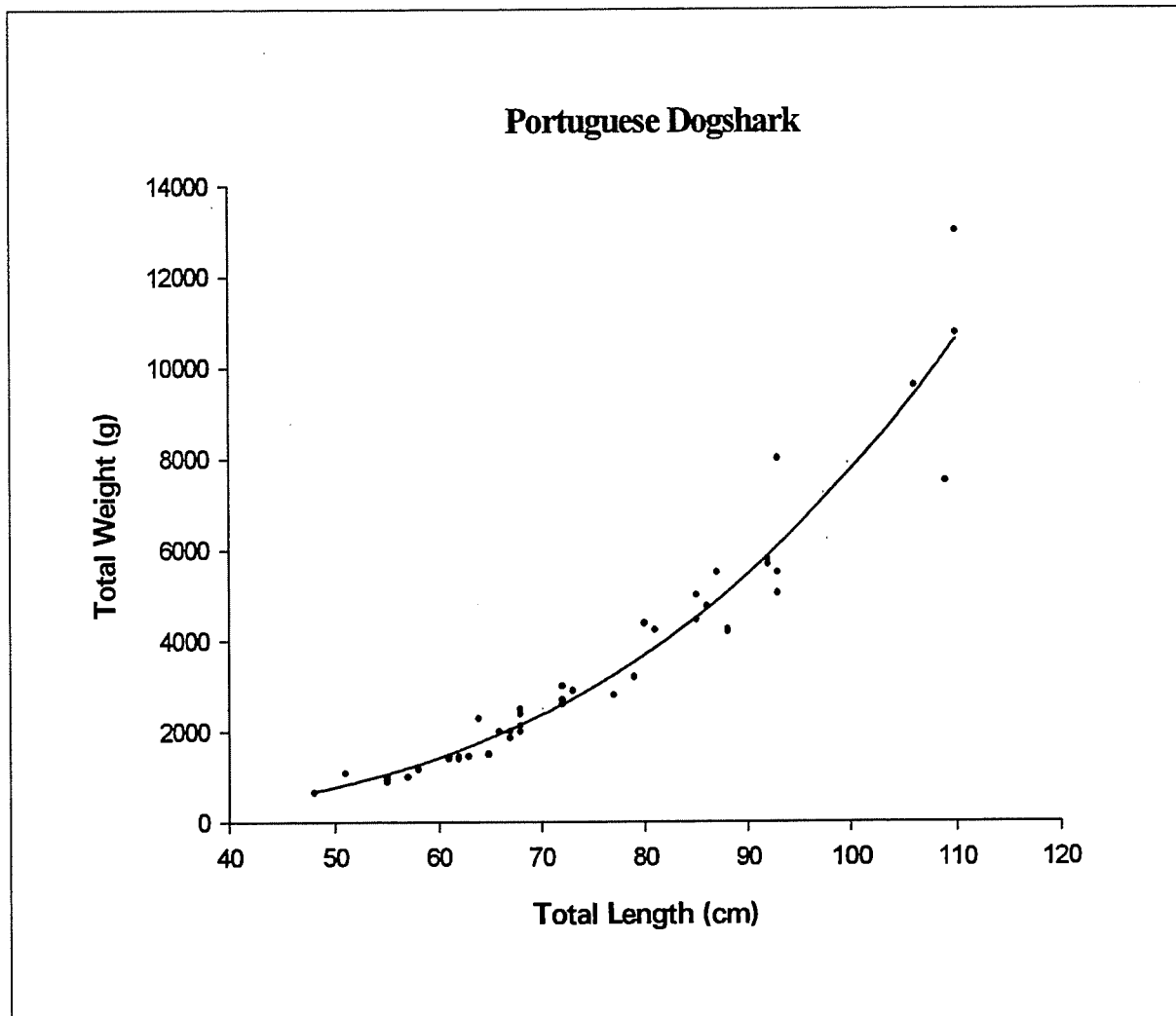
**Figure 5.1:** Length-weight relationship for bareskin dogshark (*Centroscyllium kamohari*).

	Coefficient	Std. Error	Adj Rsqr = 0.8442
a	0.0002	0.0002	Length range: cm
b	3.8429	0.1833	n = 116



**Figure 5.2:** Length-weight relationships for male and female bareskin dogshark (*Centroscyllium kamohari*).

<b>Males:</b>		Coefficient	Std. Error	Adj Rsqr = 0.8763
<b>a</b>		0.0225	0.0122	Length range: 31-57 cm
<b>b</b>		2.5898	0.14	n = 62
<b>Females:</b>		Coefficient	Std. Error	Adj Rsqr = 0.7934
<b>a</b>		0.0035	0.0042	Length range: 33-63 cm
<b>b</b>		3.1472	0.2805	n = 54



**Figure 6:** Length-weight relationship for Portuguese dogshark (*Centroscyrmus coelolepis*).

	Coefficient	Std. Error	
a	0.0017	0.0012	Adj Rsqr = 0.9294
b	3.3268	0.1572	Length range: 32-110 cm
			n = 44

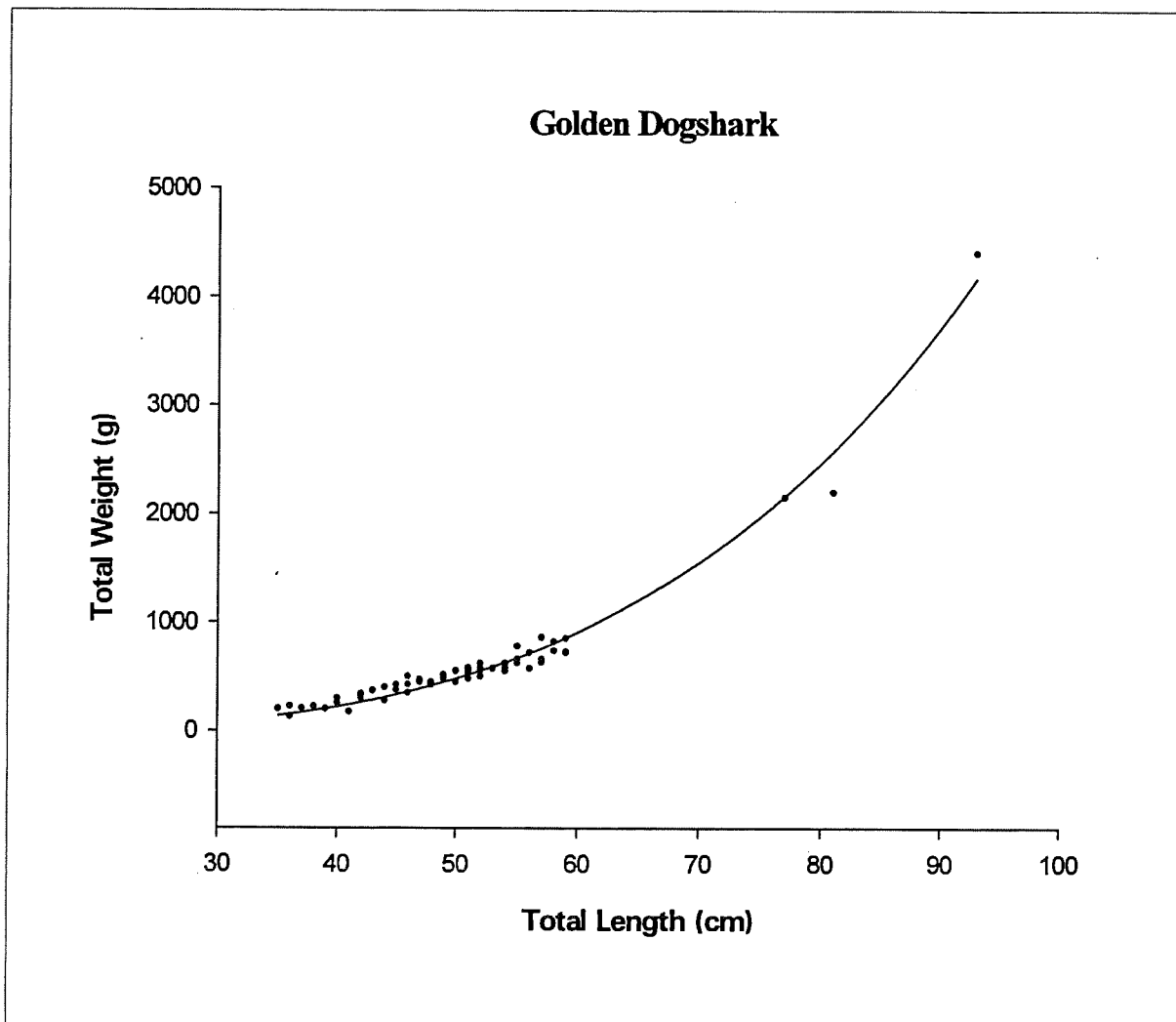


Figure 7: Length-weight relationship for golden dogshark (*Centroscyrnus crepidater*).

	Coefficient	Std. Error	Adj Rsqr = 0.9798
a	0.0006	0.0001	Length range: 38-93 cm
b	3.477	0.0466	n = 71



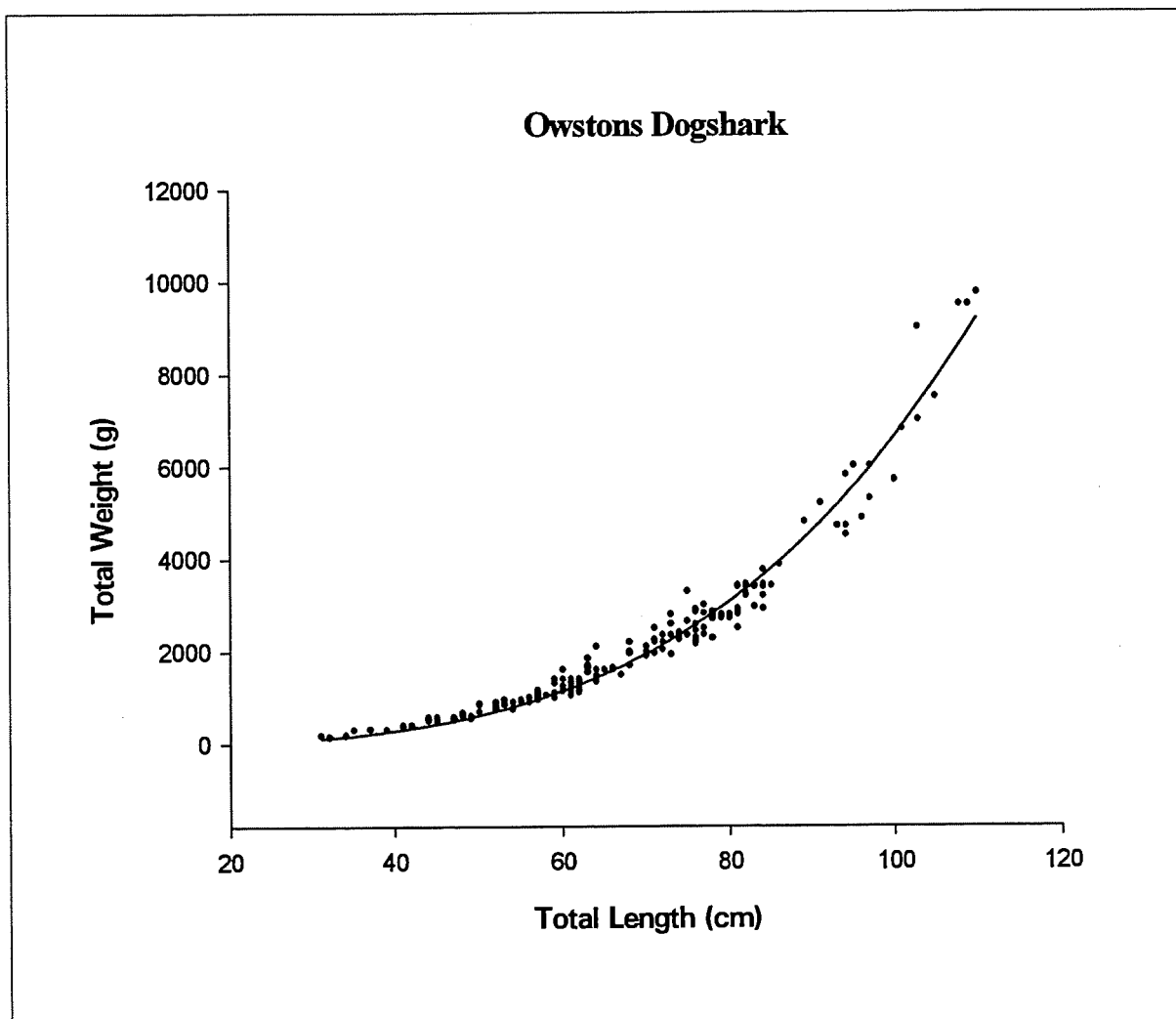
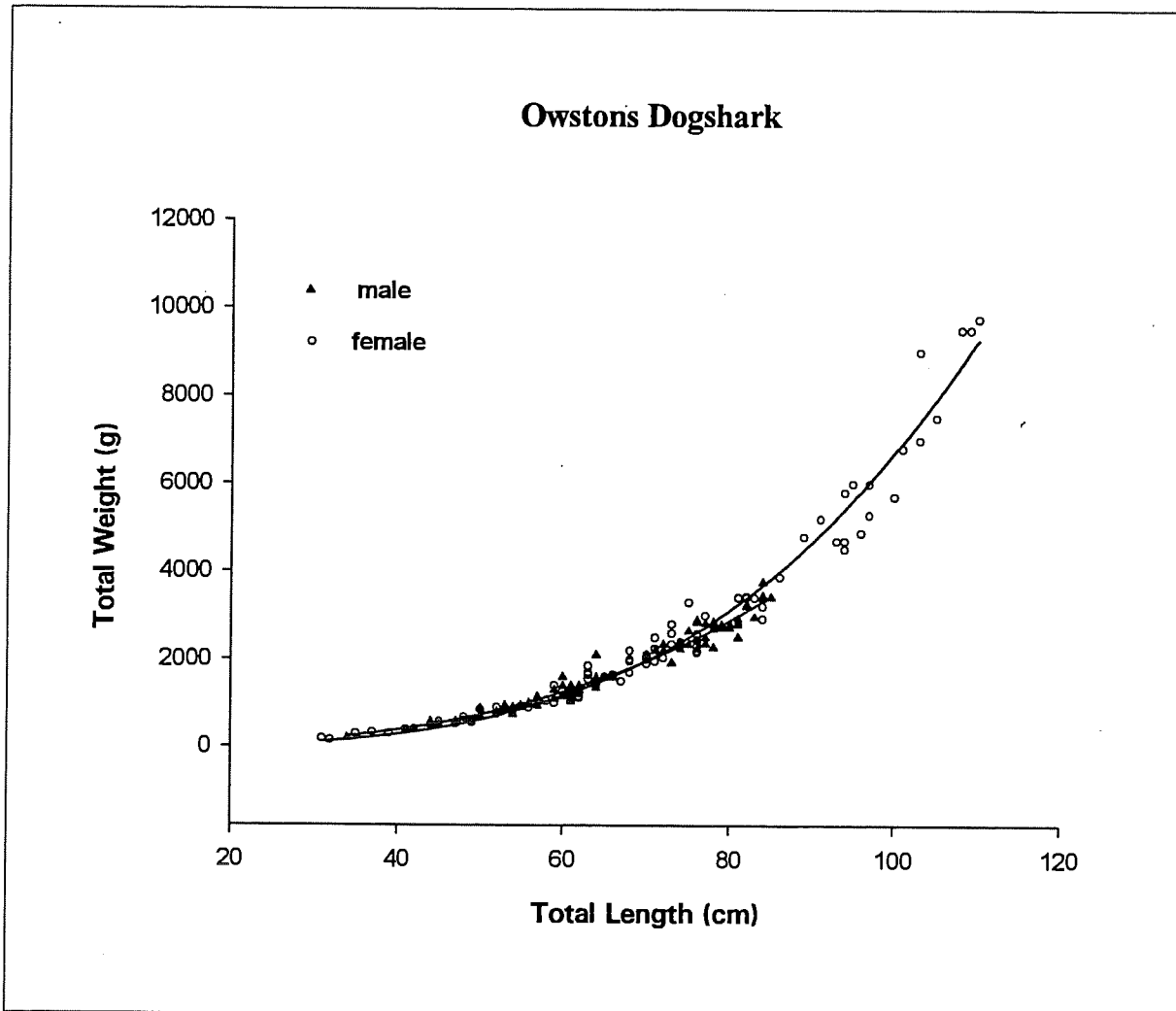


Figure 8.1: Length-weight relationship for Owstons dogshark (*Centroscyrmus owstoni*).

	Coefficient	Std. Error	Adj Rsqr = 0.9707
a	0.0009	0.0002	Length range: cm
b	3.4426	0.0499	n = 170



**Figure 8.2:** Length-weight relationships for male and female Owstons dogshark (*Centroscyrmus owstoni*).

<b>Males:</b>		Coefficient	Std. Error	Adj Rsqr = 0.9624
<b>a</b>		0.009	0.0033	Length range: 34-85 cm
<b>b</b>		2.8941	0.0844	n = 77
<b>Females:</b>		Coefficient	Std. Error	Adj Rsqr = 0.9735
<b>a</b>		0.0009	0.0003	Length range: 31-110 cm
<b>b</b>		3.4254	0.0728	n = 93

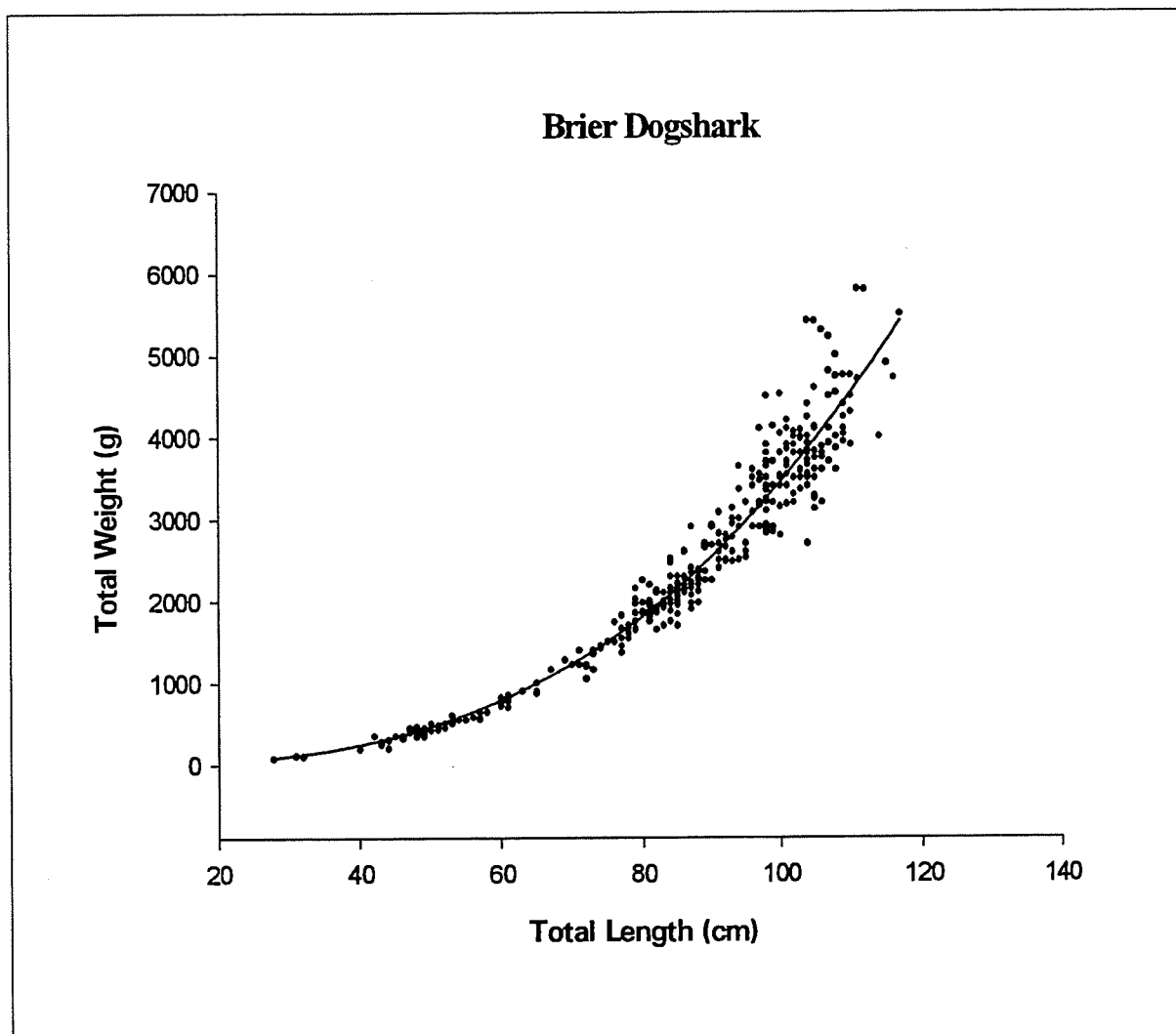
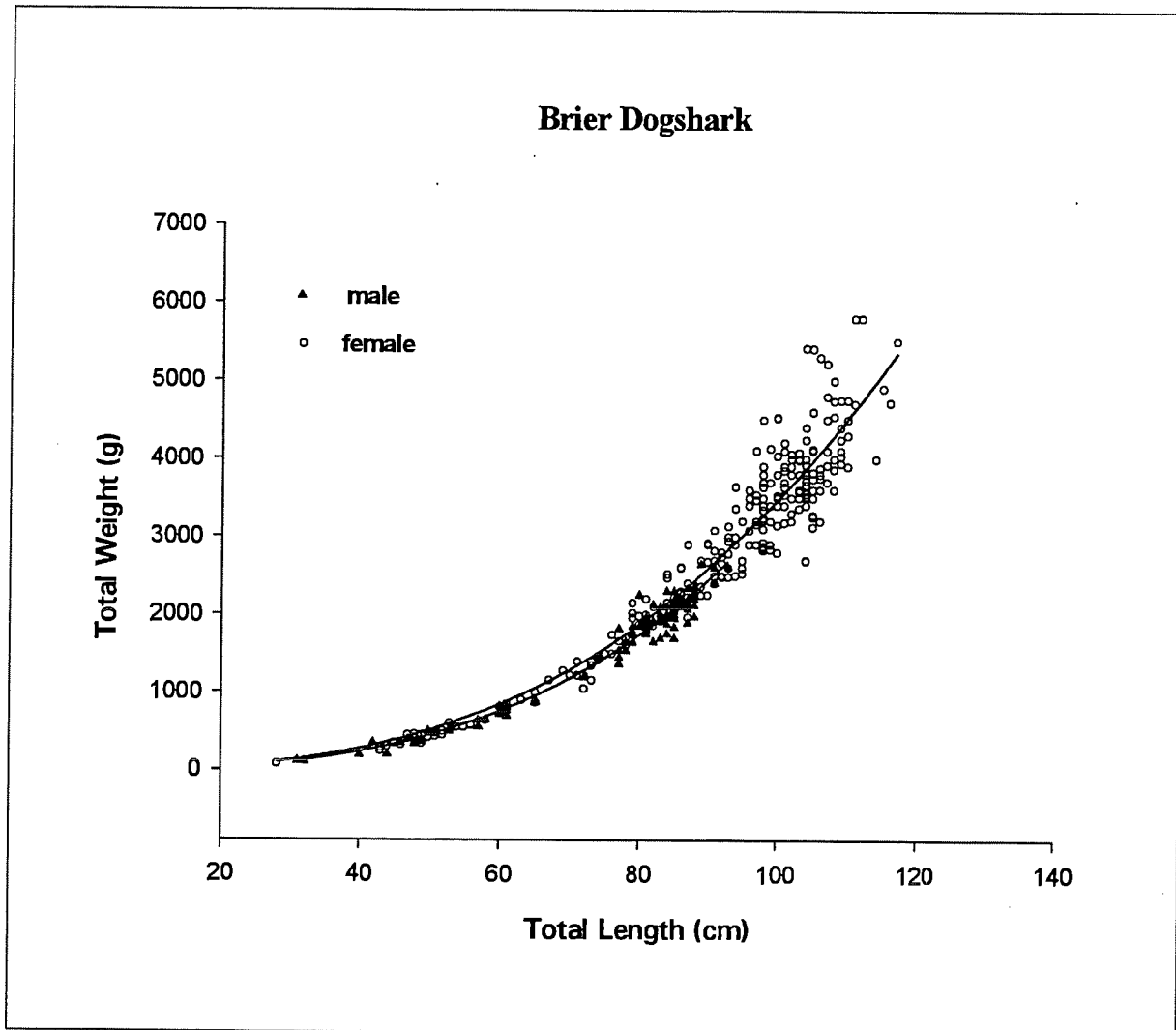


Figure 9.1: Length-weight relationship for brier dogshark (*Deania calcea*).

	Coefficient	Std. Error	Adj Rsqr = 0.9307
a	0.0058	0.0016	Length range: cm
b	2.8854	0.0572	n = 363



**Figure 9.2:** Length-weight relationships for male and female brier dogshark (*Deania calcea*).

<b>Males:</b>		Coefficient	Std. Error	Adj Rsqr = 0.9657
<b>a</b>		0.0059	0.0023	Length range: 31-93 cm
<b>b</b>		2.8741	0.0886	n = 111
<b>Females:</b>		Coefficient	Std. Error	Adj Rsqr = 0.9047
<b>a</b>		0.0104	0.004	Length range: 28-117 cm
<b>b</b>		2.7609	0.0828	n = 252

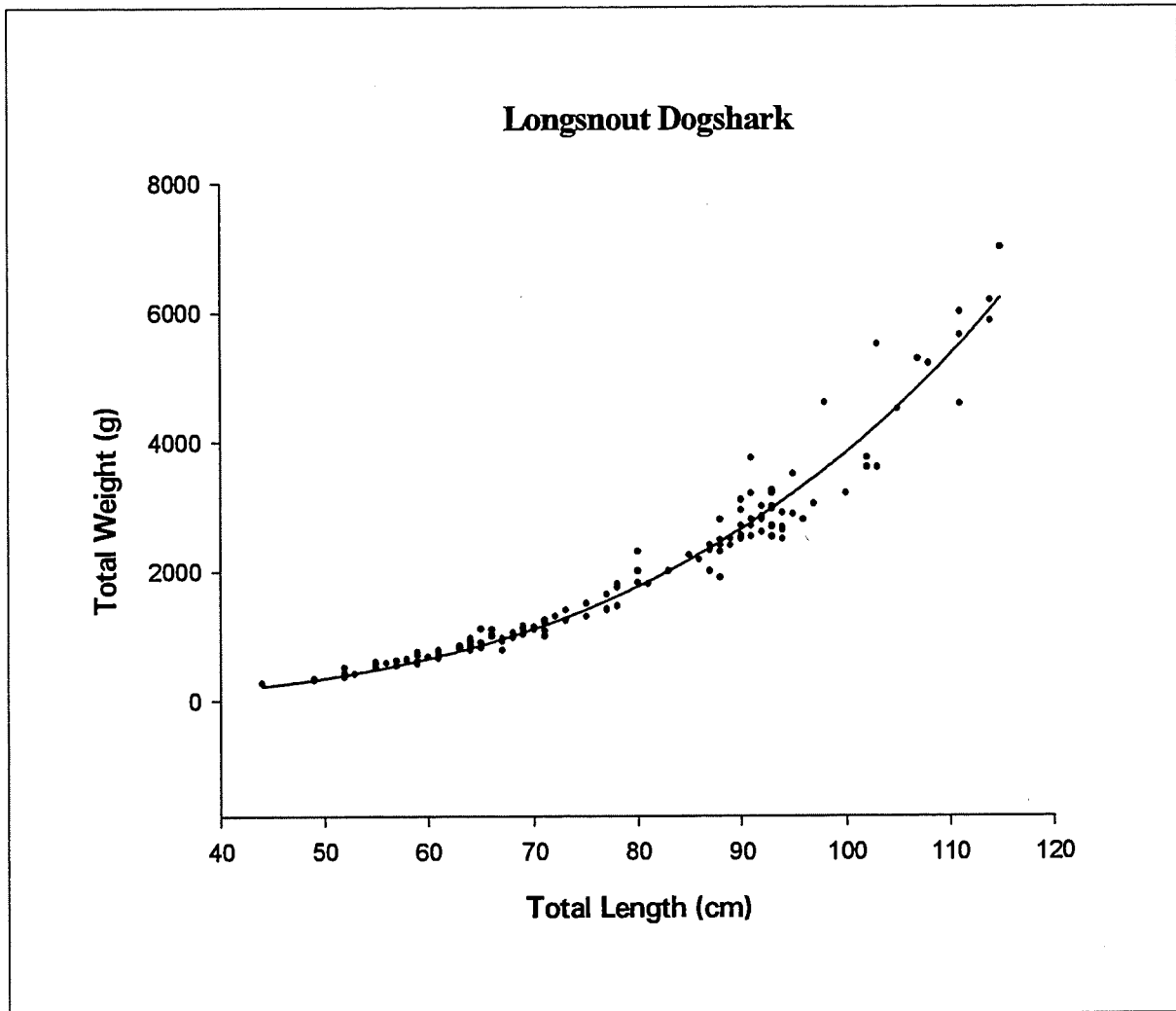
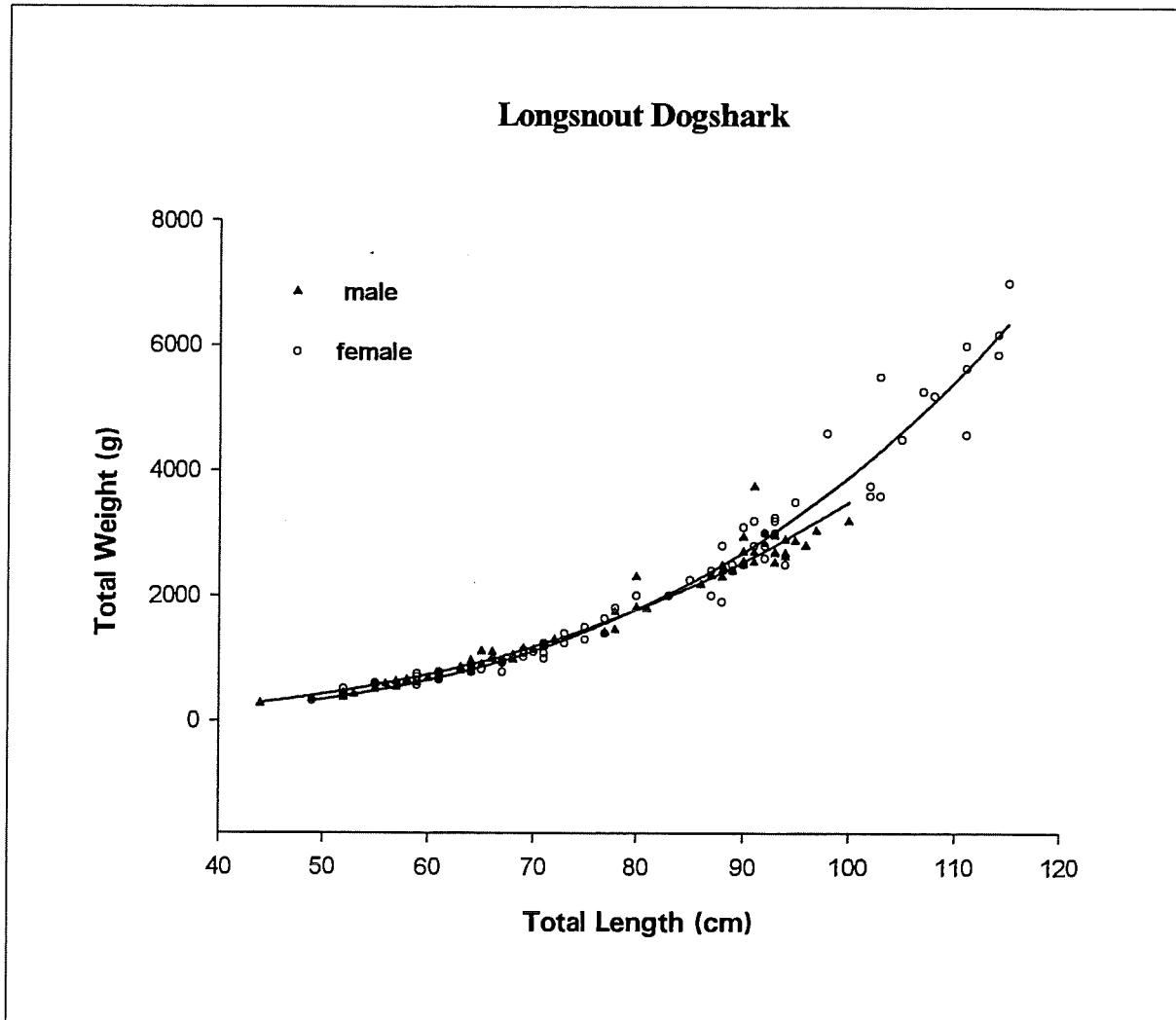


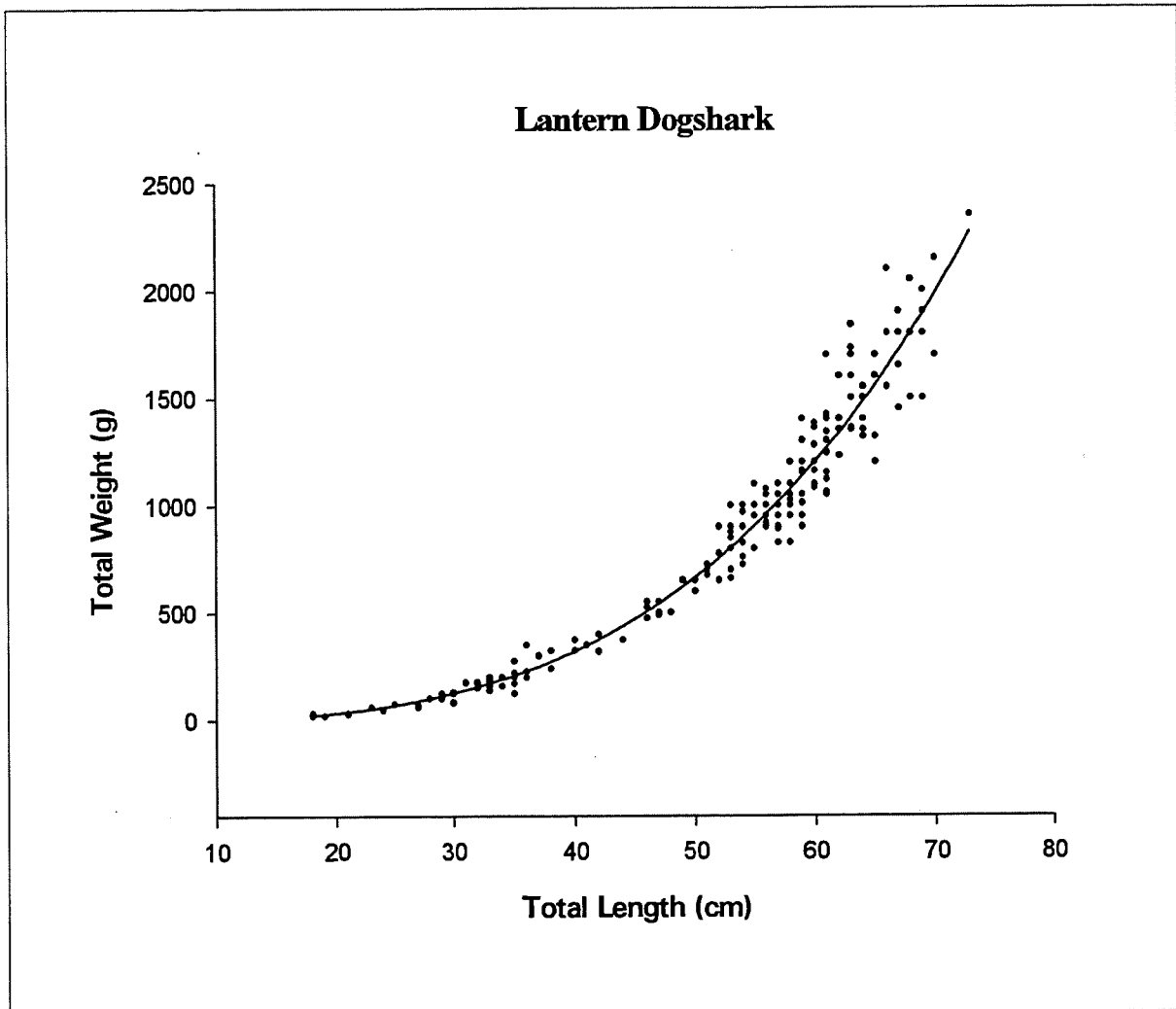
Figure 10.1: Length-weight relationship for longsnout dogshark (*Deania quadrispinosa*).

	Coefficient	Std. Error	Adj Rsqr = 0.9613
a	0.0004	0.0001	Length range: 44-115 cm
b	3.4761	0.0692	n = 148



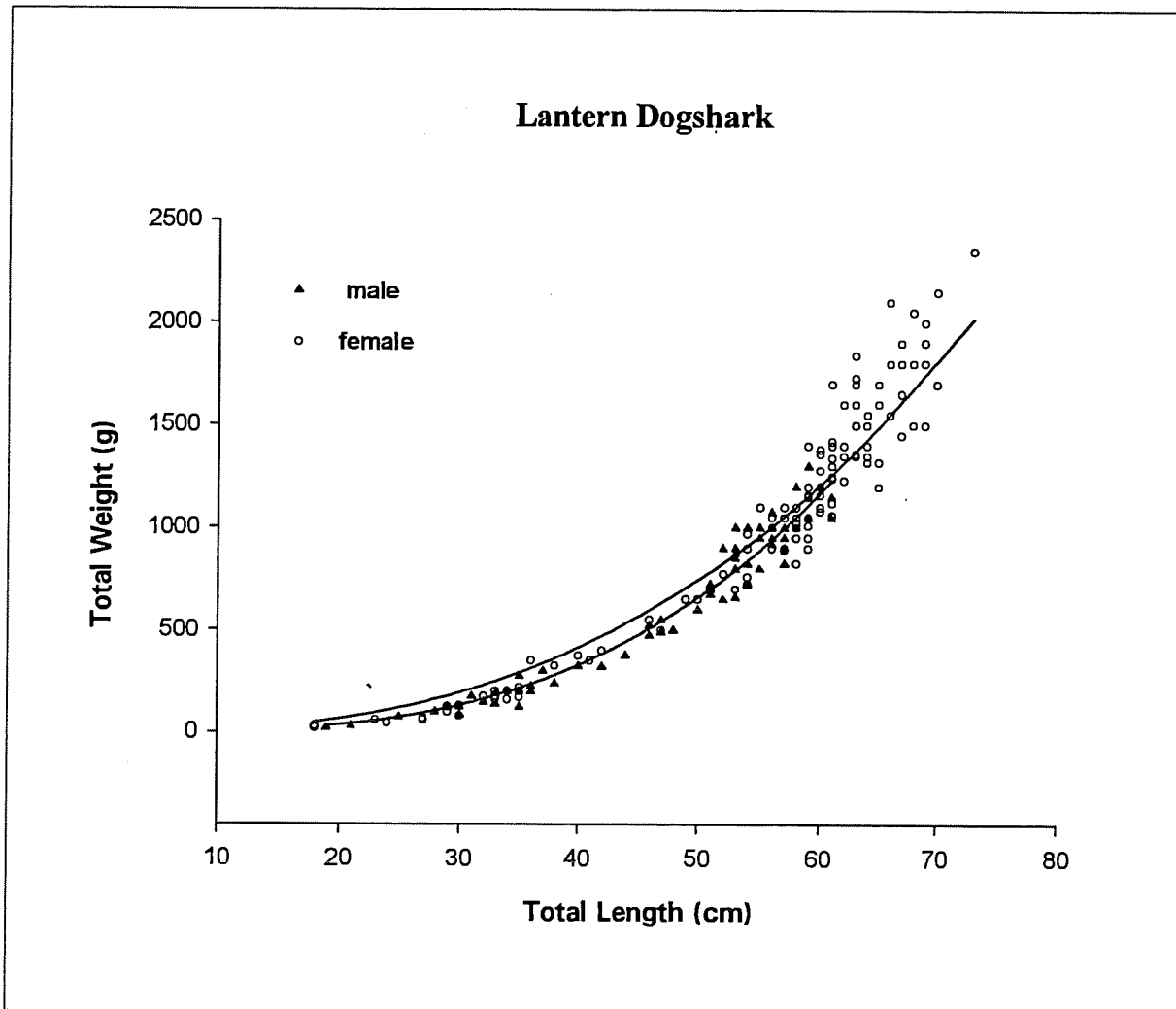
**Figure 10.2:** Length-weight relationships for male and female longsnout dogshark (*Deania quadrispinosa*).

<b>Males:</b>		Coefficient	Std. Error	Adj Rsqr = 0.9603
a	0.003	0.0013	Length range: 44-100 cm	
b	3.036	0.0983	n = 72	
<b>Females:</b>		Coefficient	Std. Error	Adj Rsqr = 0.9641
a	0.0004	0.0002	Length range: 49-115 cm	
b	3.506	0.0974	n = 76	



**Figure 11.1:** Length-weight relationship for lantern dogshark (*Etmopterus* sp.B).

	Coefficient	Std. Error	Adj Rsqr = 0.9484
a	0.002	0.0007	Length range: 18-73 cm
b	3.2518	0.0831	n = 195



**Figure 11.2:** Length-weight relationships for male and female lantern dogshark (*Etmopterus* sp.B).

<b>Males:</b>		Coefficient	Std. Error	Adj Rsqr = 0.9526
a		0.0032	0.0018	Length range: 19-61 cm
b		3.1295	0.1388	n = 71
<b>Females:</b>		Coefficient	Std. Error	Adj Rsqr = 0.9043
a		0.025	0.0158	Length range: 18-73 cm
b		2.6343	0.1214	n = 124



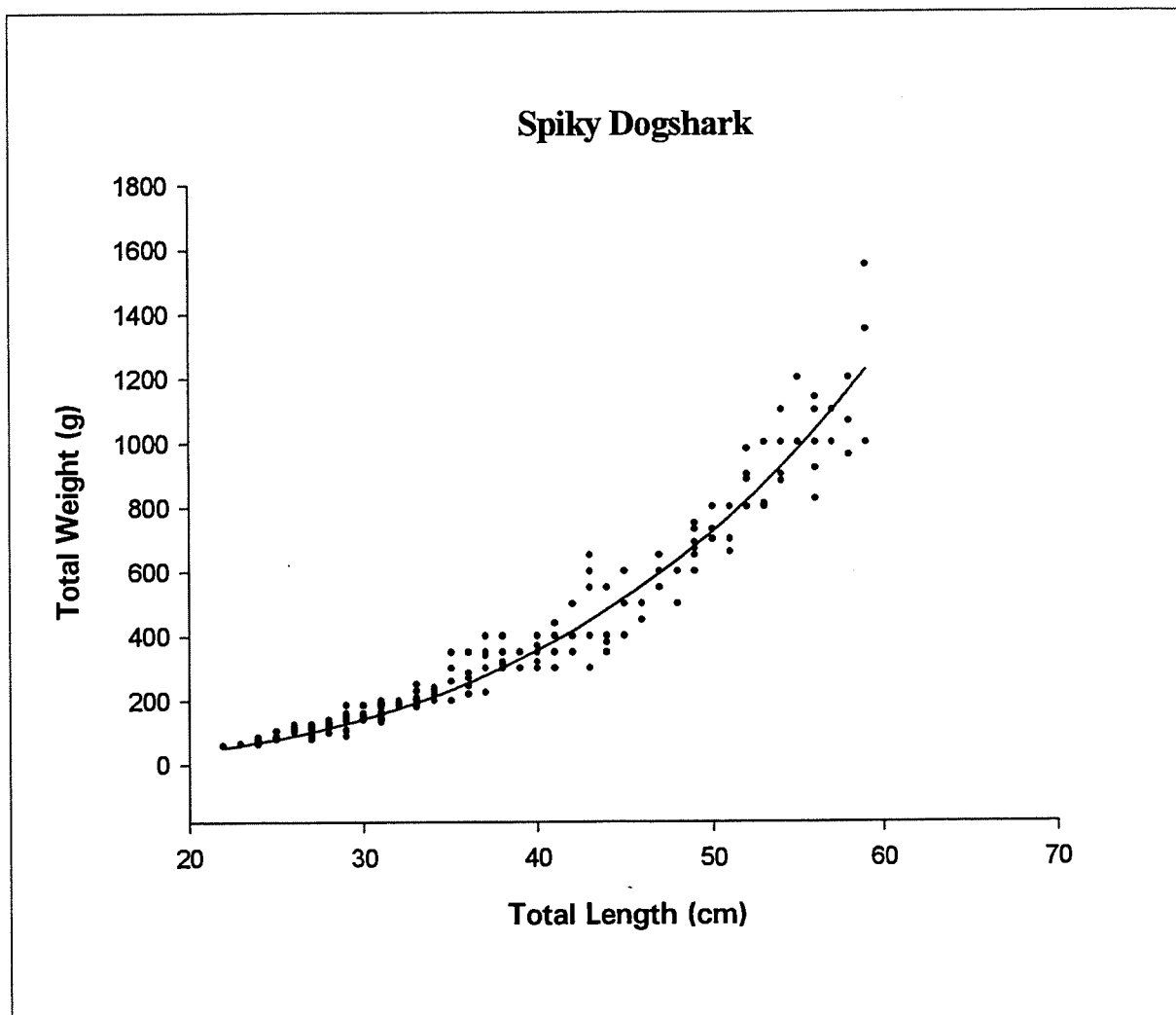
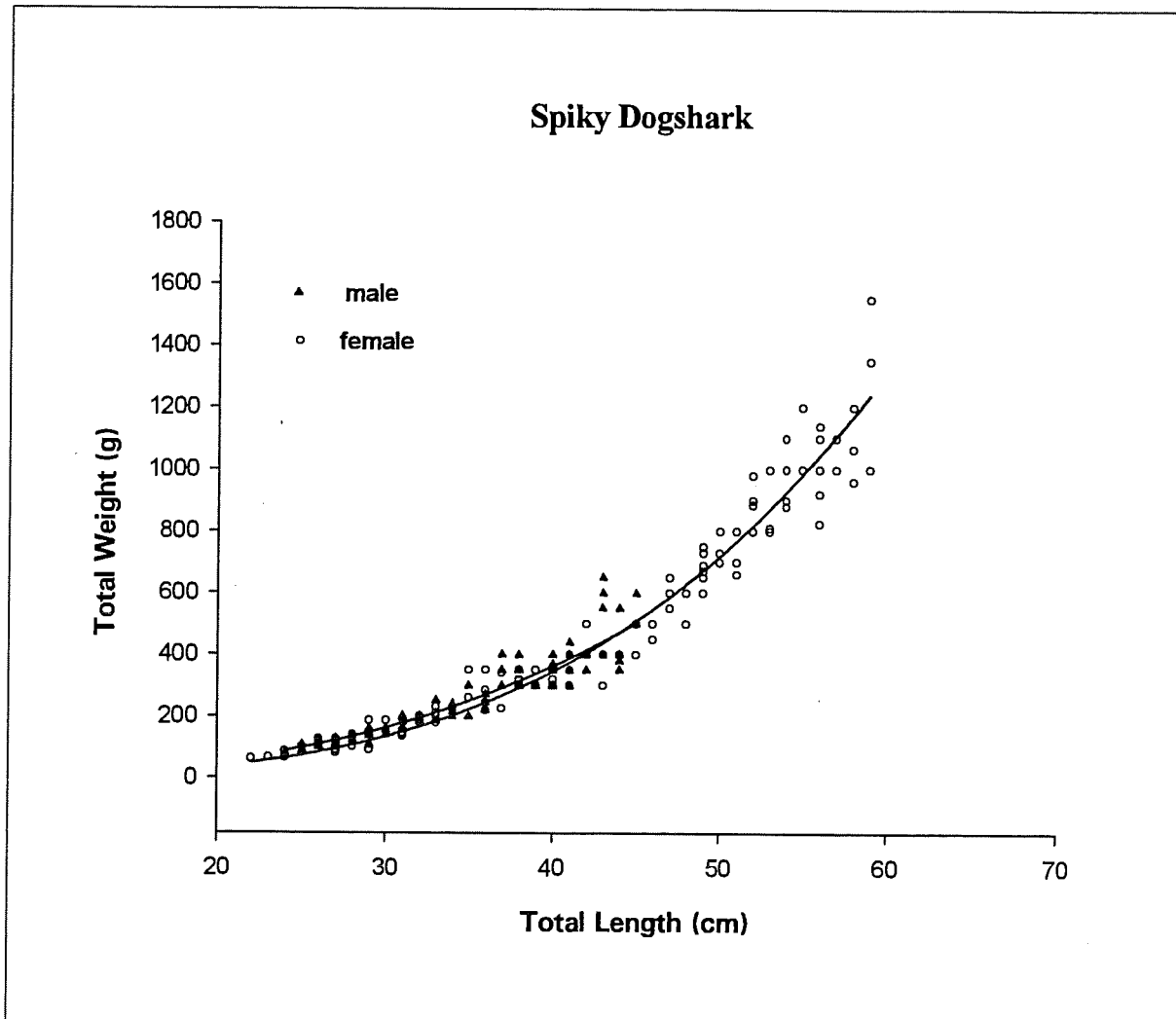


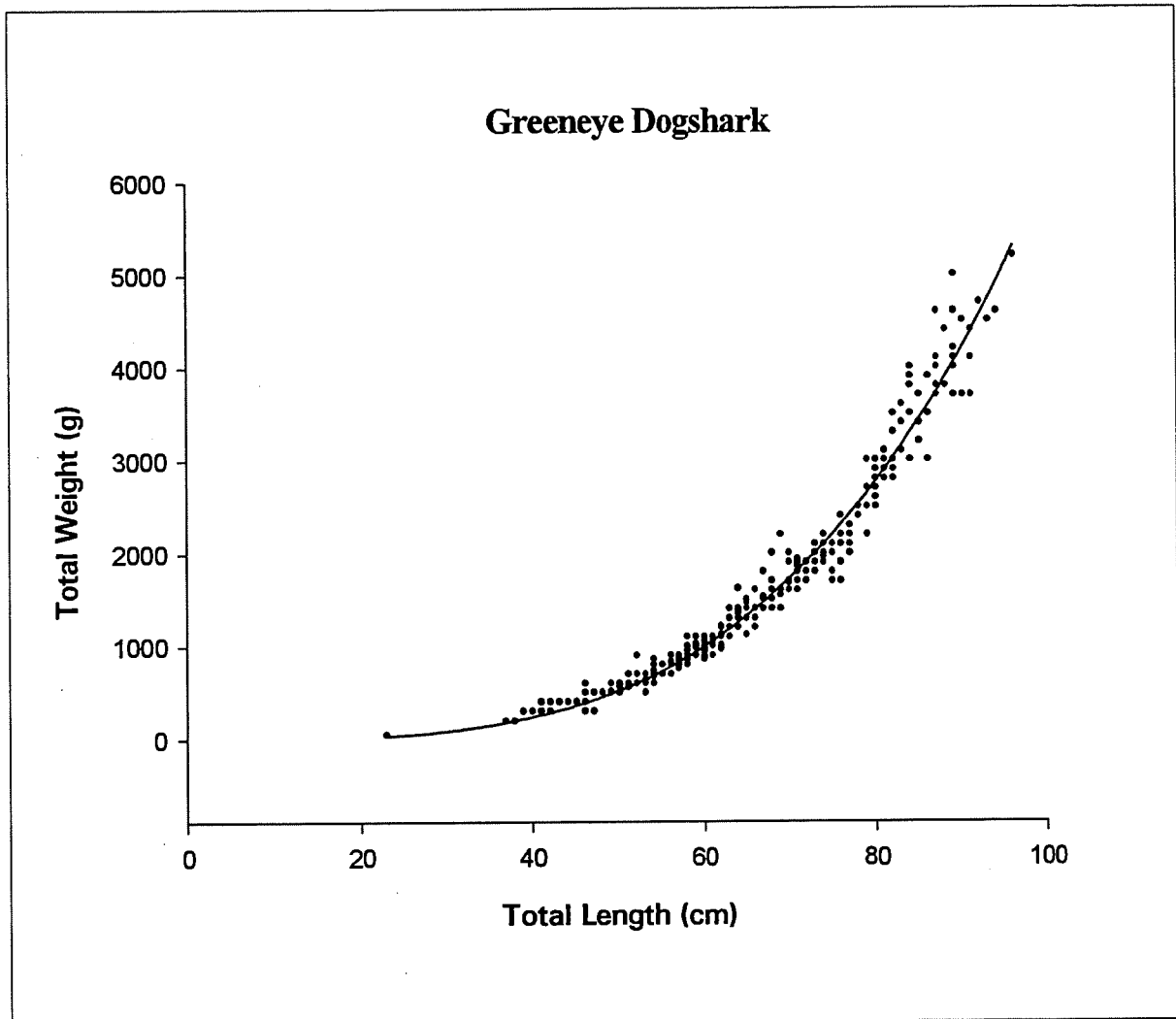
Figure 12.1: Length-weight relationship for spiky dogshark (*Squalus megalops*).

	Coefficient	Std. Error	Adj Rsqr = 0.9504
a	0.0027	0.0006	Length range: cm
b	3.1928	0.053	n = 294



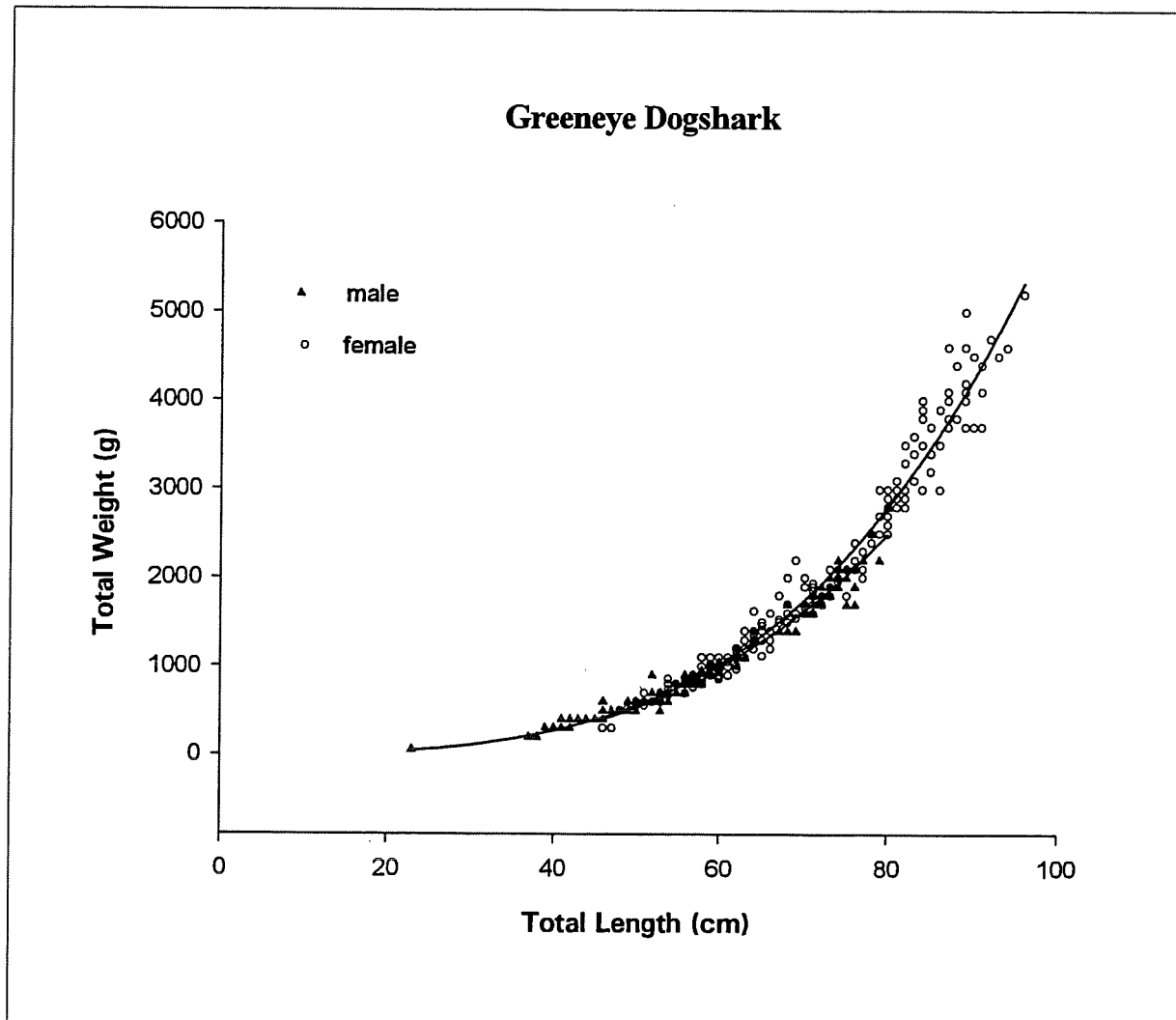
**Figure 12.2:** Length-weight relationships for male and female spiky dogshark (*Squalus megalops*).

<b>Males:</b>		Coefficient	Std. Error	Adj Rsqr = 0.8202
a		0.0126	0.0088	Length range: 24-45 cm
b		2.784	0.1558	n = 104
<b>Females:</b>		Coefficient	Std. Error	Adj Rsqr = 0.9550
a		0.0018	0.0005	Length range: 22-59 cm
b		3.2913	0.0731	n = 190



**Figure 13.1:** Length-weight relationship for greeneye dogsharks (*Squalus* sp. F & *Squalus mitsukurii*); both species combined.

	Coefficient	Std. Error	Adj Rsqr = 0.9719
a	0.0005	0.0001	Length range: 23-96 cm
b	3.5613	0.0379	n = 356



**Figure 13.2:** Length-weight relationships for male and female greeneye dogshark (*Squalus* sp.F and *S. mitsukurii*); two species combined.

<b>Males:</b>		Coefficient	Std. Error	Adj Rsqr = 0.9754
<b>a</b>		0.0021	0.0005	Length range: 23-80 cm
<b>b</b>		3.1967	0.0531	n = 138
<b>Females:</b>		Coefficient	Std. Error	Adj Rsqr = 0.9689
<b>a</b>		0.0006	0.0001	Length range: 46-96 cm
<b>b</b>		3.5167	0.051	n = 218

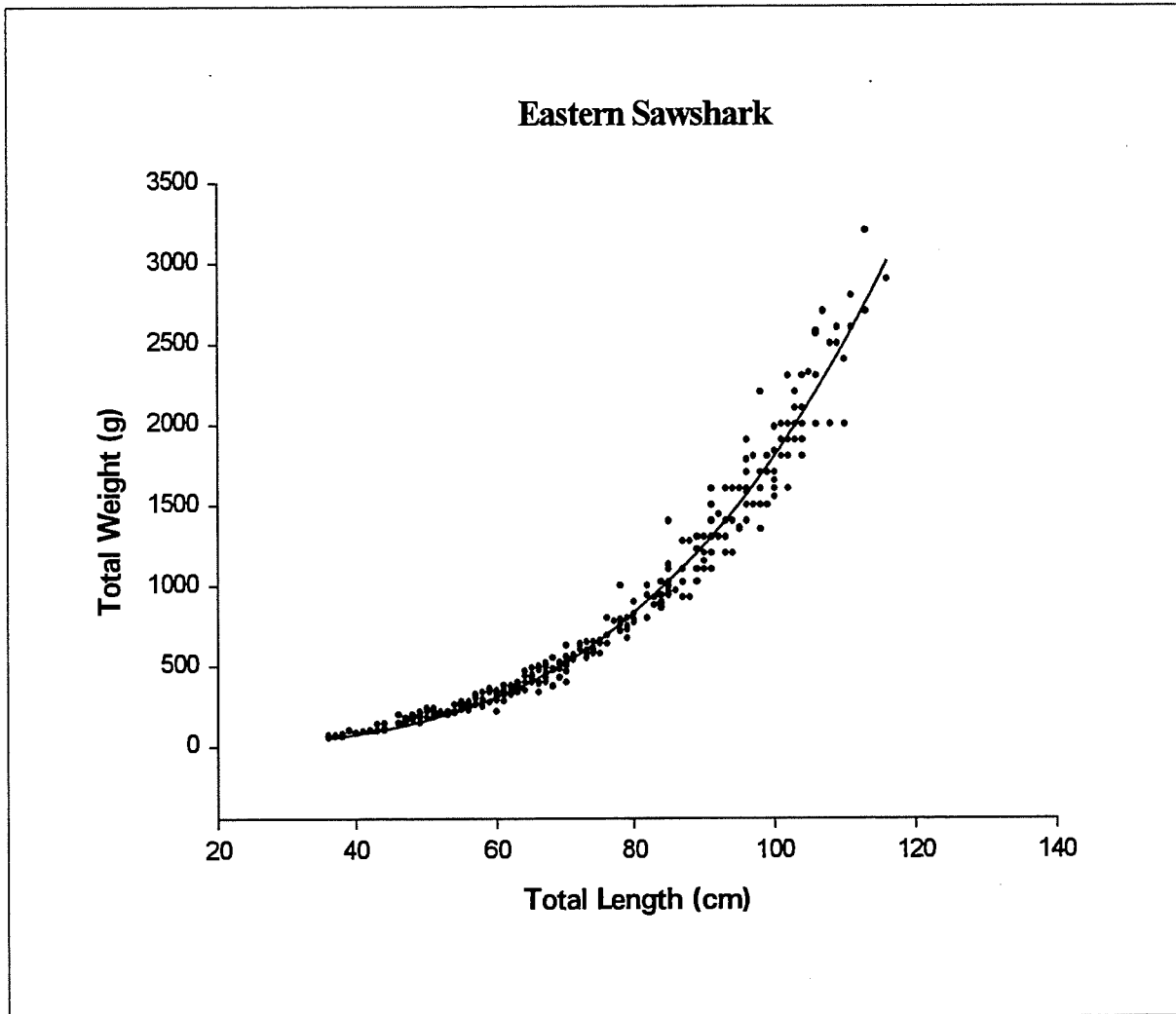


Figure 14.1: Length-weight relationship for eastern sawshark (*Pristiophorus* sp.A).

	Coefficient	Std. Error	Adj Rsqr = 0.9745
a	0.0002	0	Length range: 36-116 cm
b	3.4617	0.0446	n = 323

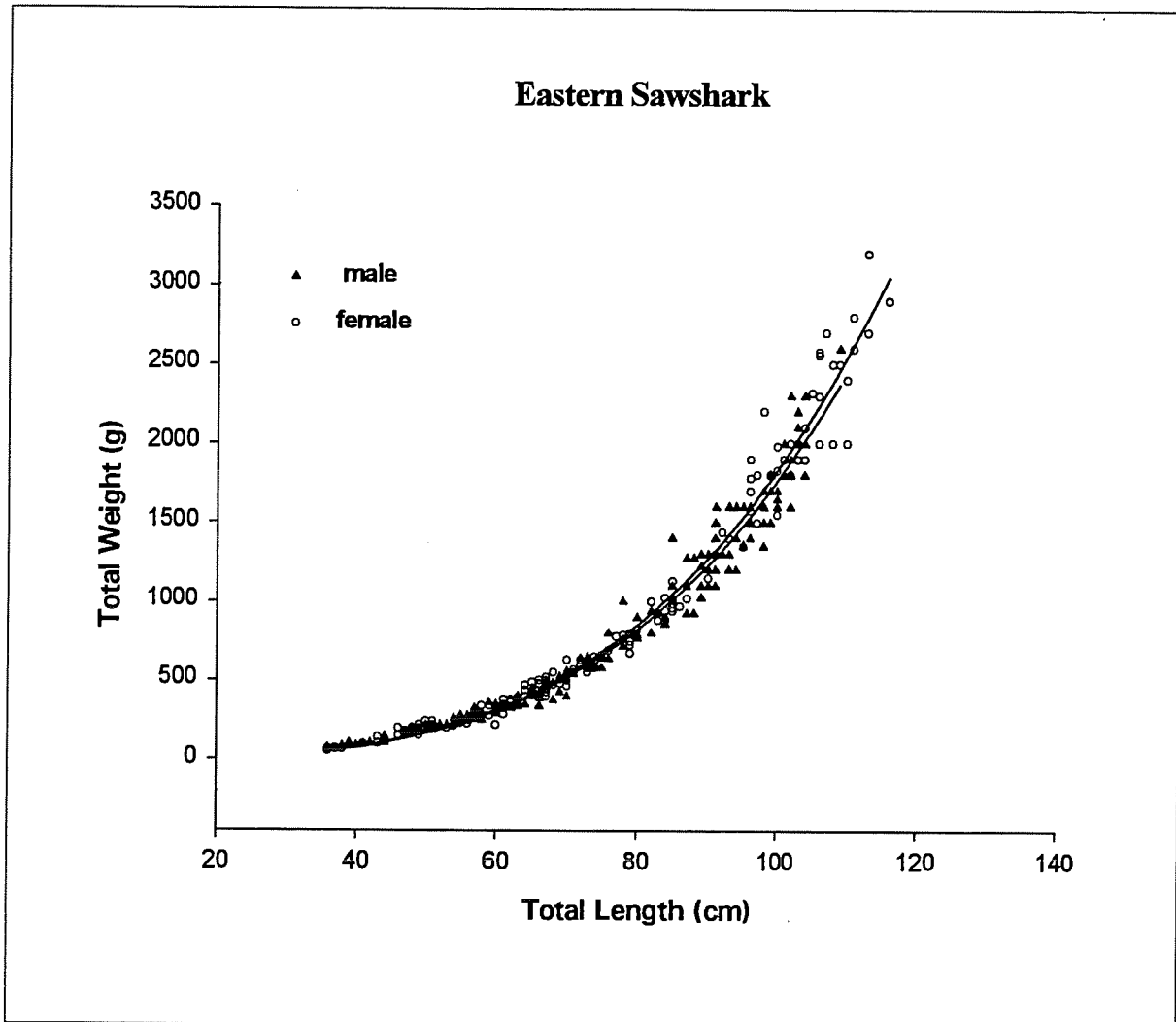
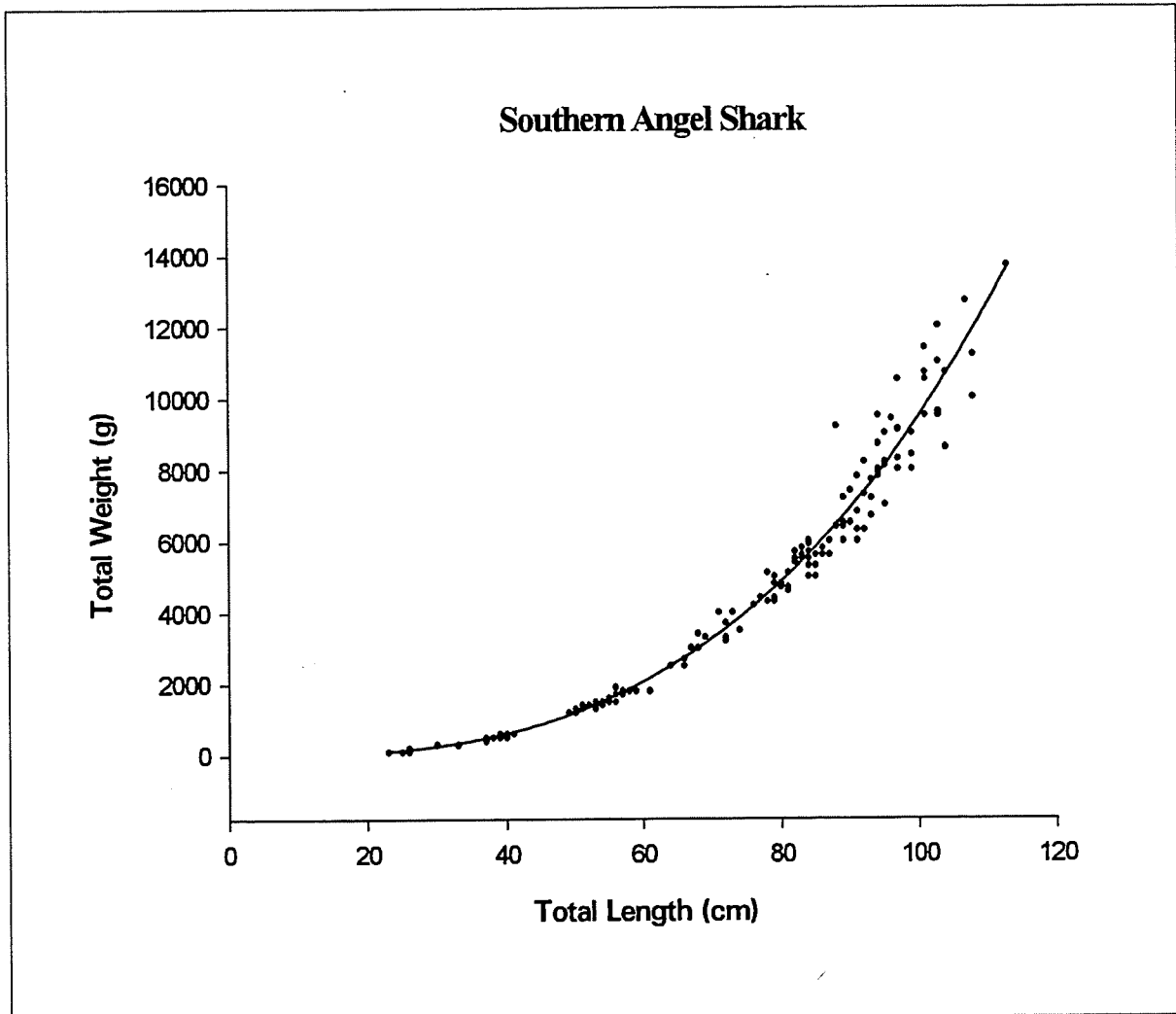


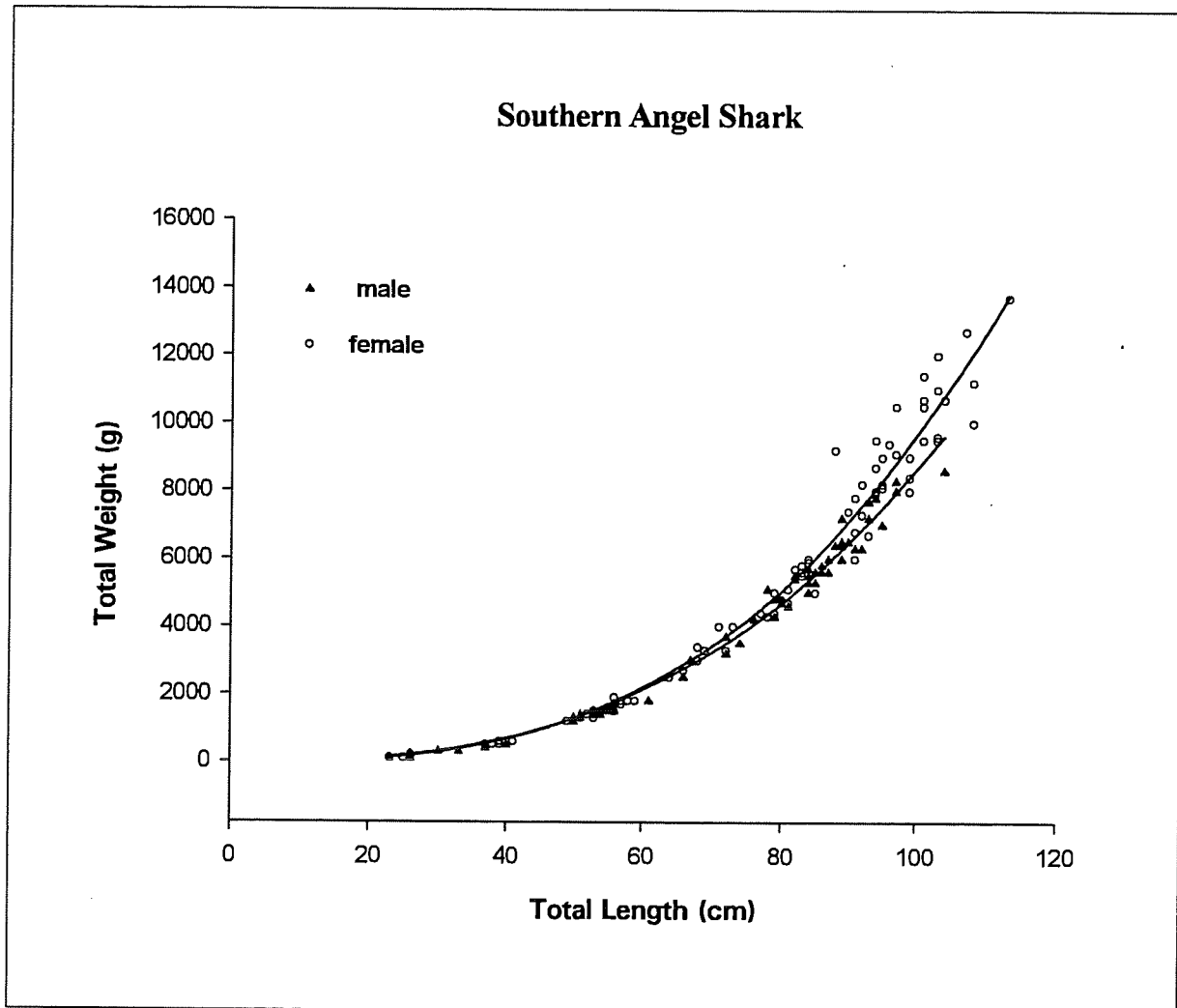
Figure 14.2: Length-weight relationships for male and female eastern sawshark (*Pristiophorus* sp.A).

Males:		Coefficient	Std. Error	Adj Rsqr = 0.9714
a		0.0003	0.0001	Length range: 36-109 cm
b		3.4195	0.0699	n = 168
Females:		Coefficient	Std. Error	Adj Rsqr = 0.9776
a		0.0002	0.0001	Length range: 36-116 cm
b		3.4383	0.0589	n = 155



**Figure 15.1:** Length-weight relationship for southern (inshore) angel shark (*Squatina australis*).

	Coefficient	Std. Error	Adj Rsqr = 0.9686
a	0.0104	0.0032	Length range: 23-113 cm
b	2.9787	0.068	n = 146



**Figure 15.2:** Length-weight relationships for male and female southern (inshore) angel shark (*Squatina australis*).

<b>Males:</b>	Coefficient	Std. Error	Adj Rsqr = 0.9838
a	0.0278	0.0086	Length range: 23-104 cm
b	2.7469	0.0694	n = 63
<b>Females:</b>	Coefficient	Std. Error	Adj Rsqr = 0.9676
a	0.0149	0.0065	Length range: 23-113 cm
b	2.9061	0.0951	n = 83



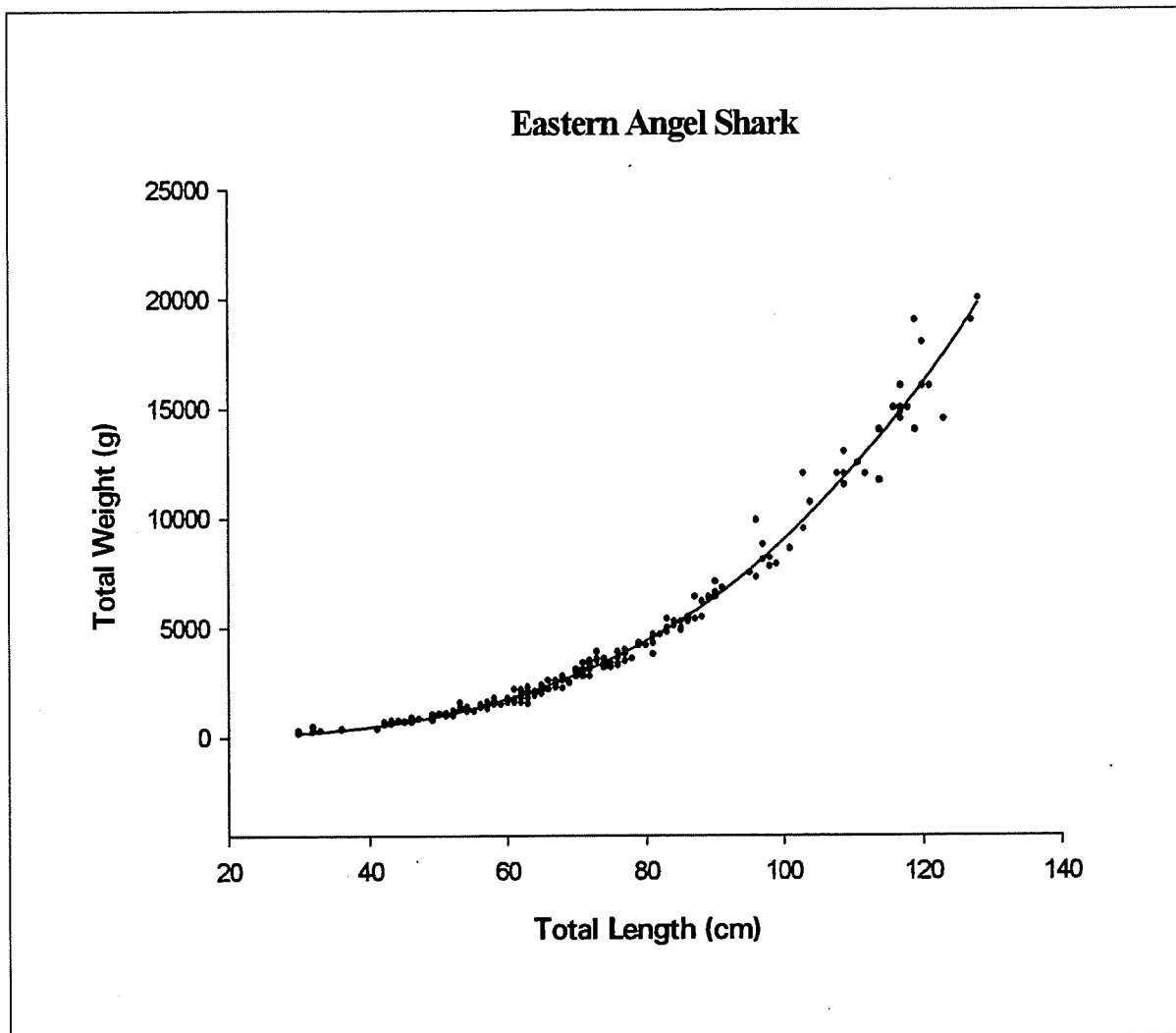
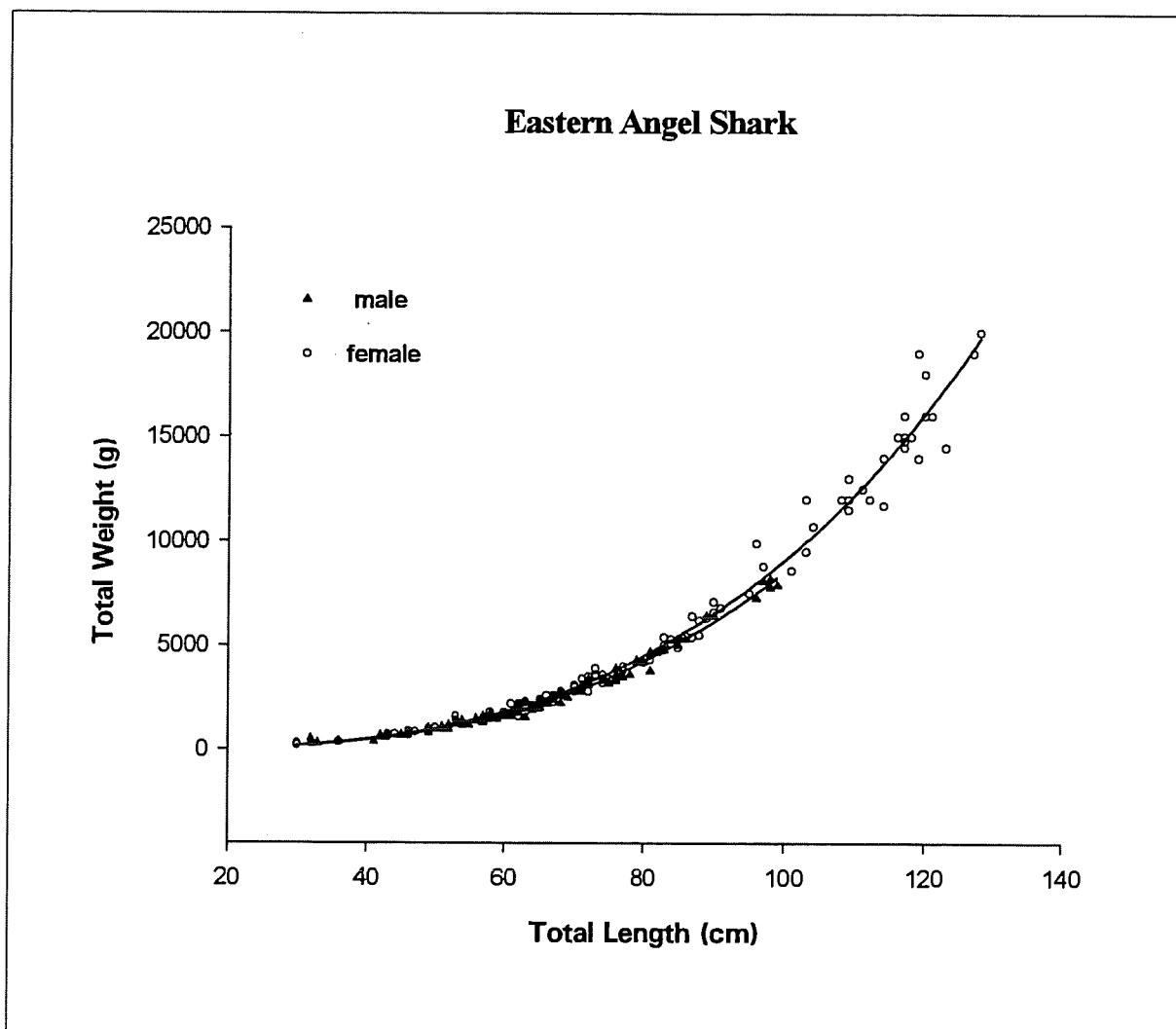


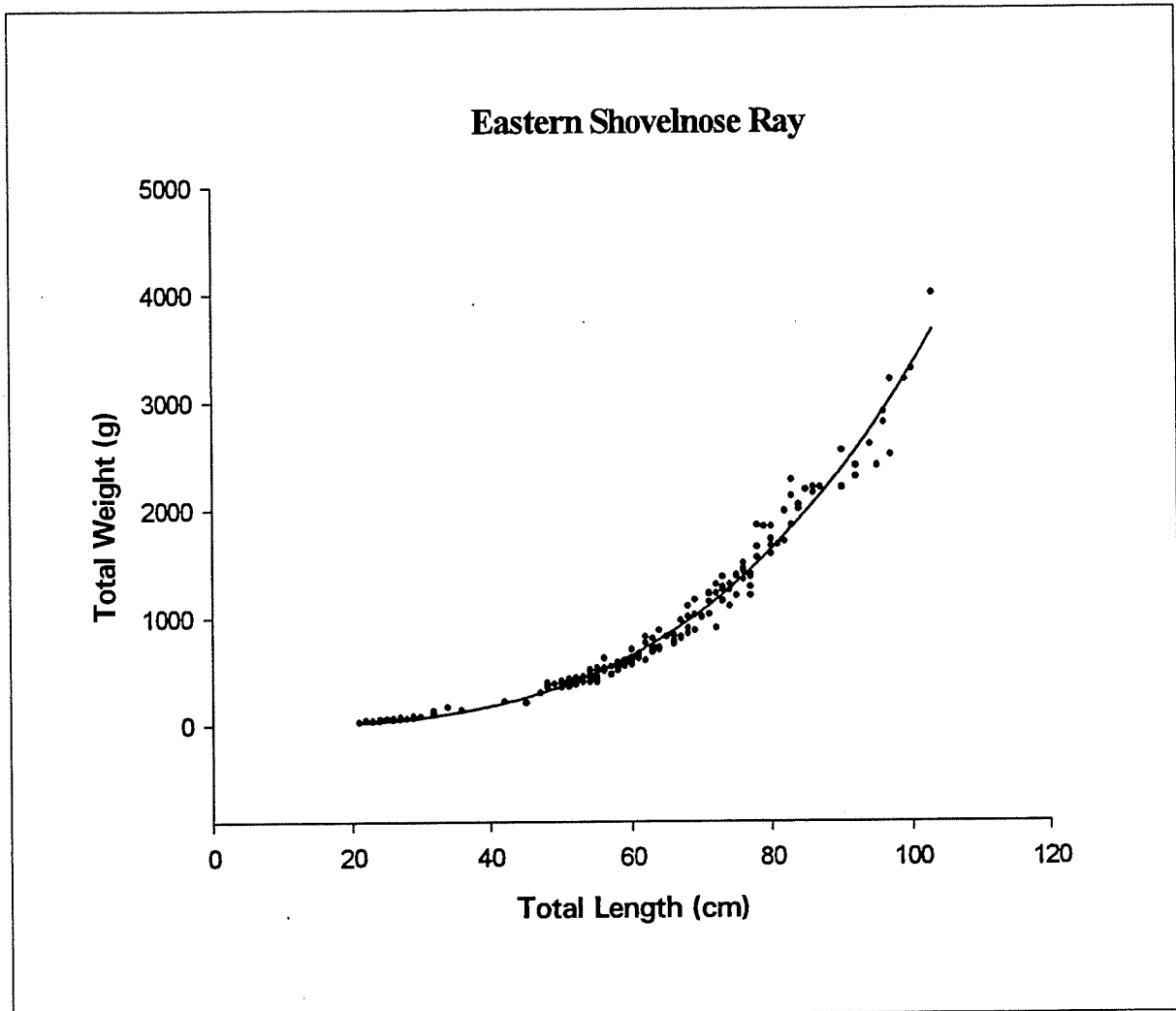
Figure 16.1: Length-weight relationship for eastern angel shark (*Squatina* sp.A).

	Coefficient	Std. Error	Adj Rsqr = 0.9871
a	0.0036	0.0005	Length range: 30-128 cm
b	3.2004	0.0289	n = 228



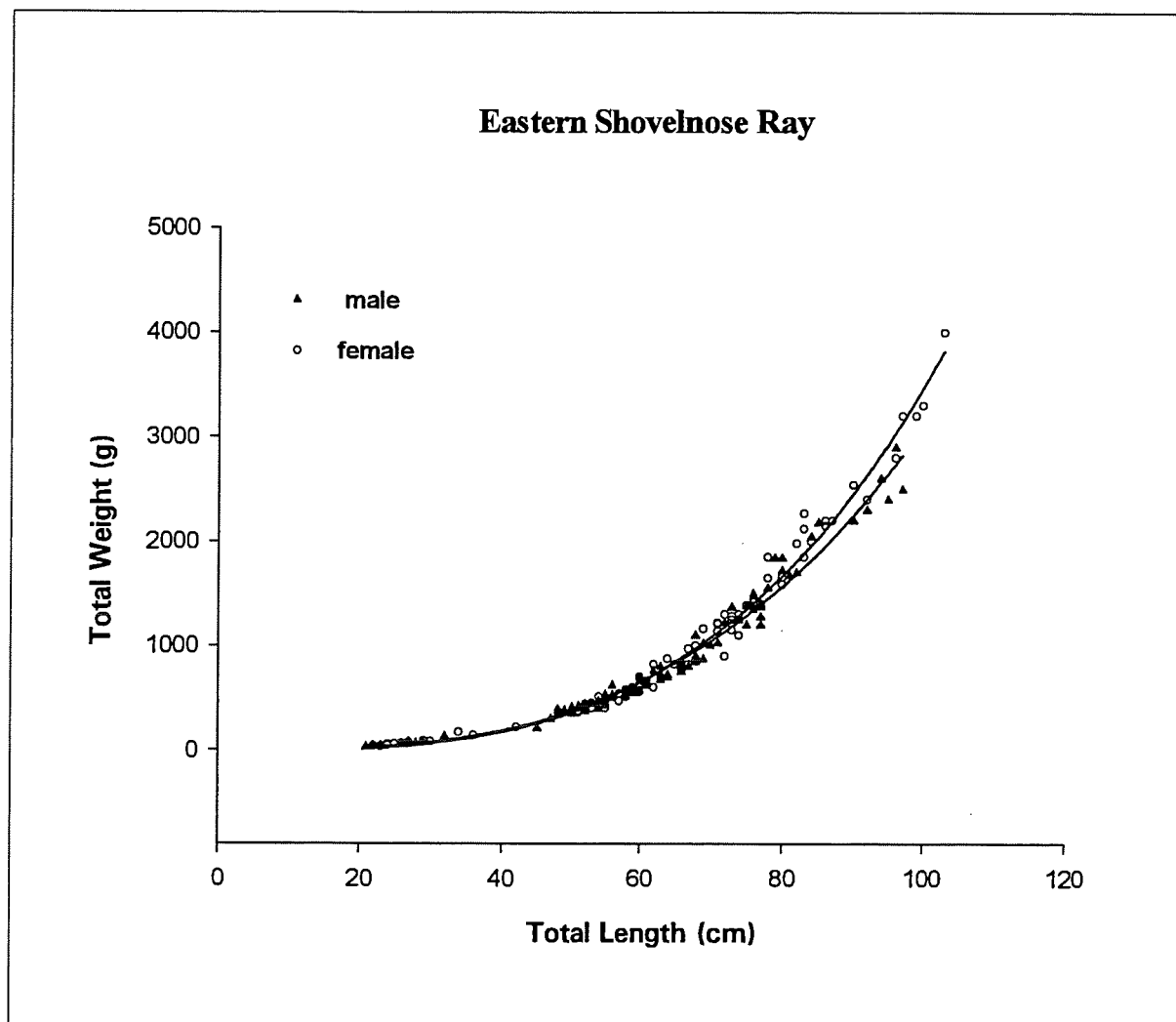
**Figure 16.2:** Length-weight relationships for male and female eastern angel shark (*Squatina* sp.A).

<b>Males:</b>		Coefficient	Std. Error	Adj Rsqr = 0.9914
a		0.0045	0.0006	Length range: 32-99 cm
b		3.1375	0.0313	n = 109
<b>Females:</b>		Coefficient	Std. Error	Adj Rsqr = 0.9851
a		0.0048	0.0011	Length range: 30-128 cm
b		3.1398	0.0484	n = 119



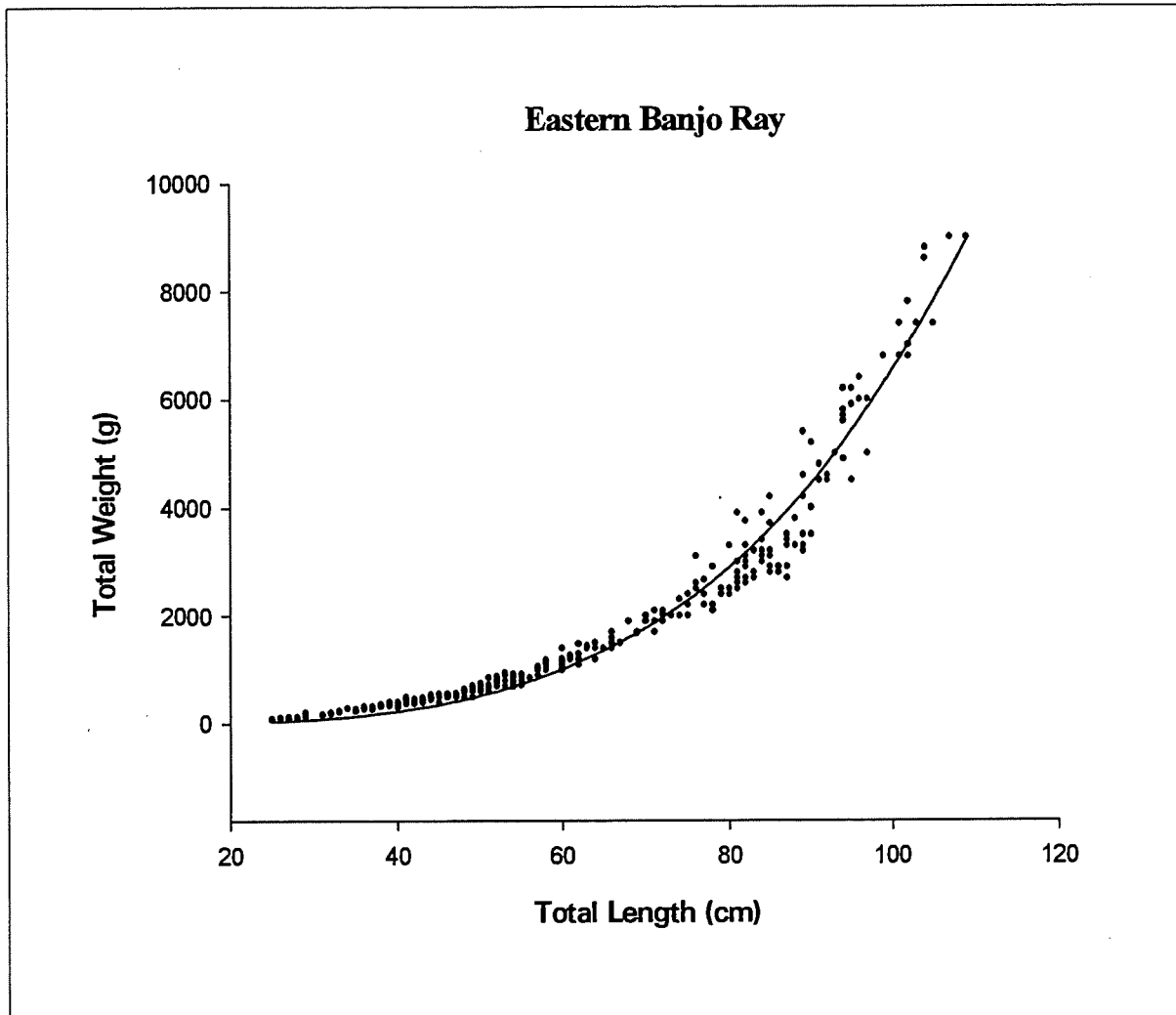
**Figure 17.1:** Length-weight relationship for eastern shovelnose ray (*Aptychotrema rostrata*).

	Coefficient	Std. Error	Adj Rsqr = 0.9812
a	0.0013	0.0002	Length range: 21-103 cm
b	3.2097	0.0386	n = 200



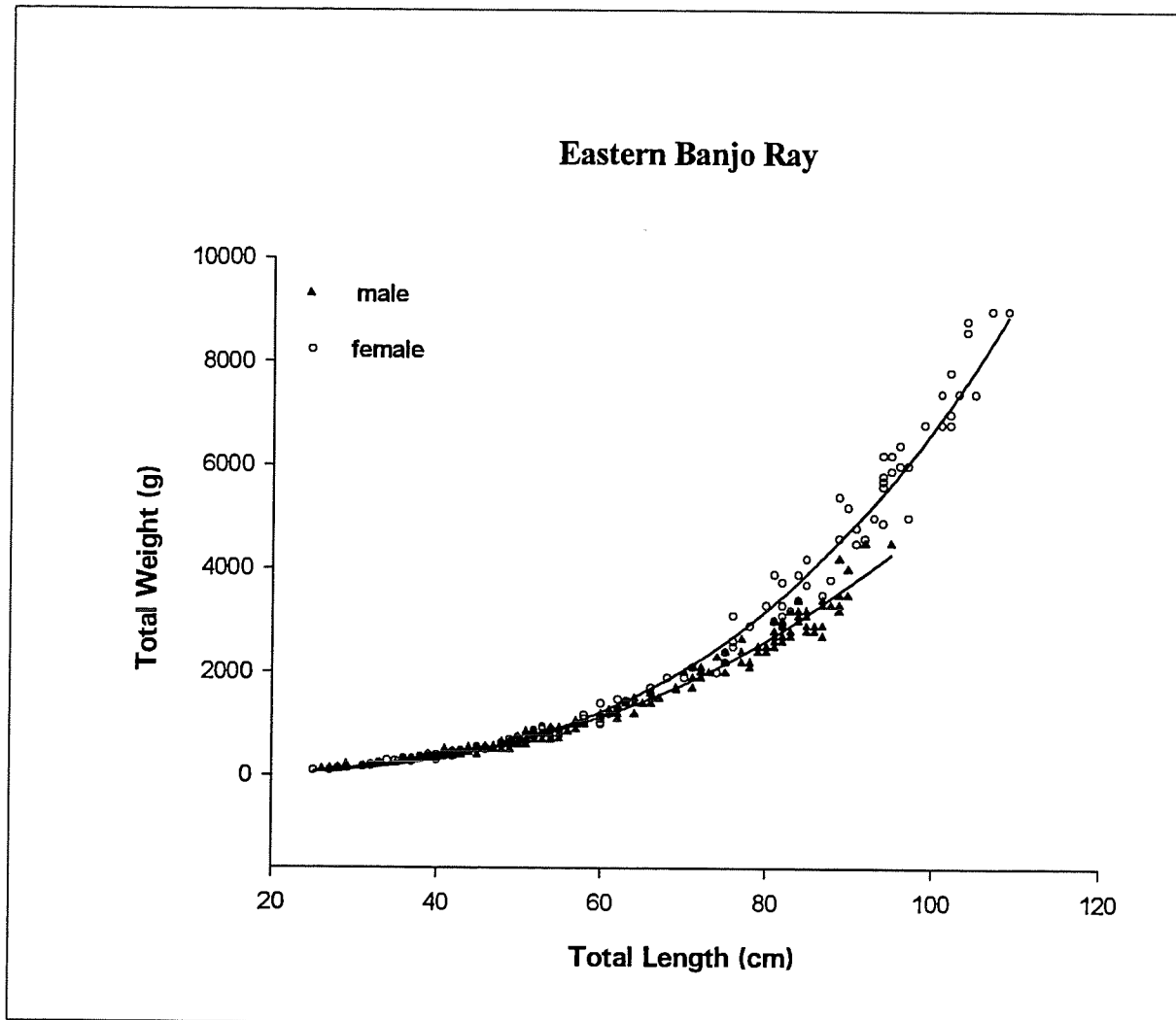
**Figure 17.2:** Length-weight relationships for male and female eastern shovelnose ray (*Aptychotrema rostrata*).

<b>Males:</b>		Coefficient	Std. Error	Adj Rsqr = 0.9790
a		0.0024	0.0006	Length range: 21-97 cm
b		3.0595	0.0539	n = 101
<b>Females:</b>		Coefficient	Std. Error	Adj Rsqr = 0.9872
a		0.001	0.0002	Length range: 22-103 cm
b		3.2765	0.0474	n = 99



**Figure 18.1:** Length-weight relationship for eastern banjo ray (*Trygonorrhina* sp.A).

	Coefficient	Std. Error	Adj Rsqr = 0.9715
a	0.0003	0.0001	Length range: 25-109 cm
b	3.654	0.0493	n = 336



**Figure 18.2:** Length-weight relationships for male and female eastern banjo ray (*Trygonorrhina* sp.A).

<b>Males:</b>	Coefficient	Std. Error	Adj Rsqr = 0.9817
a	0.0084	0.0015	Length range: 26-95 cm
b	2.887	0.0408	n = 191
<b>Females:</b>	Coefficient	Std. Error	Adj Rsqr = 0.9860
a	0.0016	0.0005	Length range: 25-109 cm
b	3.3079	0.0548	n = 145

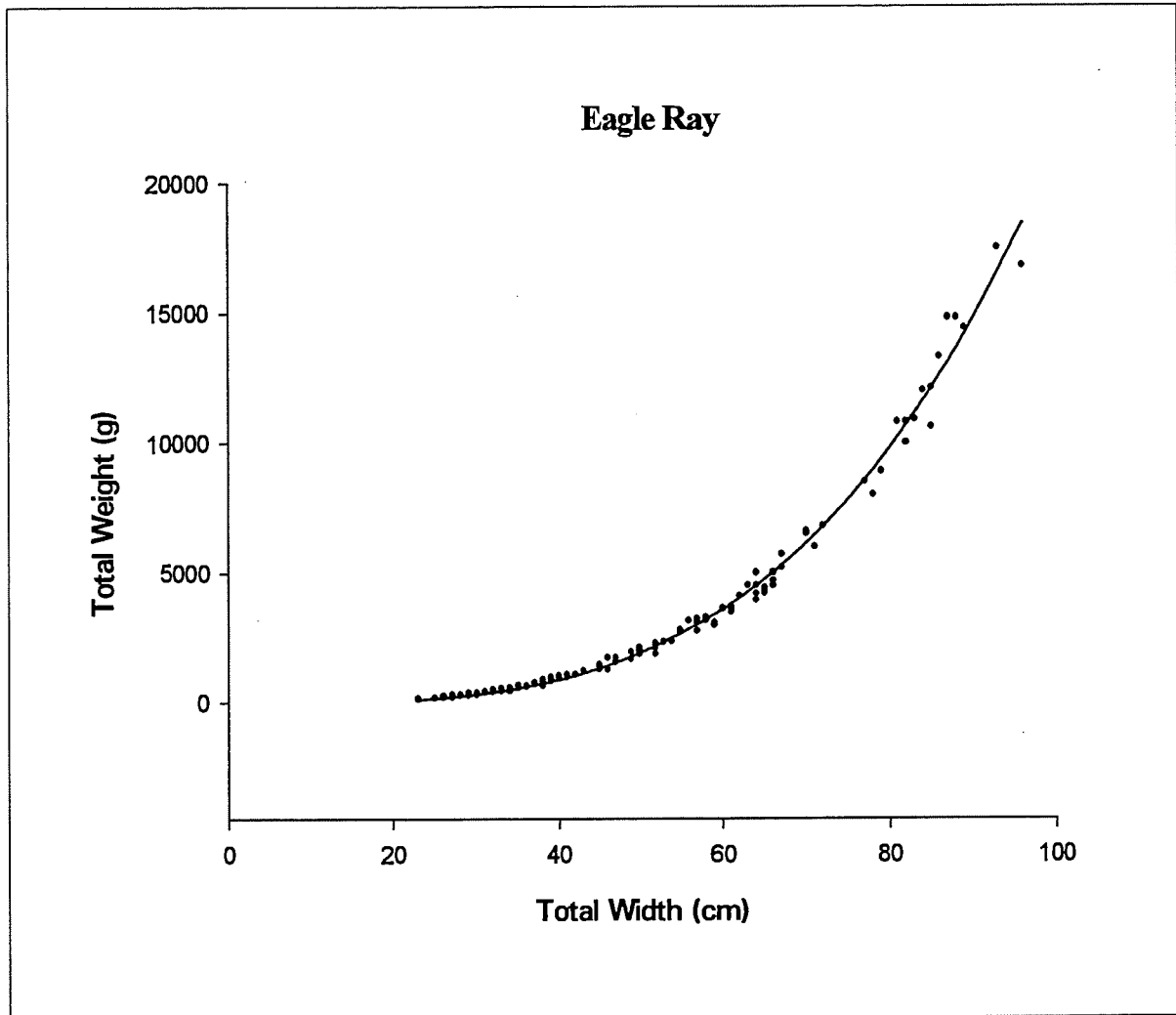
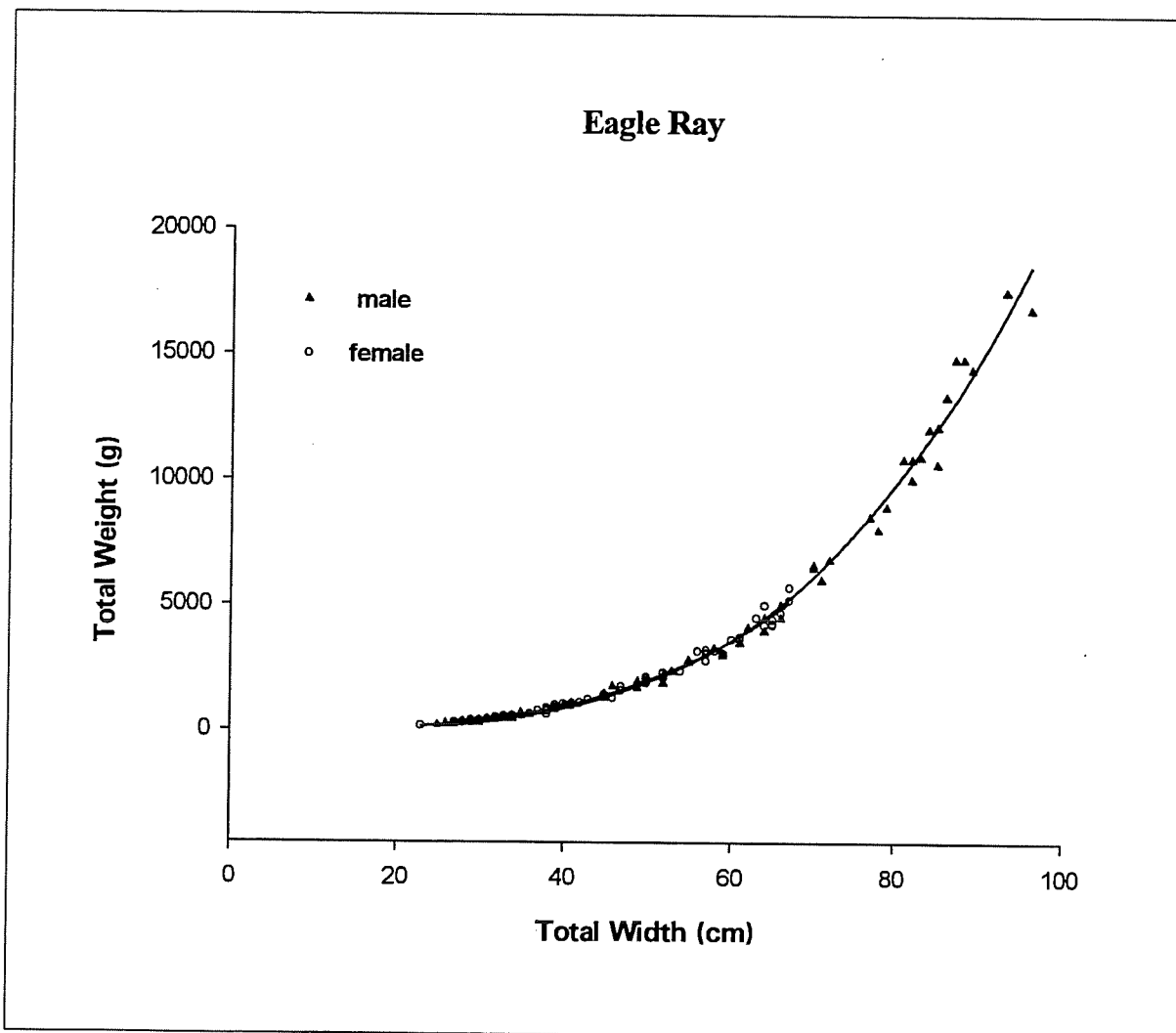


Figure 19.1: Size (width) - weight relationship for eagle rays (*Myliobatis australis*).

	Coefficient	Std. Error	Adj Rsqr = 0.9917
a	0.0023	0.0004	Length range: 32-96 cm
b	3.4812	0.035	n = 152



**Figure 19.2:** Size (width) - weight relationships for male and female eagle rays (*Myliobatis australis*).

Males:		Coefficient	Std. Error	Adj Rsqr = 0.9916
a		0.0022	0.0006	Length range: 25-96 cm
b		3.4977	0.0638	n = 80
Females:		Coefficient	Std. Error	Adj Rsqr = 0.9883
a		0.0061	0.0015	Length range: 23-67 cm
b		3.2437	0.0591	n = 72



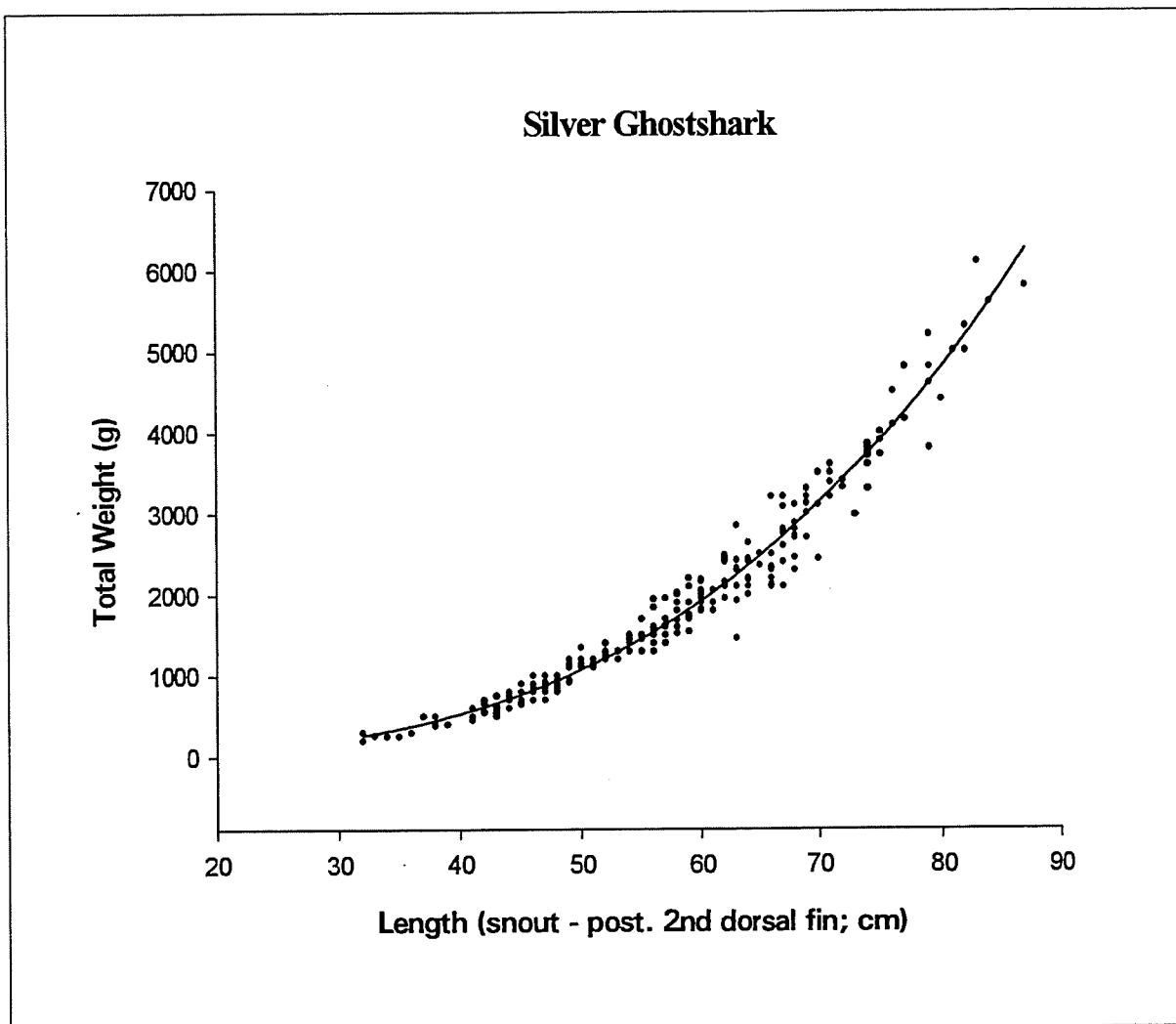
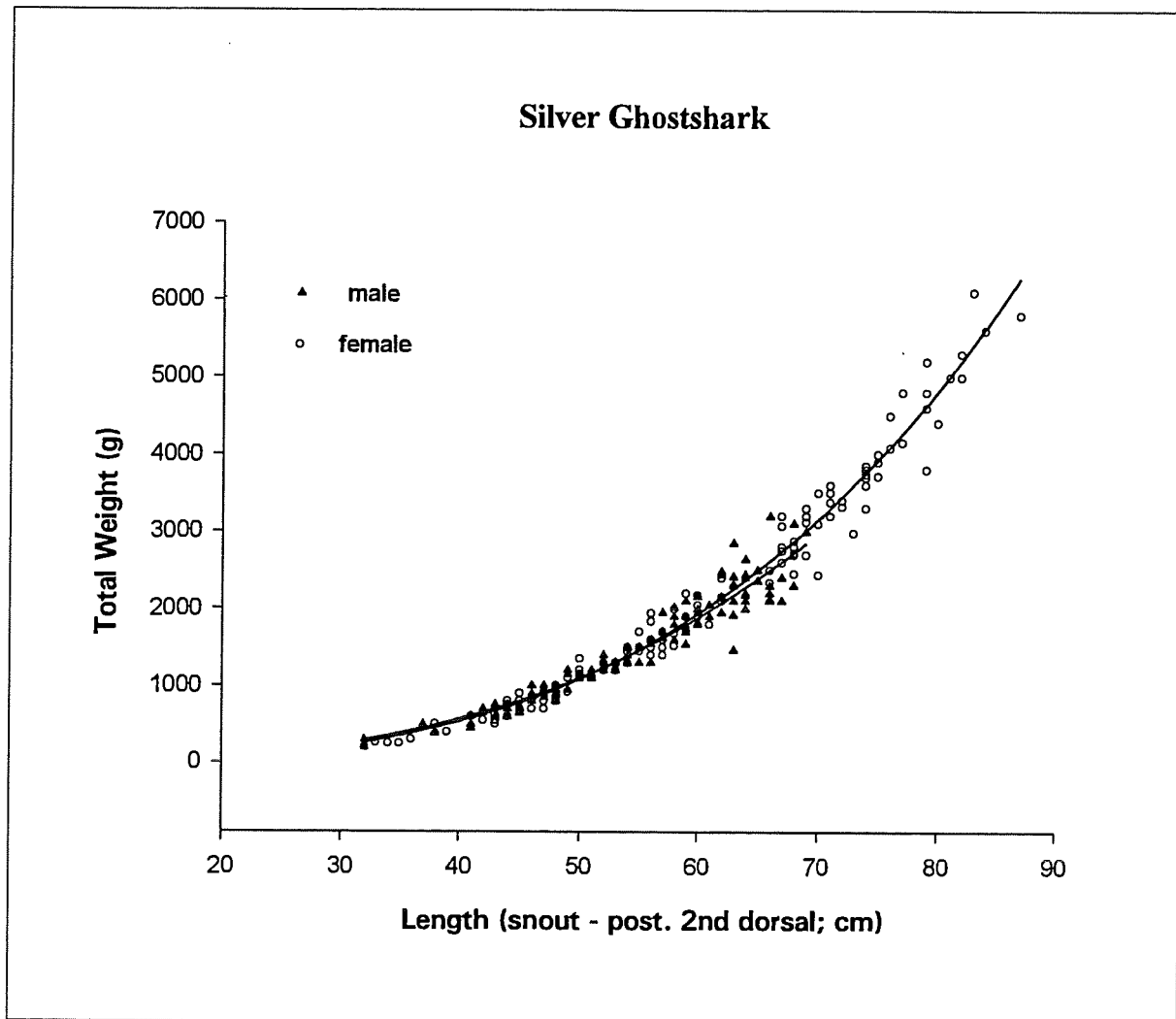


Figure 20.1: Length-weight relationship for silver ghost shark (*Hydrolagus ogilbyi*).

	Coefficient	Std. Error	Adj Rsqr = 0.9685
a	0.0042	0.0007	Length range: 32-87 cm
b	3.1826	0.0411	n = 246



**Figure 20.2:** Length-weight relationships for male and female silver ghost shark (*Hydrolagus ogilbyi*).

<b>Males:</b>		Coefficient	Std. Error	Adj Rsqr = 0.9132
a		0.0108	0.0045	Length range: 32-69 cm
b		2.9485	0.1009	n = 115
<b>Females:</b>		Coefficient	Std. Error	Adj Rsqr = 0.9748
a		0.0045	0.0011	Length range: 32-87 cm
b		3.1689	0.0571	n = 131

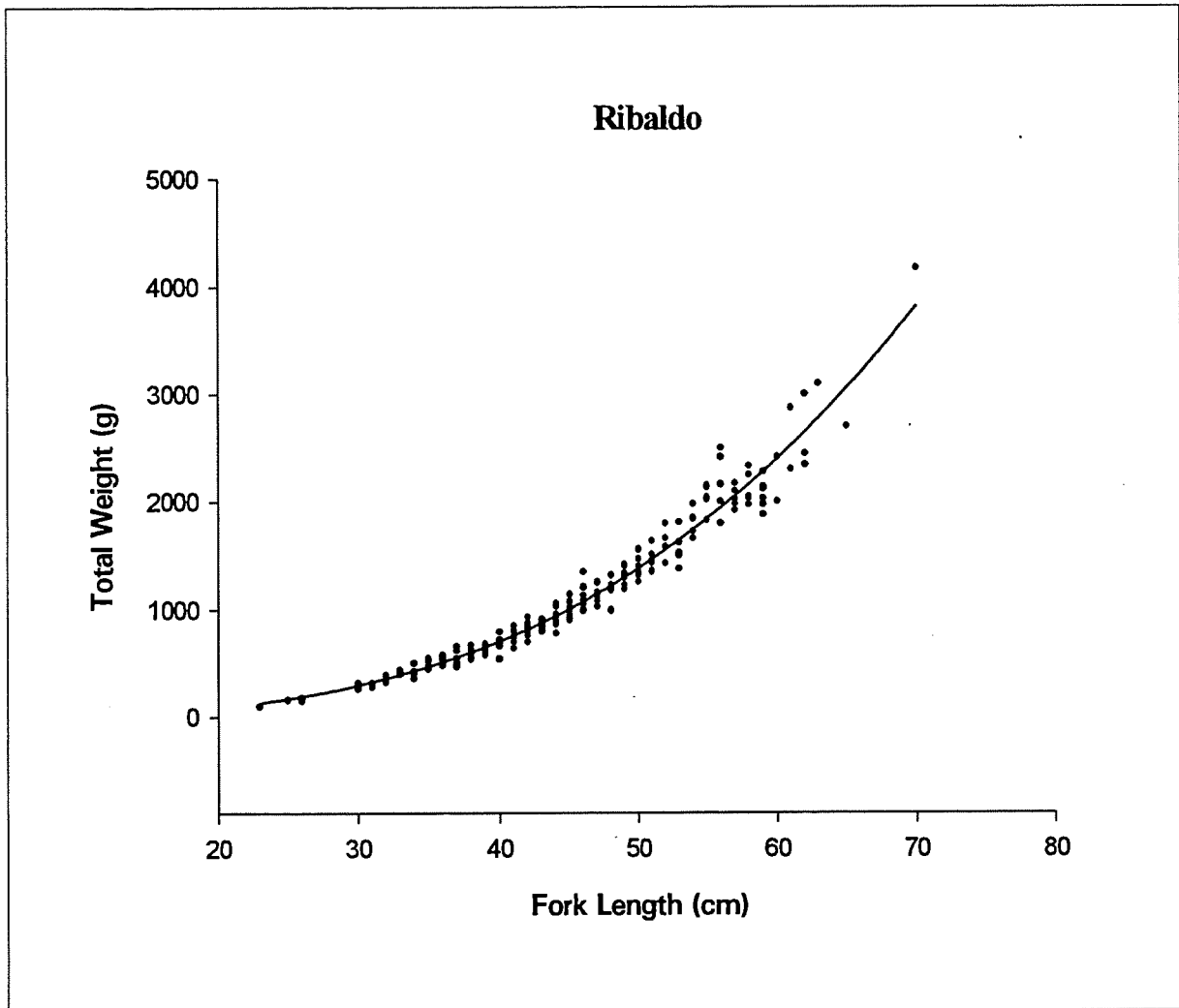


Figure 21.1: Length-weight relationship for ribaldo (*Mora moro*).

	Coefficient	Std. Error	Adj Rsqr = 0.9642
a	0.0101	0.0017	Length range: 23-70 cm
b	3.0232	0.0417	n = 234

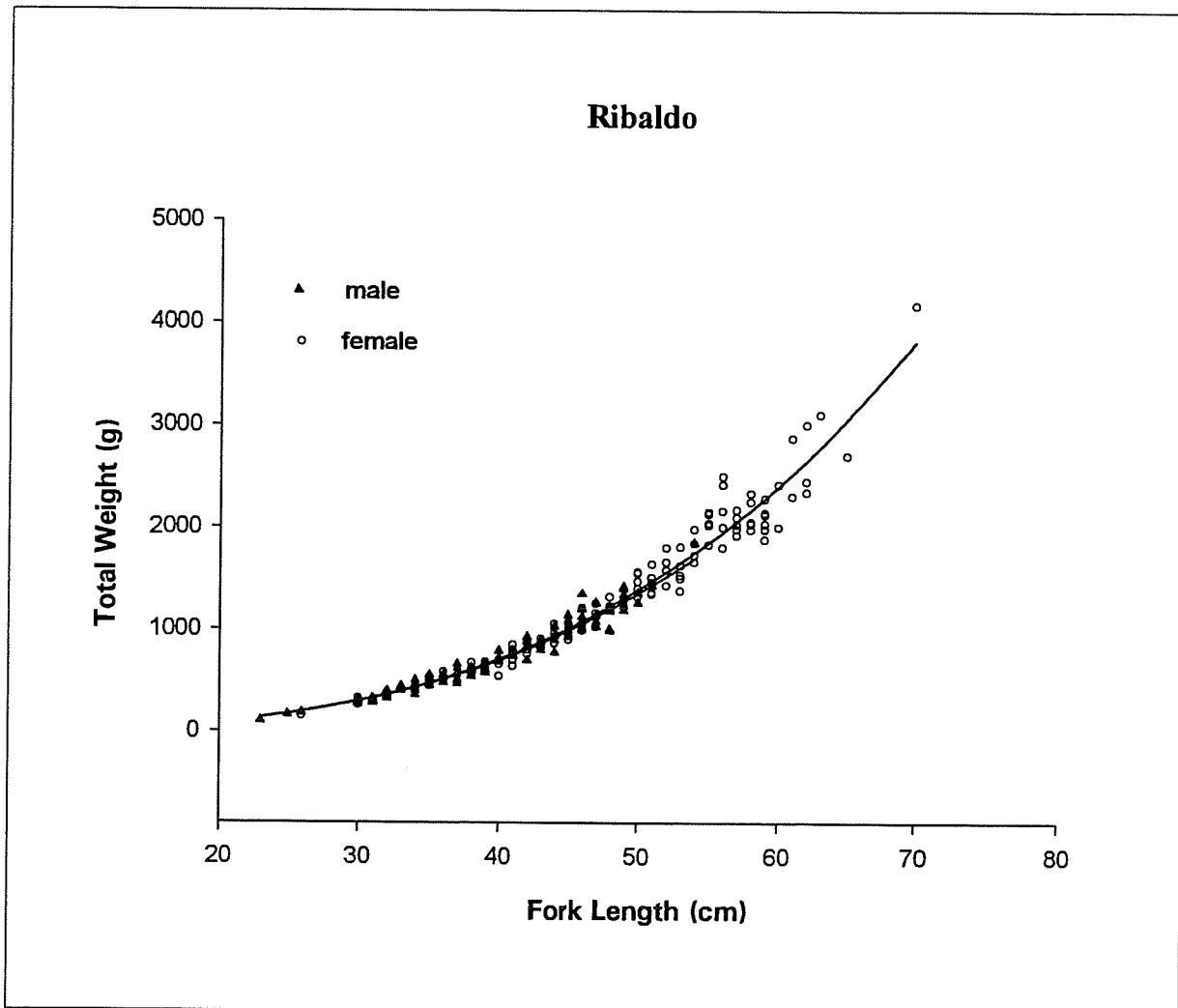


Figure 21.2: Length-weight relationship for male and female ribaldo (*Mora moro*).

Males:		Coefficient	Std. Error	Adj Rsqr = 0.9569
a		0.0124	0.0038	Length range: cm
b		2.9658	0.0705	n = 104
Females:		Coefficient	Std. Error	Adj Rsqr = 0.9521
a		0.0107	0.0029	Length range: cm
b		3.0084	0.0679	n = 130

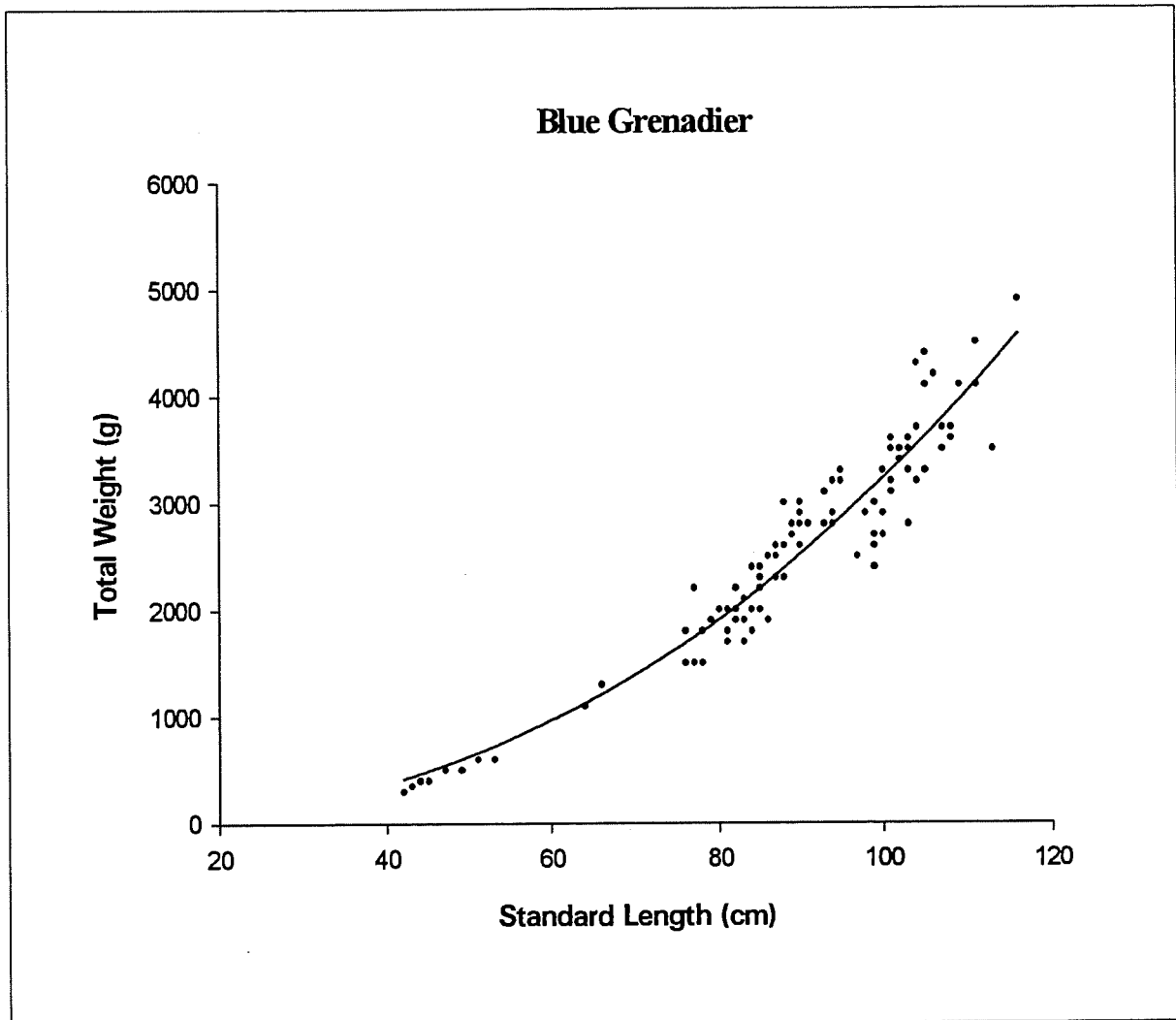


Figure 22: Length-weight relationship for blue grenadier (*Macruronus novaezelandiae*).

	Coefficient	Std. Error	Adj Rsqr = 0.9155
a	0.0623	0.0261	Length range: 42-116 cm
b	2.3572	0.0908	n = 109

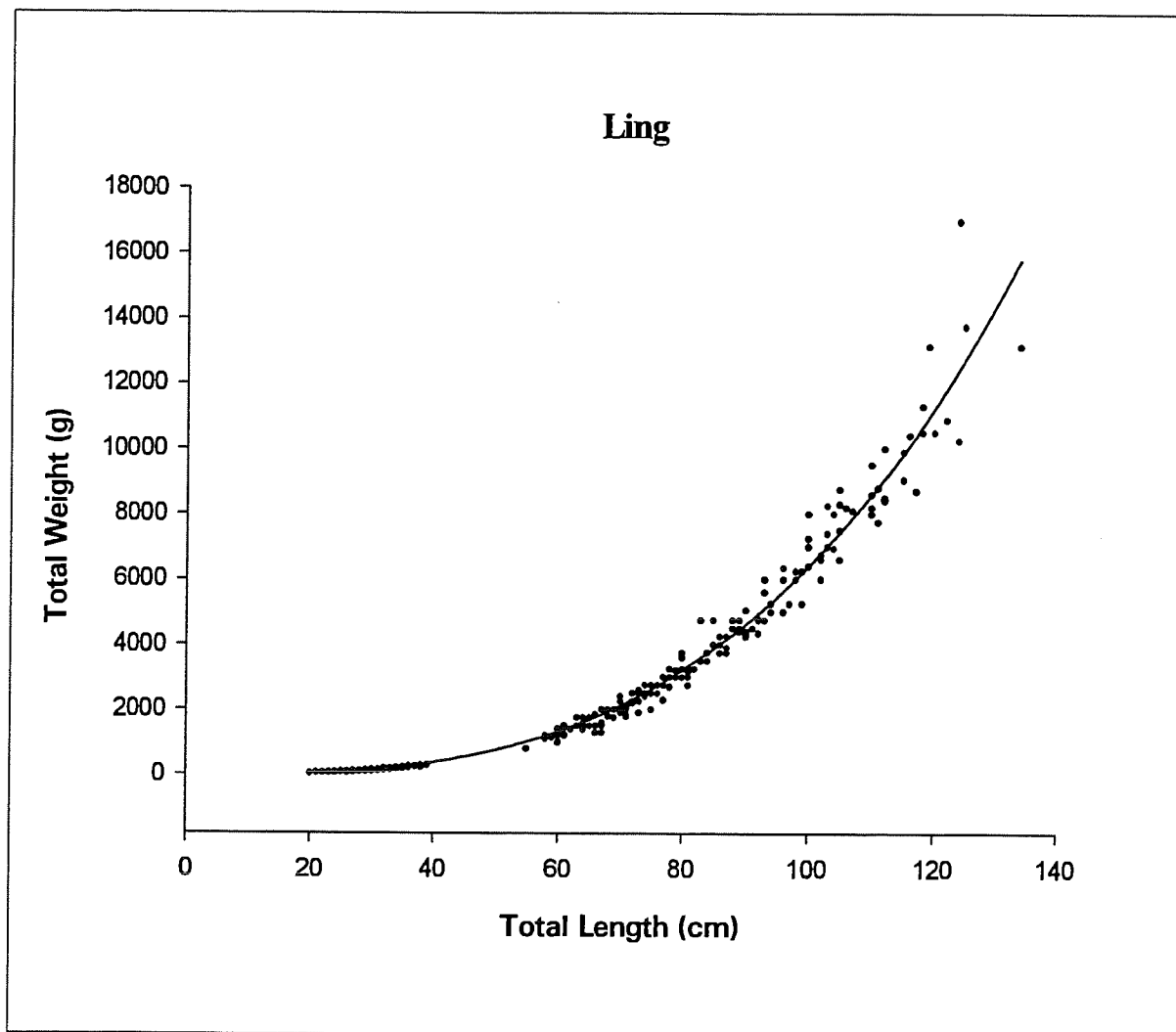


Figure 23: Length-weight relationship for ling (*Genypterus blacodes*).

	Coefficient	Std. Error	Adj Rsqr = 0.9713
<b>a</b>	0.0043	0.001	Length range: 20-134 cm
<b>b</b>	3.0887	0.0481	n = 238

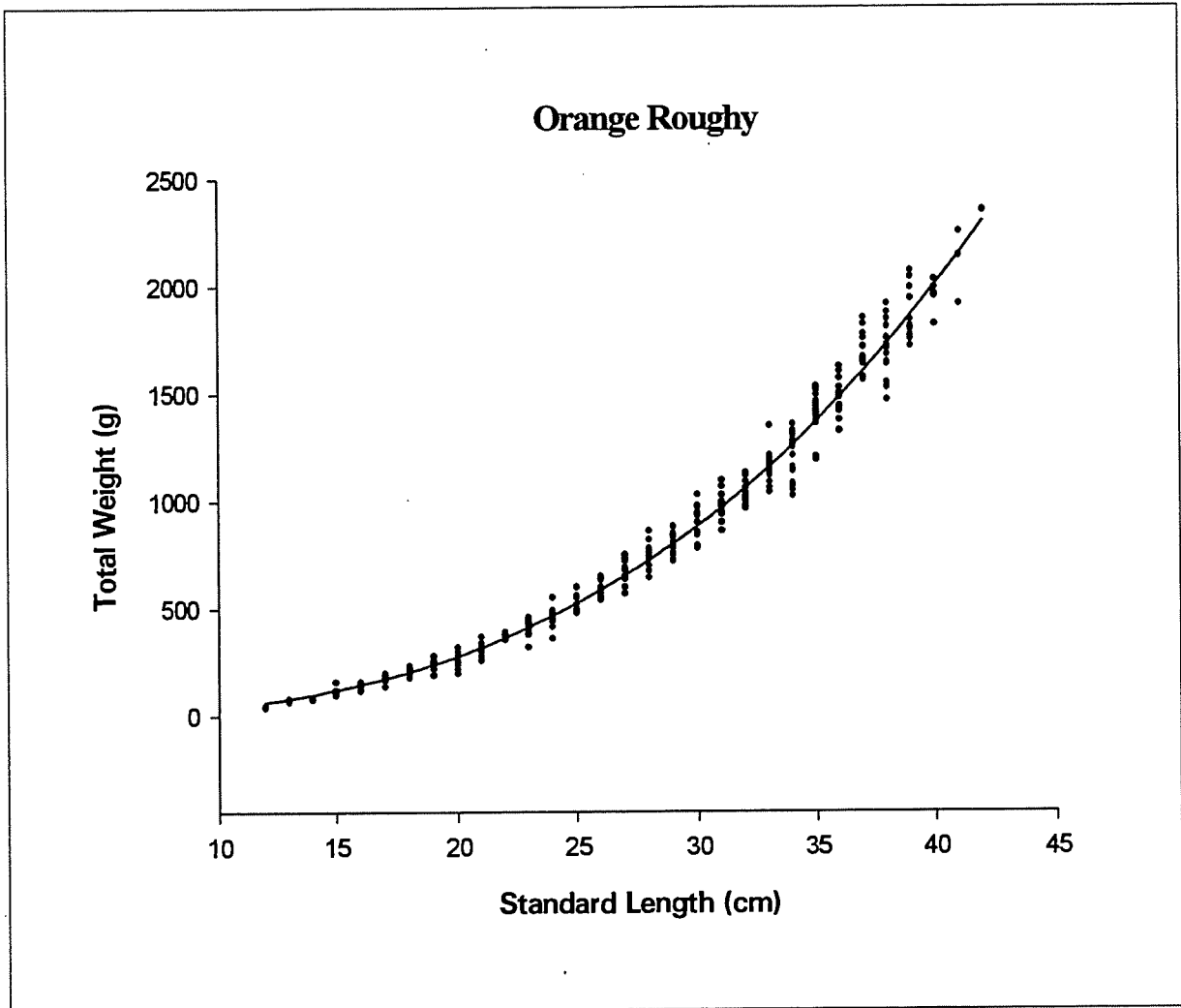
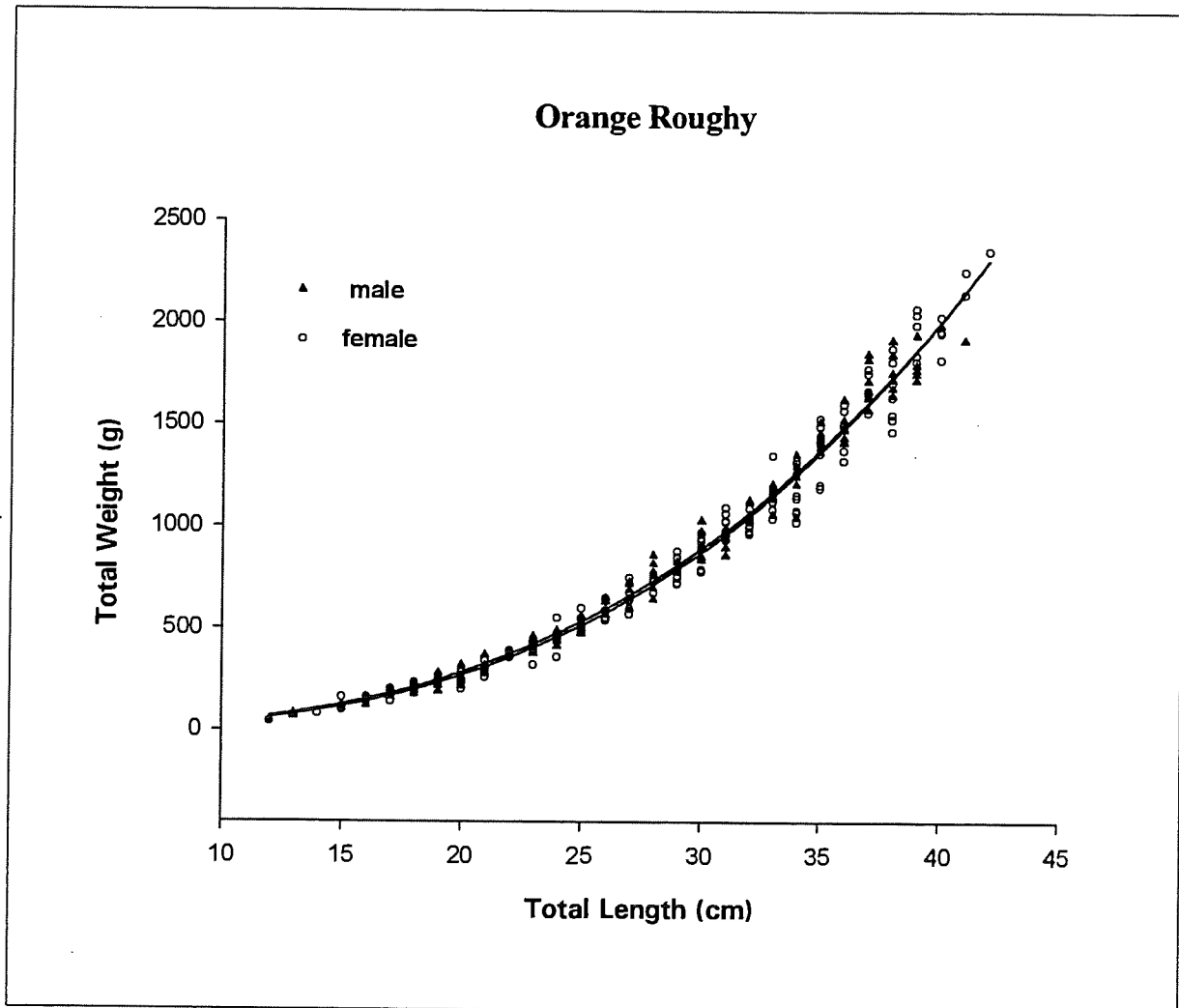


Figure 24.1: Length-weight relationship for orange roughy (*Hoplostethus atlanticus*).

	Coefficient	Std. Error	Adj Rsqr = 0.9822
a	0.0543	0.0058	Length range: 12-42 cm
b	2.8507	0.0299	n = 300



**Figure 24.2:** Length-weight relationship for male and female orange roughy (*Hoplostethus atlanticus*).

Males:		Coefficient	Std. Error	Adj Rsqr = 0.9860
a		0.0627	0.0085	Length range: 12-41cm
b		2.8118	0.038	n = 148
Females:		Coefficient	Std. Error	Adj Rsqr = 0.9788
a		0.0471	0.0077	Length range: 12-42 cm
b		2.8894	0.0456	n = 152



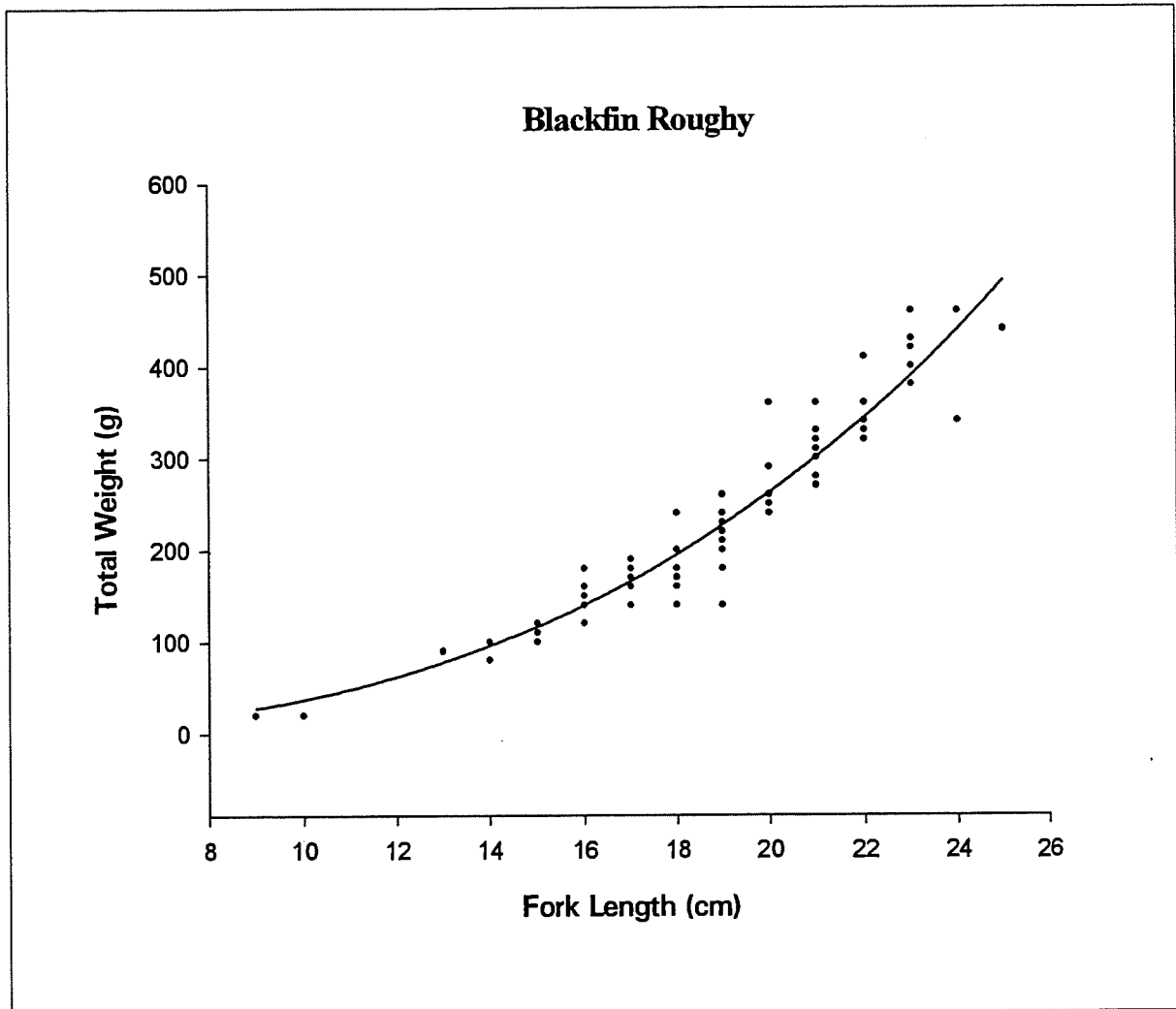
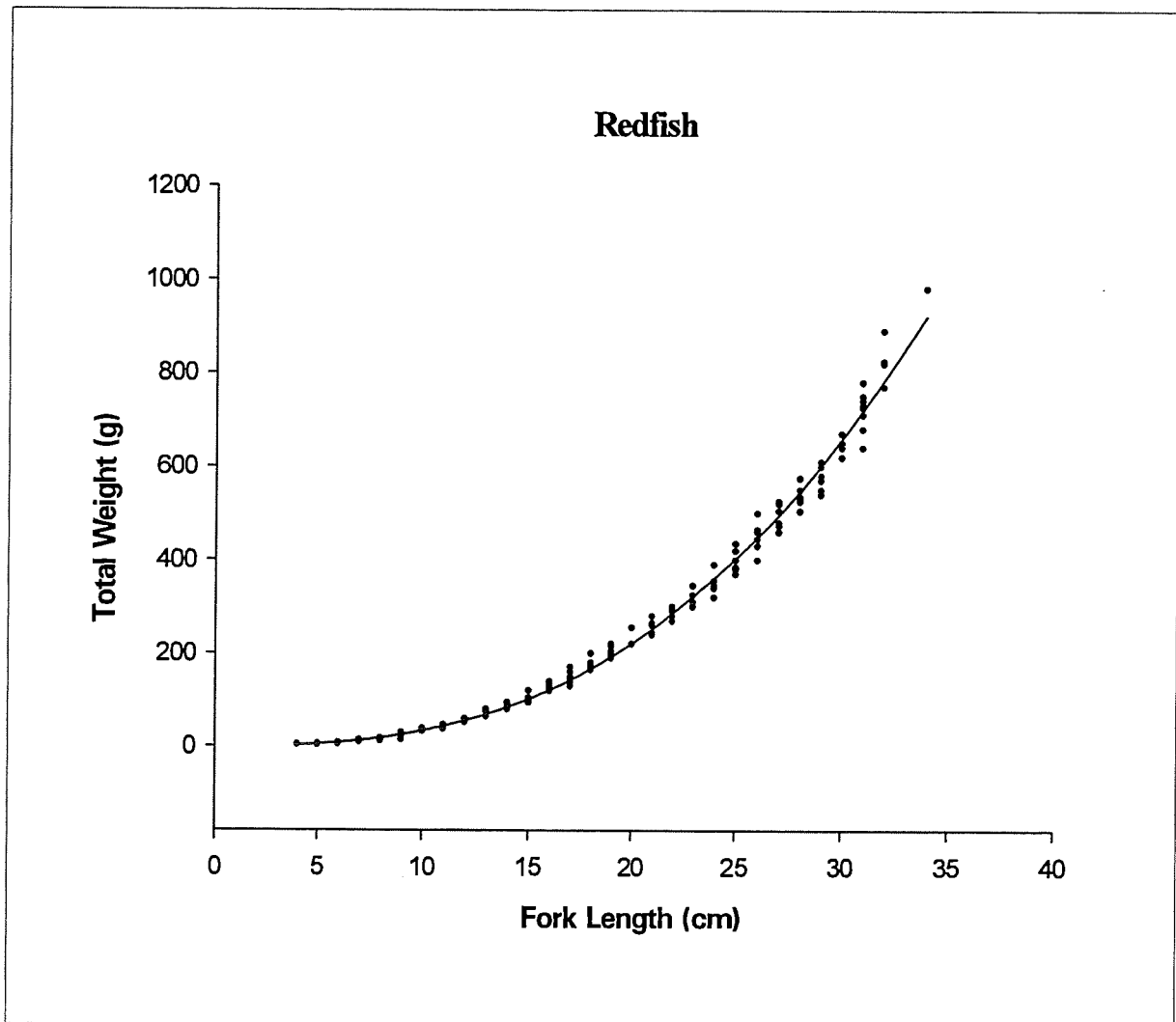


Figure 25: Length-weight relationship for blackfin roughy (*Hoplostethus melanopus*).

	Coefficient	Std. Error	Adj Rsqr = 0.9219
a	0.0549	0.0148	Length range: 13-25 cm
b	2.8279	0.0893	n = 100



**Figure 26.1:** Length-weight relationship for redfish (*Centroberyx affinis*).

	Coefficient	Std. Error	Adj Rsqr = 0.9926
a	0.0699	0.0063	Length range: 4-34 cm
b	2.6905	0.0269	n = 187

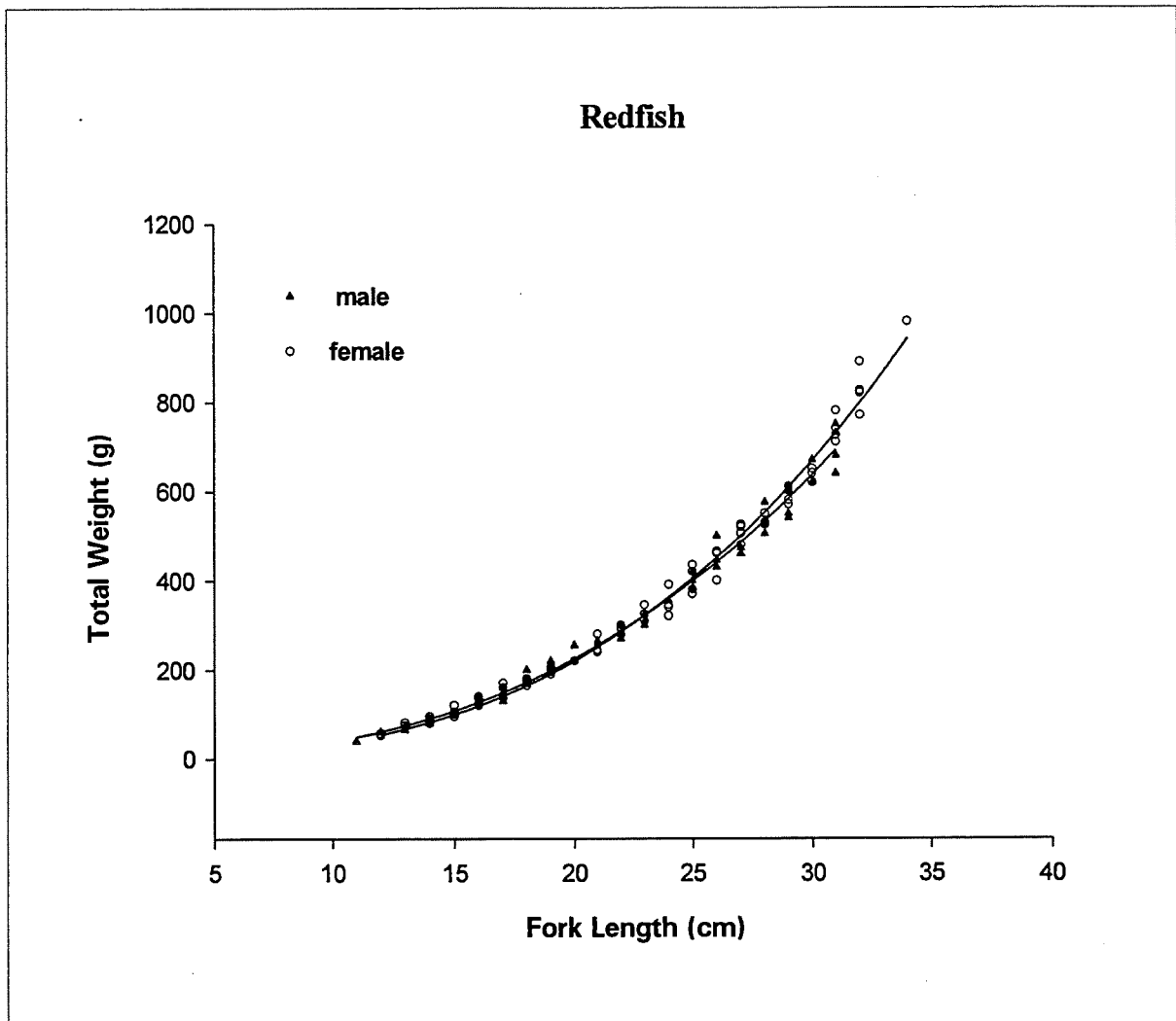
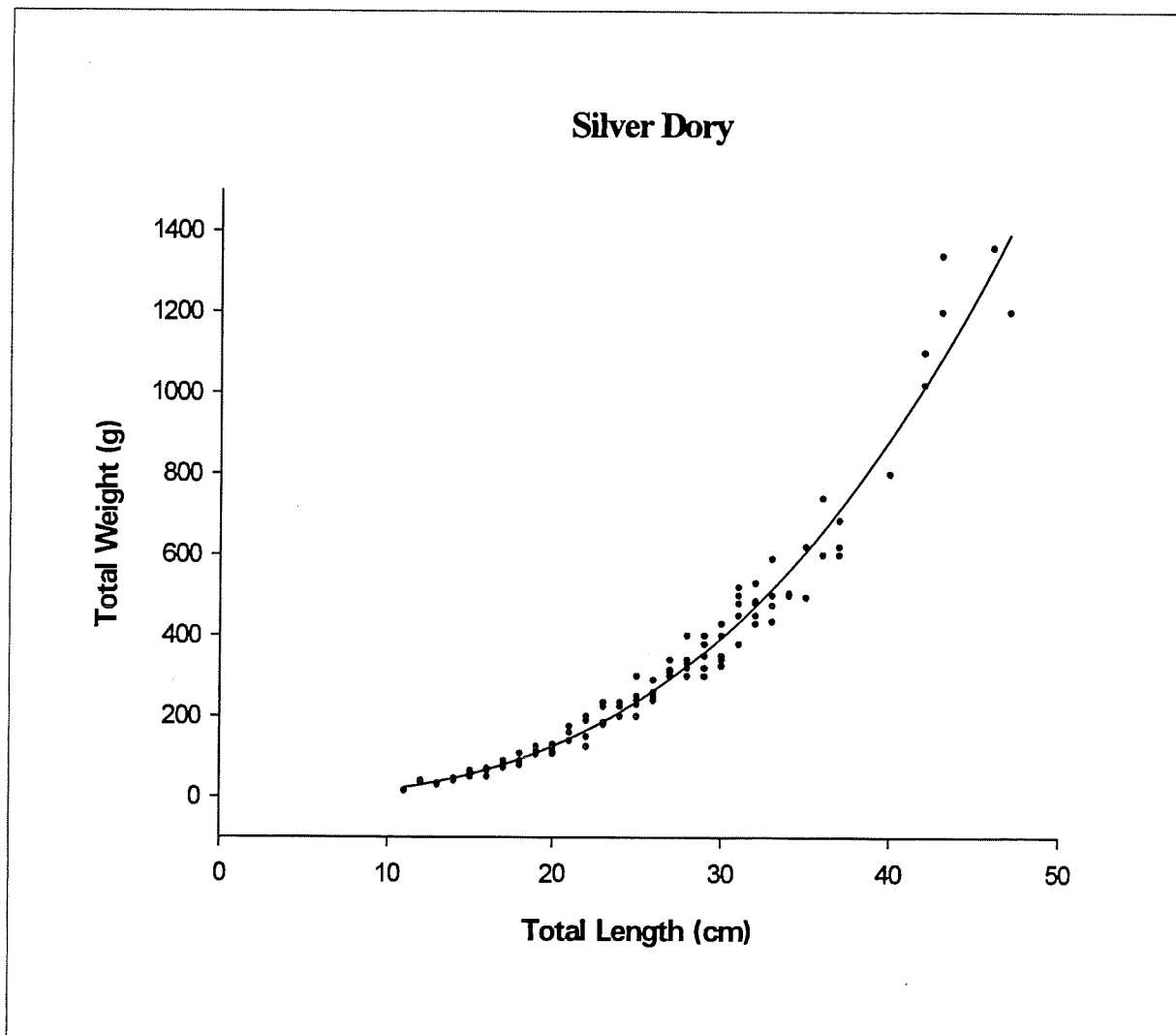


Figure 26.2: Length-weight relationships for male and female redfish (*Centroberyx affinis*).

<b>Males:</b>		Coefficient	Std. Error	Adj Rsqr = 0.9893
a		0.1039	0.0146	Length range: 11-31 cm
b		2.5644	0.0428	n = 68
<b>Females:</b>		Coefficient	Std. Error	Adj Rsqr = 0.99078
a		0.059	0.0081	Length range: 12-34 cm
b		2.7447	0.041	n = 77



**Figure 27:** Length-weight relationship for silver dory (*Cyttus australis*).

	Coefficient	Std. Error	Adj Rsqr = 0.9697
a	0.0278	0.0048	Length range: 11-47 cm
b	2.8106	0.0476	n = 130

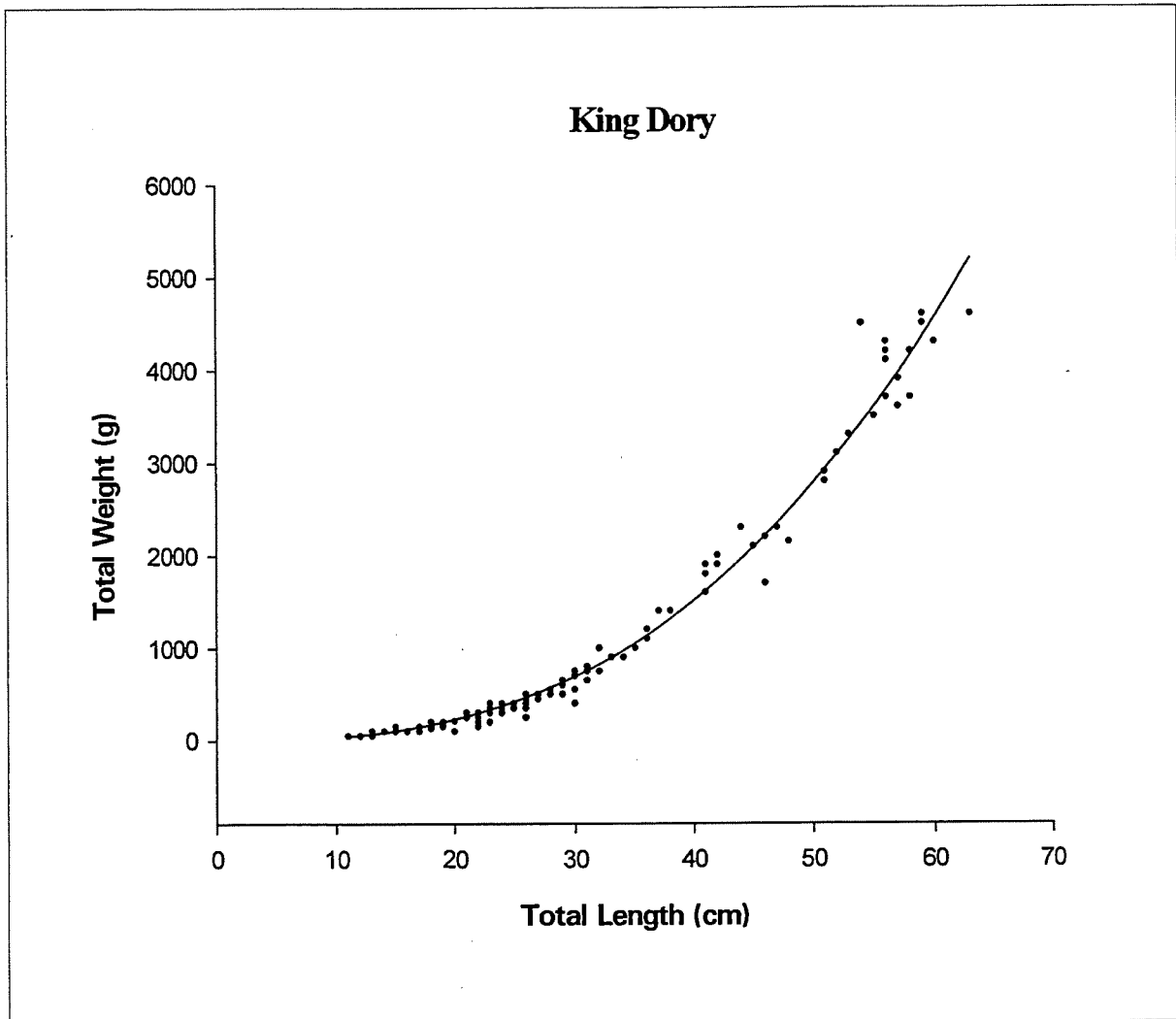


Figure 28: Length-weight relationship for king dory (*Cyttus traversi*).

	Coefficient	Std. Error	Adj Rsq=0.9825
a	0.0672	0.0131	Length range: 11-63 cm
b	2.7171	0.0491	n = 131

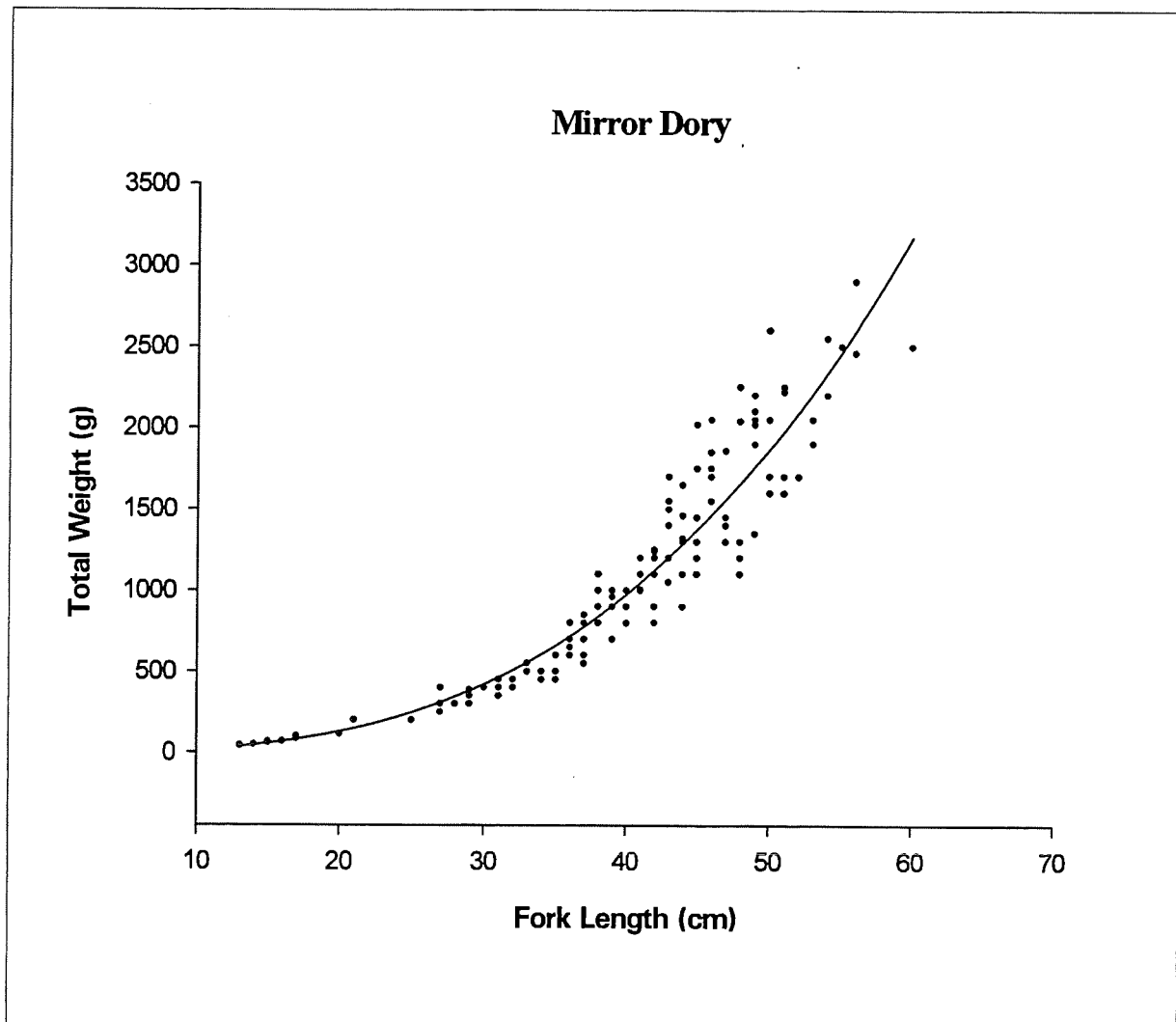
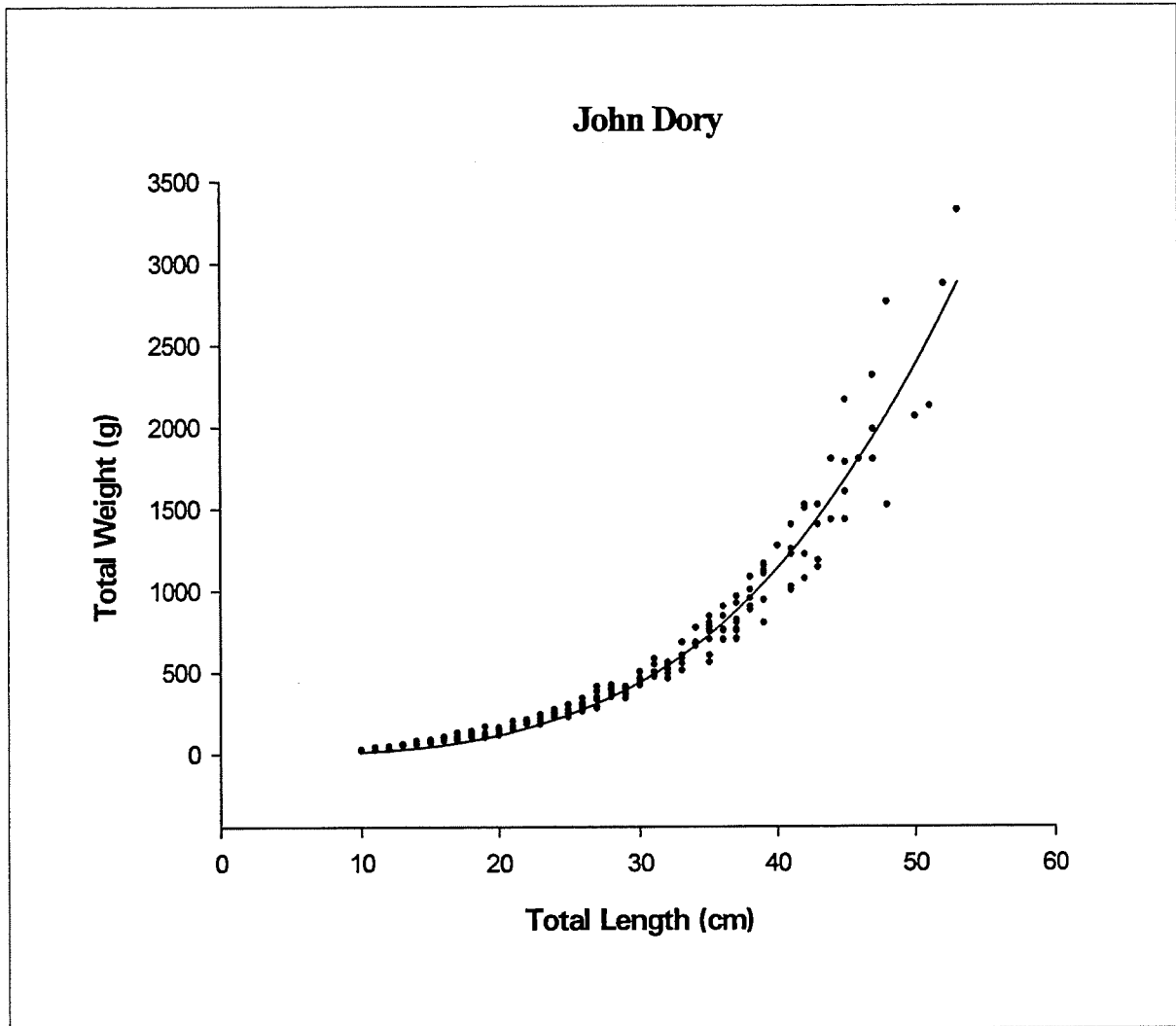


Figure 29: Length-weight relationship for mirror dory (*Zenopsis nebulosus*).

	Coefficient	Std. Error	Adj Rsqr = 0.8931
a	0.0211	0.0083	Length range: 13-60 cm
b	2.9113	0.1008	n = 157



**Figure 30.1:** Length-weight relationship for john dory (*Zeus faber*).

	Coefficient	Std. Error	Adj Rsqr = 0.9613
a	0.0056	0.0012	Length range: 10-53 cm
b	3.3128	0.0574	n = 225

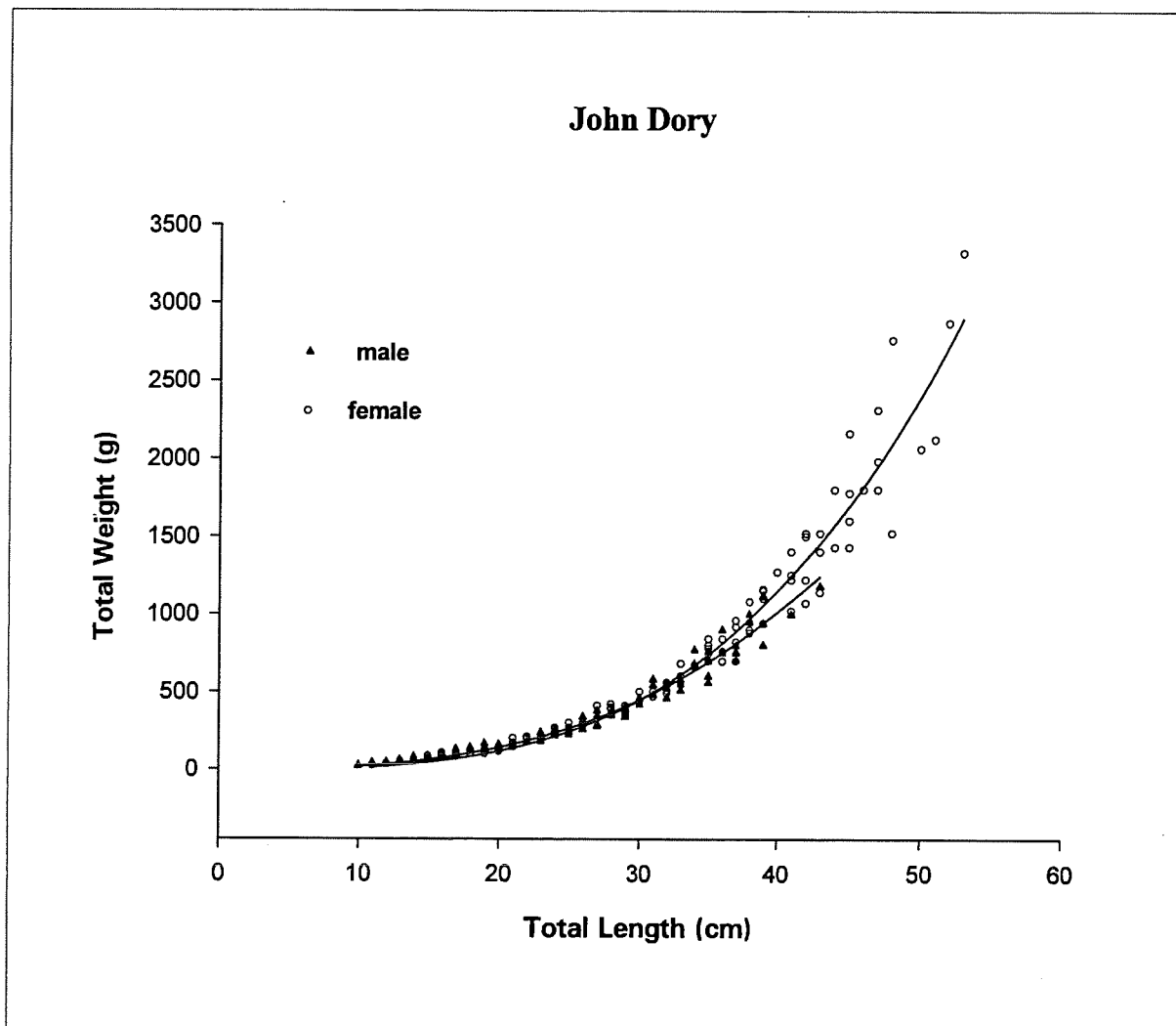


Figure 30.2: Length-weight relationships for male and female john dory (*Zeus faber*).

Males:		Coefficient	Std. Error	Adj Rsqr = 0.9704
a		0.0287	0.0073	Length range: 10-43 cm
b		2.8391	0.0714	n = 102
Females:		Coefficient	Std. Error	Adj Rsqr = 0.9582
a		0.0062	0.0021	Length range: 11-53 cm
b		3.2867	0.0883	n = 123



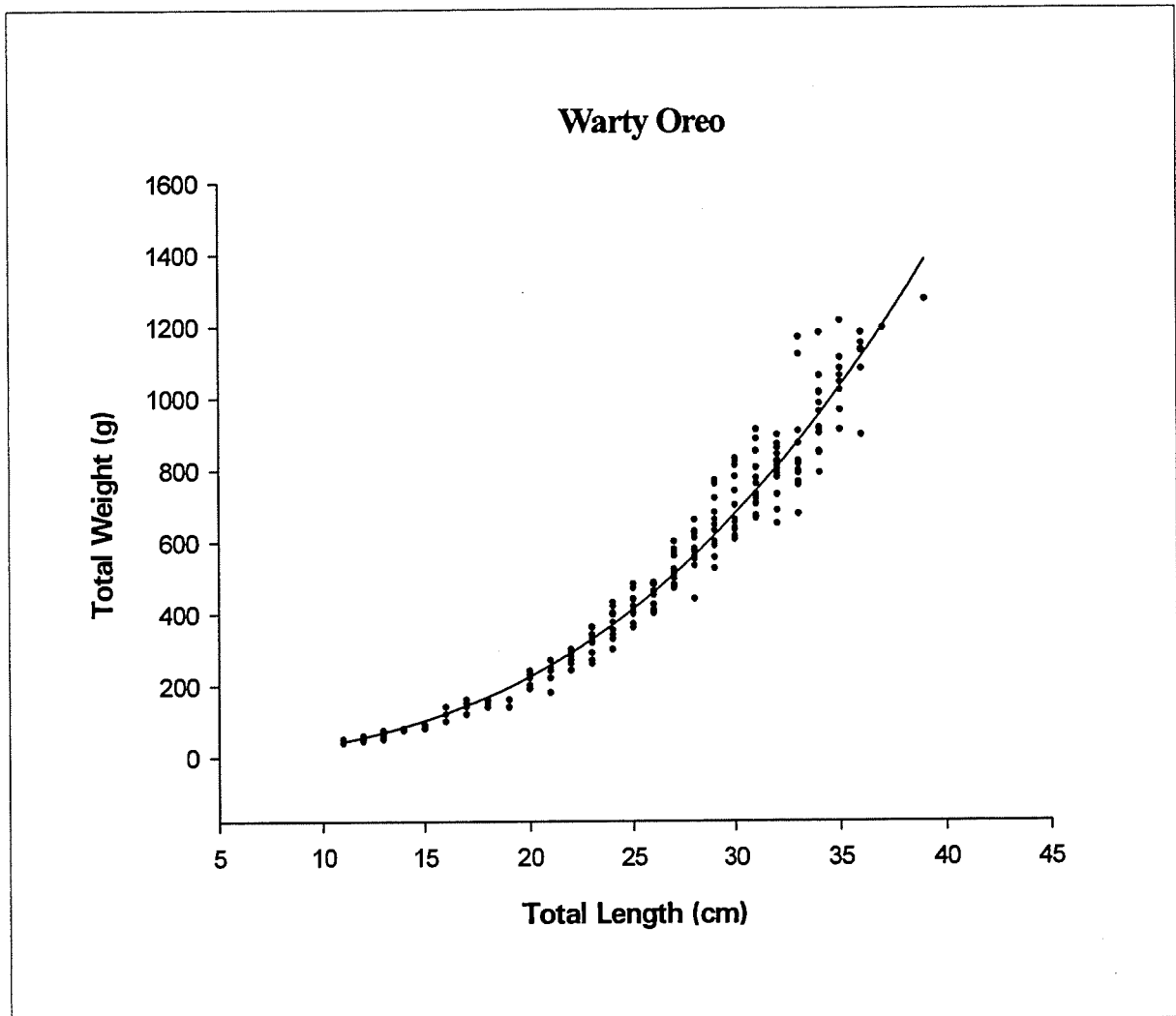
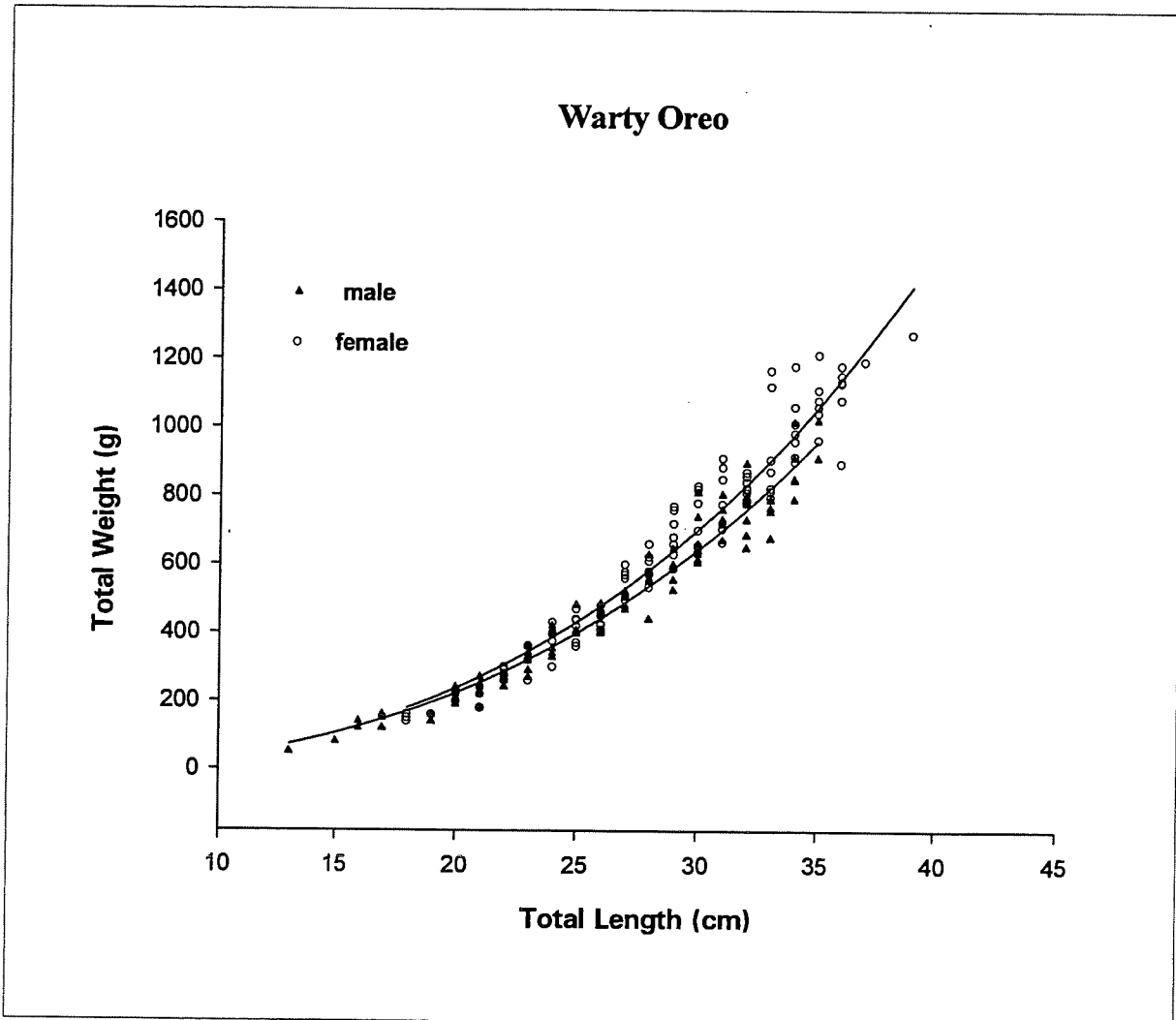


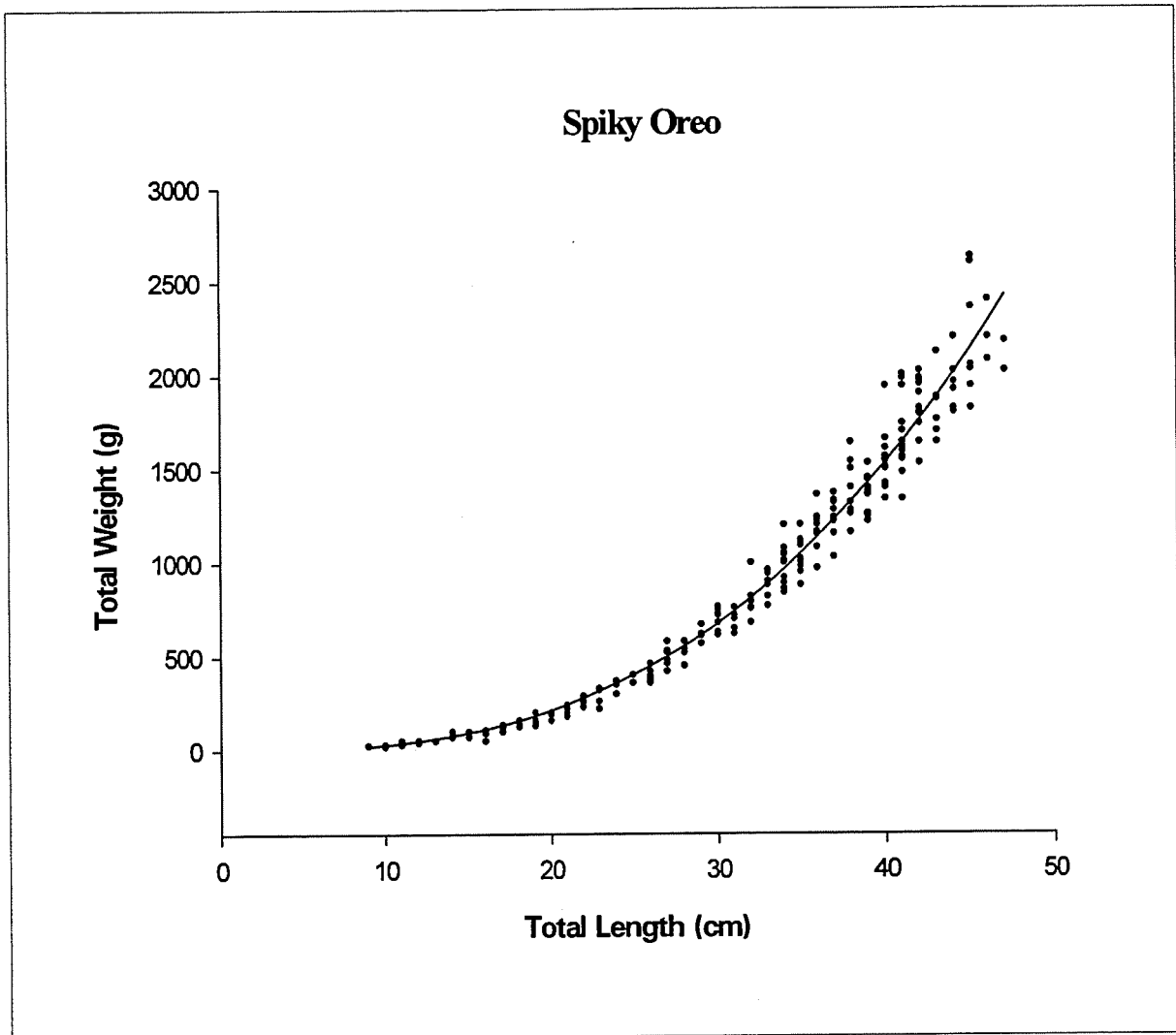
Figure 31.1: Length-weight relationship for warty oreo (*Allocyttus verrucosus*).

	Coefficient	Std. Error	Adj Rsqr = 0.9574
a	0.0644	0.0114	Length range: 11-39 cm
b	2.723	0.0514	n = 240



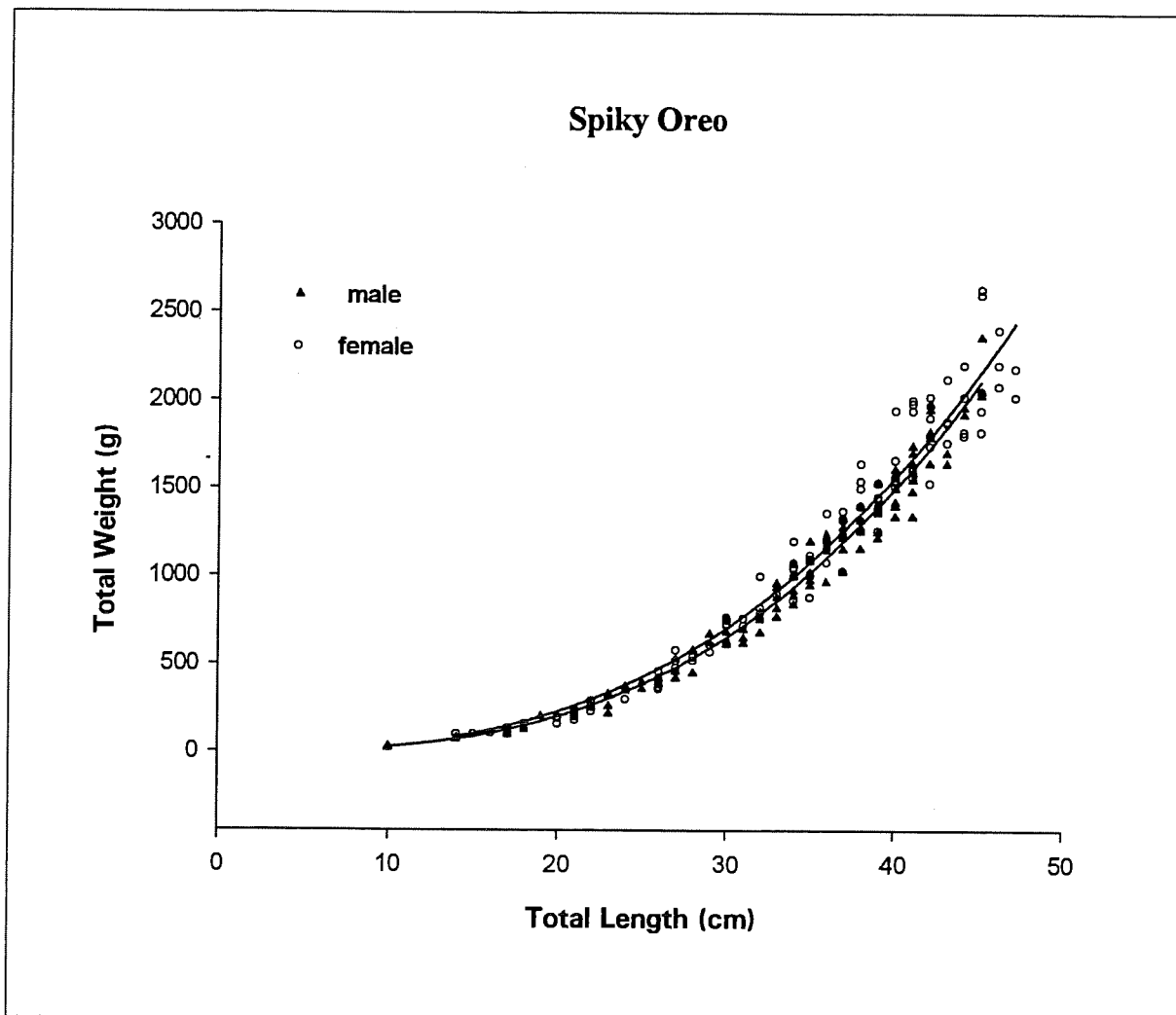
**Figure 31.2:** Length-weight relationships for male and female warty oreo (*Allocyttus verrucosus*).

Males:		Coefficient	Std. Error	Adj Rsqr = 0.9540
a		0.0911	0.0219	Length range: 13-35 cm
b		2.6053	0.0703	n = 100
Females:		Coefficient	Std. Error	Adj Rsqr = 0.9394
a		0.08	0.0216	Length range: 18-39 cm
b		2.6695	0.0771	n = 111



**Figure 32.1:** Length-weight relationship for spiky oreo (*Neocyttus rhomboidalis*).

	Coefficient	Std. Error	Adj Rsqr = 0.9678
a	0.0422	0.0076	Length range: 9-47 cm
b	2.8467	0.049	n = 256



**Figure 32.2:** Length-weight relationships for male and female spiky oreo (*Neocyttus rhomboidalis*).

Males:	Coefficient	Std. Error	Adj Rsqr = 0.9743
a	0.0352	0.0083	Length range: 10-45 cm
b	2.8893	0.0637	n = 111
Females:	Coefficient	Std. Error	Adj Rsqr = 0.9533
a	0.0585	0.0168	Length range: 14-47 cm
b	2.763	0.0774	n = 121

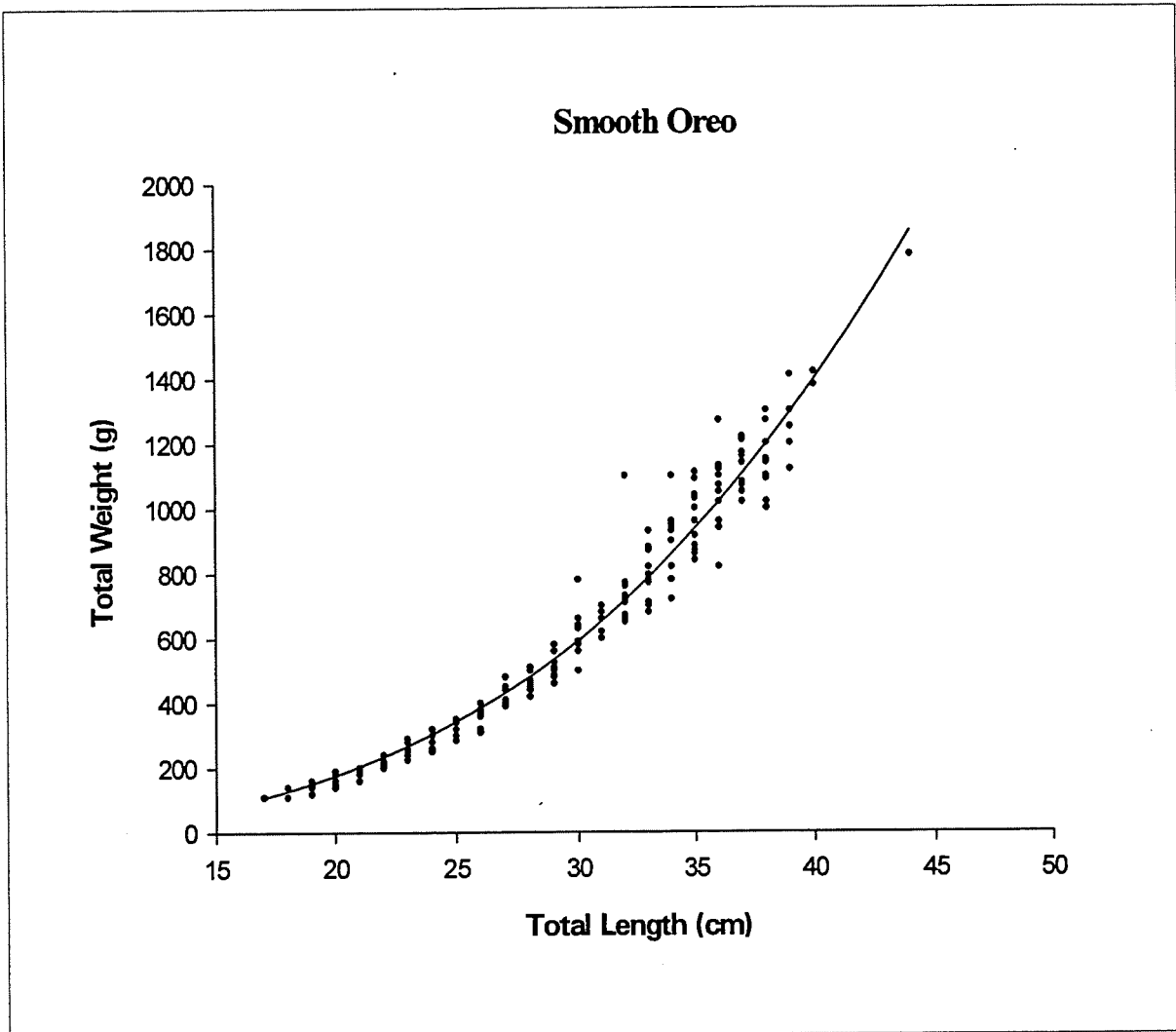
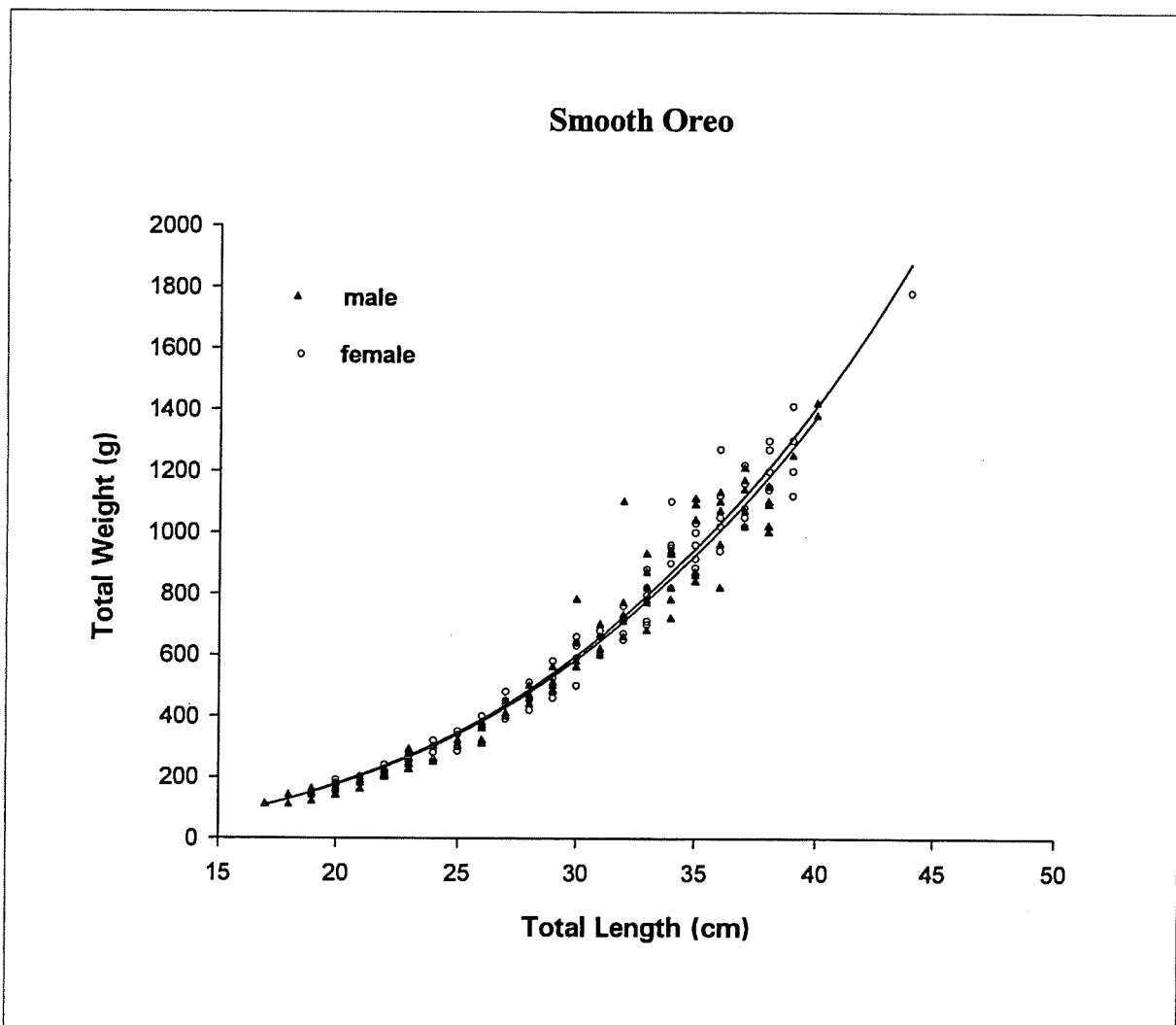


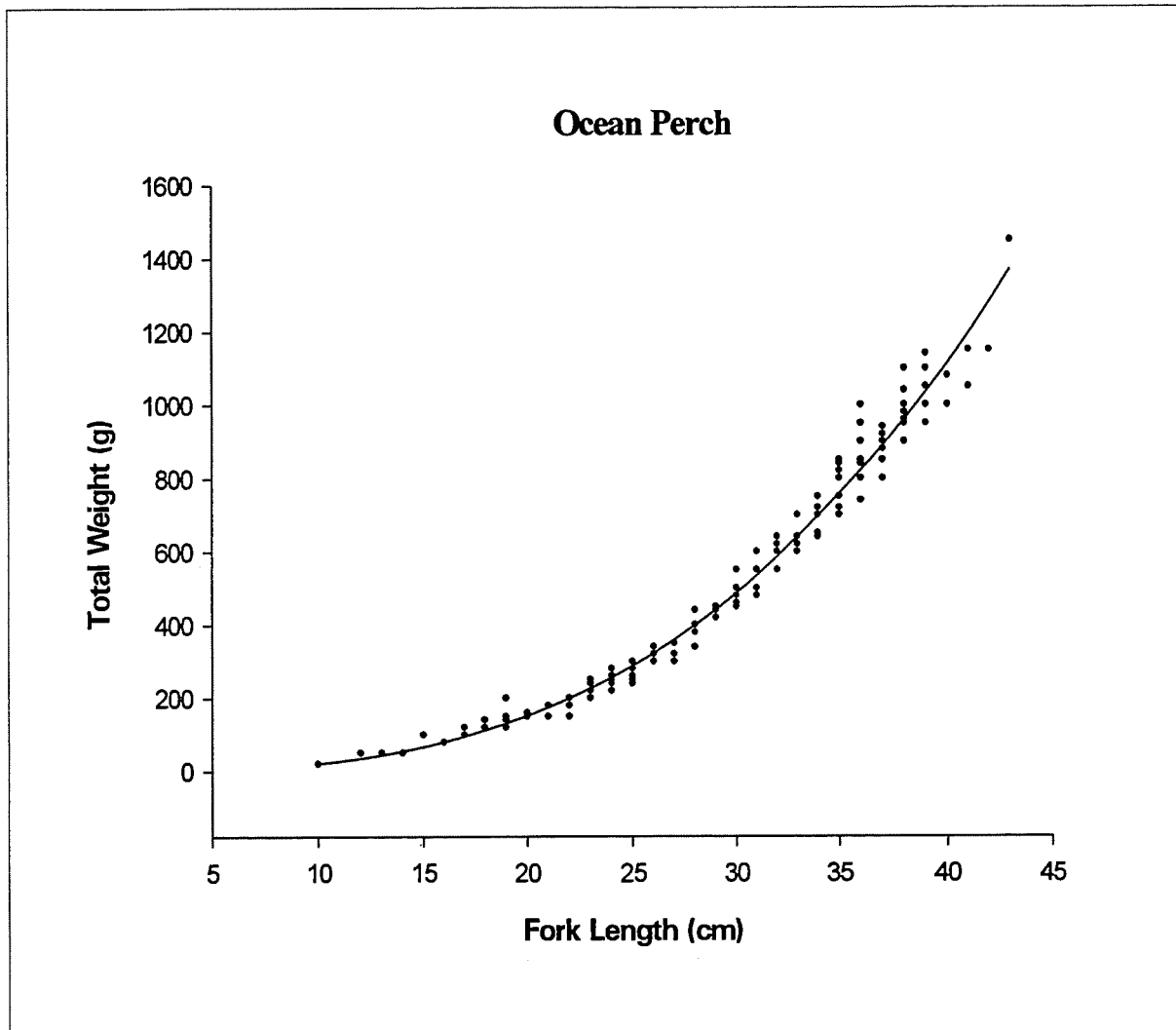
Figure 33.1: Length-weight relationship for smooth oreo (*Pseudocyttus maculatus*).

	Coefficient	Std. Error	Adj Rsqr = 0.9616
a	0.0232	0.0043	Length range: 17-44 cm
b	2.9837	0.0526	n = 205



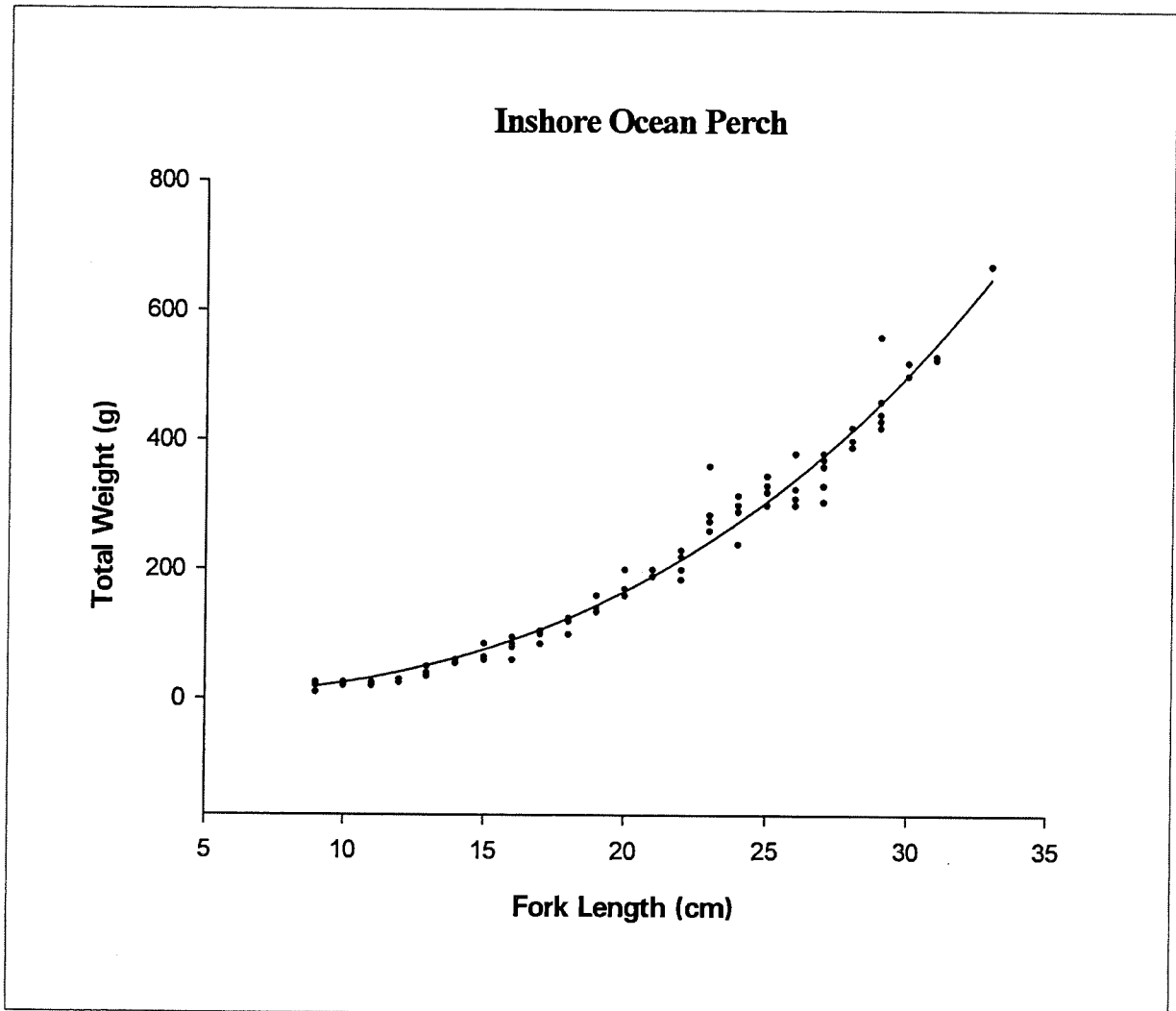
**Figure 33.2:** Length-weight relationships for male and female smooth oreo (*Pseudocyttus maculatus*).

<b>Males:</b>	Coefficient	Std. Error	Adj Rsqr = 0.9532
a	0.0244	0.007	Length range: 17-40 cm
b	2.9658	0.0812	n = 109
<b>Females:</b>	Coefficient	Std. Error	Adj Rsqr = 0.9694
a	0.0234	0.0056	Length range: 19-44 cm
b	2.9835	0.0672	n = 96



**Figure 34:** Length-weight relationship for ocean perch (*Helicolenus barathri*).

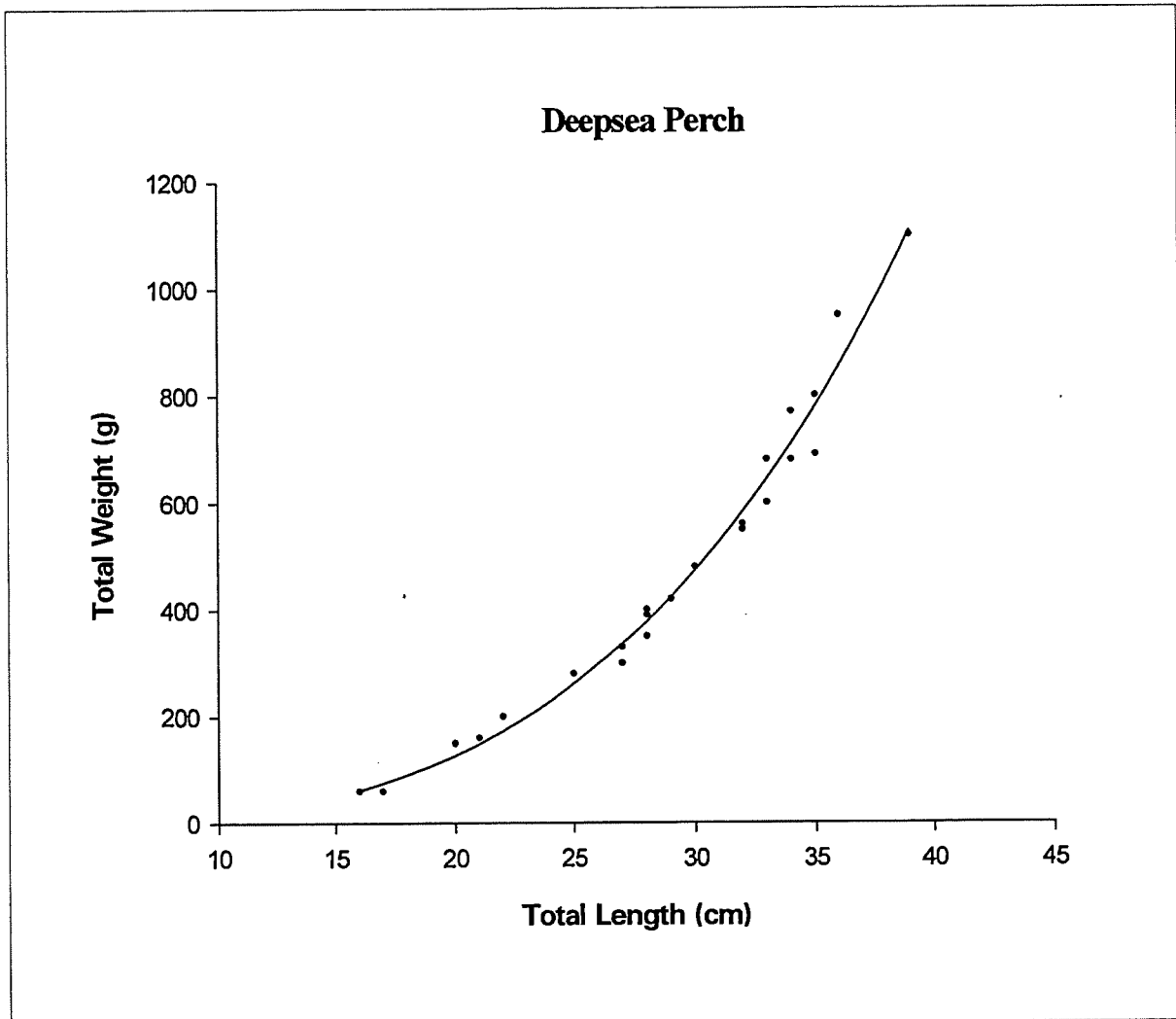
	Coefficient	Std. Error	Adj Rsqr = 0.9798
a	0.0274	0.0037	Length range: 10-43 cm
b	2.877	0.0376	n = 203



**Figure 35:** Length-weight relationship for inshore ocean perch (*Helicolenus percoides*).

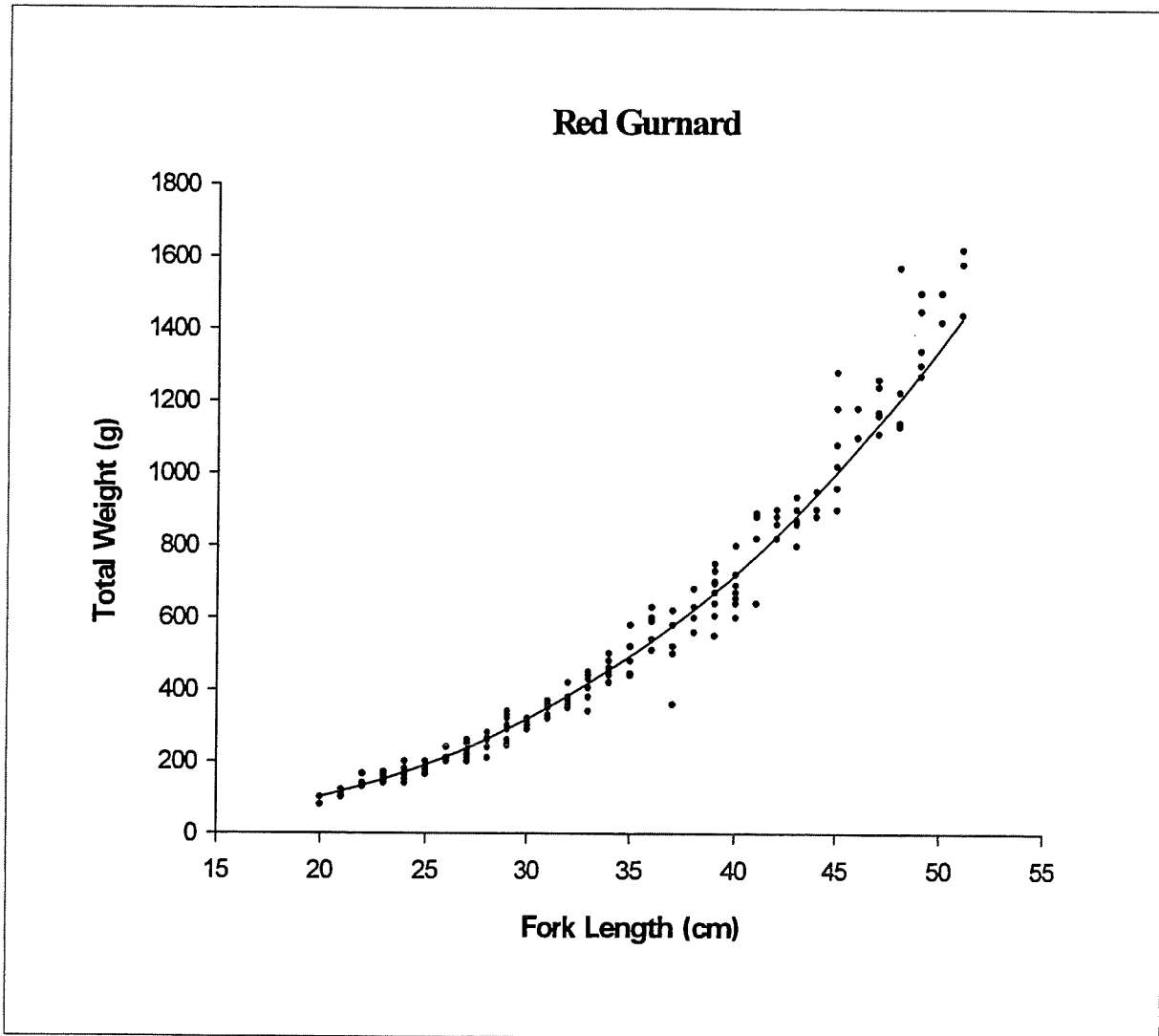
	Coefficient	Std. Error	Adj Rsqr = 0.9736
<b>a</b>	0.0485	0.0105	Length range: 9-33 cm
<b>b</b>	2.718	0.0655	n = 95





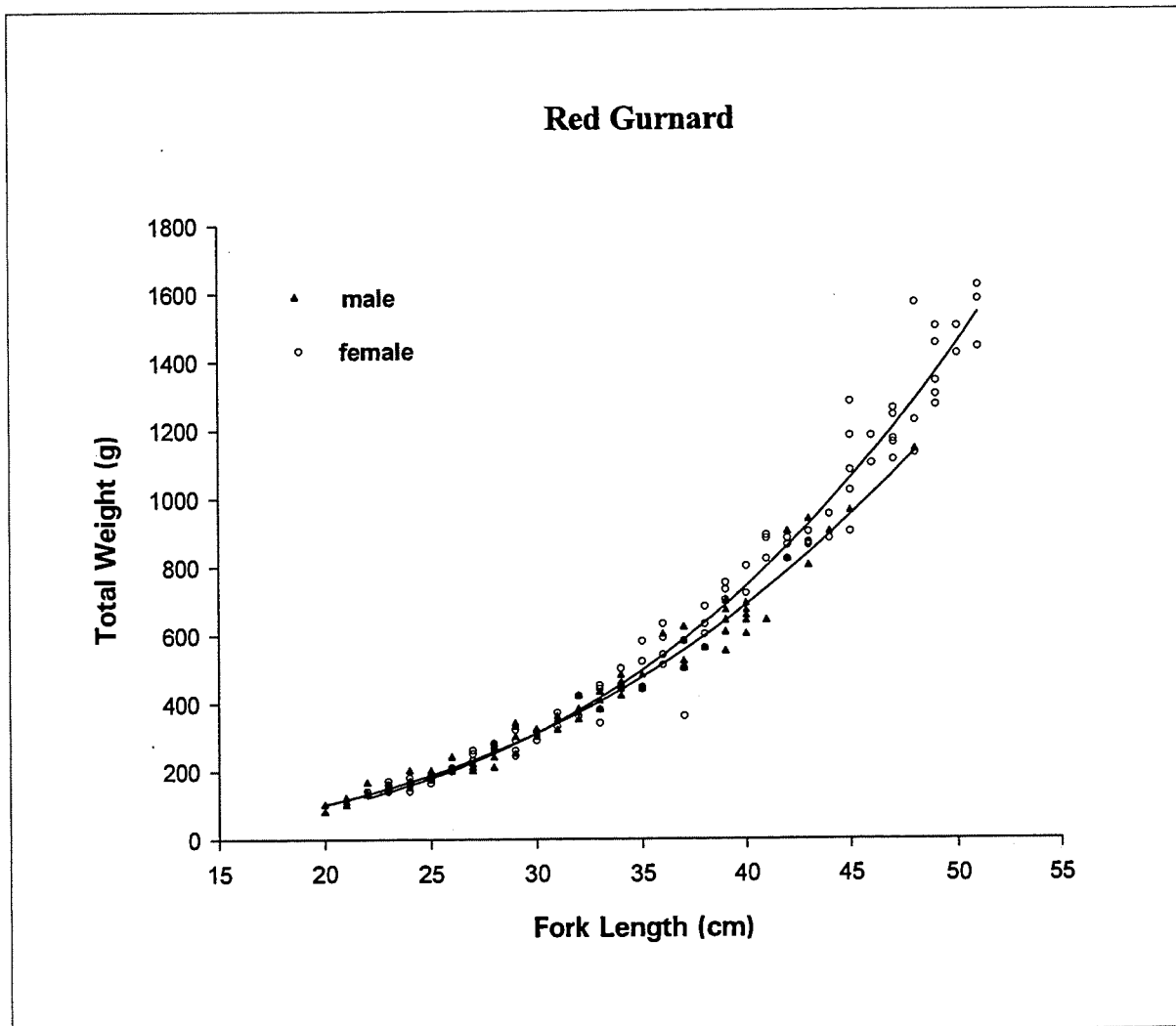
**Figure 36:** Length-weight relationship for deepsea perch (*Trachyscorpia capensis*).

	Coefficient	Std. Error	Adj Rsqr = 0.9814
a	0.0076	0.0031	Length range: 16-39 cm
b	3.2465	0.1173	n = 25



**Figure 37.1:** Length-weight relationship for red gurnard (*Chelidonichthys kumu*).

	Coefficient	Std. Error	Adj Rsqr = 0.9669
a	0.0214	0.0045	Length range: 20-51 cm
b	2.8253	0.0442	n = 193



**Figure 37.2:** Length-weight relationships for male and female red gurnard (*C. kumu*).

<b>Males:</b>	Coefficient	Std. Error	Adj Rsqr = 0.9768
a	0.0264	0.0052	Length range: 20-48 cm
b	2.7558	0.0536	n = 84
<b>Females:</b>	Coefficient	Std. Error	Adj Rsqr = 0.9765
a	0.0109	0.0025	Length range: 22-51 cm
b	3.0172	0.0595	n = 109

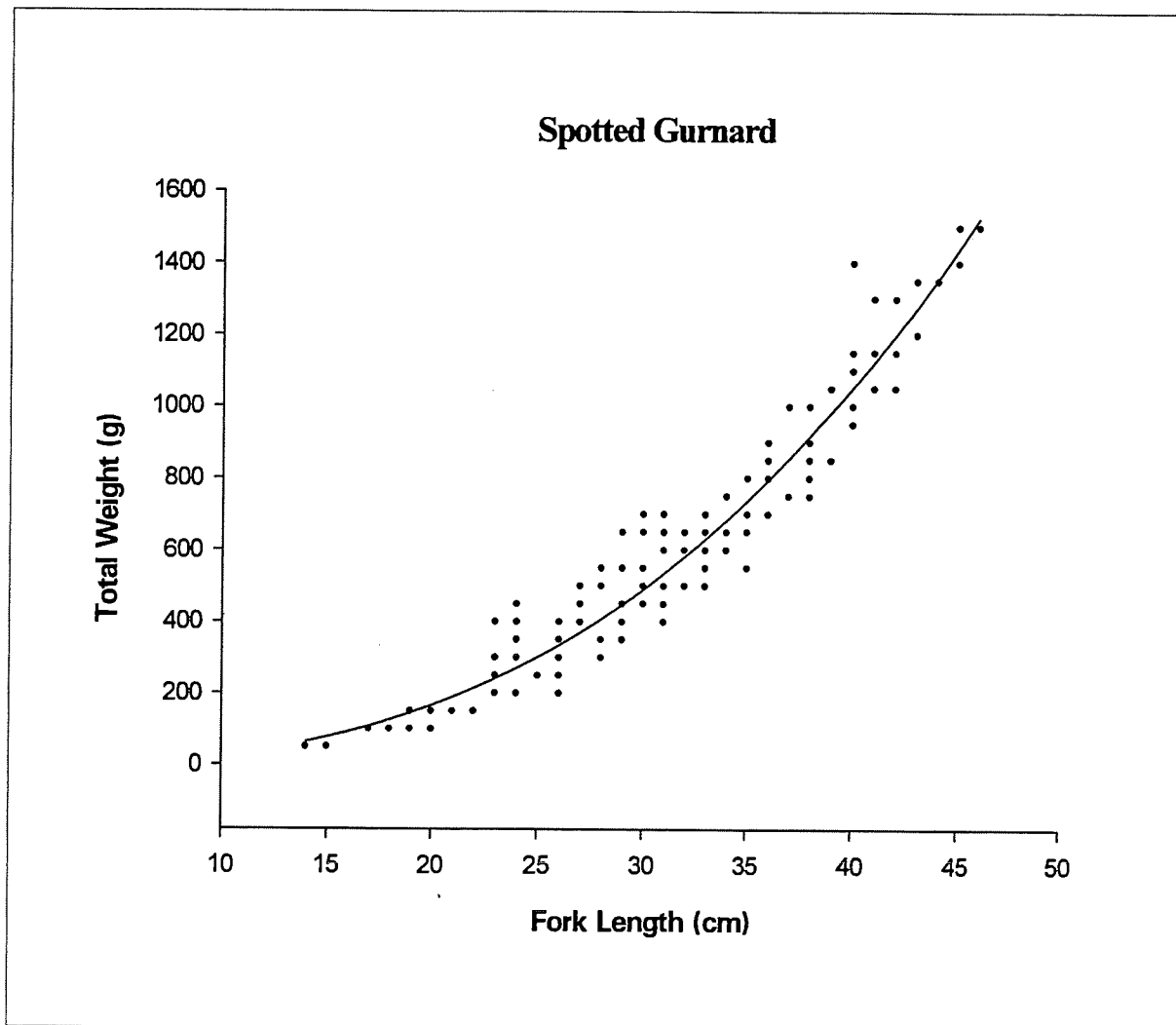


Figure 38: Length-weight relationship for spotted gurnard (*Pterygotrigla andertoni*).

	Coefficient	Std. Error	Adj Rsqr = 0.9386
a	0.0575	0.0138	Length range: 14-46 cm
b	2.6603	0.0652	n = 156

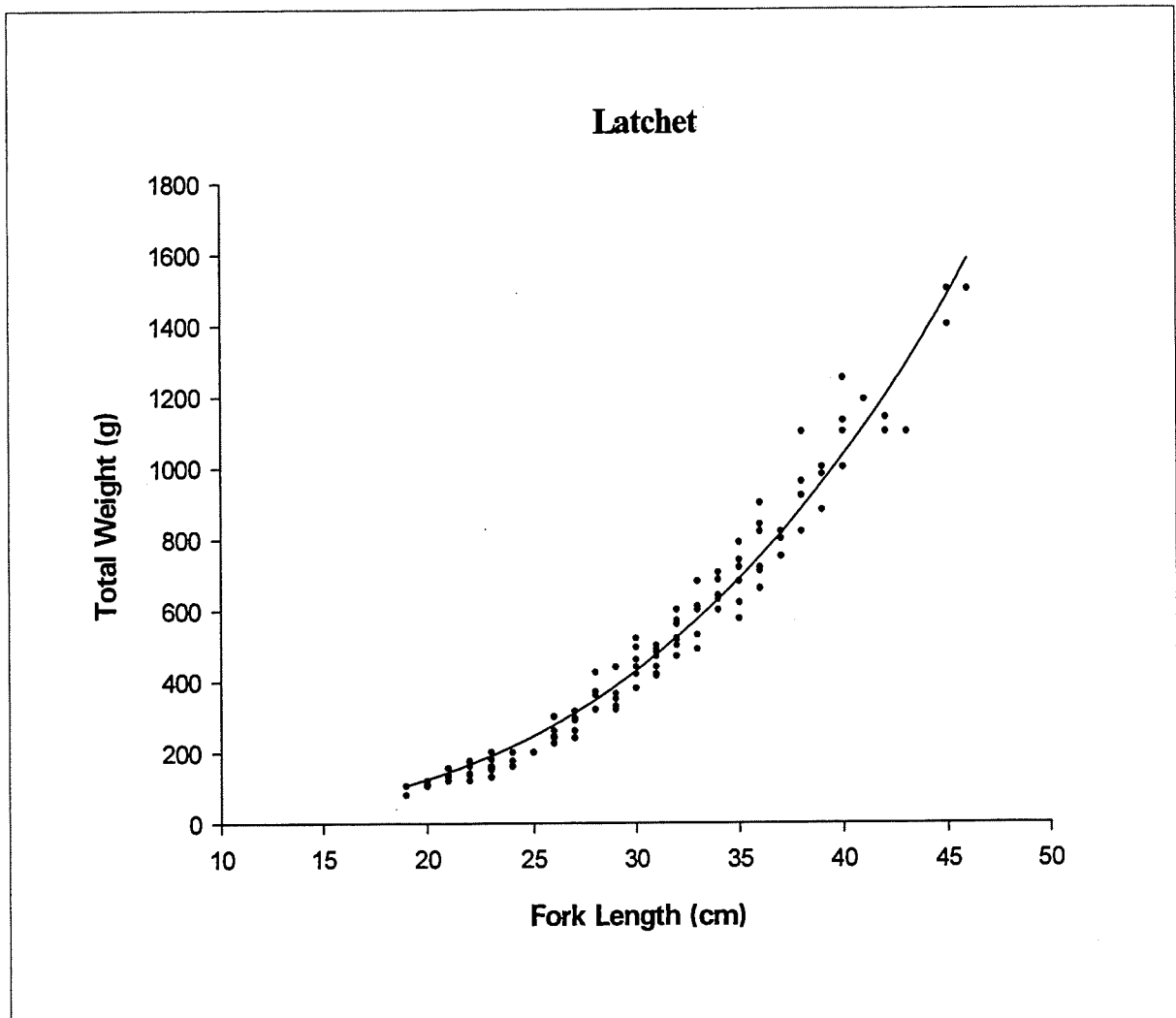
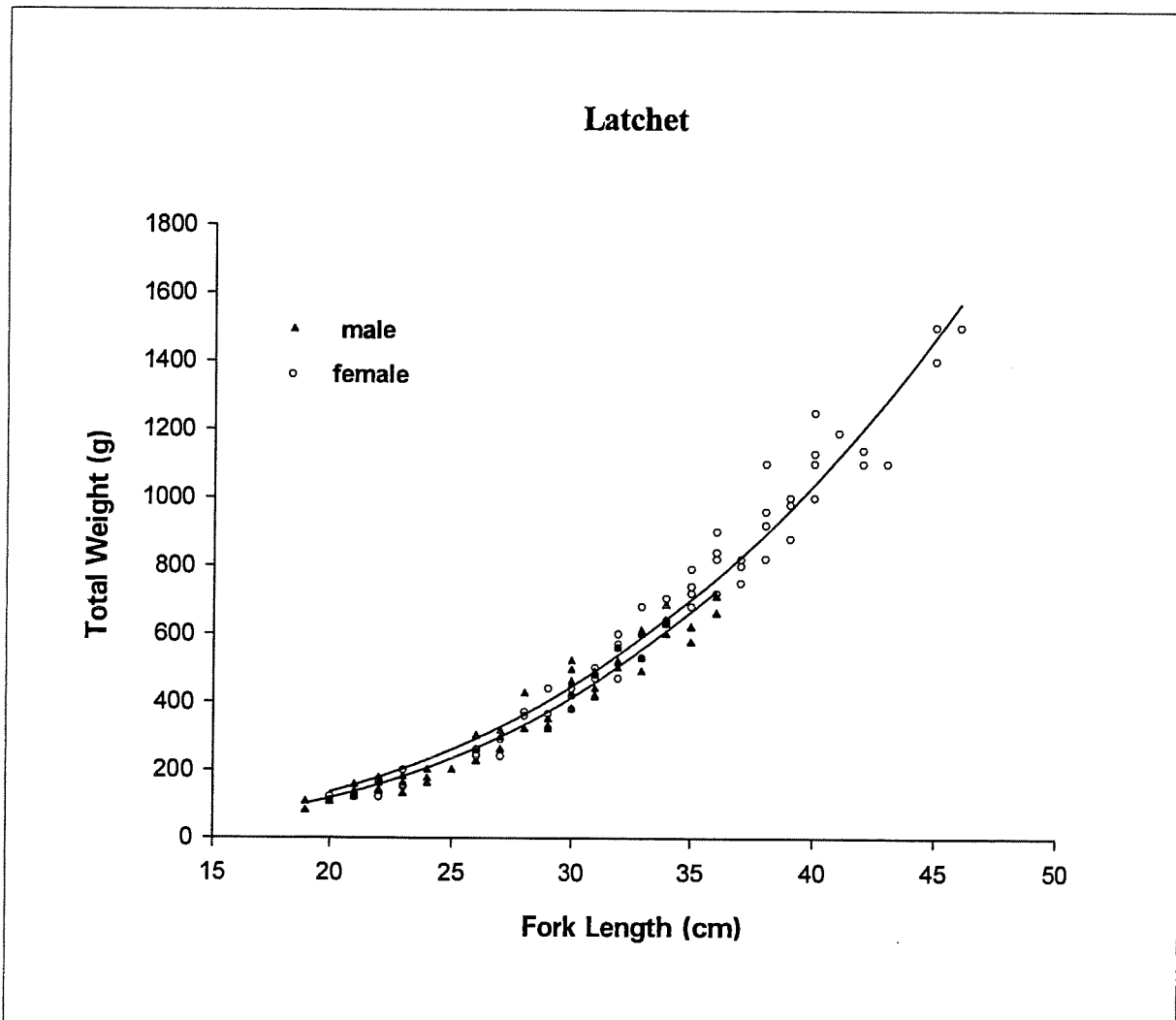


Figure 39.1: Length-weight relationship for latchet (*Pterygotrigla polyommata*).

	Coefficient	Std. Error	Adj Rsqr = 0.9687
a	0.0131	0.0026	Length range: 14-46 cm
b	3.0574	0.0544	n = 131



**Figure 39.2:** Length-weight relationships for male and female latchet (*Pterygotrigla polyommata*).

<b>Males:</b>		Coefficient	Std. Error	Adj Rsqr = 0.9485
a		0.0107	0.0043	Length range: 19-36 cm
b		3.1049	0.117	n = 60
<b>Females:</b>		Coefficient	Std. Error	Adj Rsqr = 0.9669
a		0.0199	0.0058	Length range: 20-46 cm
b		2.9447	0.0788	n = 71

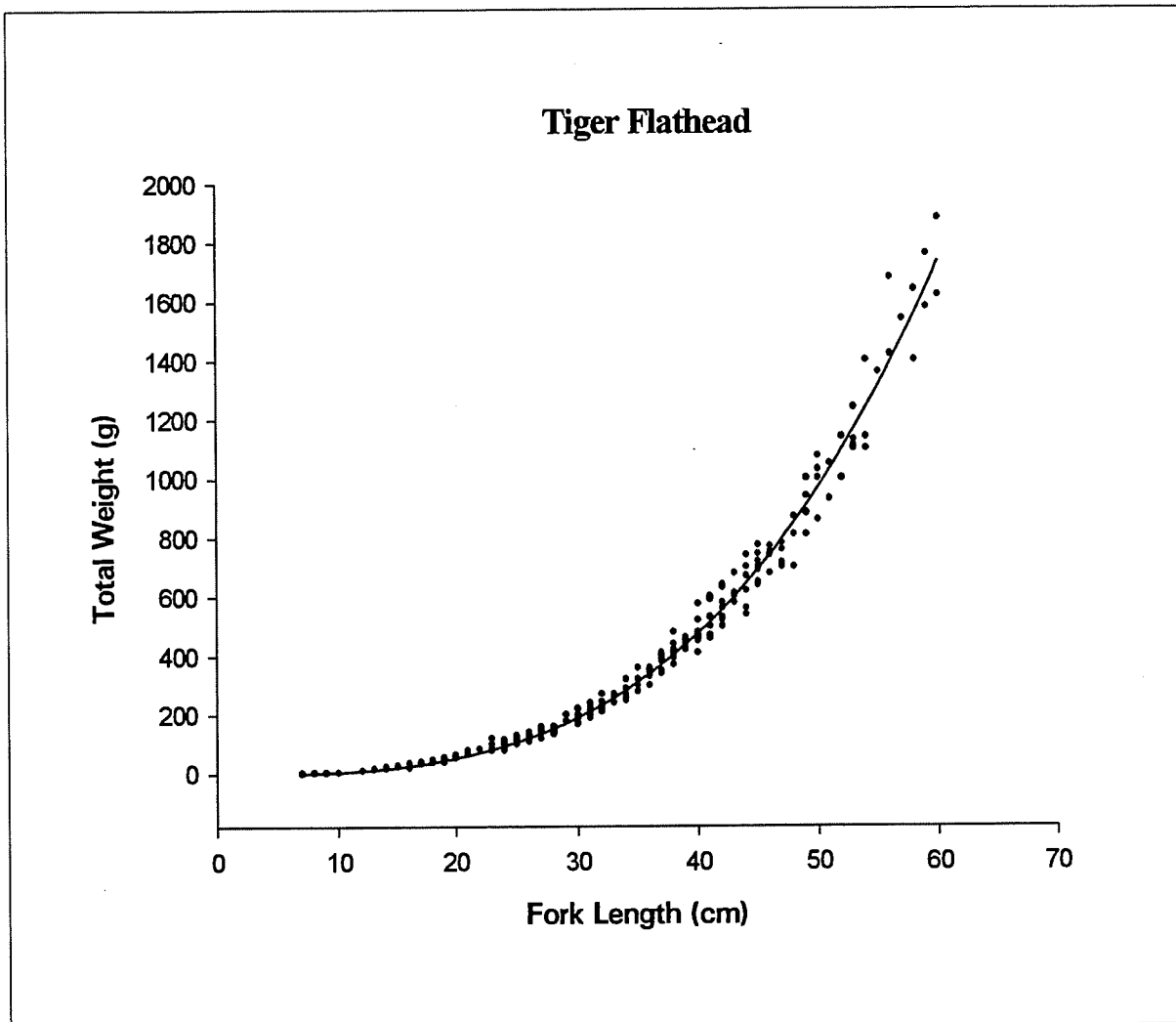
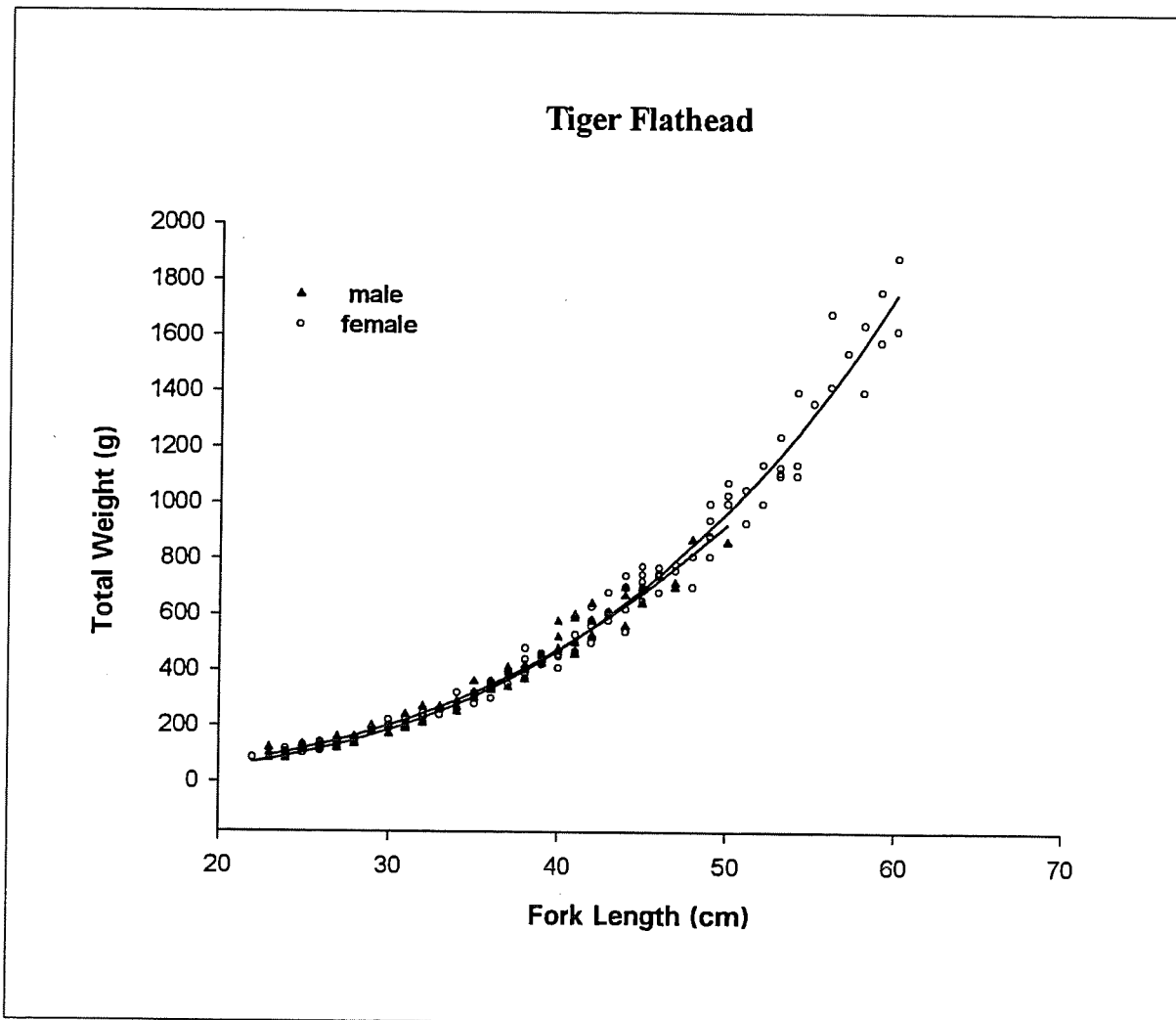


Figure 40.1: Length-weight relationship for tiger flathead (*Neoplatycephalus richardsoni*).

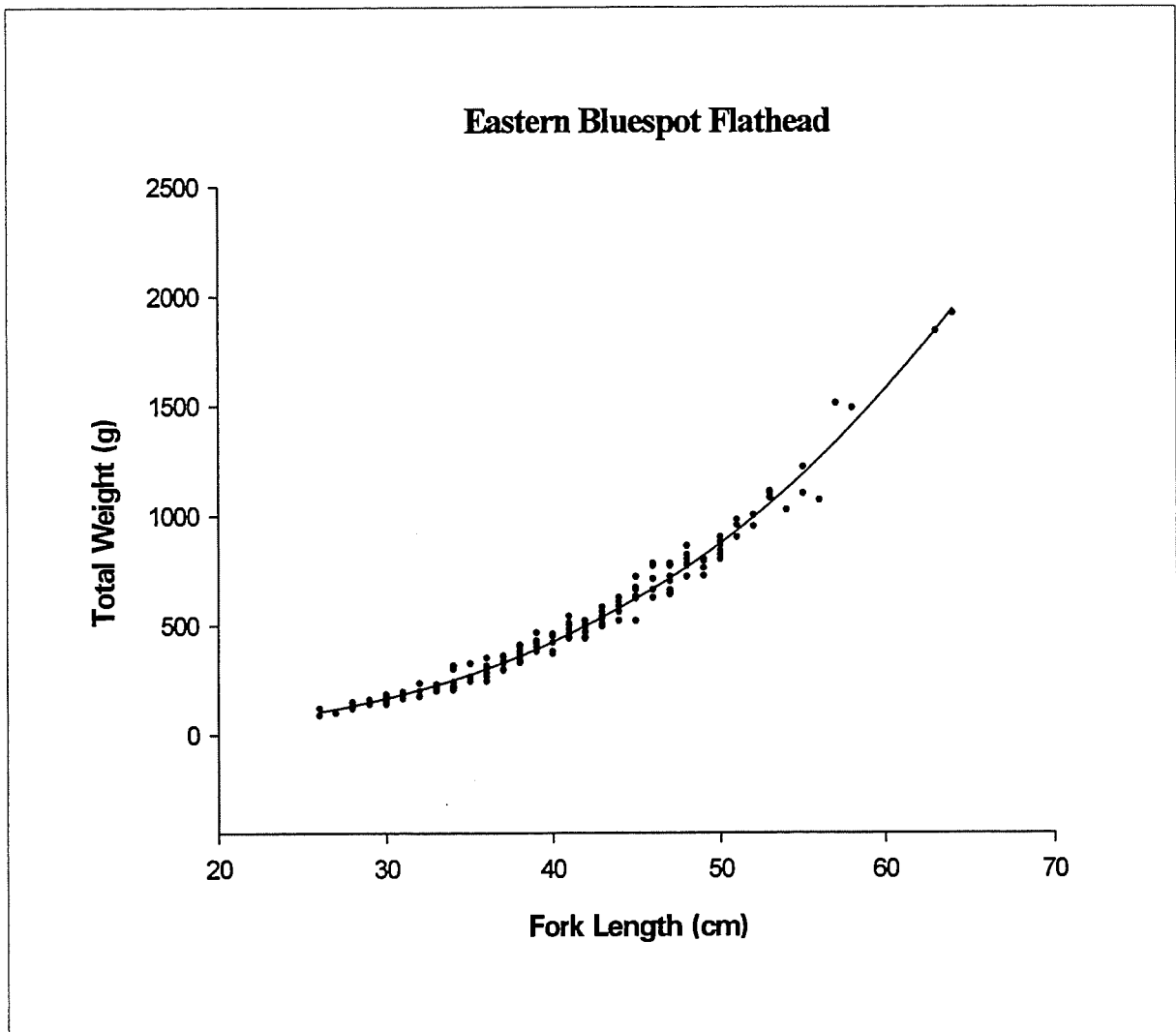
	Coefficient	Std. Error	Adj Rsqr = 0.9868
a	0.0036	0.0004	Length range: 7-60 cm
b	3.1951	0.0301	n = 274



**Figure 40.2:** Length-weight relationships for male and female tiger flathead (*Neoplatycephalus richardsoni*).

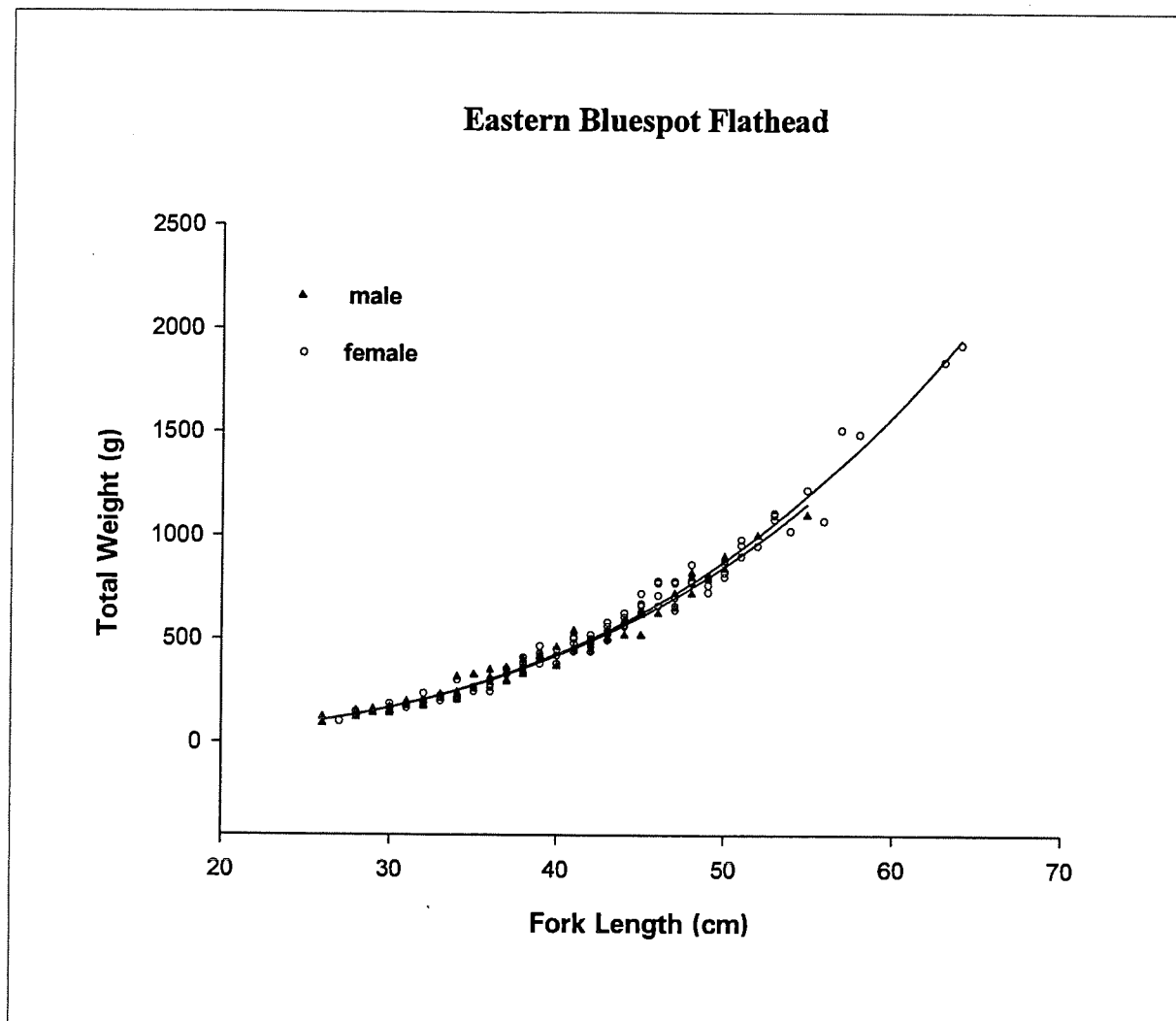
<b>Males:</b>		Coefficient	Std. Error	Adj Rsqr = 0.9748
a		0.0082	0.0019	Length range: 23-50 cm
b		2.9738	0.0619	n = 88
<b>Females:</b>		Coefficient	Std. Error	Adj Rsqr = 0.9813
a		0.0031	0.0006	Length range: 22-60 cm
b		3.2335	0.0512	n = 123





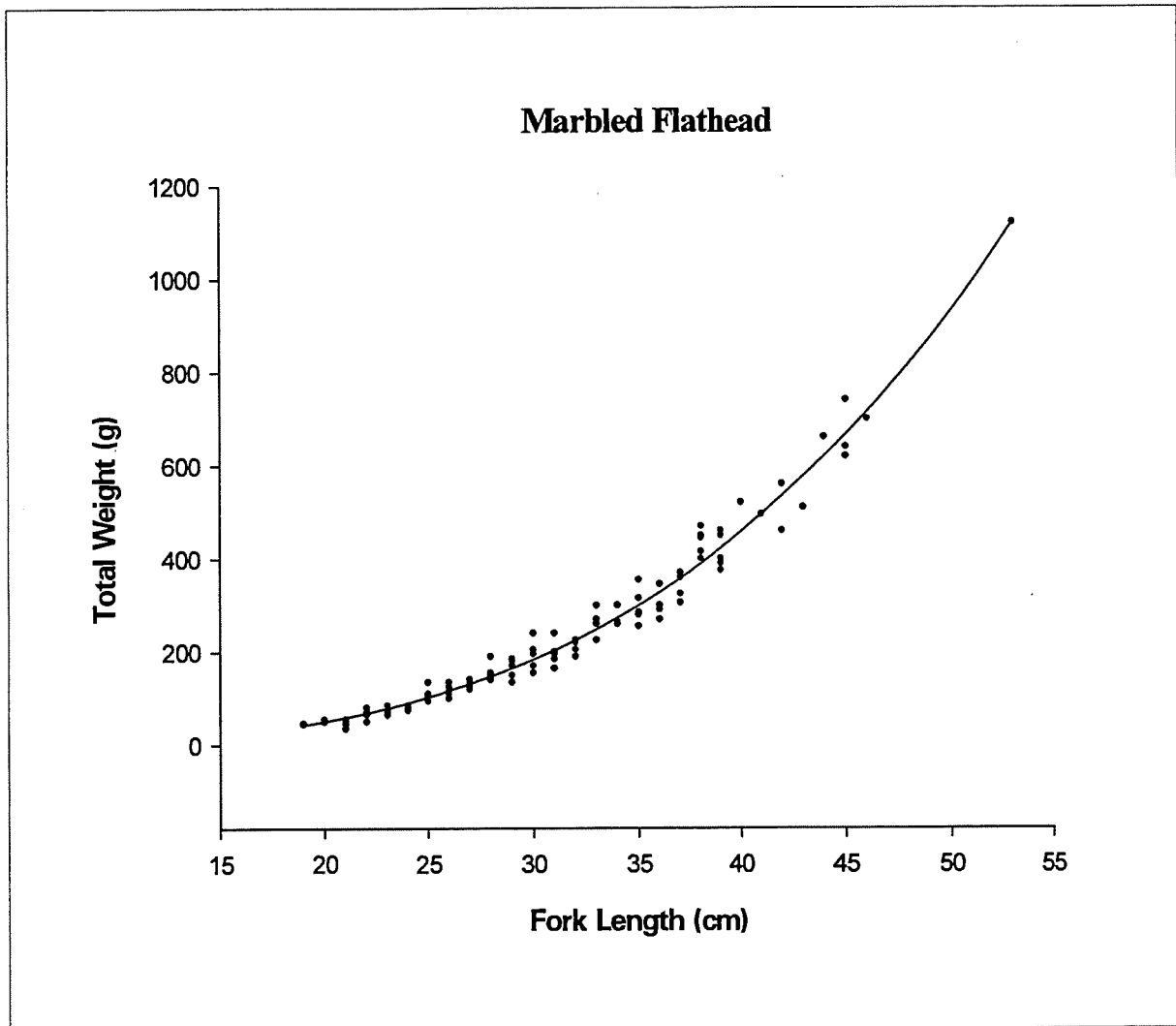
**Figure 41.1:** Length-weight relationship for eastern bluespot flathead (*Platycephalus caeruleopunctatus*).

	Coefficient	Std. Error	Adj Rsqr = 0.9823
a	0.0028	0.0004	Length range: 26-64 cm
b	3.236	0.0336	n = 175



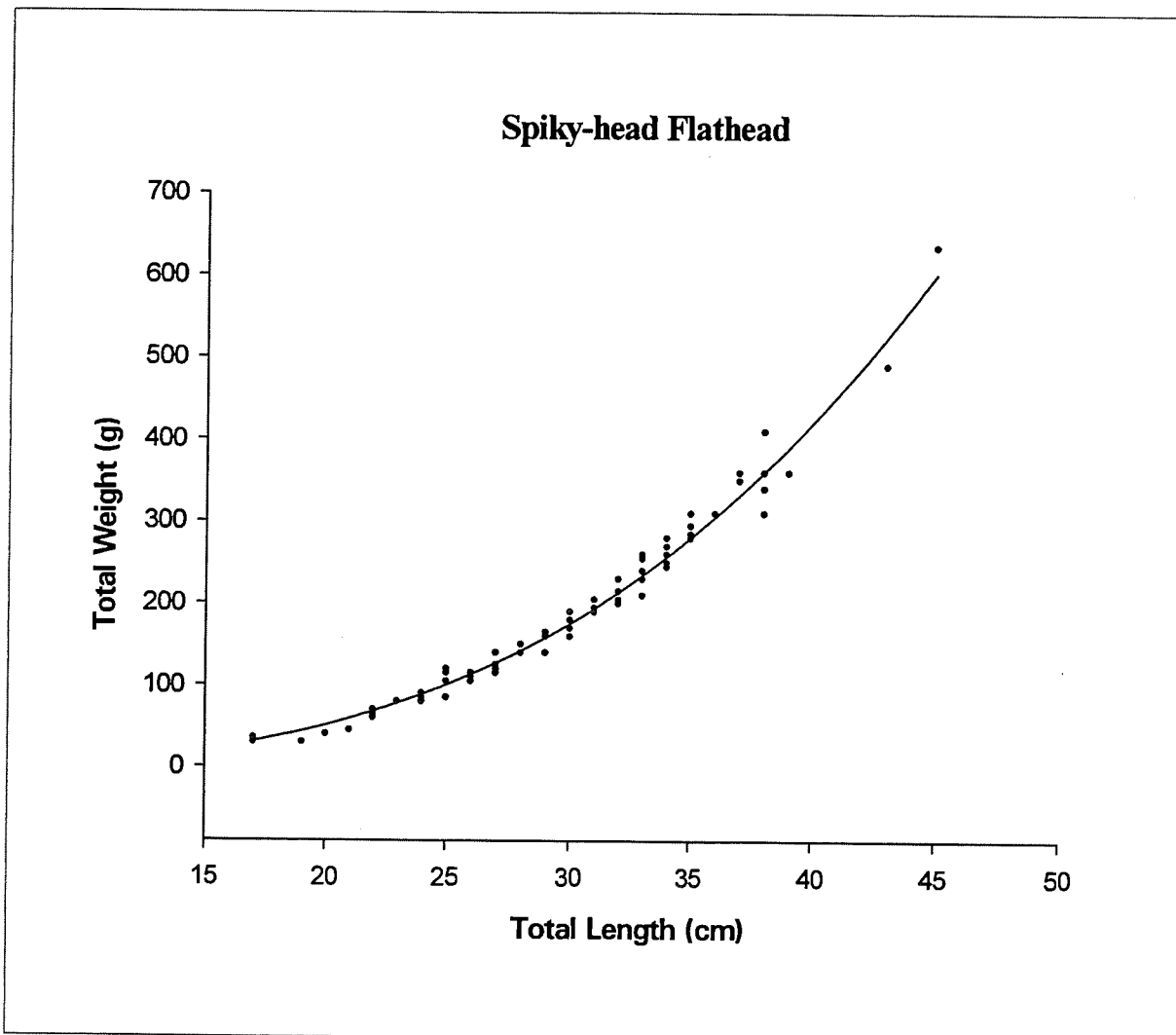
**Figure 41.2:** Length-weight relationships for male and female eastern bluespot flathead (*Platycephalus caeruleopunctatus*).

<b>Males:</b>	Coefficient	Std. Error	Adj Rsqr = 0.9812
a	0.0035	0.0007	Length range: 26-55 cm
b	3.1694	0.0547	n = 77
<b>Females:</b>	Coefficient	Std. Error	Adj Rsqr = 0.9809
a	0.0029	0.0005	Length range: 27-64 cm
b	3.2239	0.0472	n = 98



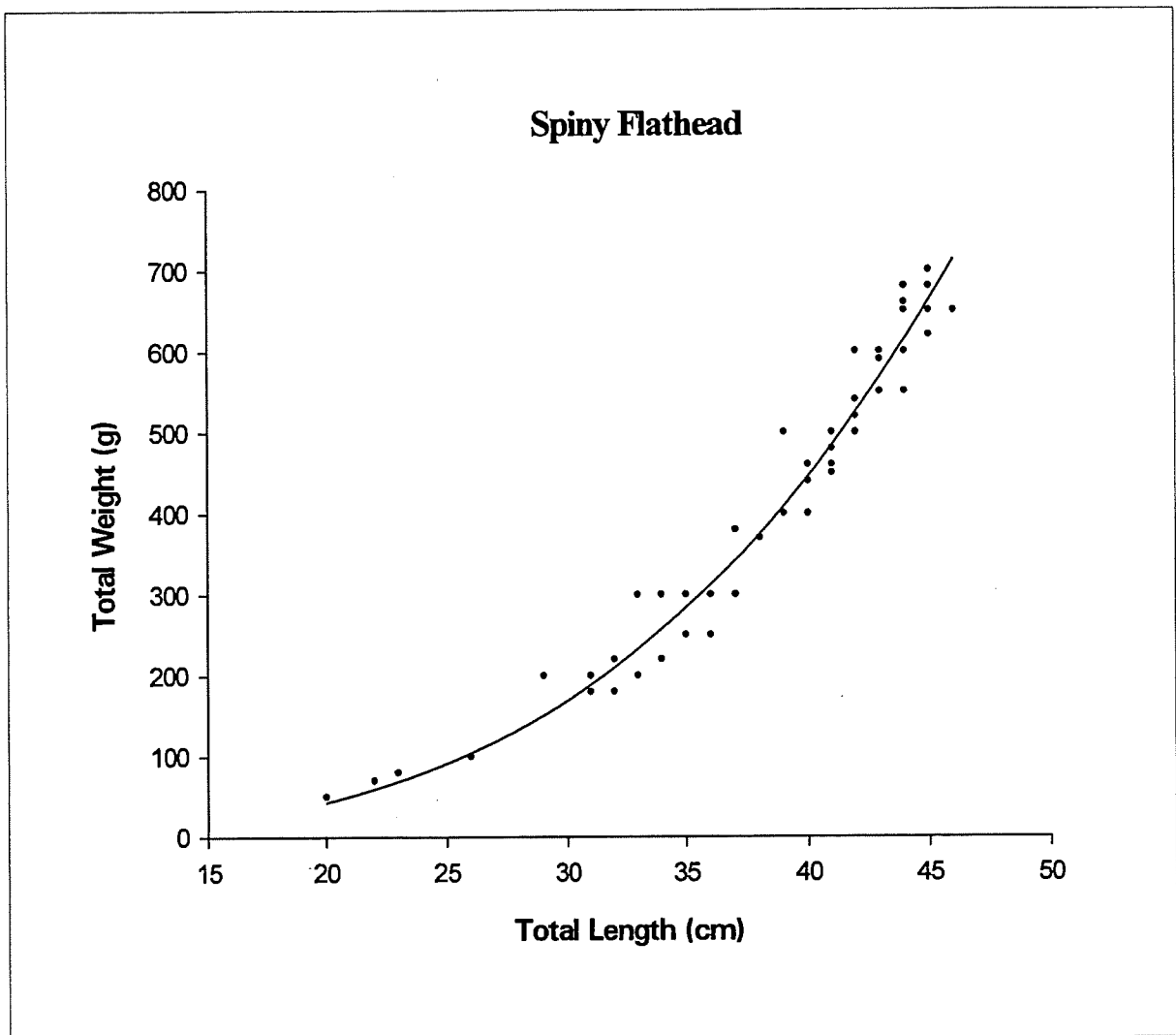
**Figure 42:** Length-weight relationship for marbled flathead (*Platycephalus marmoratus*).

	Coefficient	Std. Error	Adj Rsqr = 0.9767
a	0.0037	0.0007	Length range: 19-53 cm
b	3.1791	0.049	n = 111



**Figure 43:** Length-weight relationship for spiky-head flathead (*Ratabulus diversidens*).

	Coefficient	Std. Error	Adj Rsqr = 0.9799
a	0.0056	0.0011	Length range: 17-45 cm
b	3.046	0.0546	n = 81



**Figure 44:** Length-weight relationship for spiny (ghost) flathead (*Hoplichthys haswelli*).

	Coefficient	Std. Error	Adj Rsqr = 0.9556
a	0.0017	0.0008	Length range: 20-46 cm
b	3.3752	0.1271	n = 62

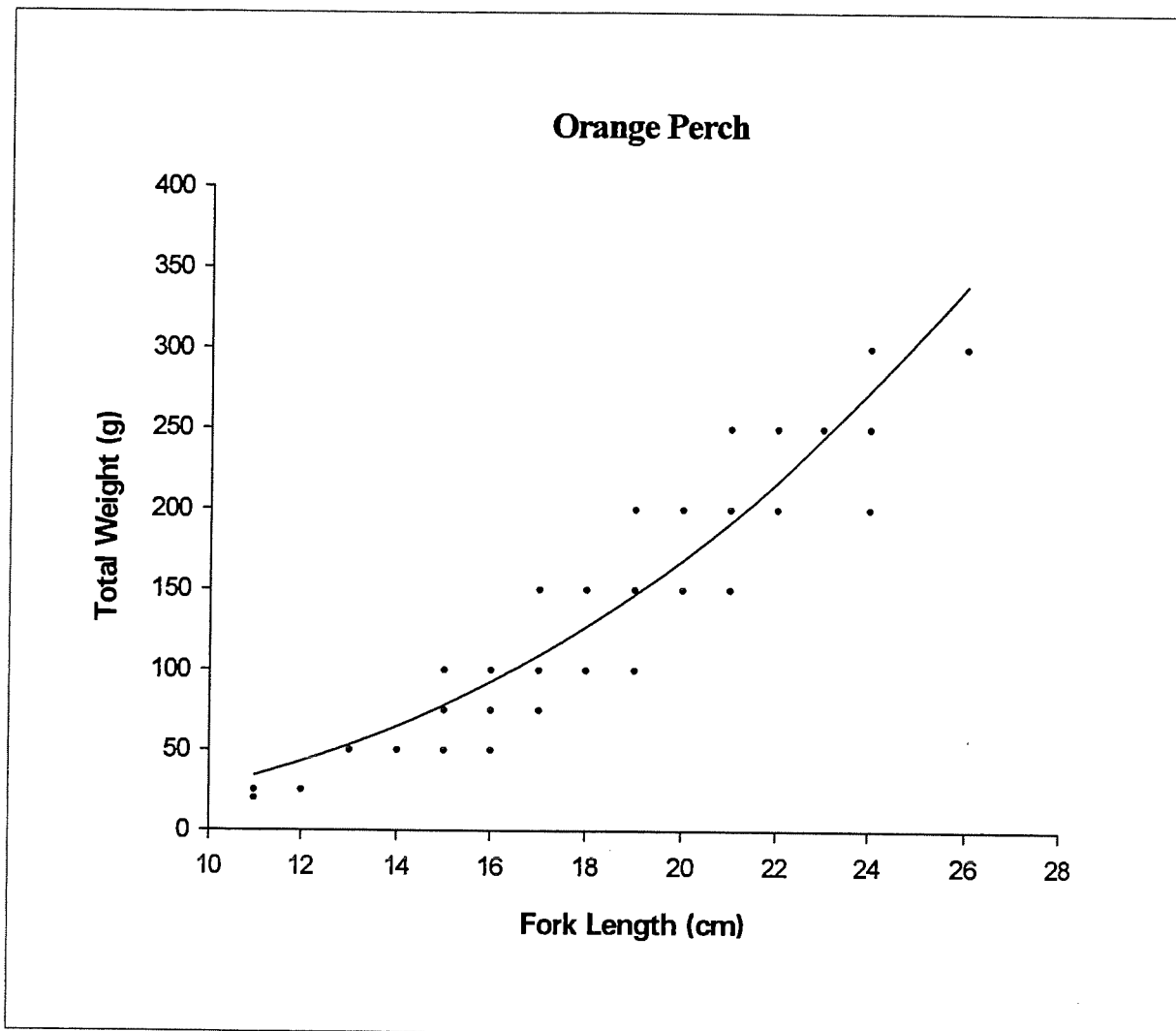
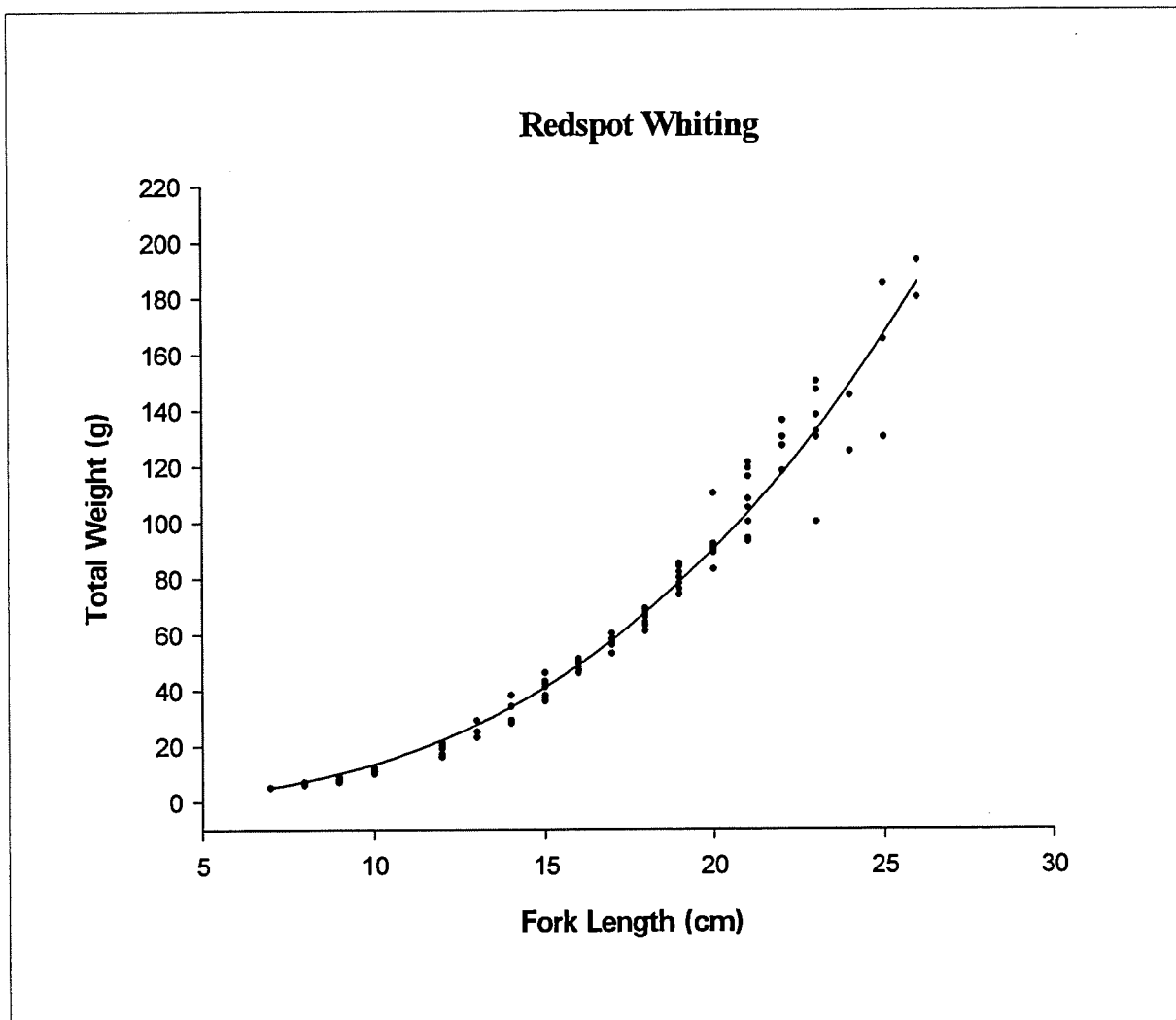


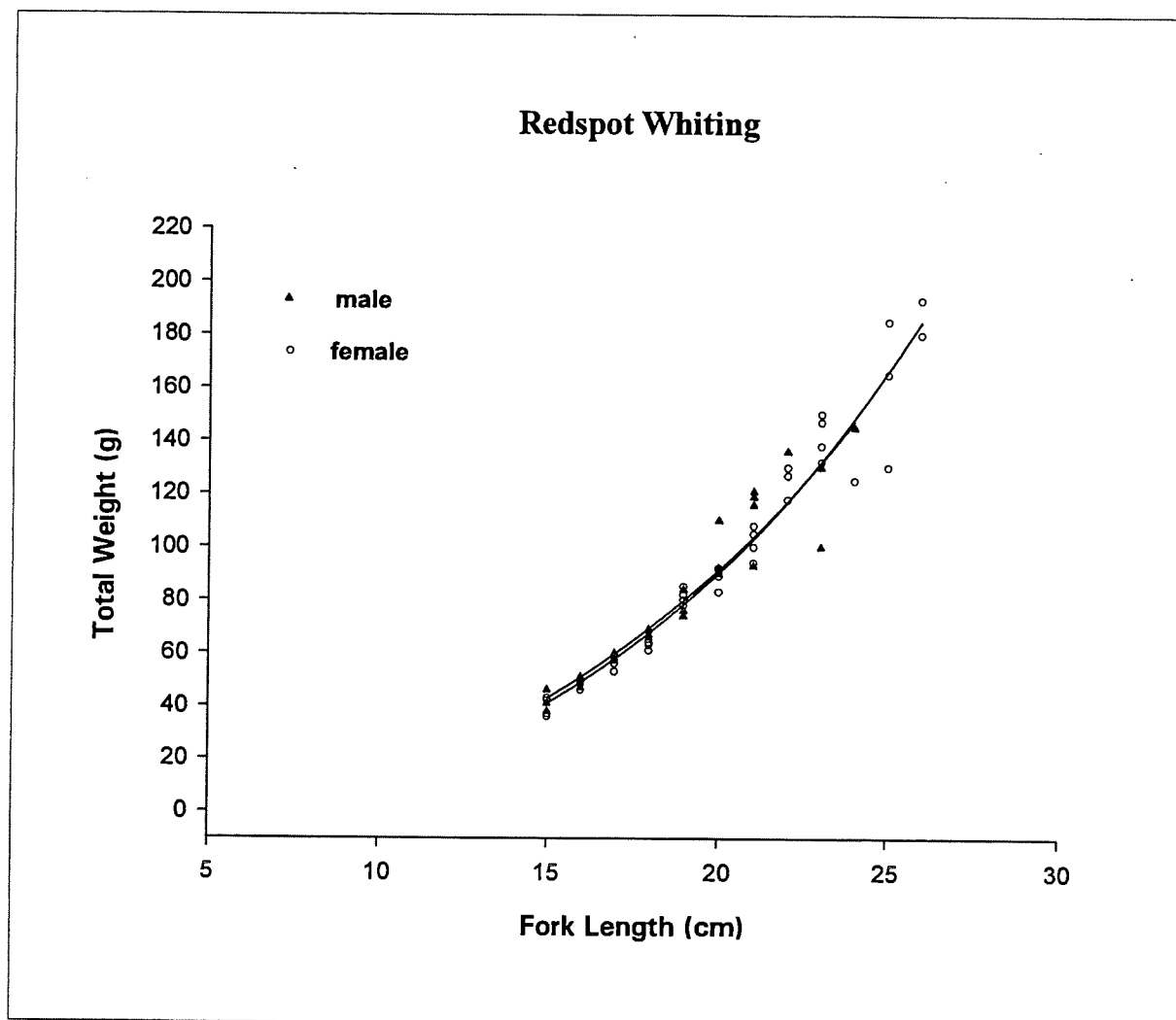
Figure 45: Length-weight relationship for orange perch (*Lepidoperca pulchella*).

	Coefficient	Std. Error	Adj Rsqr = 0.8330
a	0.0571	0.0199	Length range: 11-26 cm
b	2.6671	0.0966	n = 190



**Figure 46.1:** Length-weight relationship for redspot whiting (*Sillago flindersi*).

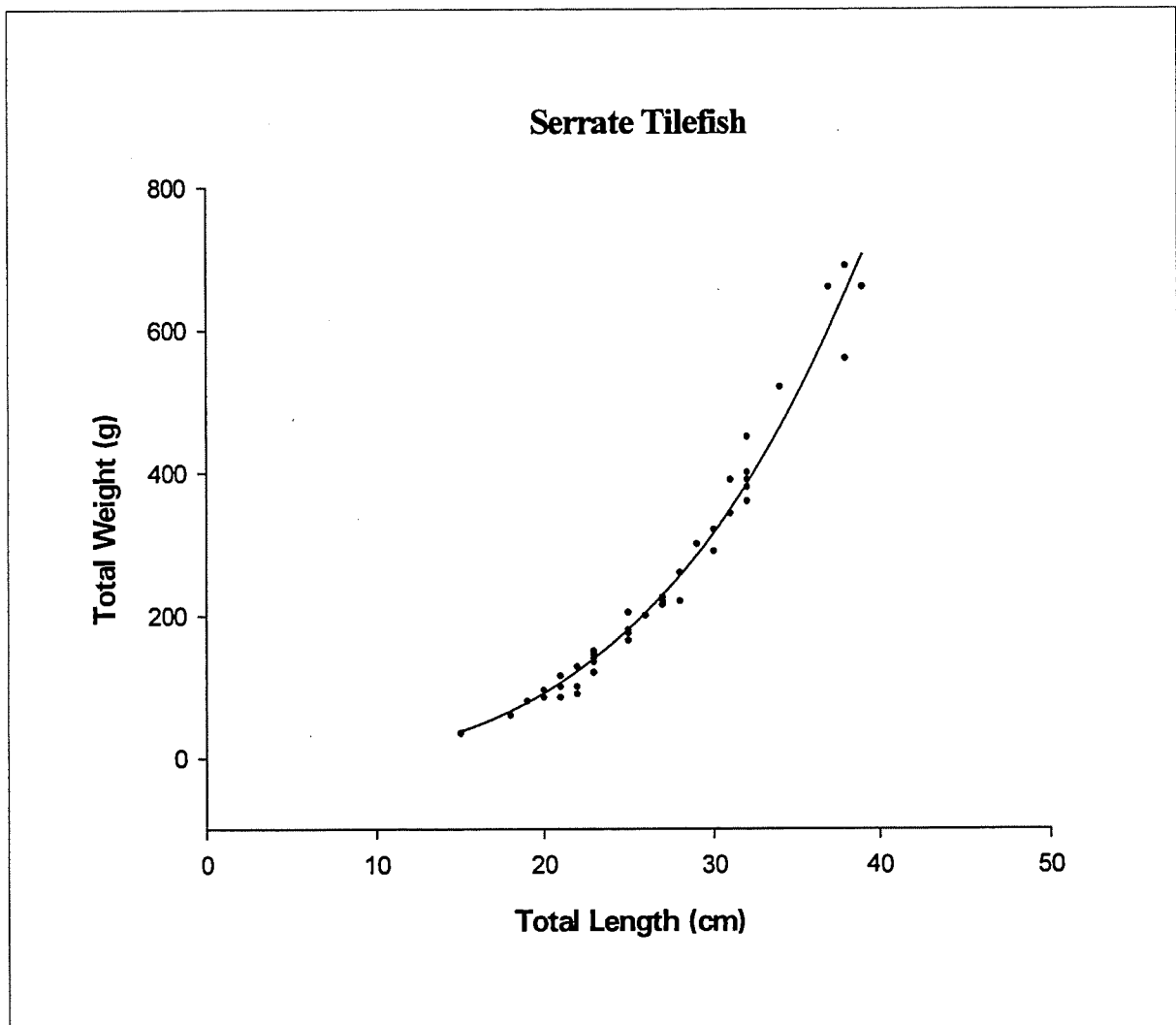
	Coefficient	Std. Error	Adj Rsqr = 0.9658
a	0.024	0.005	Length range: 7-26 cm
b	2.748	0.067	n = 96



**Figure 46.2:** Length-weight relationships for male and female redspot whiting (*Sillago flindersi*).

<b>Males:</b>	Coefficient	Std. Error	Adj Rsqr = 0.8993
a	0.0353	0.0173	Length range: 15-24 cm
b	2.6236	0.1629	n = 32
<b>Females:</b>	Coefficient	Std. Error	Adj Rsqr = 0.9500
a	0.0247	0.0086	Length range: 15-26 cm
b	2.7383	0.1114	n = 40





**Figure 47:** Length-weight relationship for serrate tilefish (*Branchiostegus serratus*).

	Coefficient	Std. Error	Adj Rsqr = 0.9736
a	0.0093	0.0029	Length range: 15-32 cm
b	3.0662	0.0886	n = 42

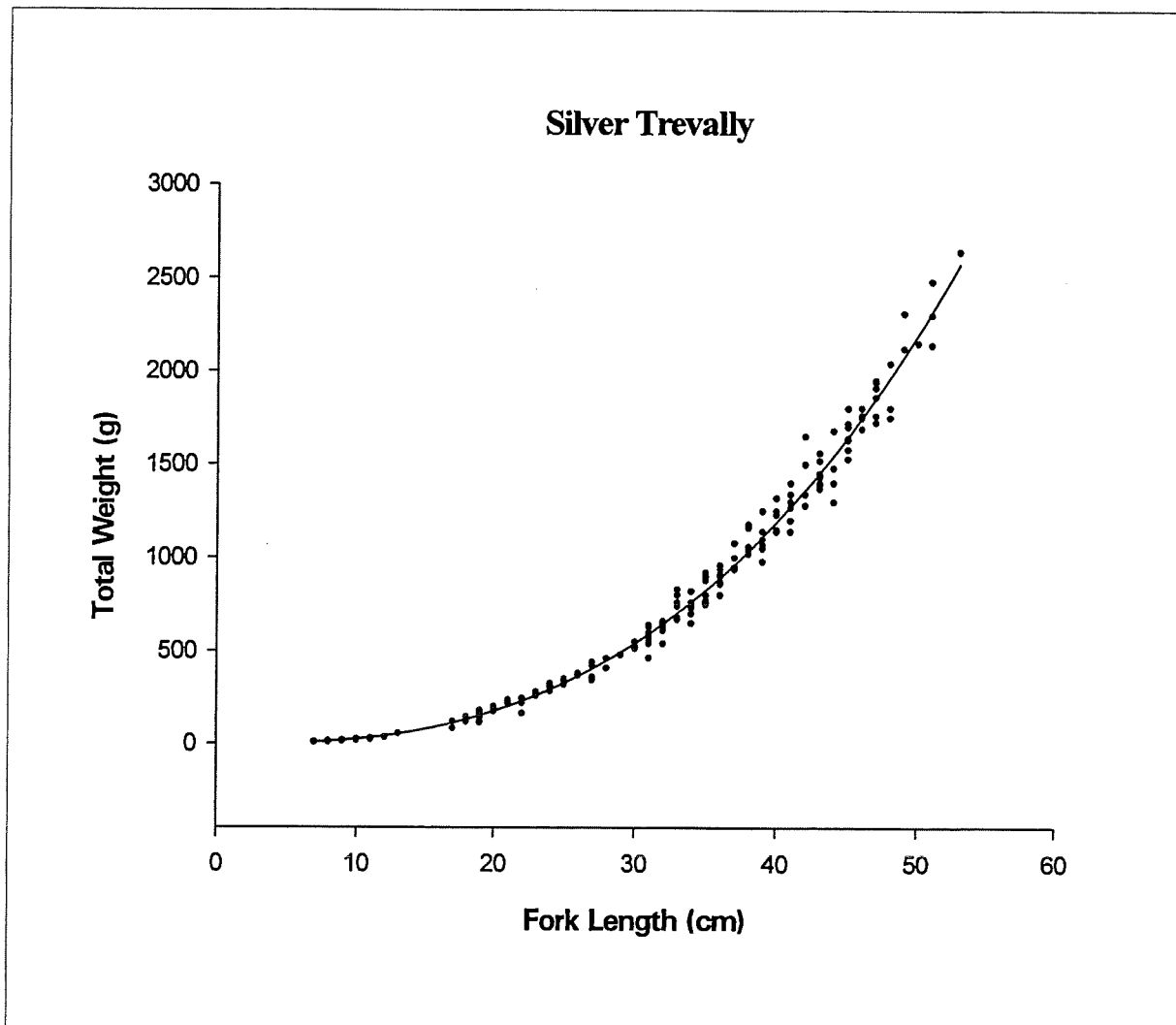


Figure 48.1: Length-weight relationship for silver trevally (*Pseudocaranx dentex*).

	Coefficient	Std. Error	Adj Rsqr = 0.9887
a	0.0486	0.0054	Length range: 7-53 cm
b	2.7398	0.0296	n = 211

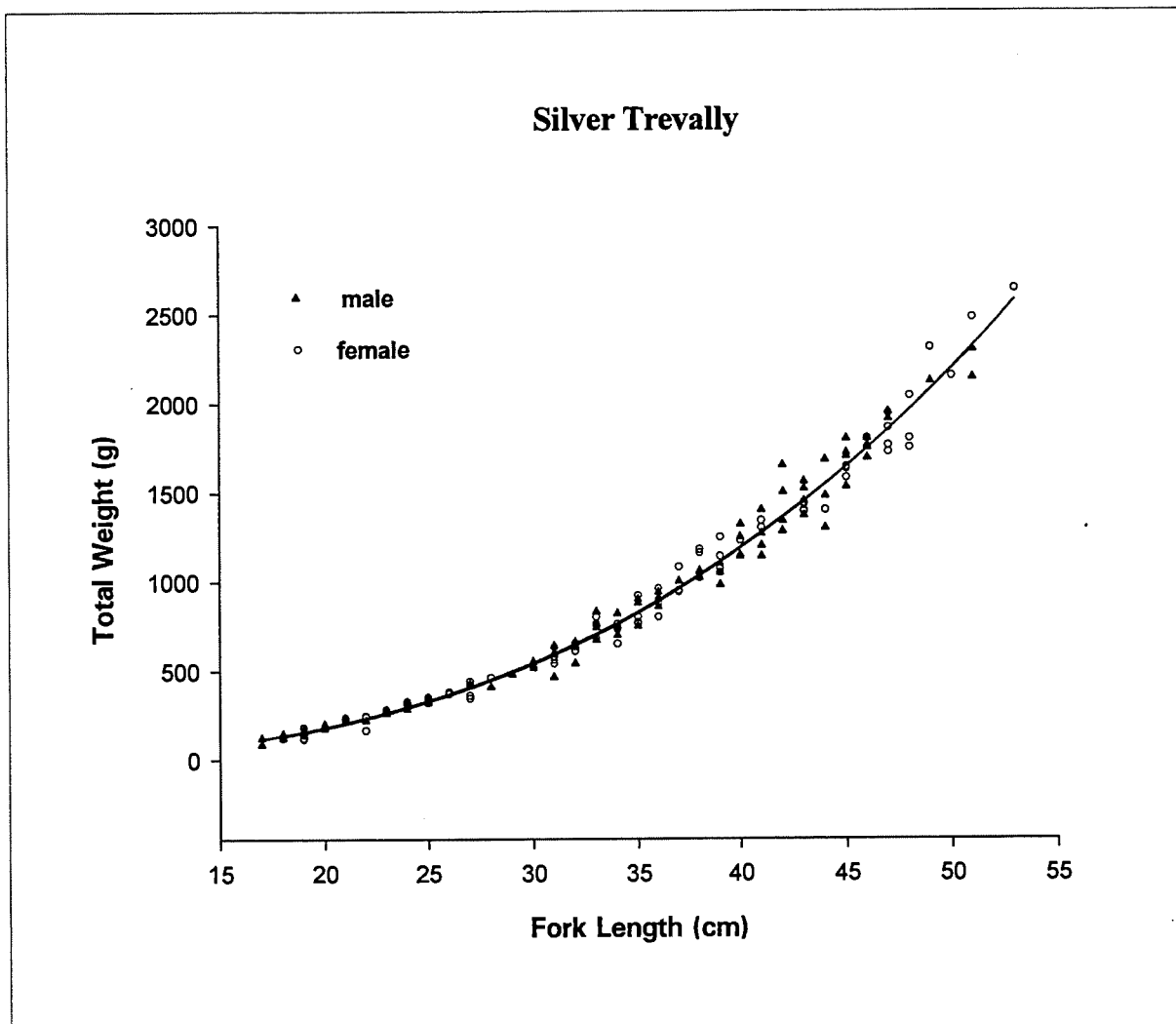
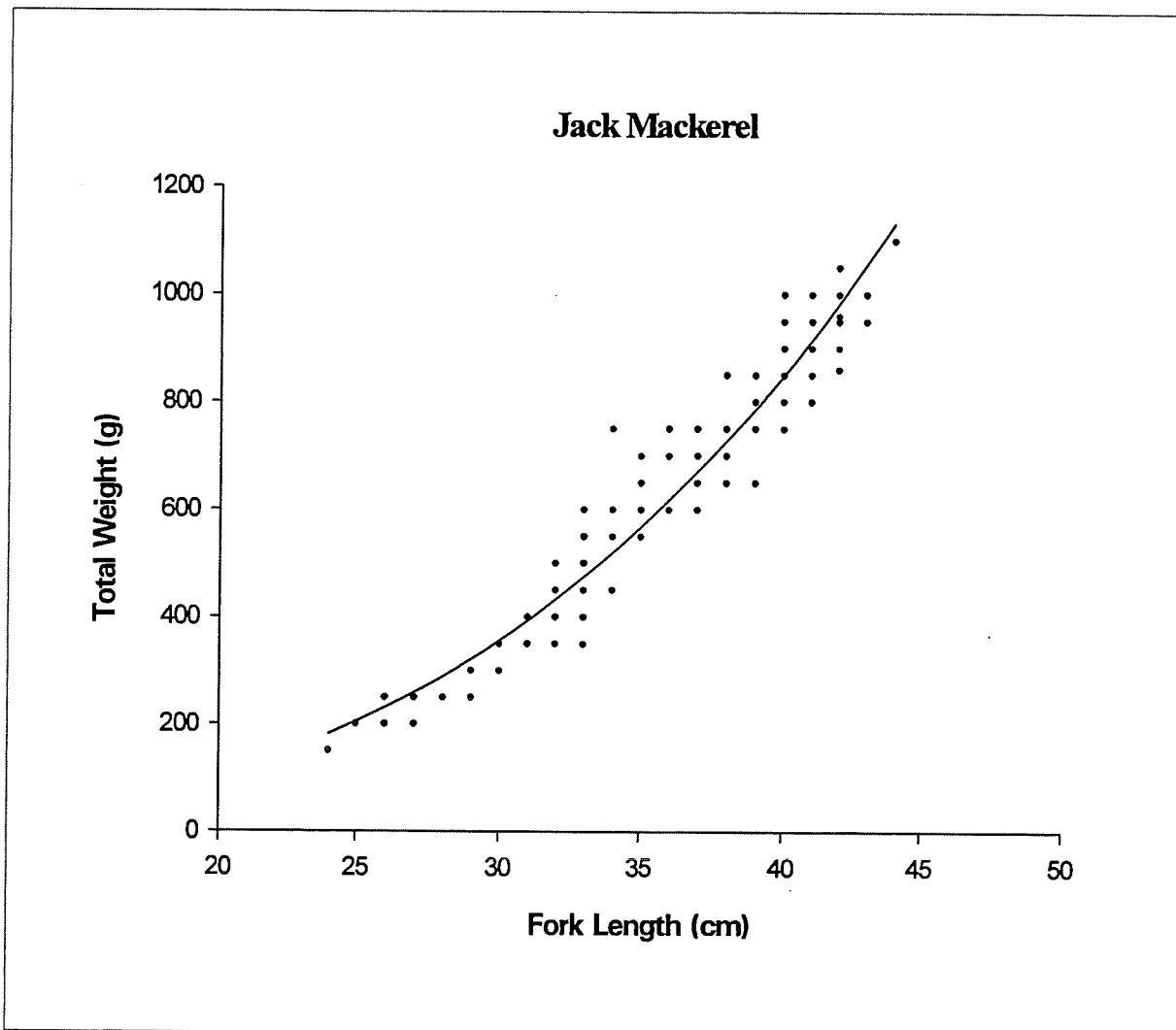


Figure 48.2: Length-weight relationships for male and female silver trevally (*Pseudocaranx dentex*).

Males:		Coefficient	Std. Error	Adj Rsqr = 0.9846
a		0.0531	0.0097	Length range: 17-51 cm
b		2.7169	0.0485	n = 96
Females:		Coefficient	Std. Error	Adj Rsqr = 0.9877
a		0.0452	0.007	Length range: 18-53 cm
b		2.7588	0.0413	n = 92



**Figure 49:** Length-weight relationship for jack mackerel (*Trachurus declivis*).

	Coefficient	Std. Error	Adj Rsqr = 0.9305
a	0.0124	0.0042	Length range: 24-44 cm
b	3.019	0.0934	n = 111

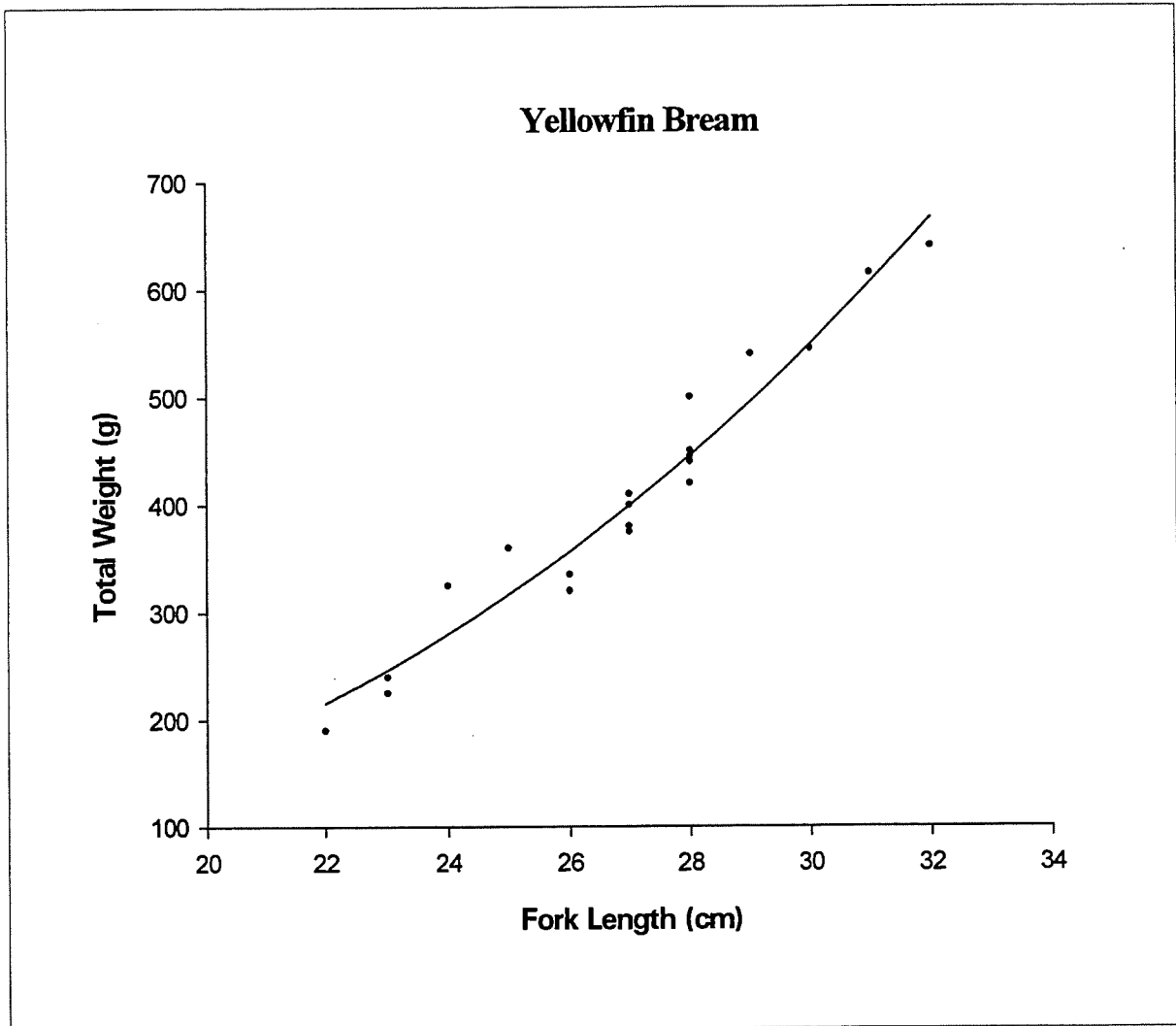


Figure 50: Length-weight relationship for yellowfin bream (*Acanthopagrus australis*).

	Coefficient	Std. Error	Adj Rsqr = 0.9448
a	0.0193	0.0113	Length range: 22-32 cm
b	3.0148	0.1748	n = 20

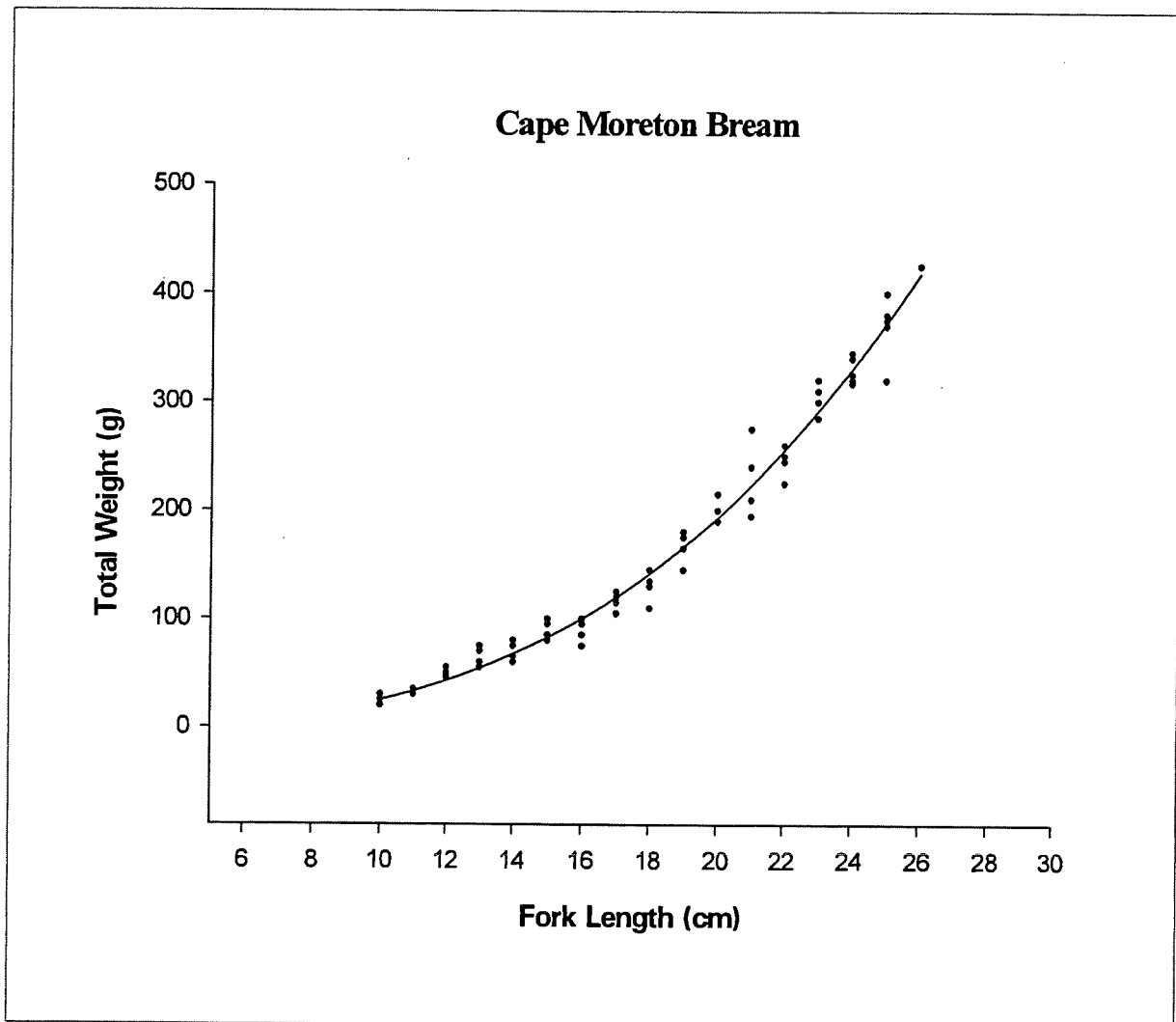
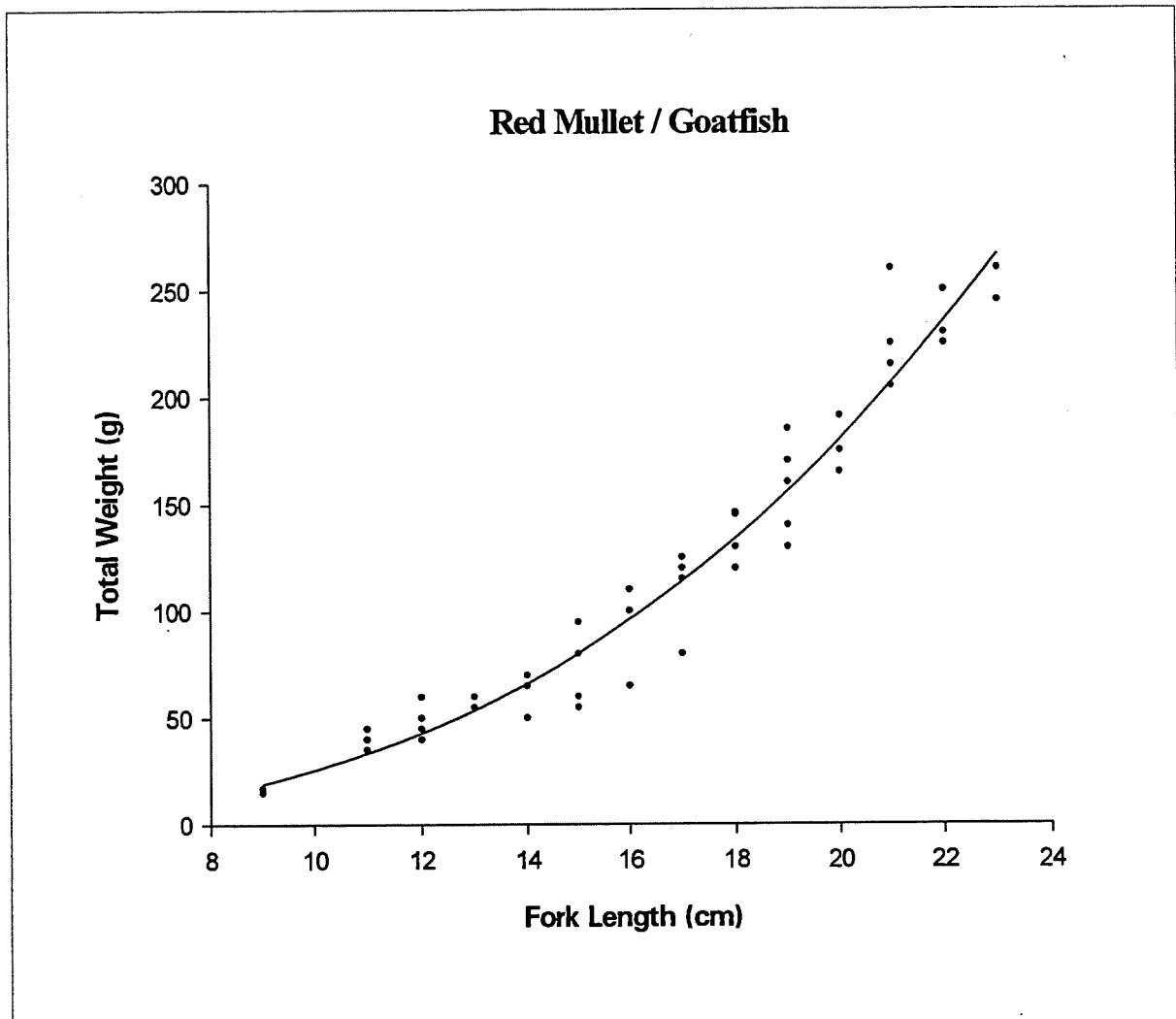


Figure 51: Length-weight relationship for Cape Moreton bream (*Allotaius spariformis*).

	Coefficient	Std. Error	Adj Rsqr = 0.982
a	0.029	0.0055	Length range: 10-26 cm
b	2.9392	0.0611	n = 80



**Figure 52:** Length-weight relationship for red mullet (*Upeneichthys lineatus*).

	Coefficient	Std. Error	Adj Rsqr = 0.9544
a	0.0395	0.0117	Length range: 9-23 cm
b	2.8126	0.0986	n = 58

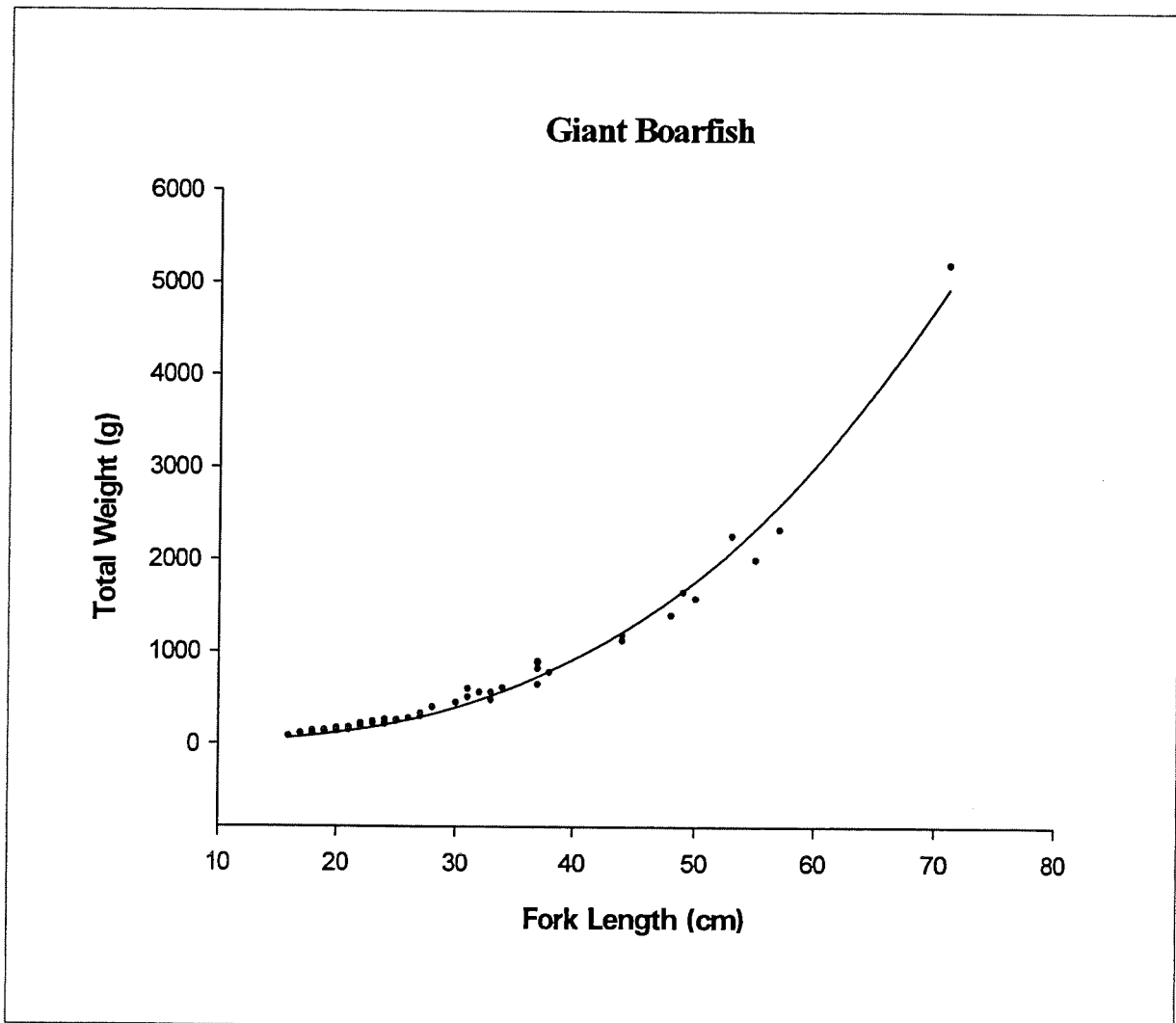


Figure 53: Length-weight relationship for giant boarfish (*Paristiopterus labiosus*).

	Coefficient	Std. Error	Adj Rsqr = 0.9873
a	0.0185	0.0036	Length range: 16-71 cm
b	2.9308	0.0475	n = 65



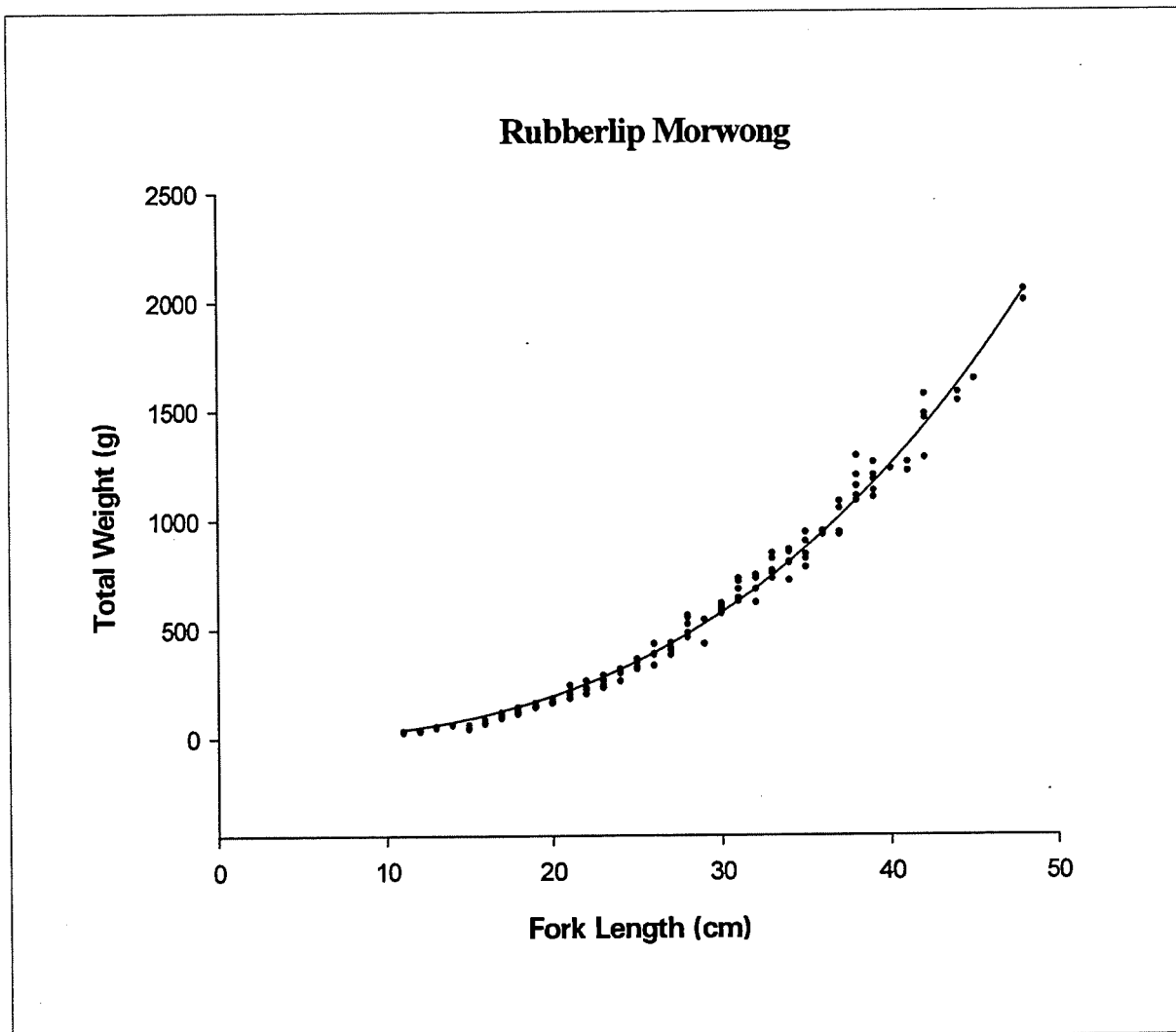
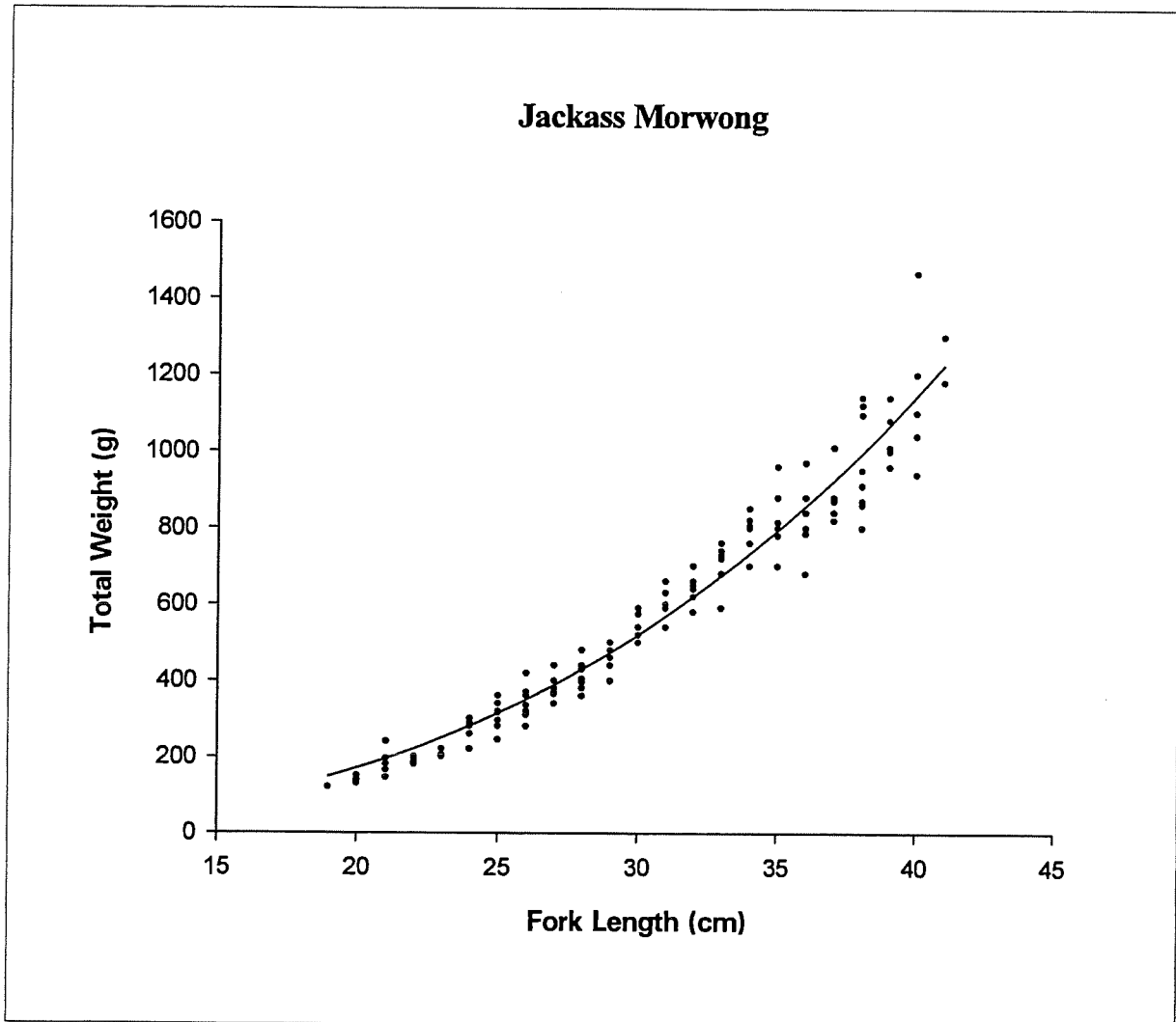


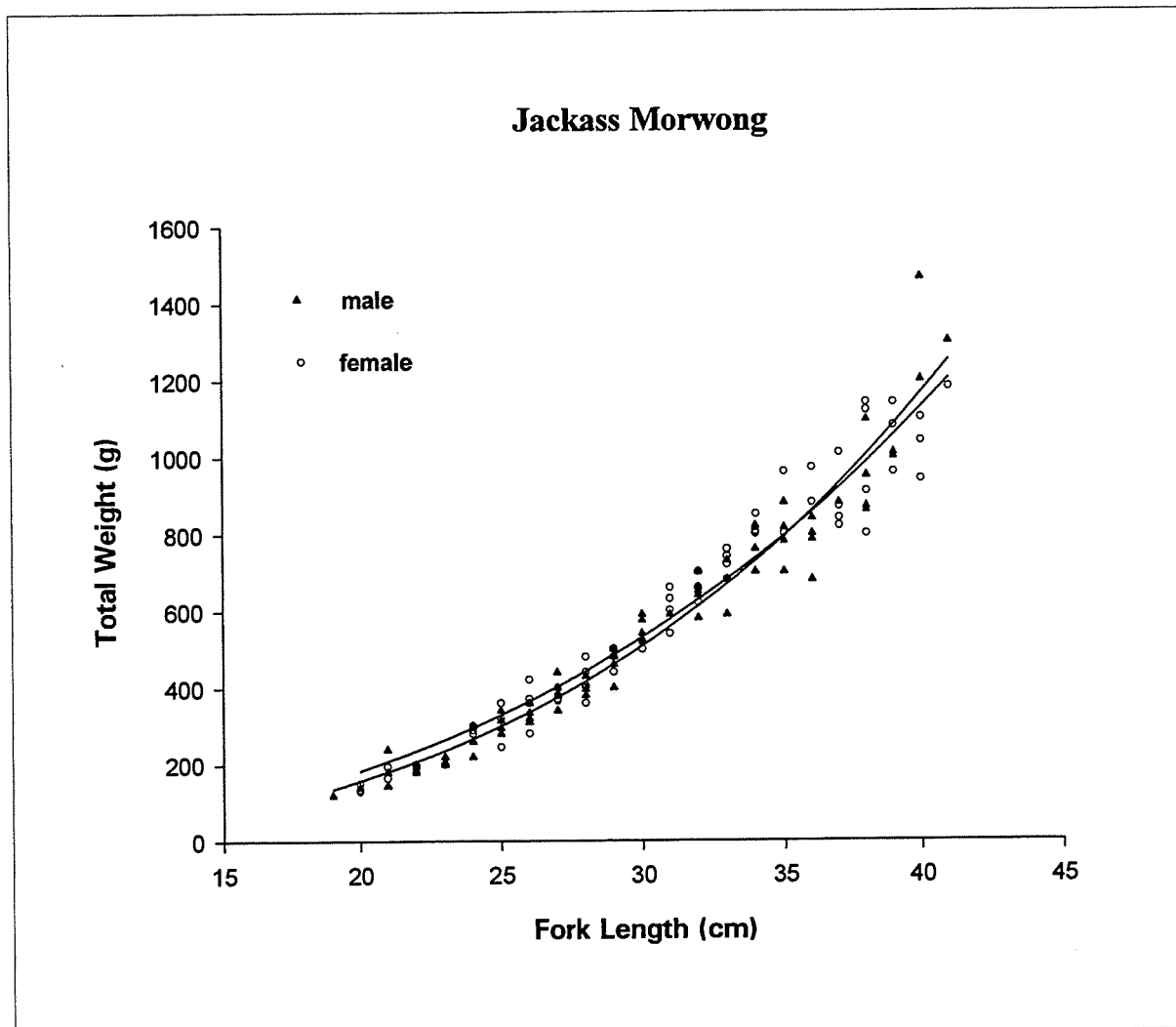
Figure 54: Length-weight relationship for rubberlip morwong (*Nemadactylus douglasii*).

	Coefficient	Std. Error	Adj Rsqr = 0.9882
a	0.0584	0.0069	Length range: 11-48 cm
b	2.7033	0.0323	n = 141



**Figure 55.1:** Length-weight relationship for jackass morwong (*Nemadactylus macropterus*).

	Coefficient	Std. Error	Adj Rsqr = 0.9487
a	0.0452	0.0102	Length range: 19-41 cm
b	2.7491	0.0634	n = 142



**Figure 55.2:** Length-weight relationships for male and female jackass morwong (*Nemadactylus macropterus*).

	Coefficient	Std. Error	Adj Rsqr = 0.9542
<b>Males:</b>			Length range: 19-41 cm
a	0.0279	0.0089	n = 73
b	2.8841	0.0887	
<b>Females:</b>			Adj Rsqr = 0.9443
a	0.0719	0.023	Length range: 20-41 cm
b	2.6189	0.0896	n = 69

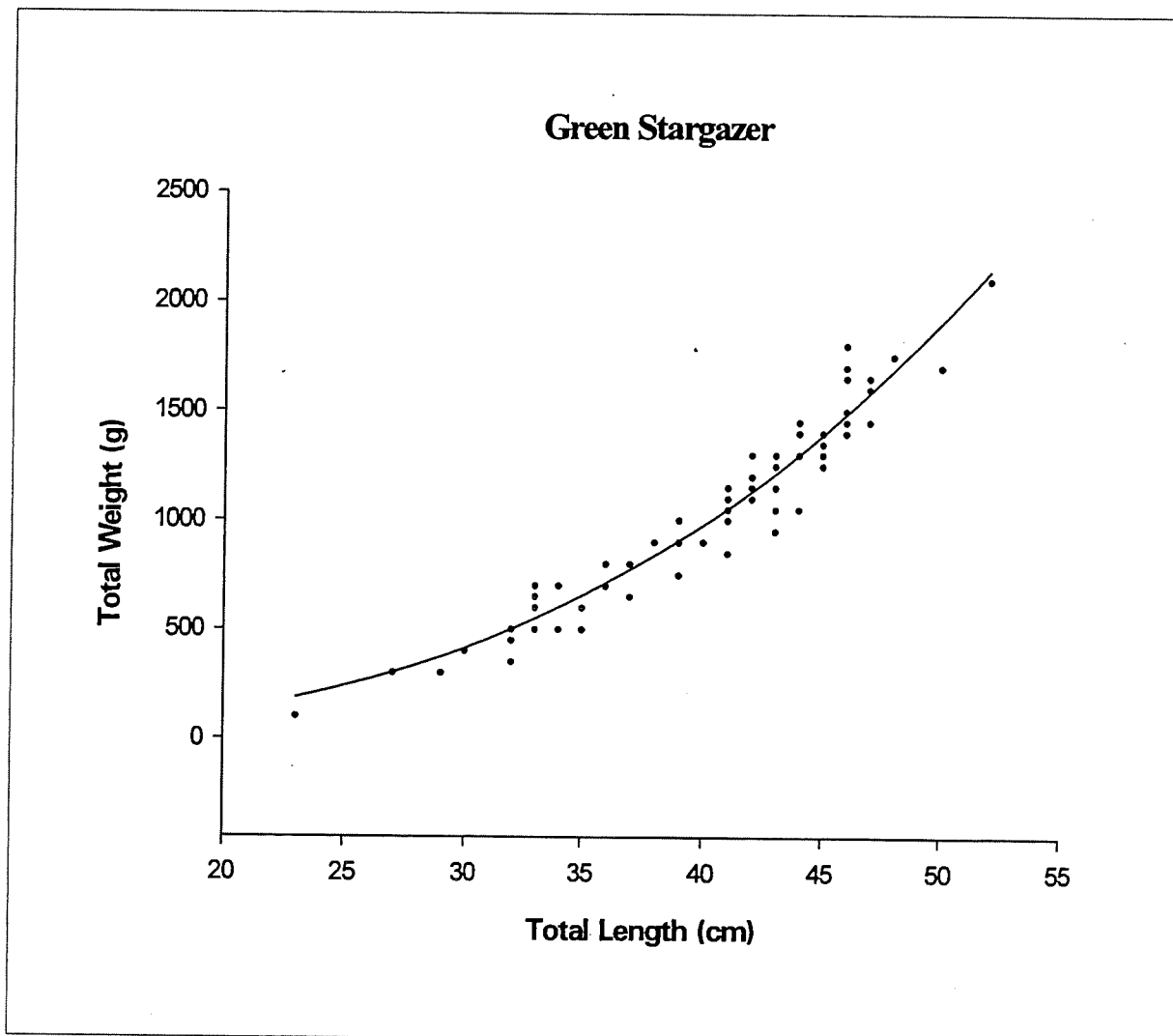
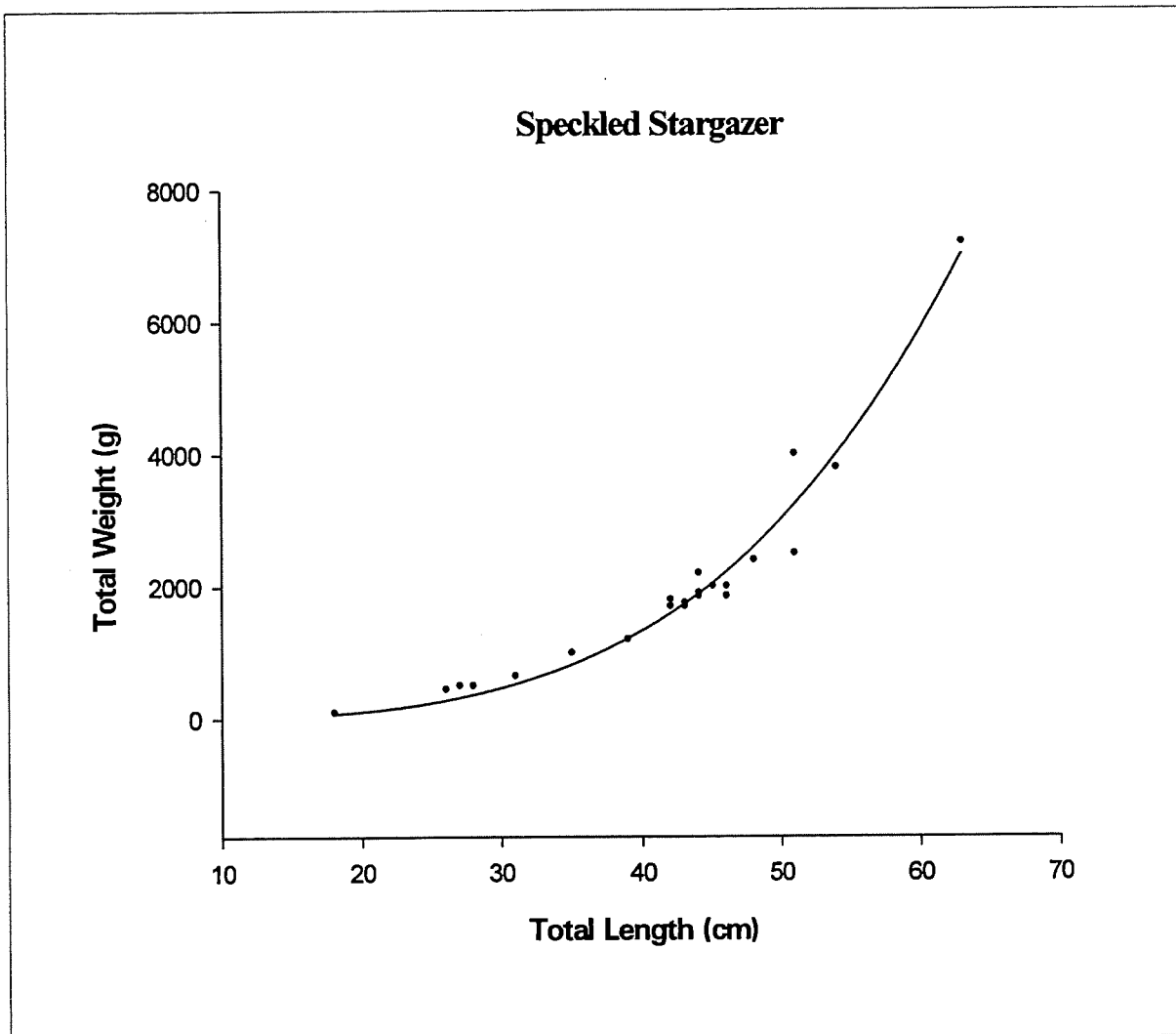


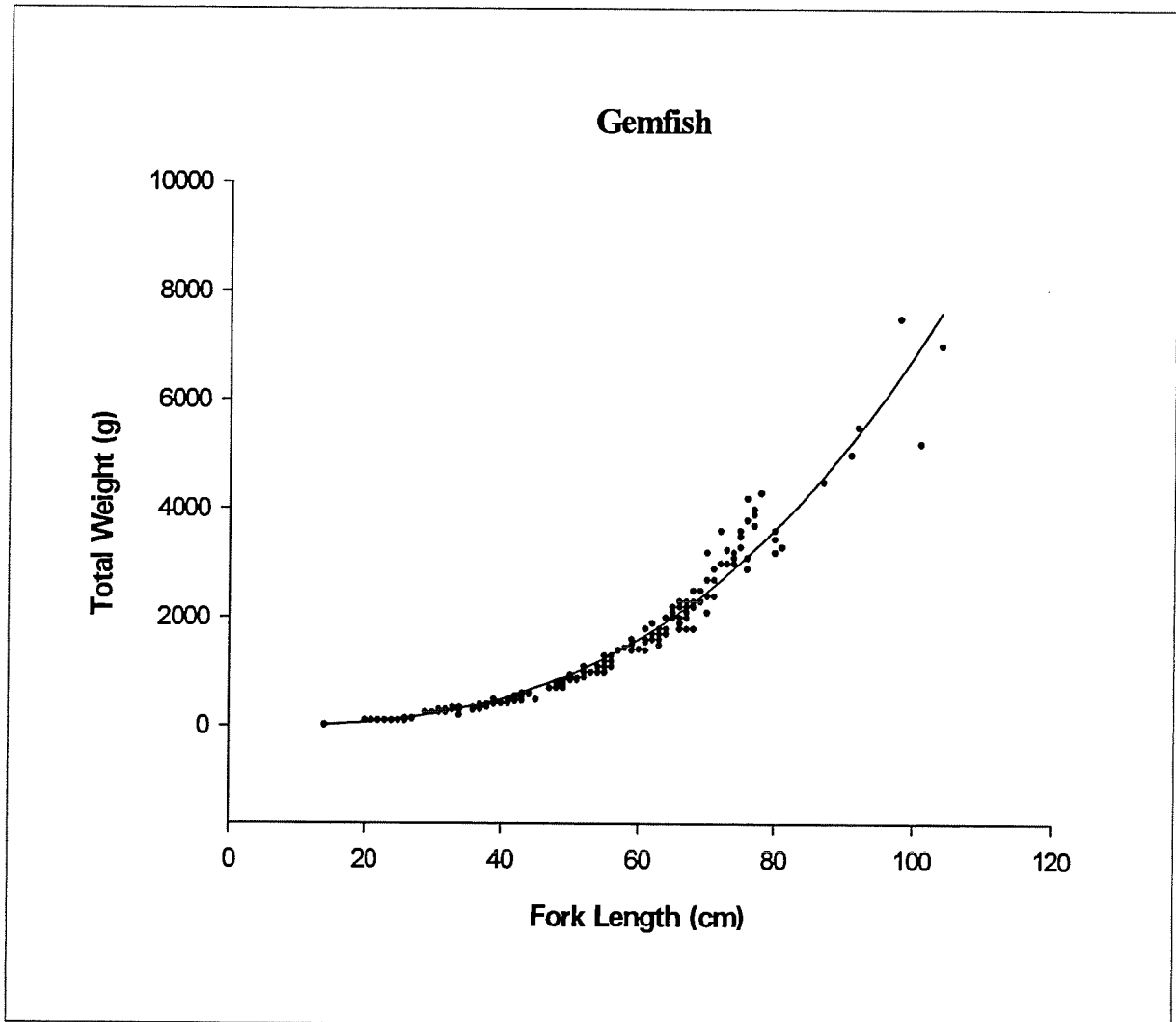
Figure 56: Length-weight relationship for green stargazer (*Gnathagnus innotabilis*).

	Coefficient	Std. Error	Adj Rsqr = 0.933
a	0.0162	0.0064	Length range: 23-52 cm
b	2.9857	0.1034	n = 86



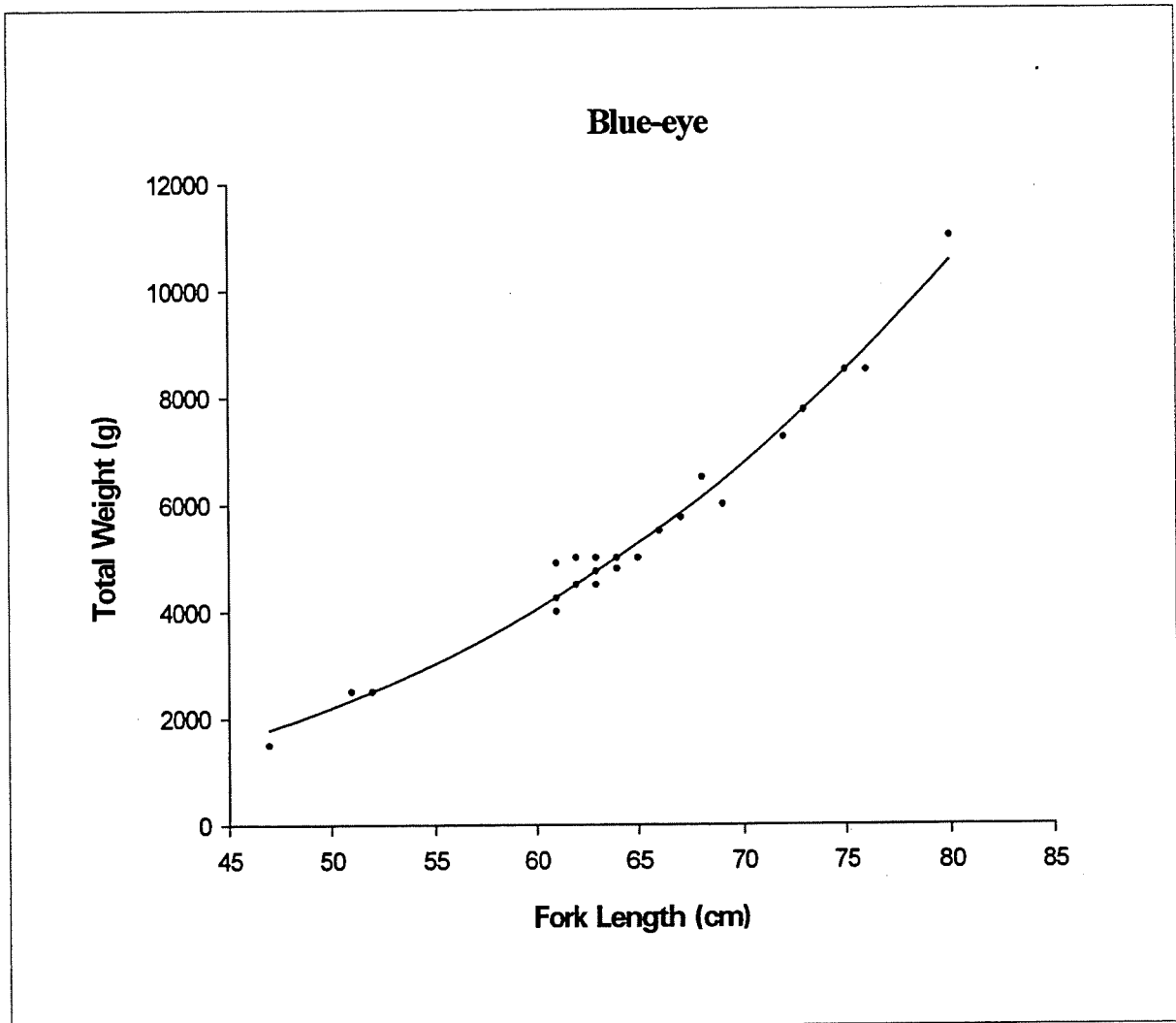
**Figure 57:** Length-weight relationship for speckled or yellow stargazer (*Kathetostoma canaster*).

	Coefficient	Std. Error	Adj Rsqr = 0.9661
a	0.0018	0.0011	Length range: 18-63 cm
b	3.6655	0.1524	n = 24



**Figure 58:** Length-weight relationship for gemfish (*Rexea solandri*).

	Coefficient	Std. Error	Adj Rsqr = 0.9575
a	0.0147	0.0029	Length range: 14-104 cm
b	2.834	0.0454	n = 212



**Figure 59:** Length-weight relationship for blue-eye (*Hyperoglyphe antarctica*).

	Coefficient	Std. Error	Adj Rsqr = 0.9772
a	0.0047	0.002	Length range: 47-80 cm
b	3.3374	0.0998	n = 28

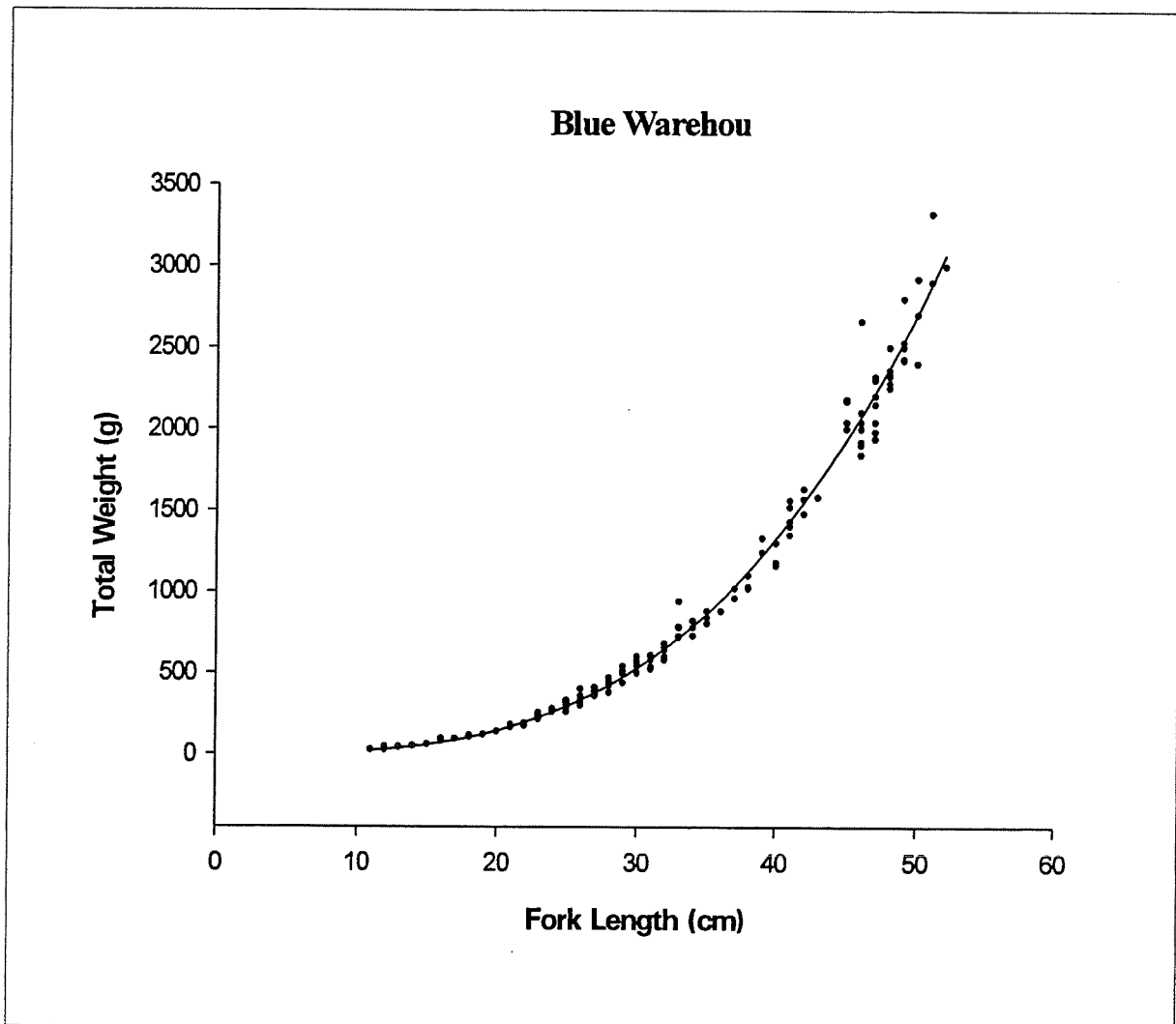
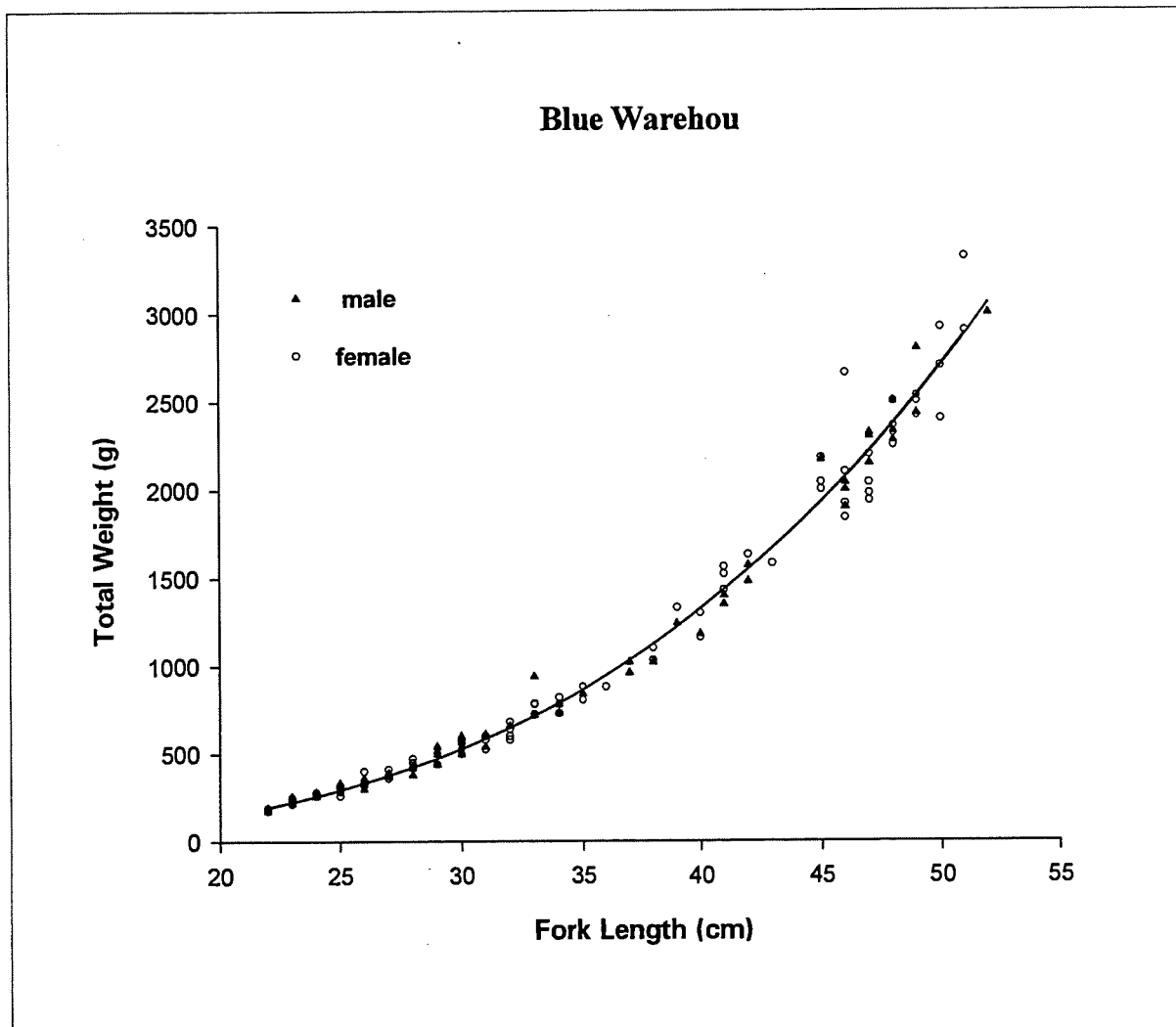


Figure 60.1: Length-weight relationship for blue warehou (*Seriolella brama*).

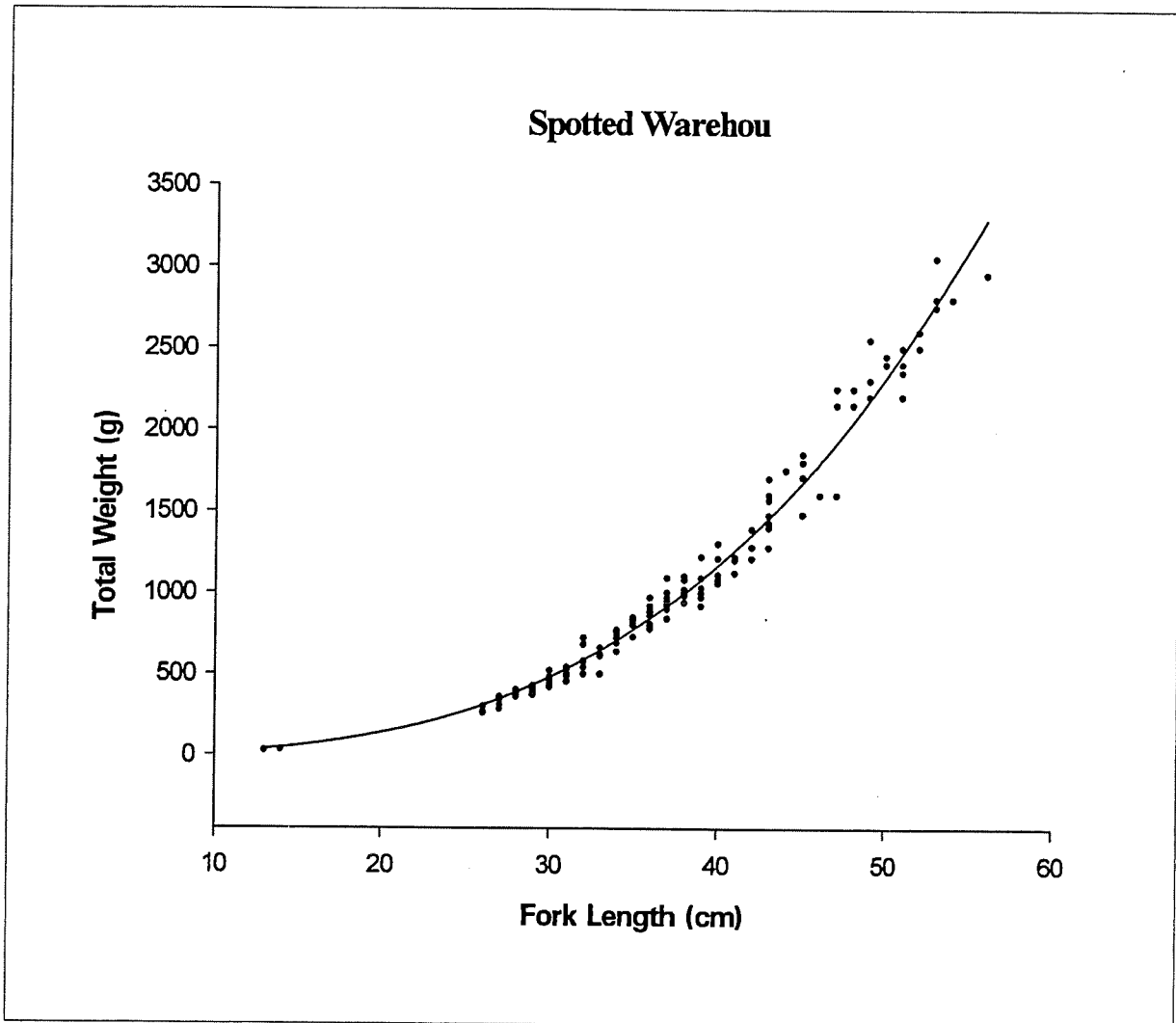
	Coefficient	Std. Error	Adj Rsqr = 0.9873
a	0.01	0.0016	Length range: 11-52 cm
b	3.1965	0.0413	n = 174





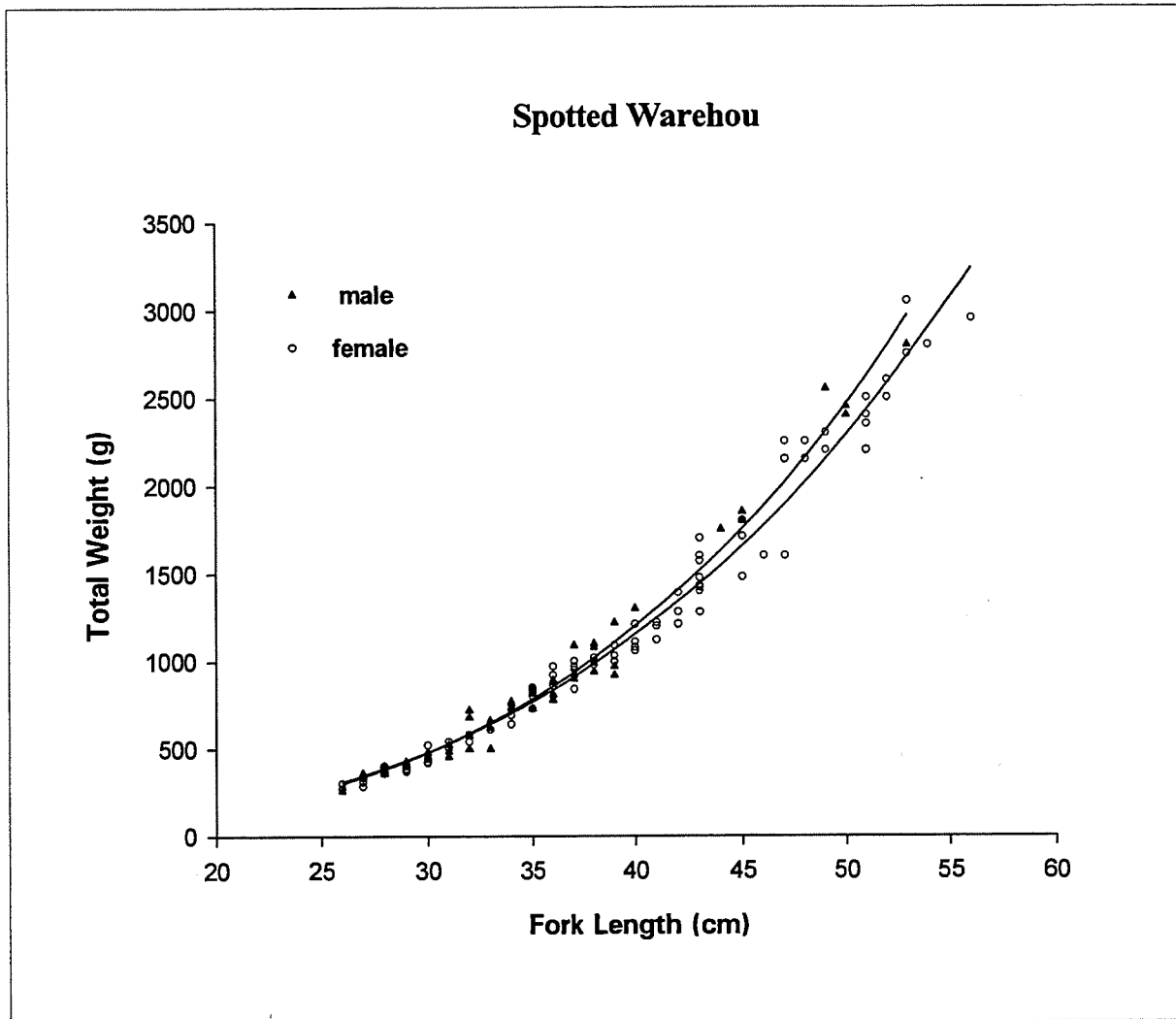
**Figure 60.2:** Length-weight relationships for male and female blue warehou (*Seriolella brama*).

<b>Males:</b>		Coefficient	Std. Error	Adj Rsqr = 0.9908
a		0.0102	0.002	Length range: 22-52 cm
b		3.1923	0.0516	n = 64
<b>Females:</b>		Coefficient	Std. Error	Adj Rsqr = 0.9802
a		0.0098	0.0027	Length range: 22-51 cm
b		3.2031	0.0708	n = 83



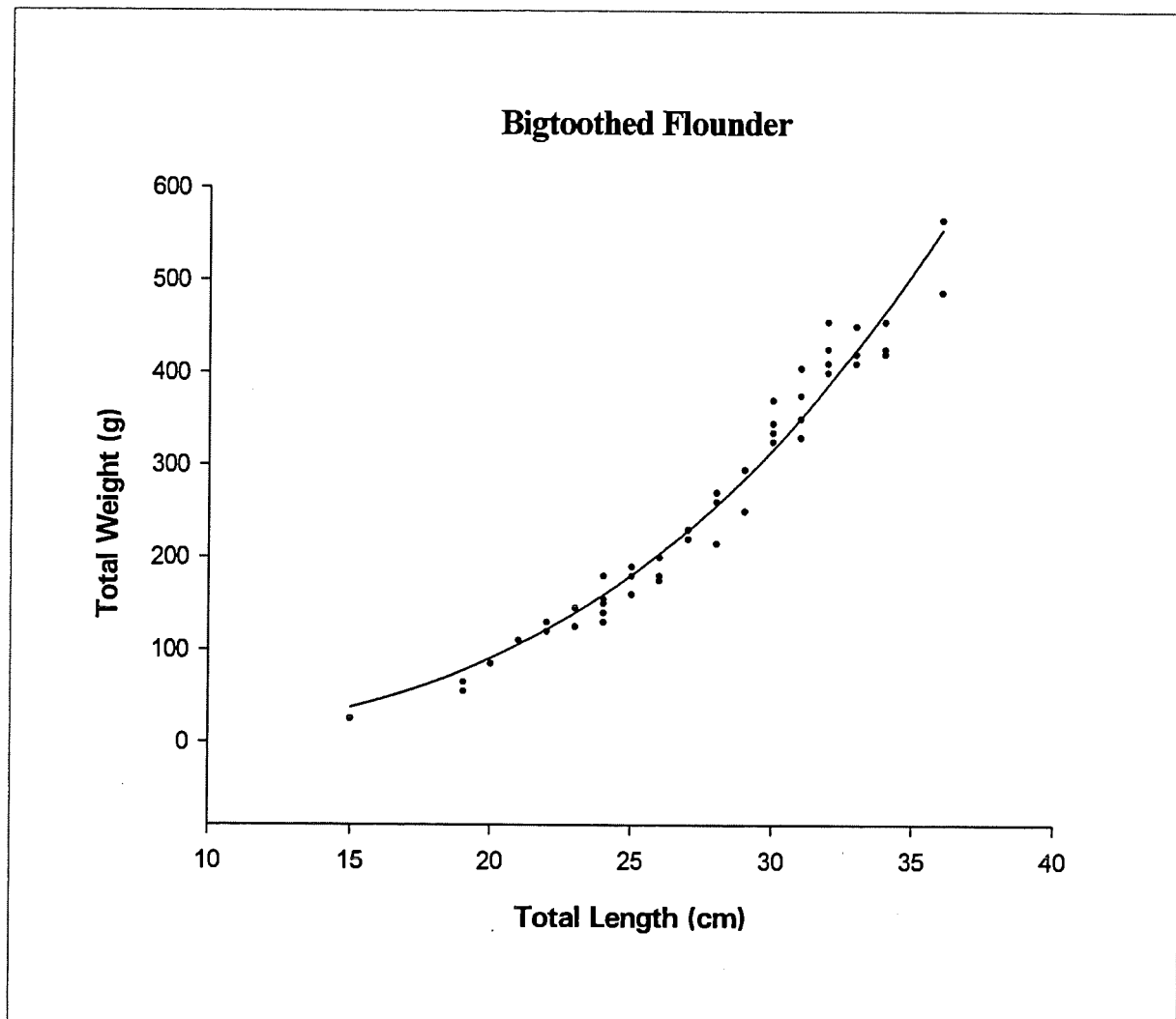
**Figure 61.1:** Length-weight relationship for spotted warehou (*Seriolella punctata*).

	Coefficient	Std. Error	Adj Rsqr = 0.9788
a	0.0137	0.0021	Length range: 13-56 cm
b	3.0772	0.0404	n= 154



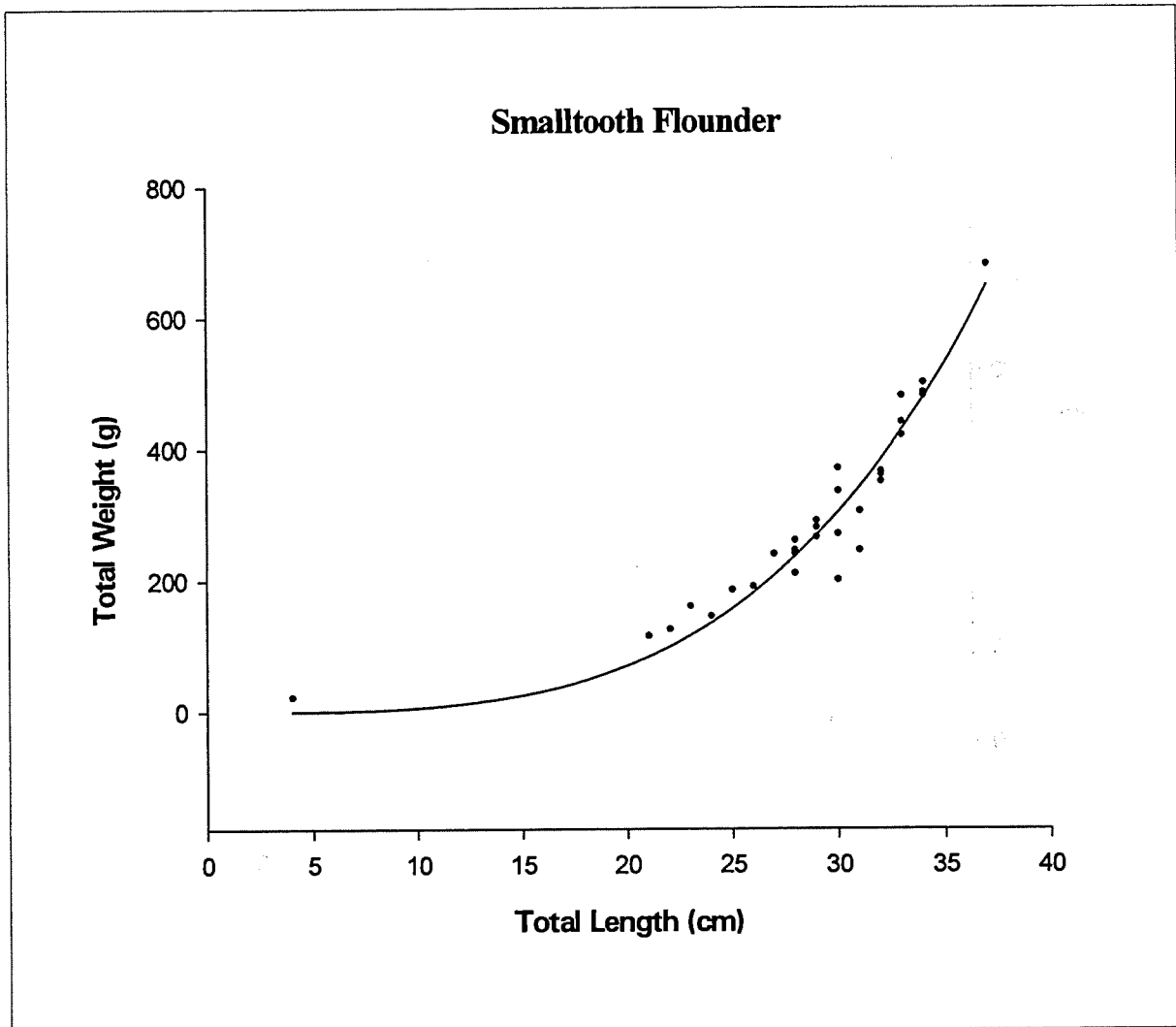
**Figure 61.2:** Length-weight relationships for male and female spotted warehou (*Seriolella punctata*).

<b>Males:</b>		Coefficient	Std. Error	Adj Rsqr = 0.9806
	a	0.0086	0.0018	Length range: 26-53 cm
	b	3.2116	0.0555	n = 60
<b>Females:</b>		Coefficient	Std. Error	Adj Rsqr = 0.9785
	a	0.0144	0.003	Length range: 26-56 cm
	b	3.062	0.0549	n = 92



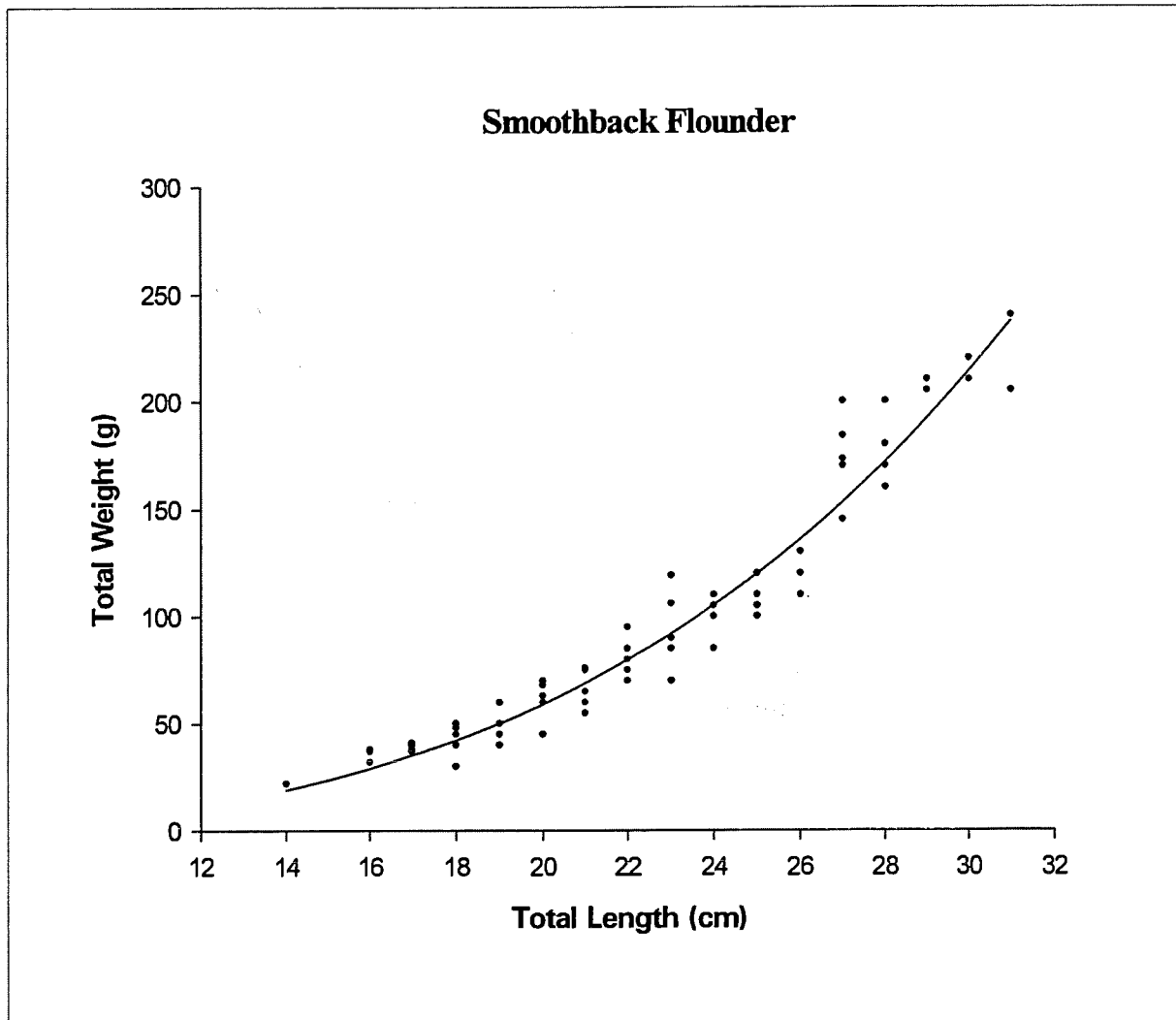
**Figure 62:** Length-weight relationship for bigtoothed flounder (*Pseudorhombus arsius*).

	Coefficient	Std. Error	Adj Rsqr = 0.9613
a	0.0092	0.0034	Length range: 15-36 cm
b	3.0705	0.1076	n = 50



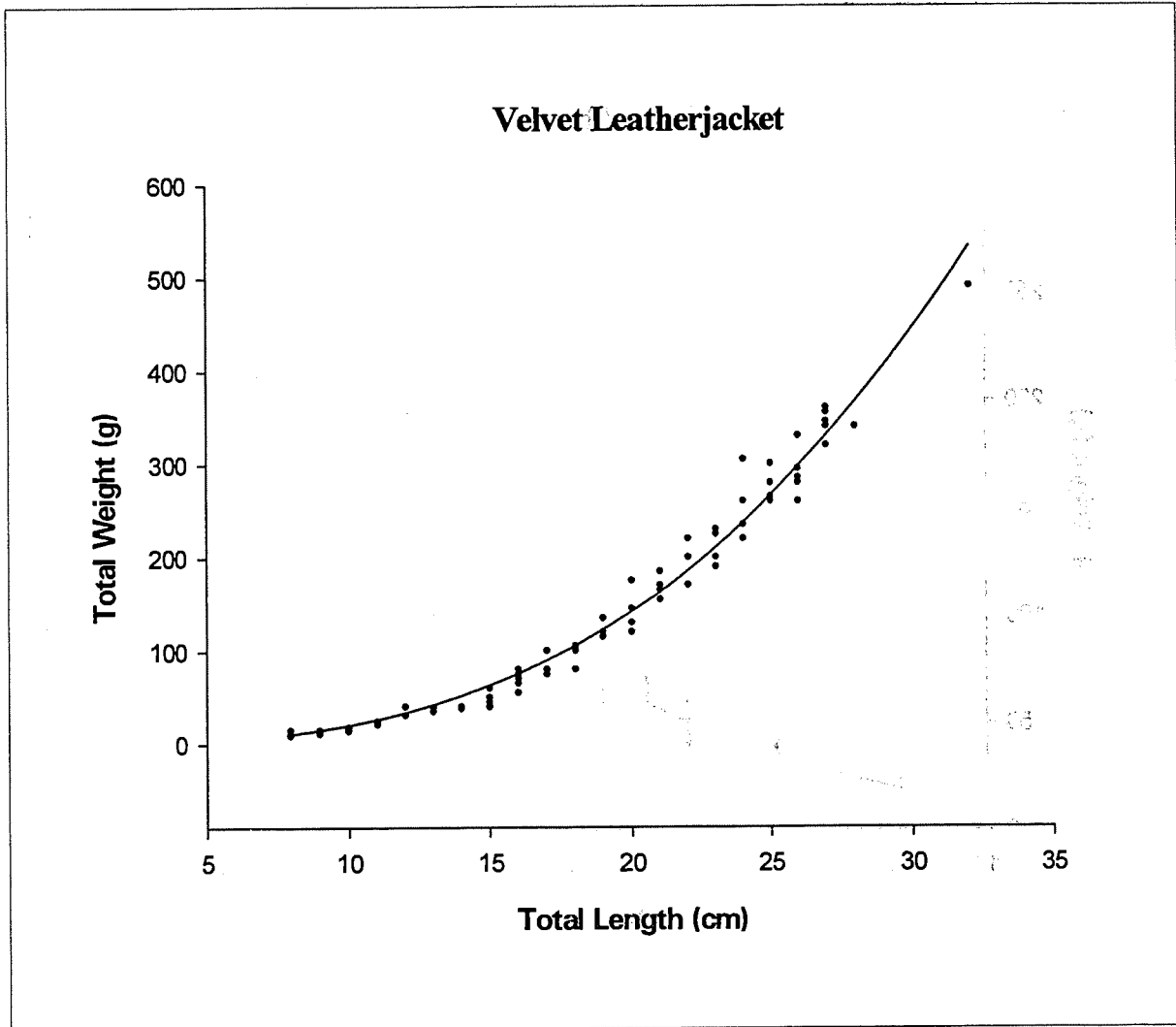
**Figure 63:** Length-weight relationship for smalltooth flounder (*Pseudorhombus jenynsii*).

	Coefficient	Std. Error	Adj Rsqr = 0.9367
a	0.0014	0.001	Length range: 4-37 cm
b	3.6222	0.1995	n = 35



**Figure 64:** Length-weight relationship for smoothback flounder (*Pseudorhombus tenuirastrum*).

	Coefficient	Std. Error	Adj Rsqr = 0.9431
a	0.0043	0.0016	Length range: 14-31 cm
b	3.1769	0.1087	n = 72



**Figure 65:** Length-weight relationship for velvet leatherjacket (*Meuschenia scaber*).

	Coefficient	Std. Error	Adj Rsqr = 0.9773
a	0.0309	0.0062	Length range: 8-32 cm
b	2.8153	0.0621	n = 88

**Other titles in this series:**

ISSN 1442-0147

- No. 1 Otway, N.M. and Parker, P.C., 1999. A review of the biology and ecology of the grey nurse shark (*Carcharias taurus*) Rafinesque 1810.
- No. 2 Graham, K.J., 1999. Trawl fish length-weight relationships from data collected during FRV *Kapala* surveys.



