CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE
LOWESTOFT LABORATORY, LOWESTOFT, SUFFOLK NR33 0HT

2009 RESEARCH VESSEL PROGRAMME

REPORT: RV CEFAS ENDEAVOUR: SURVEY 4

STAFF:

R Ayers (SIC)	A Little
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S Songer	I Poultney
D Brown	A Pliru
S McCully	C O'Sullivan (Irish Observer)
S Shaw	B Garrad (P & O Representative 2nd to 6th March)
B Hatton	

DURATION: 2 March – 15 March

LOCATION: ICES Divisions VIIa,e,f,g,h

AIMS:

Primary:
To collect biological data on fish stocks in support of the EU Data Collection Regulation. Fishing will be undertaken using a Portuguese High Headline Trawl (PHHT) and 4m Beam Trawl, using a subset of the station grid previously fished on Cefas Celtic Sea Groundfish Surveys. The station grid is not a fixed target and will be deviated from as dictated by weather, catch rates and/or sampling needs.

The new Cefas Electronic Data Capture system (EDC) is scheduled for hardware release prior to this cruise, if the system is available it will be used in preference to its previous incarnation.

Additional;
Weather permitting, 1 days work will be completed in the Lundy area related to abundance and distribution of juvenile Ray species.

NARRATIVE: (All times GMT)

Cefas Endeavour sailed from Swansea at 10:00h 02 March 2009 making passage to a work area around the island of Lundy. Fishing commenced at 13:49h that day with the Portuguese High Headline Trawl (PHHT), 3 tows were completed during daylight. The work area contained a large amount of fixed gear and after consultation with a representative of the local fishing vessels it was decided not to fish at night due to the risk of being unable to spot and avoid the gear. With impending SW gales Endeavour left the Lundy area aiming to work in a NE direction allowing her to then to continue to work in more sheltered waters at the lower edges of ICES division VIIa.

A further 7 tows were completed during transit and in the area of Wexford and Arklow over the course of the following 36 hours. A changing forecast to N gales resulted in the vessel moving SW with the aim of working around the SE corner of Ireland. A tow was undertaken during the transit, which resulted in damage to the PHHT. The tow had previously been successfully fished and there was no indication on the echo sounders to suggest what caused the damage. After repairing the damage Endeavour continued to fish as planned in the area off SE Ireland. Further unworkable forecasts for the southern areas meant Endeavour continued to work in Irish coastal waters until mid-day 06 March when Brian Garrad (P &O Representative) was put ashore by workboat after his planned 5 day visit onboard.

Following the brief visit to Cobh, Endeavour worked south for the following 36 hours. The 4m beam was swapped for the PHHT late afternoon on 07 March to enable work to continue in the increasing SW swells. The weather reached an unworkable level at 12:50h 08 March and Endeavour began to dodge Northwards with the weather. Work recommenced at 08:11h 09 March 20Nm south of Lizard point.

Prior to shooting station 57 it was found that the ground wire on Beam No 1 had parted. Beam No.4 was put on in its place and work continued around the Lizard/Falmouth/Eddystone area until early evening 10 March when the vessel worked her way around Lands End and continued fishing in VIIf and VIIg.

Further liaison with representatives of fishermen in the Lundy area provided information that a further 3000 whelk pots had been set in the area of interest. With such a large amount of static gear in the area the decision was taken to do no further work around Lundy during this cruise.

During the overnight work on 11 March Beam no 4 was badly damaged and swapped out for beam no 5.

The PHHT was swapped back on in the early hours of 12 March fitted with the new Scanmar Geometry sensor. 3 tows were undertaken with the PHHT to enable data to be captured from the new sensor to allow development of a logging function within the current Cefas Scanmar software suite.

Following successful deployments of the PHHT, Endeavour resumed fishing with the 4m Beam.

During the early morning of 14 March Endeavour transited through to South West of the Scilly Isles to fish a final group of tows. Fishing finished at 23:45h 15 March and Endeavour departed for Portland.

Endeavour docked in Portland at 19:00h 15 March 2009.

For all tows sampling was undertaken in support of the European Commission Data Collection Regulation (DCR).

Sample data was collected using the newly completed Electronic Data Capture hardware. In addition a new piece of software was written to capture the length/weight information directly for the species not covered under the detailed biological sampling plan. The new hardware and software performed as expected with modifications made to the length/weight capture software during the cruise to address usability and functional issues.

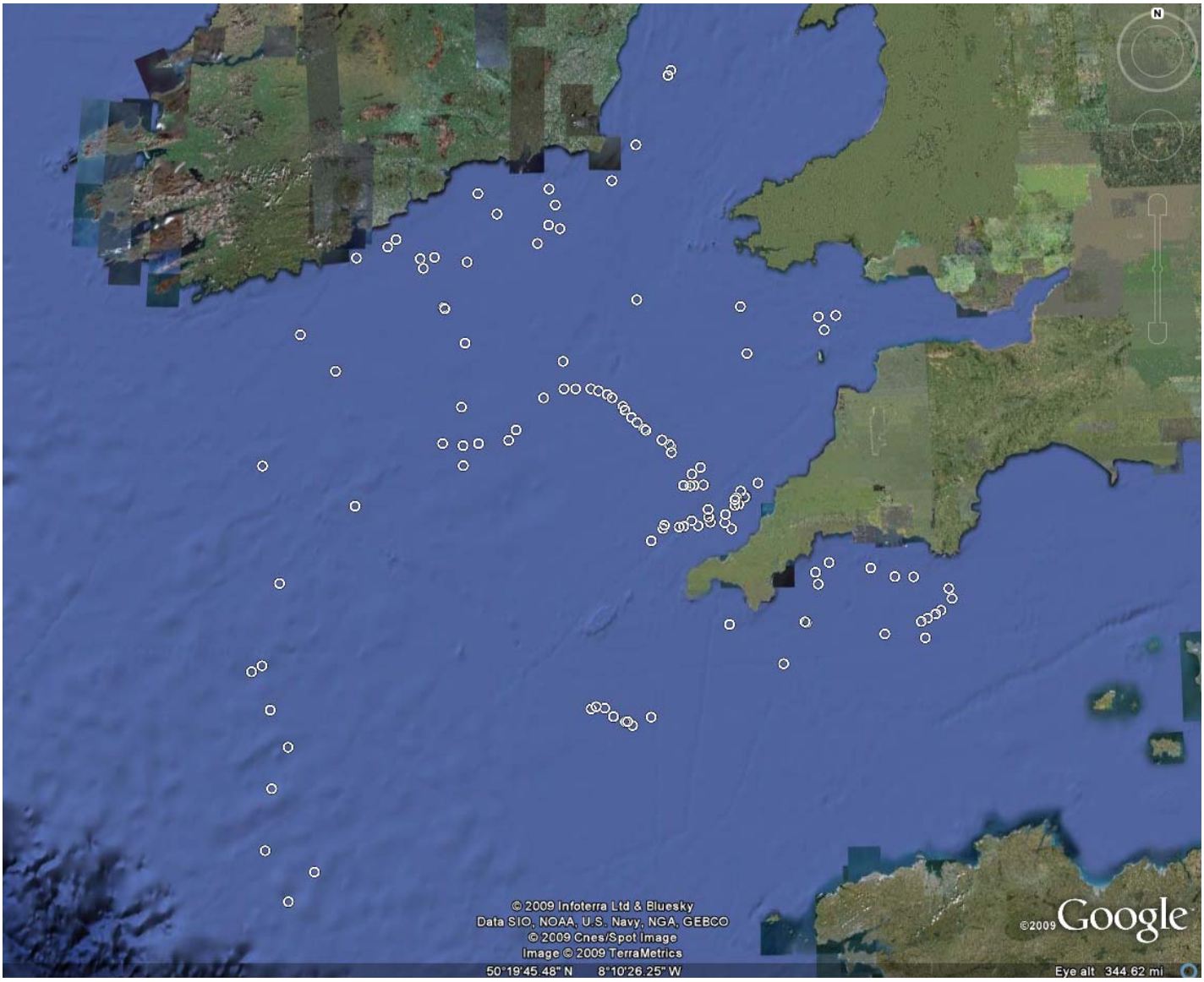
Ferry Box Report

The water pumps were started for the Ferrybox on 02 March as the Endeavour sailed out of Swansea. The instruments worked until 05 March when it started to develop faults as the pressure was dropping in the system which caused it to shut it self down. These faults kept on happening until the system would not recharge itself on 07 March. The engineers were contacted at this point and found that there was a build up of salt on the Ferrybox outflow. Once this pipe was cleaned the instruments worked until 14 March when they stopped again due to pressure problems. The Ferrybox was switched of again on the way into Portland 15 of March. All faults were reported to the MOS team.

Summary of sampling achieved:

Gear	No of stations	Hours fished
PHHT	34	27.8
4m Beam	88	54.4
Total	**122**	**82.2**

Station positions fished



Length measurements by species : (>90 measured) Total all species = 51788

Species Code	Number Measured	Common name	Scientific name
POD	7749	Poor cod	*Trisopterus minutus*
WHG	5230	Whiting	*Merlangius merlangus*
LSD	2922	Lesser spotted dogfish	*Scyliorhinus canicula*
SPR	2871	Sprat	*Sprattus sprattus*
NOP	2537	Norway pout	*Trisopterus esmarki*
DAB	2532	Dab	*Limanda limanda*
HAD	2522	Haddock	*Melanogrammus aeglefinus*
HKE	2431	European hake	*Merluccius merluccius*
GUG	2235	Grey gurnard	*Eutrigla (chelidonicthys) gurnardus*
HER	2124	Herring	*Clupea harengus*
NEP	1880	Norway lobster	*Nephrops norvegicus*
CDT	1751	Common dragonet	*Callionymus lyra*
TBS	1683	Thickback sole	*Microchirus variegatus*
PLA	1495	American plaice (lr dab)	*Hippoglossoides platessoides*
PLE	1489	European plaice	*Pleuronectes platessa*
MEG	1290	Megrim	*Lepidorhombus whiffiagonis*
LEM	1066	Lemon sole	*Microstomus kitt*
ARG	913	Argentines	*Argentinidae*
SOL	720	Sole (dover sole)	*Solea solea*
SDF	610	Scald fish	*Arnoglossus laterna*
BOF	587	Boar fish	*Capros aper*
GUR	477	Red gurnard	*Aspitrigla (chelidonichthys) cuculus*
BIB	392	Whiting-pout (bib)	*Trisopterus luscus*
ISF	383	Imperial scaldfish	*Arnoglossus imperialis*
SCE	374	Great scallop	*Pecten maximus*
MAC	352	(European) mackerel	*Scomber scombrus*
WIT	331	Witch	*Glyptocephalus cynoglossus*
HOM	286	Horse-mackerel (scad)	*Trachurus trachurus*
CLU	245	Herrings	*Clupeidae*
MON	208	Anglerfish (monk)	*Lophius piscatorius*
RDT	197	Reticulate dragonet	*Callionymus reticulatus*
SOT	176	Solenette	*Buglossidium luteum*
TUB	130	Tub gurnard	*Trigla (chelidonichthys) lucerna*
SDR	118	Spotted ray	*Raja montagui*
SDT	115	Spotted dragonet	*Callionymus maculatus*
JOD	109	John dory	*Zeus faber*
WAF	93	Black-bellied anglerfish	*Lophius budegassa*

Full biological sampling
(numbers of individuals): Total all species = 5556

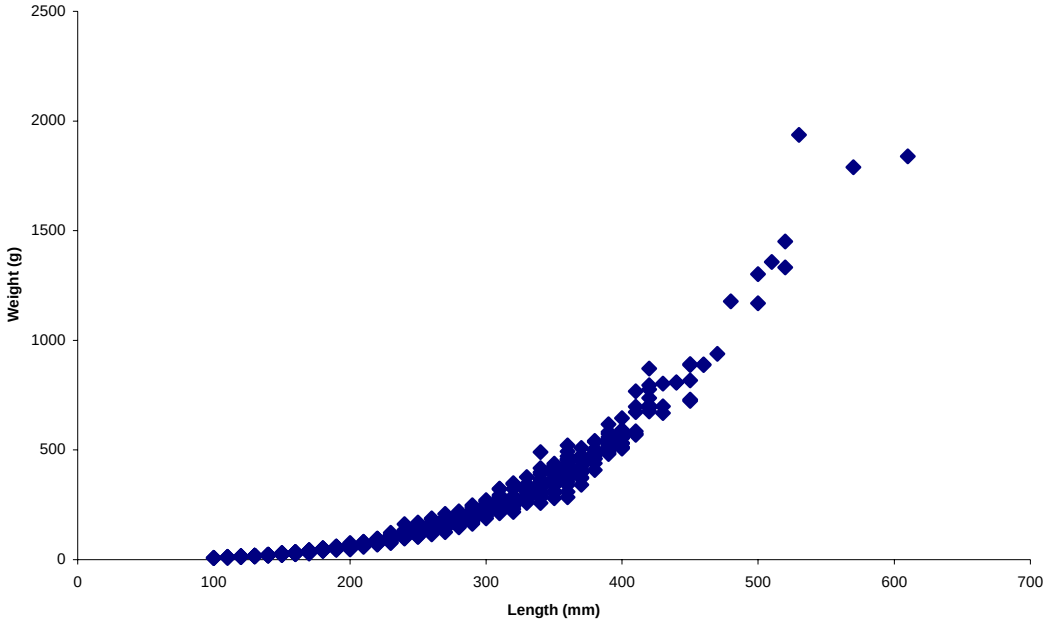
Species Code	Common name	Scientific name	Age Material	Whole Weight	Gutted Weight	Wing Width	Comment
BLL	Brill	*Scophthalmus rhombus*	14	14	13		
BLR	Blonde ray	*Raja brachyuran*		36	33	36	
COD	Atlantic cod	*Gadus morhua*	47	47	47		
CUR	Cuckoo ray	*Leucoraja naevus*		91	19	86	
ESB	European seabass	*Dicentrarchus labrax*	9	9	7		Scales also collected
GUG	Grey gurnard	*Eutrigla (chelidonicthys) gurnardus*	334	334	140		
GUR	Red gurnard	*Aspitrigla (chelidonichthys) cuculus*	284	284	144		
HAD	Haddock	*Melanogrammus aeglefinus*	595	595	452		
HKE	European hake	*Merluccius merluccius*	464	464	286		
JOD	John dory	*Zeus faber*	92	92	68		
LEM	Lemon sole	*Microstomus kitt*	372	372	290		
LIN	Common ling	*Molva molva*	9	9	9		
MEG	Megrim	*Lepidorhombus whiffiagonis*	737	737	590		
MON	Anglerfish (monk)	*Lophius piscatorius*	206	206	186		
MUR	Red mullet	*Mullus surmuletus*	56	56	29		Scales collected
PLE	European plaice	*Pleuronectes platessa*	688	688	599		
POL	Pollack	*Pollachius pollachius*	15	15	15		
PTR	Smalleyed (painted) ray	*Raja microocellata*		25	25	25	
SDR	Spotted ray	*Raja montagui*		118	108	118	

SDS	Starry smooth hound	*Mustelus asterias*		10	2		
SHR	Shagreen ray	*Leucoraja fullonica*		7	2	7	
SKT	Common skate	*Dipturus (raja) batis*		14	2	10	
SMH	Smooth hound	*Mustelus mustelus*	2	2			
SOL	Sole (dover sole)	*Solea solea*	536	536	512		
THR	Thornback ray (roker)	*Raja clavata*		36	36	36	
TUB	Tub gurnard	*Trigla (chelidonichthys) lucerna*	92	92	84		
TUR	Turbot	*Scophthalmus maximus (psetta maxima)*	2	2	2		
WAF	Black-bellied anglerfish	*Lophius budegassa*	92	92	69		
WHG	Whiting	*Merlangius merlangus*	574	574	384		

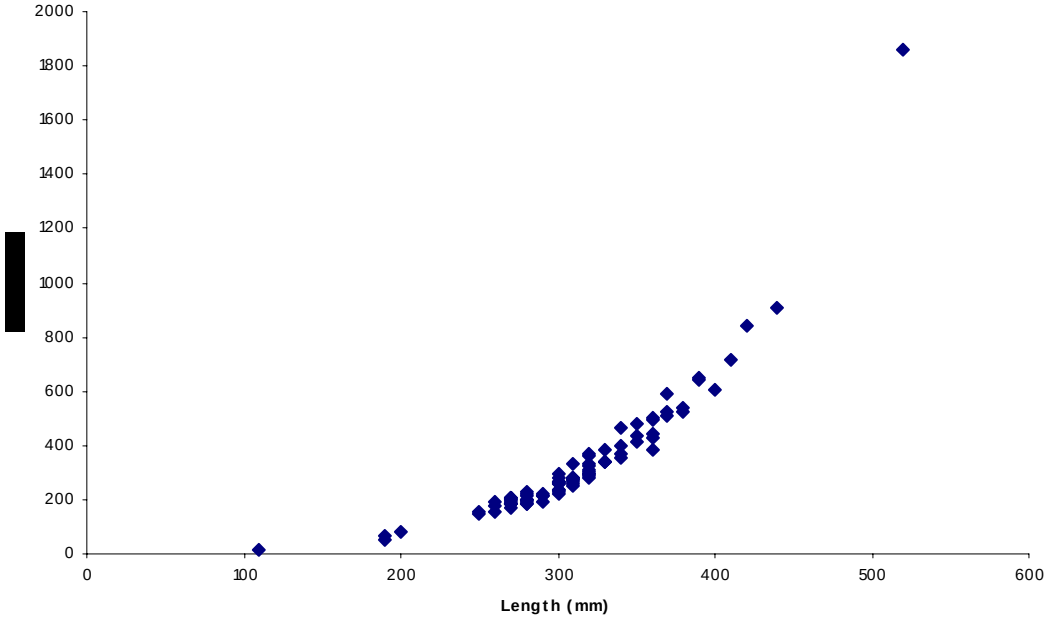
Length/Whole Weight sampling undertaken in addition to the above (numbers of individuals >=30 sampled) : Total all species = 5132

Species Code	Total sampled	Common name	Scientific name
POD	1075	Poor cod	*Trisopterus minutus*
LSD	385	Lesser spotted dogfish	*Scyliorhinus canicula*
TBS	379	Thickback sole	*Microchirus variegatus*
CDT	332	Common dragonet	*Callionymus lyra*
DAB	286	Dab	*Limanda limanda*
PLA	277	American plaice (lr dab)	*Hippoglossoides platessoides*
MAC	256	(European) mackerel	*Scomber scombrus*
WIT	206	Witch	*Glyptocephalus cynoglossus*
BIB	200	Whiting-pout (bib)	*Trisopterus luscus*
HOM	200	Horse-mackerel (scad)	*Trachurus trachurus*
BOF	187	Boar fish	*Capros aper*
ISF	176	Imperial scaldfish	*Arnoglossus imperialis*
HER	174	Herring	*Clupea harengus*
ARG	168	Argentines	*Argentinidae*
SPR	160	Sprat	*Sprattus sprattus*
NOP	125	Norway pout	*Trisopterus esmarki*
SDF	113	Scald fish	*Arnoglossus laterna*
SYP	69	Silvery pout	*Gadiculus argenteus*
RDT	48	Reticulate dragonet	*Callionymus reticulatus*
TUB	30	Tub gurnard	*Trigla (chelidonichthys) lucerna*

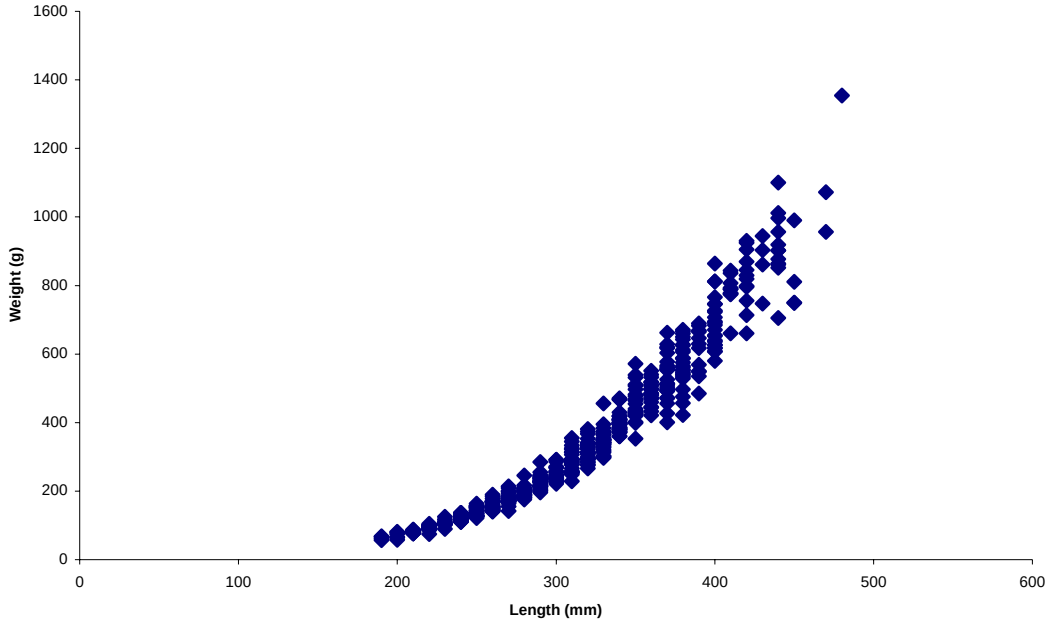
Length Weight Relationship (WHG)



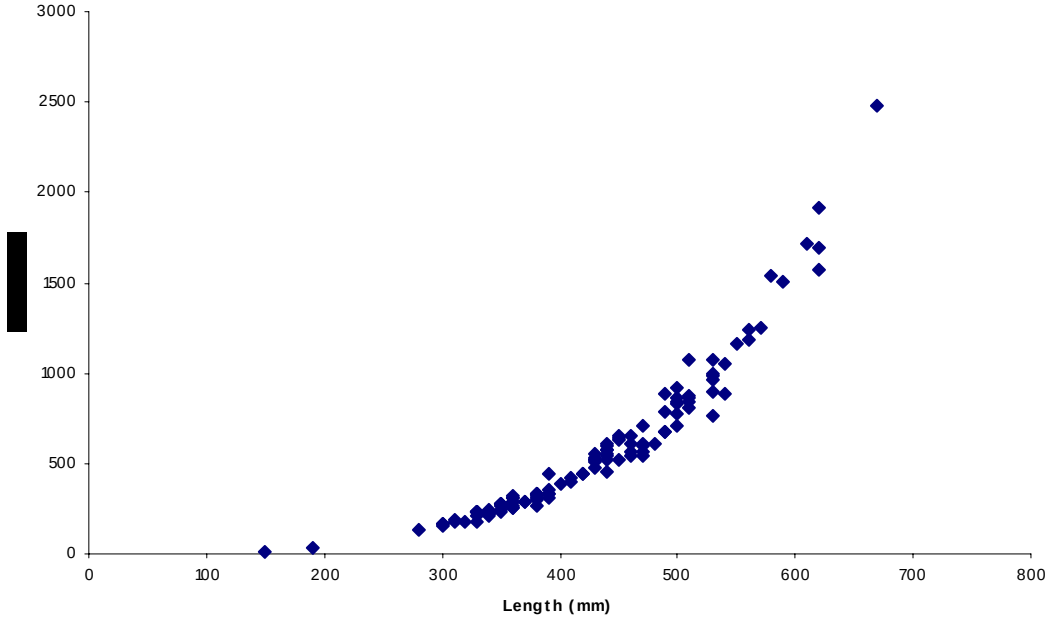
Length Weight Relationship (TUB)

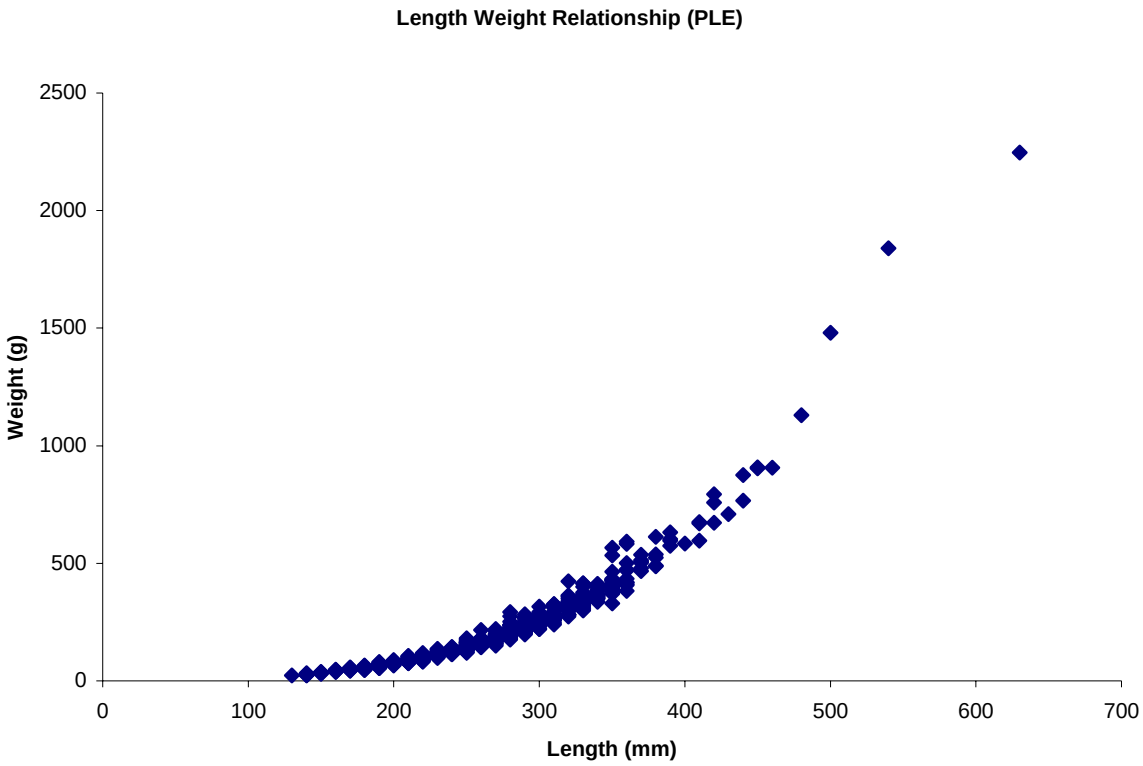


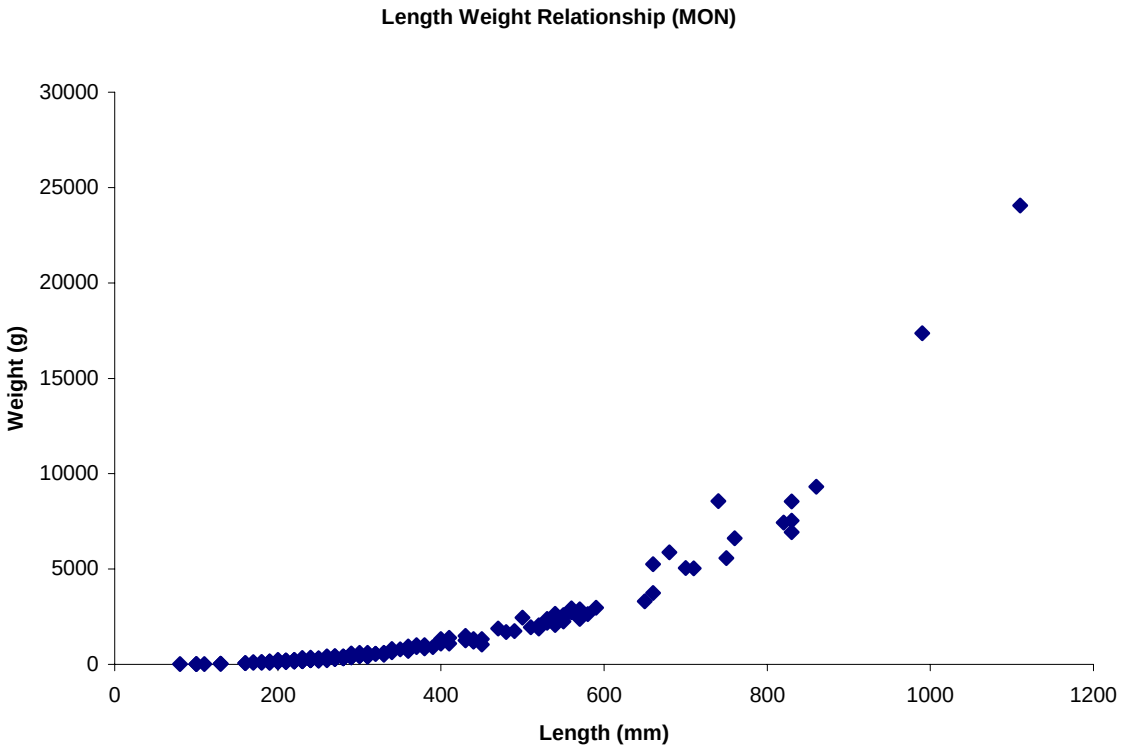
Length Weight Relationship (SOL)



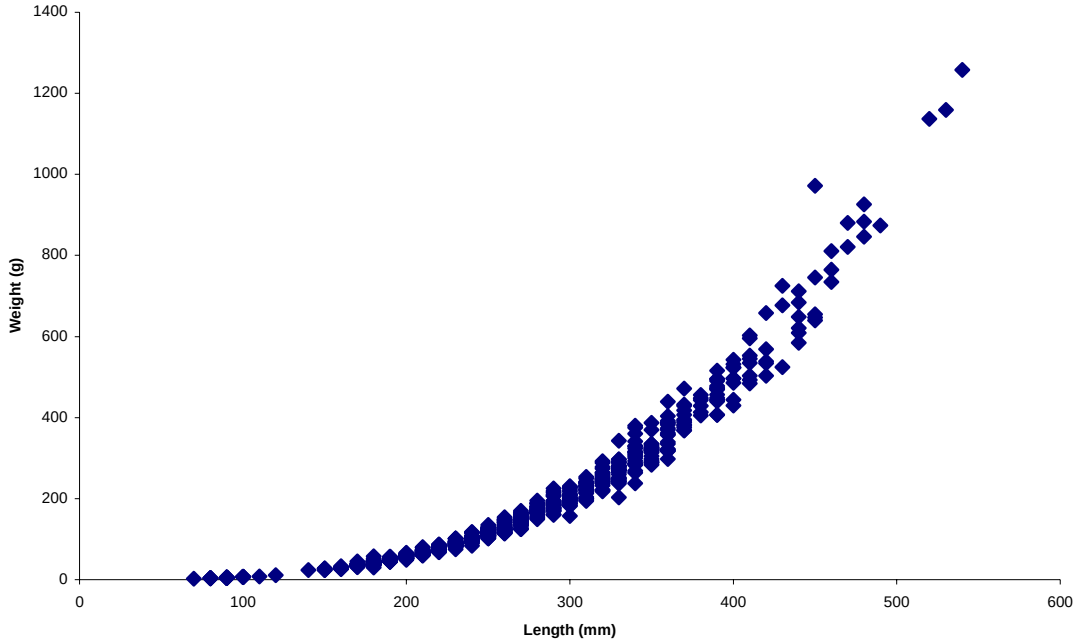
Length Weight Relationship (SDR)

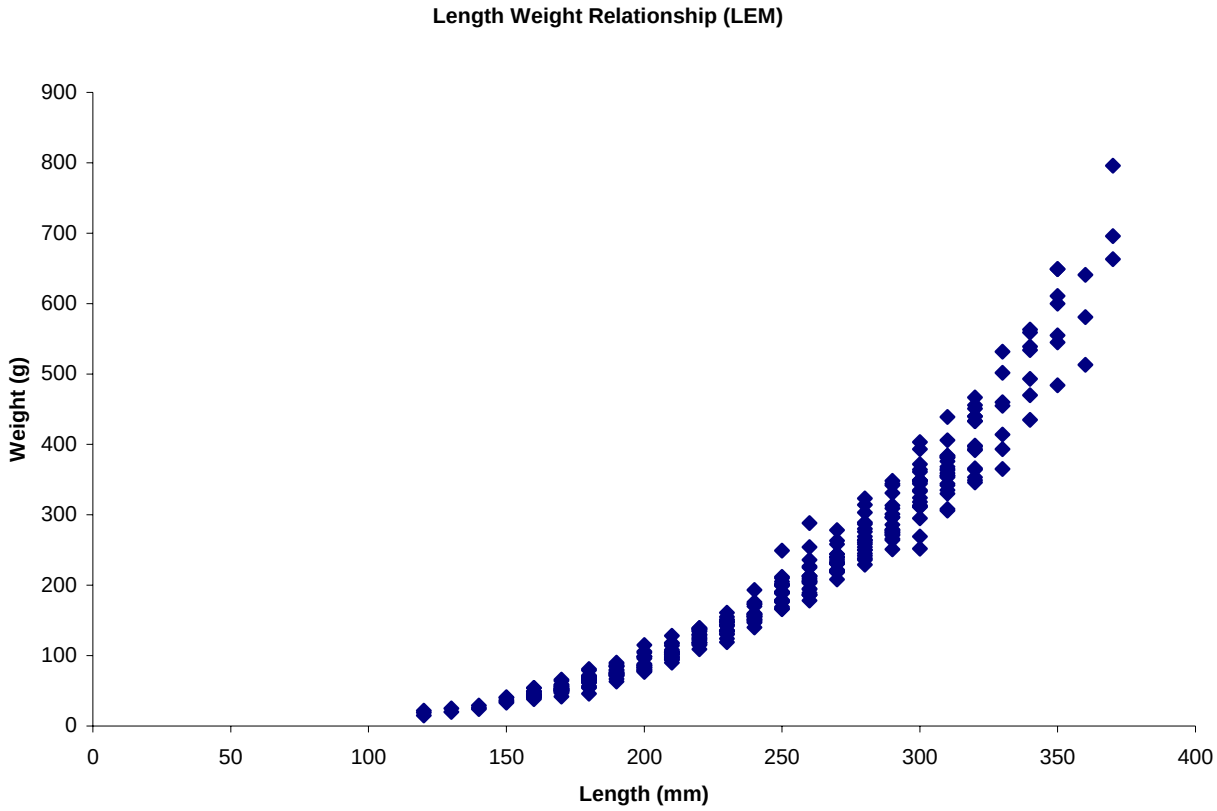


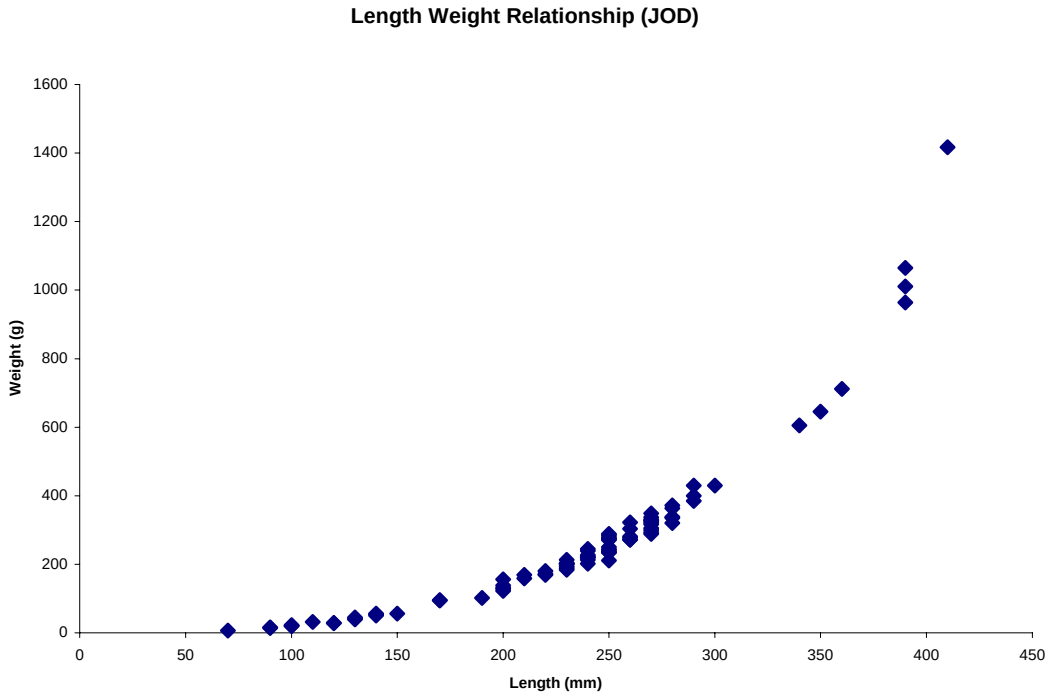

Length Weight Relationship (PLE)
Weight (g)
2500
2000
1500
1000
500
0
0
100
200
300
400
500
600
700
Length (mm)


Length Weight Relationship (MON)
Weight (g)
30000
25000
20000
15000
10000
5000
0
0
200
400
600
800
1000
1200
Length (mm)

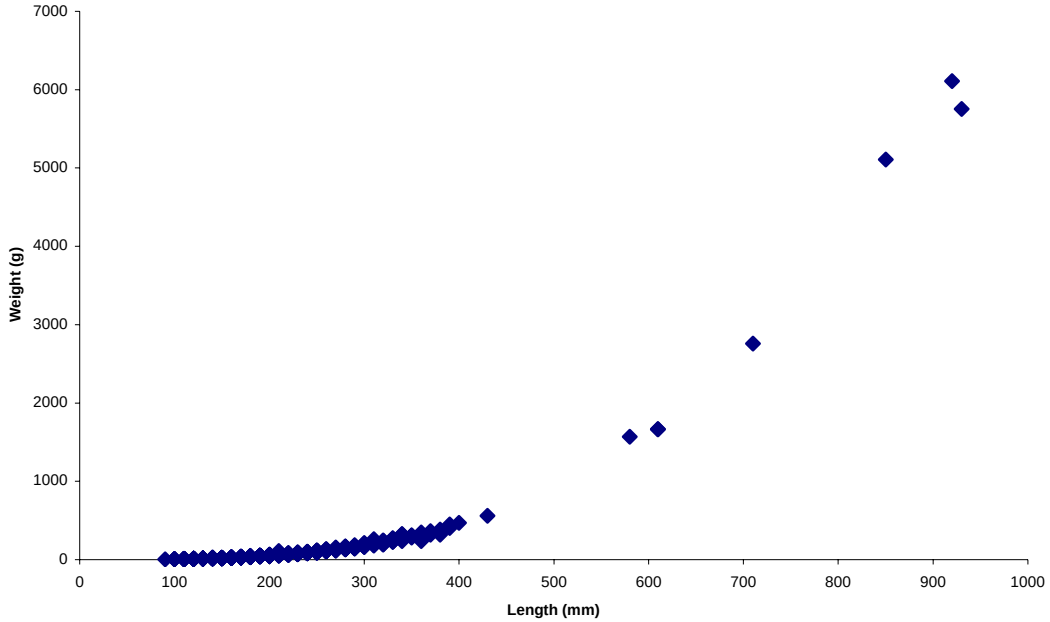
Length Weight Relationship (MEG)



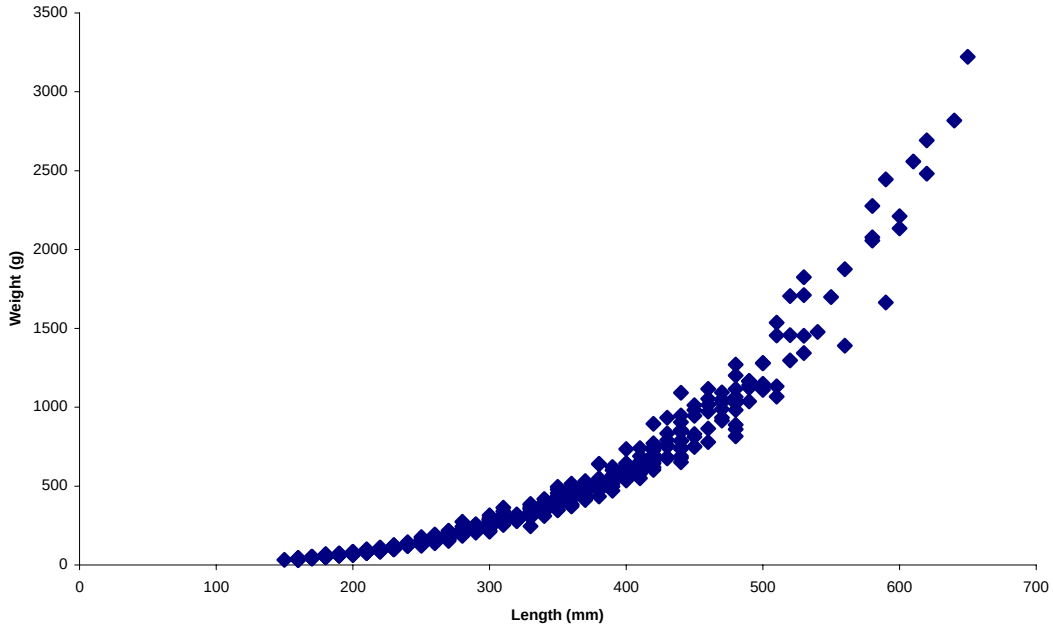

Length Weight Relationship (LEM)
900
800
700
600
500
400
300
200
100
0
Weight (g)
0
50
100
150
200
250
300
350
400
Length (mm)


Length Weight Relationship (JOD)
1600
1400
1200
1000
800
600
400
200
0
Weight (g)
0
50
100
150
200
250
300
350
400
450
Length (mm)

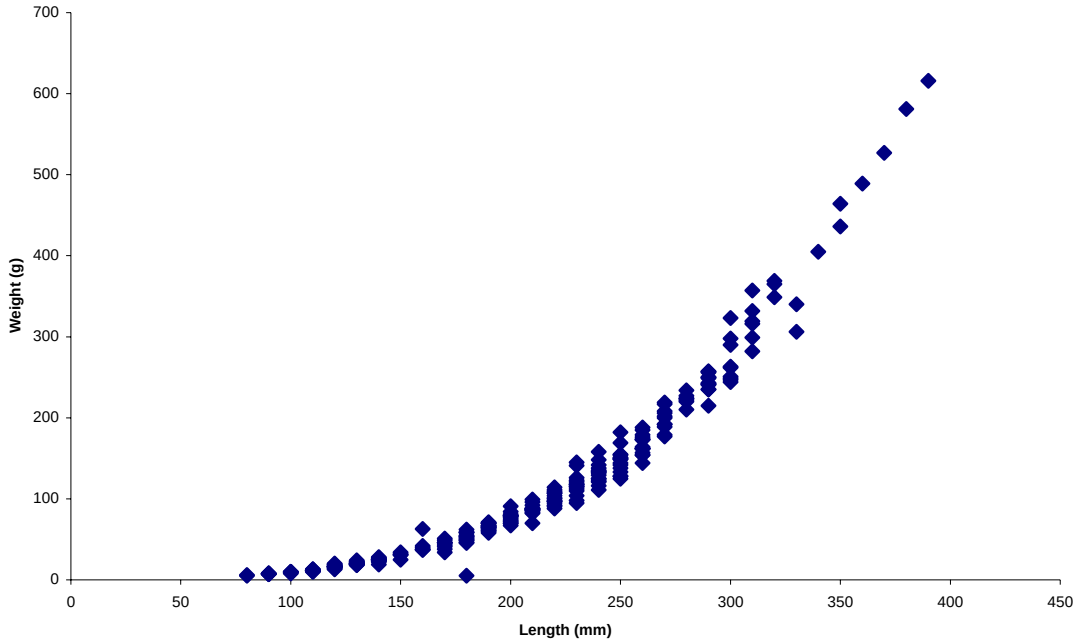
Length Weight Relationship (HKE)



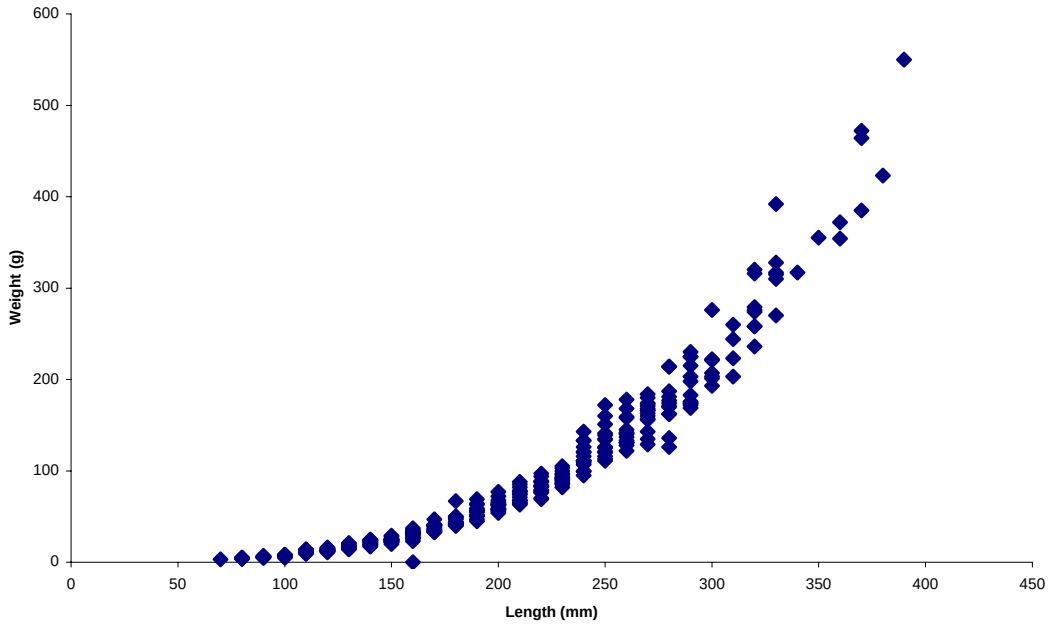
Length Weight Data (HAD)



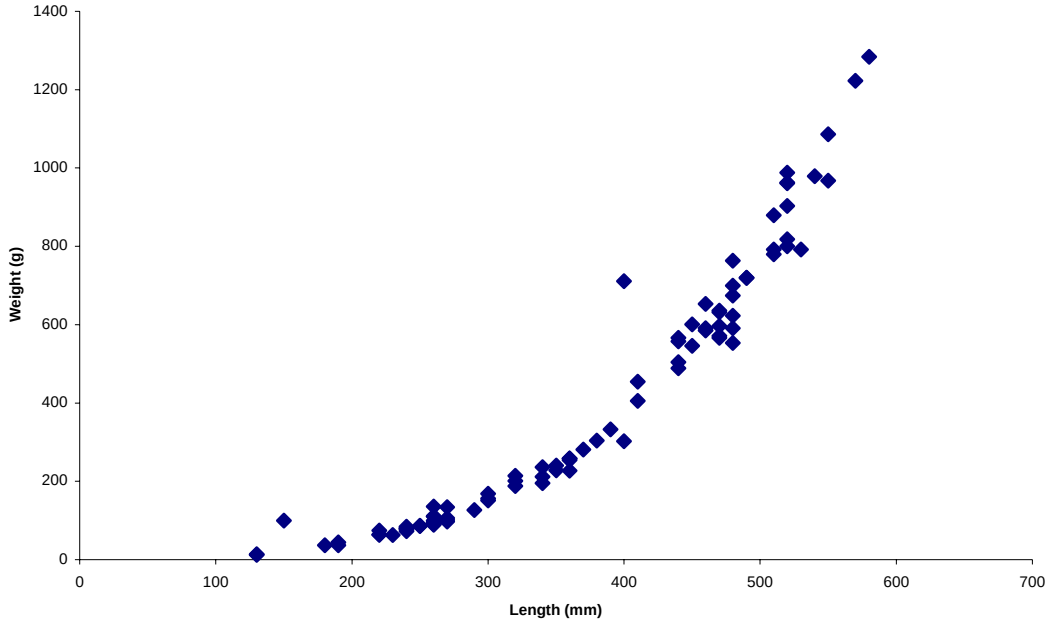
Length Weight Relationship (GUR)



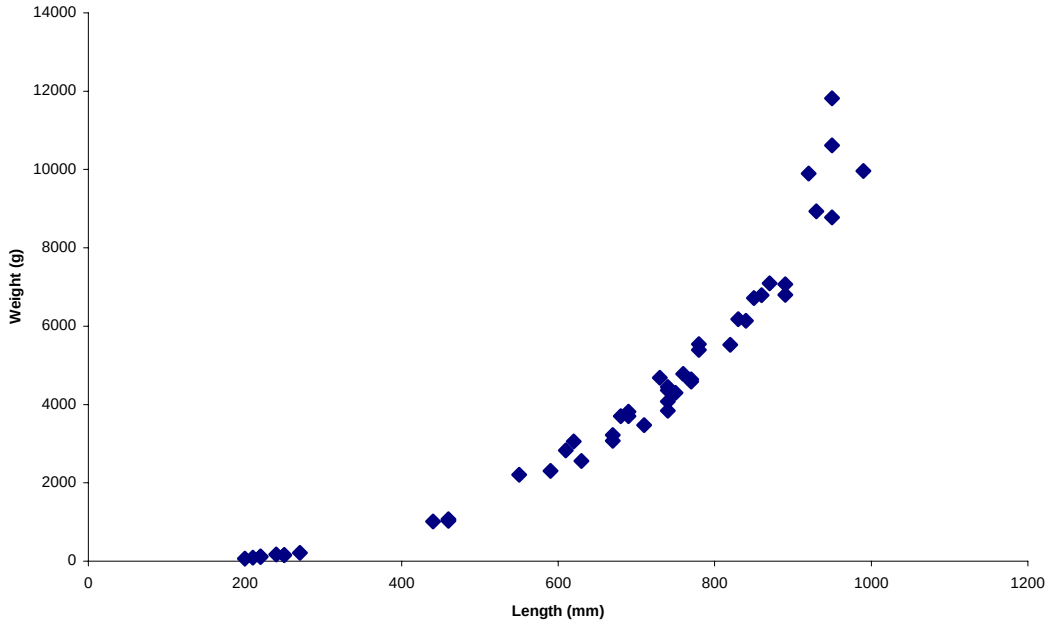
Length Weight Relationship (GUG)

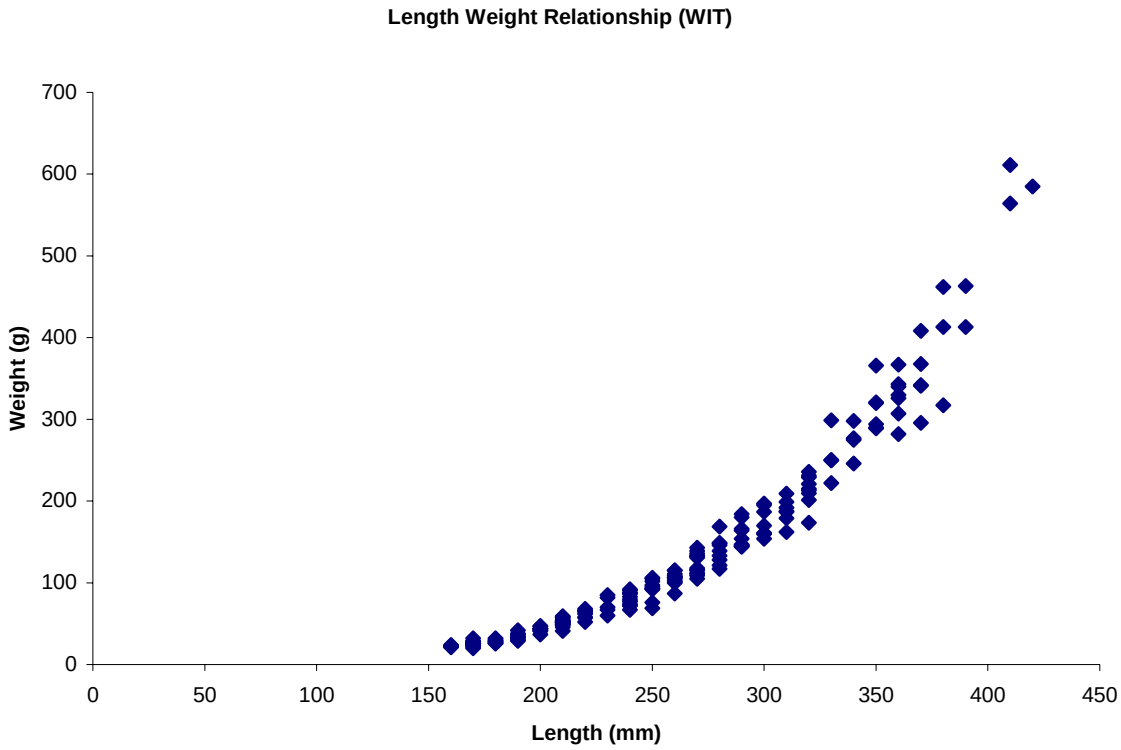


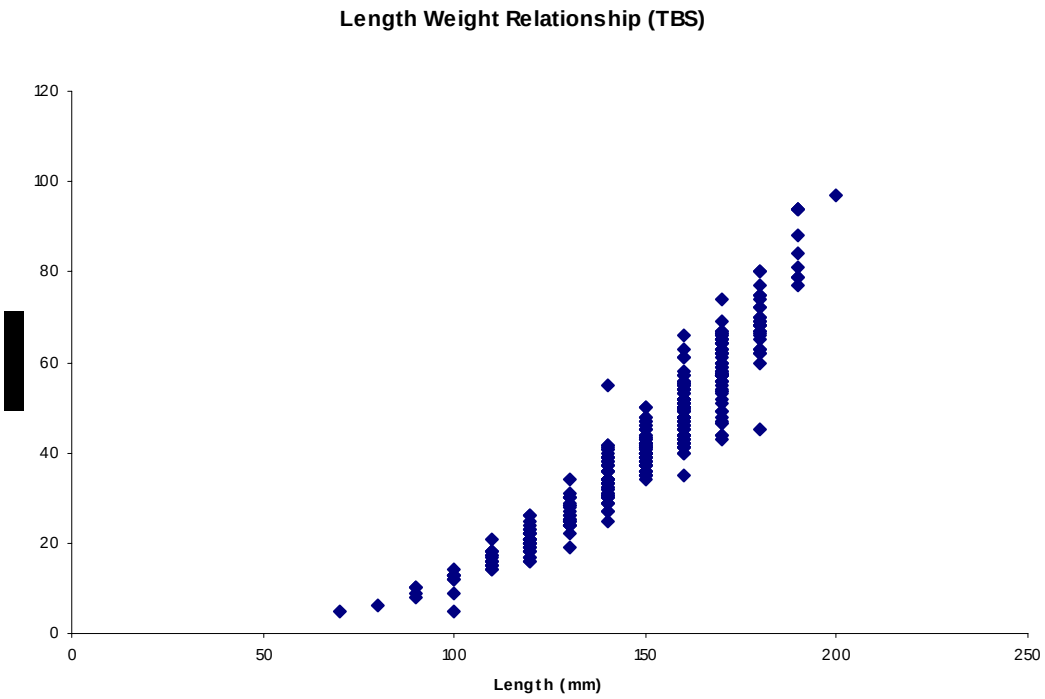
Length Weight Relationship (CUR)



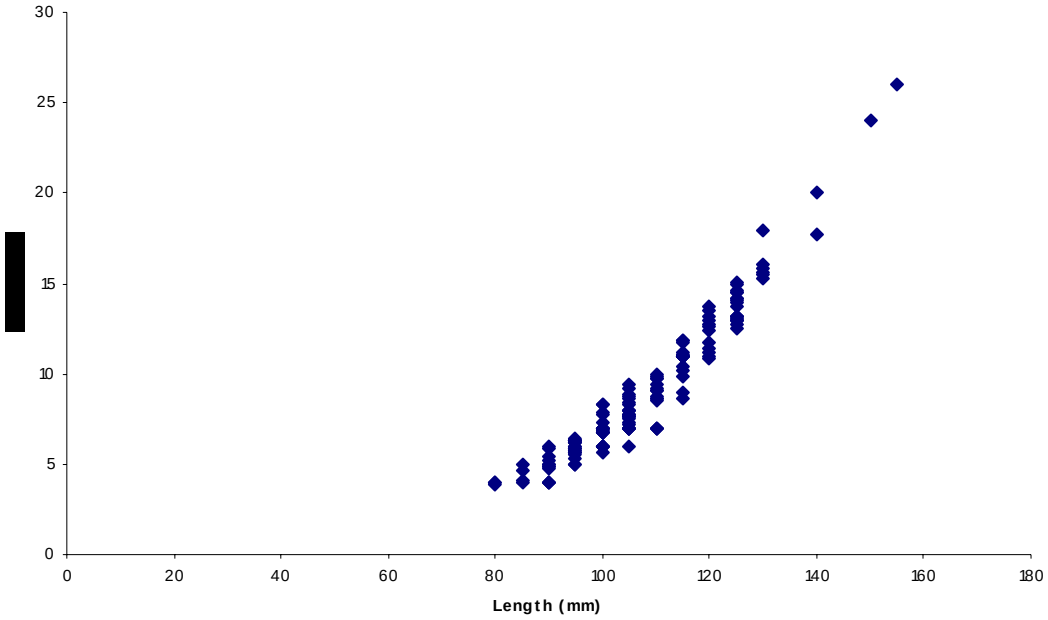
Length Weight Relationship (COD)



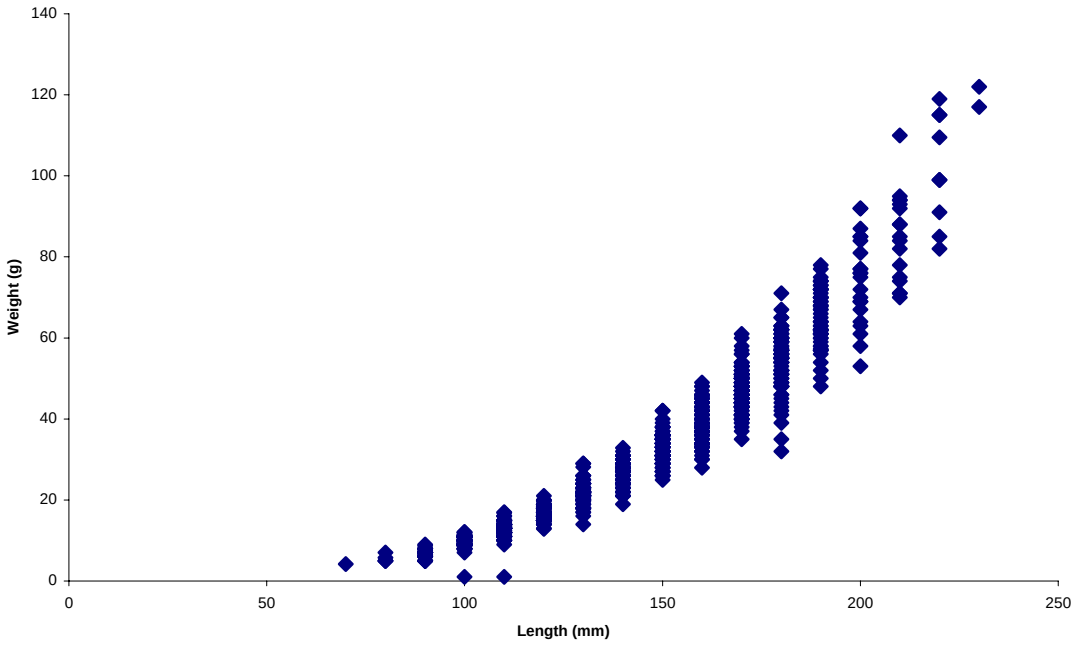

Length Weight Relationship (WIT)
Weight (g)
700
600
500
400
300
200
100
0
0
50
100
150
200
250
300
350
400
450
Length (mm)

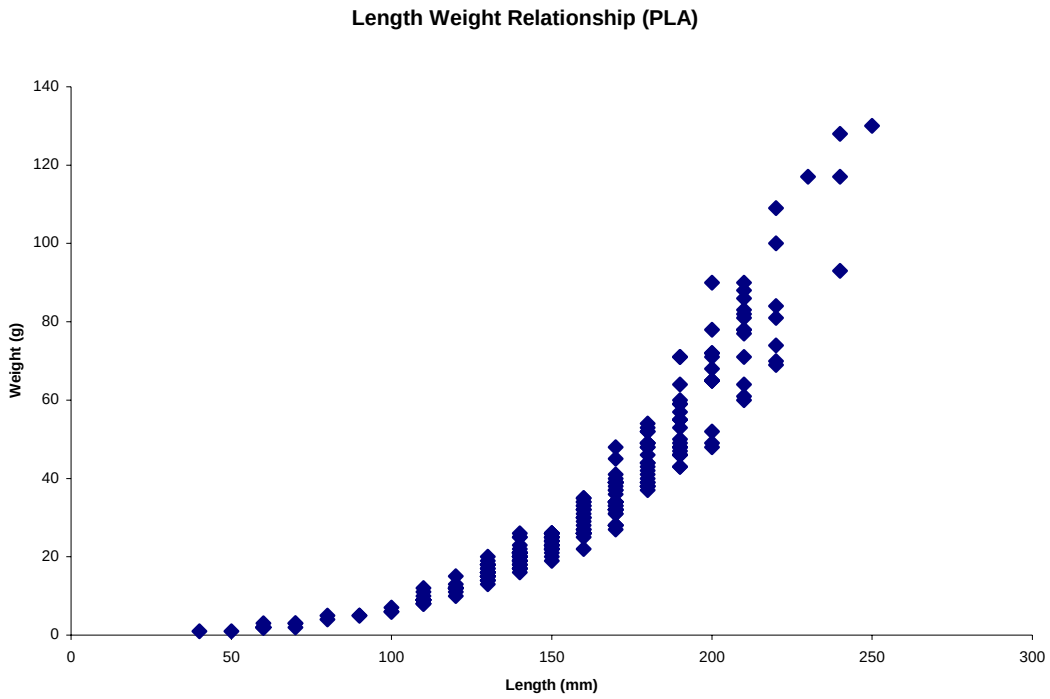

Length Weight Relationship (TBS)
120
100
80
60
40
20
0
0
50
100
150
200
250
Length (mm)

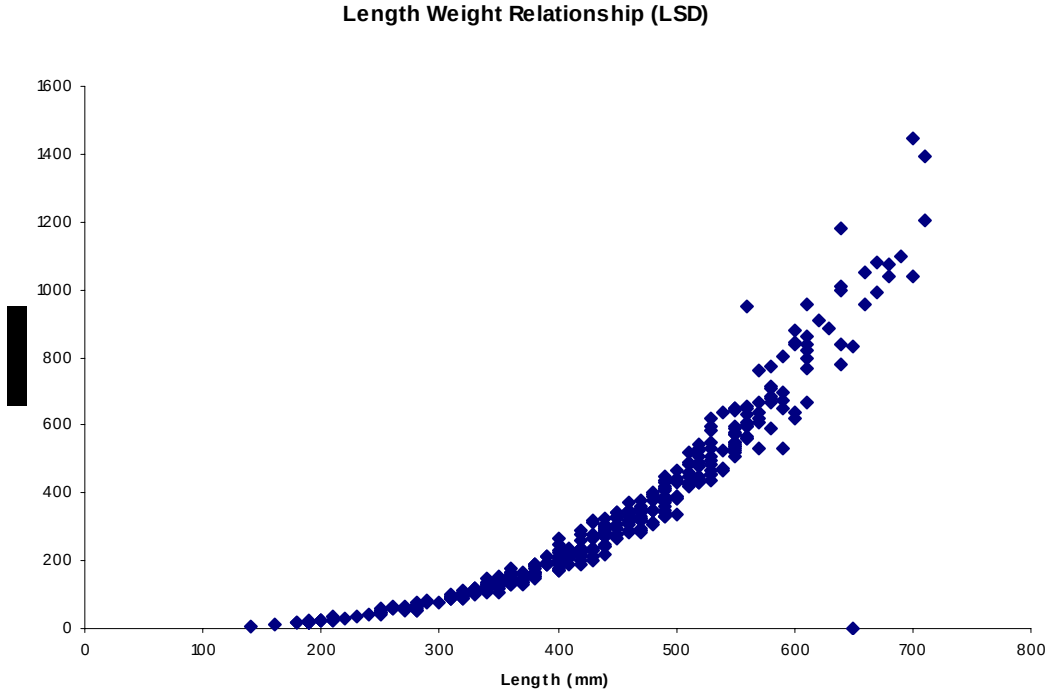
Length Weight Relationship (SPR)



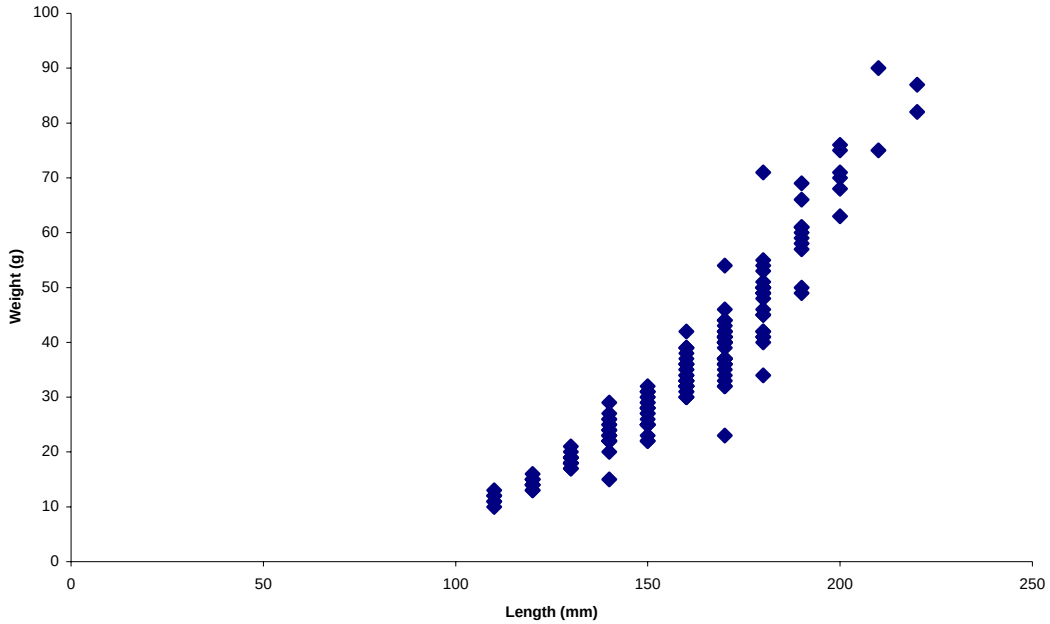
Length Weight Relationship (POD)



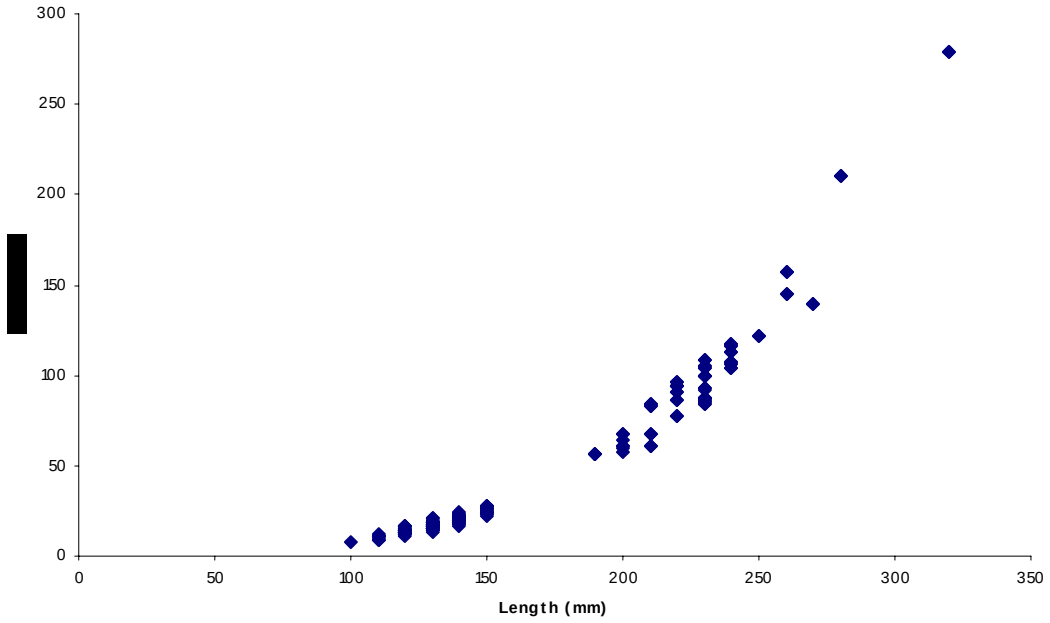

Length Weight Relationship (PLA)
Weight (g)
0
20
40
60
80
100
120
140
0
50
100
150
200
250
300
Length (mm)


Length Weight Relationship (LSD)
0
200
400
600
800
1000
1200
1400
1600
0
100
200
300
400
500
600
700
800
Length (mm)

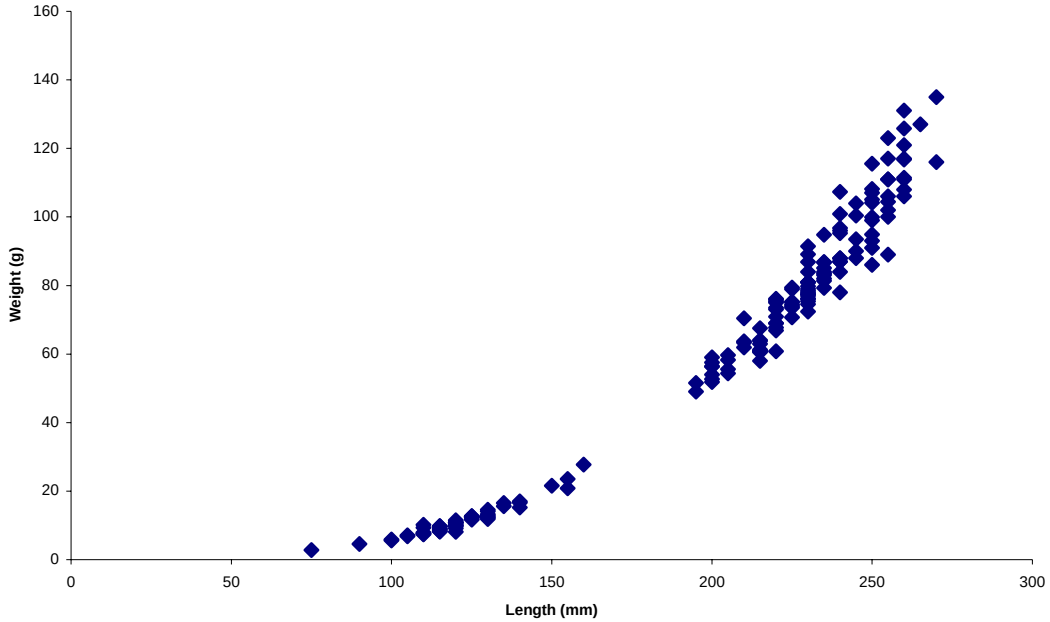
Length Weight Relationship (ISF)



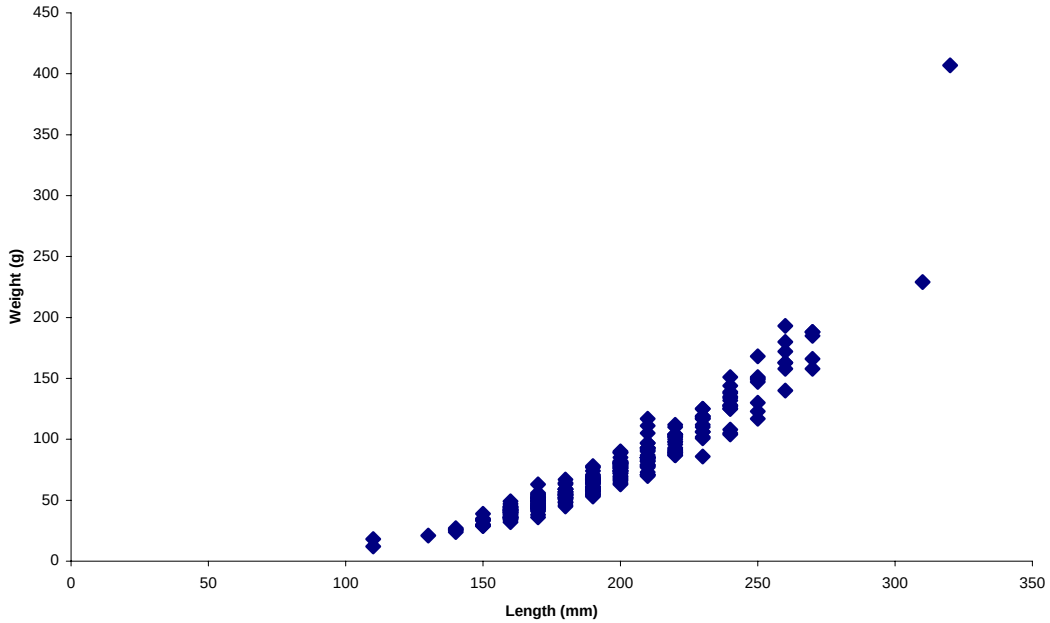
Length Weight Relationship (HOM)



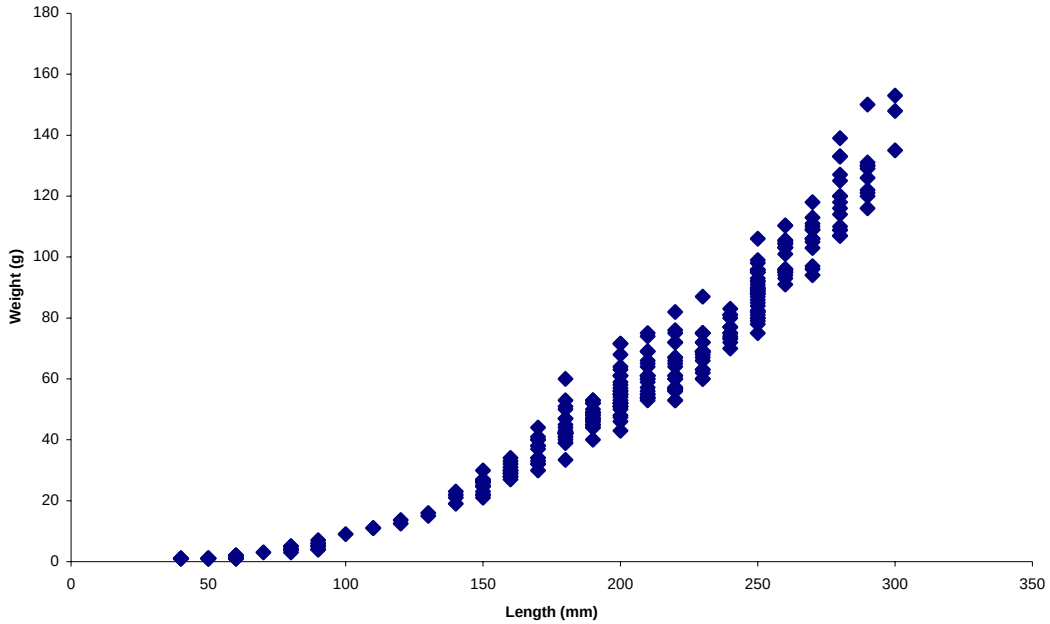
Length Weight Relationship (HER)



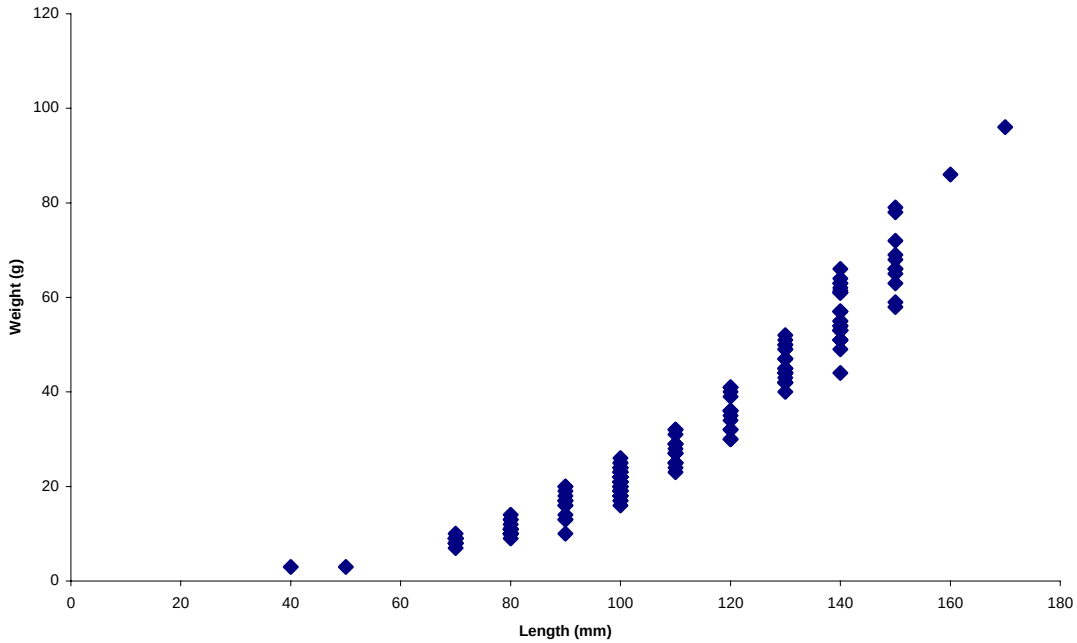
Length Weight Relationship (DAB)

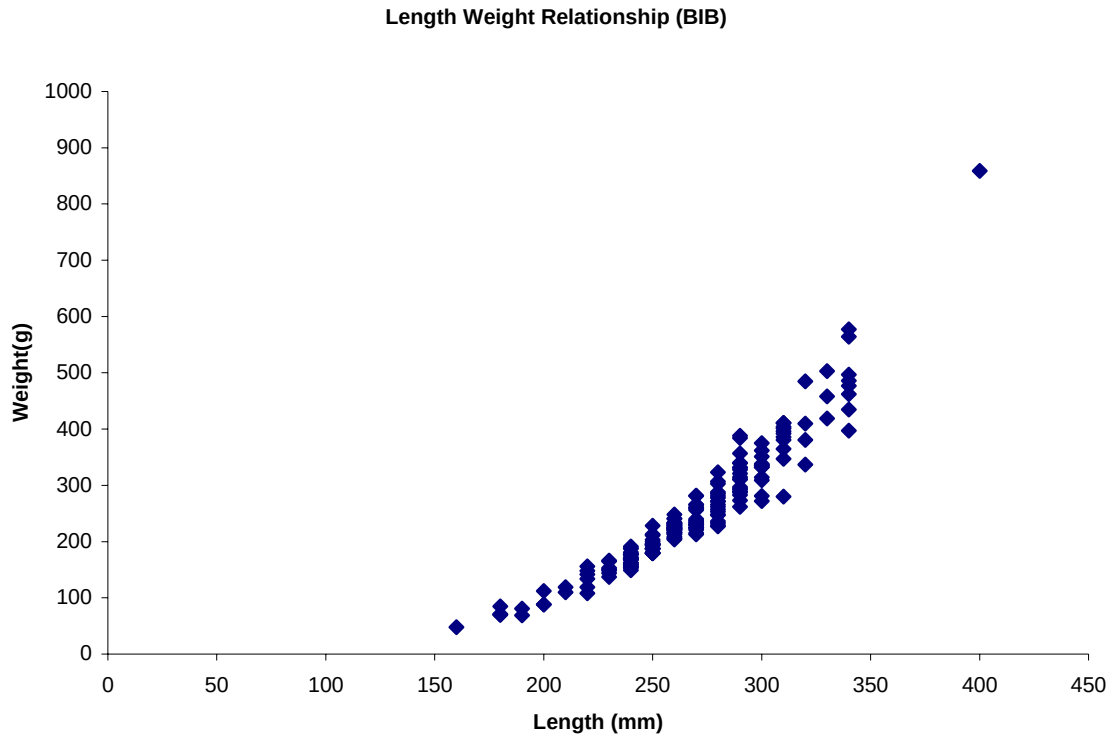


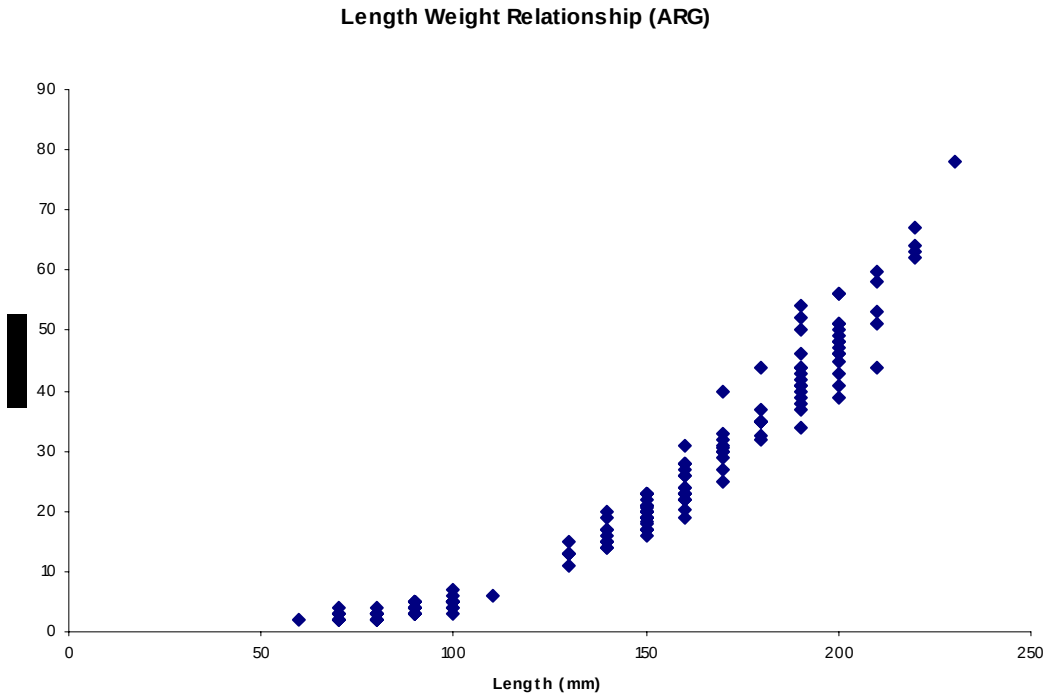
Length Weight Relationship (CDT)



Length Weight Relationship (BOF)







Work completed in addition to the DCR sampling

A prototype bridge data logging system was developed and implemented, the system manages station numbering and records position and gear deployment information allowing direct transfer to the Fishing Survey System (FSS).

Software was also developed to convert CSV(excel) position files (tracks or single points) into a form that can be loaded to the shipboard Transas navigation system.

210 fin clips were taken from various Ray species and Smooth hounds as part of an ongoing genetics project.
(Cefas contact Dr J Ellis)

47 Cod fin clips were taken and internal organs frozen in support of ongoing work
(Cefas contact Dr D Righton)

Our thanks go to the officers and crew of Cefas Endeavour for their hard work and professionalism, which enabled the work to be completed successfully.

Initialled
AR (Master)
BFMH (Function manager)

R Ayers (SIC)
15 March 2009

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