

BENTHIC UNIFORM POINT CONTACT
DATA SHEET

Site: Vema

Transect: 2

Date: 8/11/17

Observer: BM

Scanned by: MM
Date scanned: Jan 2018

Depth (m) at 0m: 4.5

Depth (m) at 40m: 7.5

Visibility (m): 4

Inshore	Substrate	Offshore	Substrate
CHCR, CLCI	BM	CHCR, POLS	BL
CHCR CO	BL	CHCR BOVI	BL
CHCR, POLS, CLCI	BL	CHCR	SL
POLS, CLCI	BL	CHCR, BOVI	BL
BOHA CO	BL	SL MEMA	BL
BOHA CO	BL	CO	BL
CHCR, BOHA	BL	POLS CLCI	BL
CHCR	BL	SL CHCR	BL
CHCR CO	BL	POLS	BL
POLS CO	BL	POLS CO	BL
CHCR, BOVI	BL	POLS CO	BL
CO	BL	POLS CHCR, CO	BL
POLS CO	BL	CHCR BOVI	BL
LADI, CLCI	BL	SL POLS CLCI	BL
CHCR CO	BL	POLS CHCR, BOVI	BL
POLS CO	BL	CHCR CO	BL
CHCR, BOVI	BL	POLS *	BL
LADI, CHCR	BL	CHCR, POLS	BL
CHCR	BL	POLS (r)	BL
CHCR, POLS	BL	CHCR	BL
CF	BL	CO	BL
POLS, ANSP	BL	MEMA (CHCR)	BL
CHCR, CO	BL	BL, SPRE	BL
MEMA, LADI, CO	BL	POLS	BL
CHCR, CO	BL	LAD, LIGL	BL
SL, CLSP	BL	LADI, CHCR, ANSP	BL
SL CO	BL	MEMA, CHCR, LIGL	BL
LADI, CLSP	BL	POLS, BA	BL
LADI, MEMA, MAST	BL	LADI CO	BL
POLS, CLSP	BL	LAD, CO	BL
POLS	BL	LADI CO	BL
LADI, CF	BL	LADI CO	BL
SL, MAST	BL	LADI, CO	BL
SL, CHCR, CF	BL	CHCR	BL
CRSP, LIGL	BL	SL, POLS, BOVI	BL
SL, SLT	BL	CHCR, BOVI	BL
LADI, CHCR, ANSP	BL	LADI, CLSP, CF	BL
CHCR, CLSP	BL	CHCR, CO	BL
LADI, CHCR	BL	POLS, SUVI	BL
CHCR, CO	BL	POLS, ANSP	BL

Hydroids

- ARAB Abietinaria abietina (coarse corticated)
 ECSP Ectopleura sp.
 OBSP Obella spp. (delicate)
 SESP Sertularia sp. (bushy corticated)
 UIH Unidentified Hydroid spp.
- CF Crepidula fornicate
 ISAL Ischiton albus (white chiton)
 ISRU Ischiton ruber (red chiton)
 MOMO Modiolus modiolus (blunt)
 MYED Mytilus edulis
 TETE Tectura testudinalis (limpet)
 SE Serpulorids (worm-tube)
 ANSP Anomia sp. (single shell)
 OSED Ostrea edulis

Molluscs

- SABW Sabellid worm (feather duster)
 ATM Amphipod tube mat
 OPAC Ophiotholis aculeata (brittlestar)
 BA Barnacle sp.
 HASP Halicystis sp. (stalked jelly)
 ZOMA Zostera

Other

- CEBO Sabellid worm (buried)
 DILI Diadumene lineata (orange lined)
 MESE Metridium senile (fine frill)
 UNAN Unidentified Anemone
 URFE Urticina felina (bands)
 FALI Fagisia lineata (tiny white)

Grass

- ZOMA

Anemones

- HYPY Hymedesia sp. (blue)
 ISPA Isodictya palmata (palmate)
 LEUC Leucosolenia sp (many small vases)
 MIPR Microciona prolifera (red, finger/beard)
 SCSP Scypha sp. (little vases)

Substrate

- P Pebbles (<5cm)
 C Cobble (<25cm)
 BS Boulder (25-50cm)
 BM Boulder (50-100cm)
 BI Boulder (>100cm)
- B Bedrock
 SS Shallow Sand (<1cm)
 SH Shell Debris
 S Sand (>1cm)

Green Algae

- COF Codium fragile (fingers)
 FG Filamentous Green (fine hairs)
 UV Blady Ulvoid (ulva & enteromorpha)
 TU Tubular Ulvoid (ulva & enteromorpha)
- K MORE 9/3
 10/10/2018
- Erect Red Algae
- BOHA Bonnemaisonia hamifera (hooks)
 CRSP Ceramium spp. (pinchers, corticated)
 CHCR Chondrus crispus
 CYPY Cystoclonium purpureum (bristly)
 DUZO Dumontia contorta (flat cylinders)
 EUCR Euthora cristata (flat branching blades, lacy)
 HJ Heterosiphonia japonica (bright, fuzzy, solid midrib)
 MAST Mastocarpus stellatus (channelled blades papillate)
 PAPA Palmaria palmata (hand-like blades)
 PHRU Phycodrys rubens (oak leaves)
 POLS Polysiphonia sp. (variable fuzzy)
 PORO Porphyra rotundus (regular thick branches)
 PORS Porphyra spp. (thin sheet)
 PTSE Pilota serrata (branches w/ branchlets)
 RAT Red Algal Turf (thin UNID mat many spp.)
 SPRE Spermatophyton repens (bushy tufts, epiphytic)
 CO Corallina officinalis (erect coralline)
 URB Unidentified Red Blade
 UFR Unidentified Filamentous Red
 AHPL Ahnfeltia plicata
 COTR Coccotylus truncatus (blade with small lobes)
 Encrusting Red Algae (smooth to bumpy)
- HIRU Hildenbrandia rubra (not calcified crust)
 CLCI Clathromorphum circumscriptum (smooth and thick)
 LISP Lithophyllum sp. (smooth, chalky)
 LESP Leptothrix spp. (smooth, very thin, no band, pores)
 PHSP Phamatolithion spp. (rough surface, white swirls, conceptacles)
 LIGL Lithothamnion glaucum (bumpy)
 EC Unidentified Encrusting coralline
 UENC Unidentified Encrusting Non-Coralline

Brown Algae

- AGCL Agarum clathratum (shotgun)
 ALES Alaria esculenta (midrib)
 ARVI Arthrocladia villosa (branching, tublar, hairs)
 ASDI Ascophyllum nodosum
 BLD Und Laminariales Blade
 CHFI Chorda filum (long smooth rope)
 COPE Colpomenia peregrina (sea potato)
 DEAC Desmarestia aculeata (coarse, alternating branches)
 DEVI Desmarestia viridis (fine, opposite branches)
 DIAT Diatom Tube Mat
 HATO Halosiphon tomentosus (long and famy)
 LADI Laminaria digitata (hand-like)
 LEMA Leathesia marina (stiffer, brain-like)
 SADE Sacchariza dermatodea (oar-like, scuzzy)
 SL Saccharina latissima (lasagna blade)
 SALO Saccharina longicuris (very long & hollow stipe)
 FUSP Fucus sp.

Bryozoans

- BUSP Bugula sp.
 BUTU Bugula turrita (xmas tree)
 BUNE Bugula neritina (purple)
 CREB Crisia eburnea (fuzzy, fine)
 CAEL Cabera elisi (chondrus bryozoan)
 DEMU Dendrodoa muralis (leafy)
 ELPI Electra pilosa
 LIVE Lichenopora verrucaria (thick in middle, white)
 MEMA Membranipora membranacea (lacy epizootic)
 SCUN Schizoporella unicornis (bumpy, orange & white, round zooids)
 SCAU Schizomavella auriculata (bumpy, solid orange, round zooids)
 TRIN Tricellaria impinata (crunchy arborescent)
 UAB Unidentified Arborellant Bryozoans

Sponges

- ES Encrusting Sponge
 CLSP Cliona sp. (large osculari)
 HADD Halisarcia dujardini (slimy cheet)
 HAOC Haliclona ciliata (few fingers)
 HAPA Halichondria panicea (crumbs)
 HYSP Hymedesia sp. (blue)
 ISPA Isodictya palmata (palmate)
 LEUC Leucosolenia sp (many small vases)
 MIPR Microciona prolifera (red, finger/beard)
 SCSP Scypha sp. (little vases)

Tunicates

- DIP Diplosoma listerianum
 DIVE Didemnum vexillum
 HAPY Halycynthia p. formis
 STCL Styela clava
 BOEC Botrylloides schlosseri (stars)
 BOVI Botrylloides violaceus
 UT Uni Colonial tunicate
 MOME Molgula manhattensis
 MOCI Molgula citrina
 BOOV Boltenia oveifera
 DECA Dendrodoa carnea (small pink)
 DIAL Didemnum albicum

Data entry by: RF

Date entered: 1/31/2018

Checked by: MM

Date checked: 3/8/18

Updated 7/14/17

BENTHIC UNIFORM POINT CONTACT
DATA SHEET

Site: PEMA

Transect: 3

Date: 8/11/17

Observer: Bailey

Scanned by: MM
Date scanned: Jan 2018

Depth (m) at 0m: 5.5

Depth (m) at 40m: 7

Visibility (m): 4

Inshore	Substrate	Offshore	Substrate
PORC BOVI	BM	L	BL
HJ CO	RL	DEV, LIGL	BL
CQ SF	PL	CC	BL
CO	BL	POLS, CO, LIGL	BL
BOHA CHCR	L	HJ, LIGL	BL
'CO	L	CO	L
BOHA CO, ATM	I	CO	BL
BOHA, BOVI	BL	CHCR, BOVI	BL
BOHA, CHCR, FG	BL	CHCR	BL
—	SH	CHCR, LIGL	BL
HJ LIGL	BL	BOVI	BL
POLS, CO	BL	CHCR	BL
EPA, CO	BL	COPINE	BL
CHCR, FG	BL	UV	—
FG	BL	PORS CLSP	BL
MENA LADI	P	BOVI	BL
MENA, CHCR, BOVI	BL	SL, POLS	BL
BOHA	P	CO	L
UV, HIRU	SS	UV	SH
SL, PAPA	BS	DEAC, PAPA	BA
SL, PAPA	BS	CHCR, CO	BL
DEV, SLJ, CLSP	BS	SL, PAPA	P
SL, LADI, PAPA	C	LADI, PORS	C
LADI, SLJ, PAPA	C	LADI, CLSP	BA
CO	BU	UCM, ALCR	I
DEV	C	—	SH
SL	C	PAPA	C
BOTTA	C	DEV	C
—	SH	SLJ	C
—	SH	BOVI, CLSP	DM
JLT	P	—	SH
PORS	BM	—	SH
—	SH	—	SH
BOTTA, BVI	BL	BA	PC
CHCR, DIVE	BL	—	P
POLS, CLSP	P	POLS, CO	BL
BOTTA, CO	L	POLS, CO	BL
CO, CLSP	F	BOTTA, CO	C
PAPA, LIGL	L	BOTTA, SPRE	L
POLS, CO	L	POLS, CO	L

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 ECSP Ectopleura sp.
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 GRASS Zostera
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- CEBO Cereanthus borealis (buried)
 DILI Diadumene lineata (orange lined)
 MESF Metridium senile (fine fil)
 UNAN Unidentified Anemone
 URFE Urticina felina (bands)
 FALI Fagesia lineata (tiny white)

Substrate

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- MAST Mastocarpus stellatus (channeled blades pappilate)
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- PHRU Phycodrys rubens (oak leaves)
 POLS Polysiphonia sp. (variable fluffy)

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- PTSE Pticta serrata (branches w/ branchlets)

- RAT Red Algal Turf (thin UNID mat many spp.)

- SPRE Spomothamnion repens (bushy tufts, epiphytic)

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- ASAS Ascidia aspersa

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- BOSC Botryllus schlosseri (stars)

- UT Unid. Colonial tunicate

- MOEA Molgula manhattensis

- MOCI Molgula citrina

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Data entry by: EF
Date entered: 1/31/2018Checked by: MM
Date checked: 3/8/18

Updated 7/14/17

BENTHIC UNIFORM POINT CONTACT DATA SHEET

Scanned by: MJM
Date scanned: Jan 2018

Site: FondaTransect: 1Date: 8/11/17Observer: BMDepth (m) at 0m: 9.7.3Depth (m) at 40m: 8Visibility (m): 4

Inshore	Substrate	Offshore	Substrate
1 CO, LIGL	BL	1 HJ, LIGL	BL
2 MAST	BL	2 MAST, TEE	BL
3 BOUL	BL	3 LADI, MAST, MAST	BL
4 CO	BL	4 CF	BL
5 MAST, ANSP	BL	5 BOHA CLSP	BL
6 MAST	BM	6 MAST	BL
7 BOSC	BL	7 BOHA CLSP	BL
8 MAST	BL	8 red tuff, MAST	BL
9 LABI, CO	BL	9 BOUL	BL
10 BRS, CO	BL	10 green rope, CLSP	BL
11 HS CO	BL	11 HJ	PL
12 HJ, MAST, MAST	BL	12 BOUL	BL
13 CHCR, m	BL	13 PL, LIGL	BL
14 CHCR, HIRU	BL	14 BOHA	BL
15 HJ, CF	BL	15 DCF, CHCR	BL
16 MEMA, SL, CLSP	BL	16 HJ, LIGL	BL
17 PLS, CHCR	BL	17 CO	BL
18 BOHA, CO	L	18 CHCR, CF	BL
19 HJ	BL	19 PLS, red turf	BM
20 LADI	SH	20 CHCR, BOUL	BM
21 HJ, CO	BL	21 CO	BL
22 UV	BM	22 BOHA	SH
23 LADI, LIGL	L	23 HJ, ANSP	BL
24 CHCR	BL	24 BOHA, LSL, CHCR	BL
25 BOHA, green rope, CLSP	BL	25 CHCR	BL
26 BOHA, CO	BM	26 LADI, CHCR	BL
27 CHCR, CO	BL	27 HJ	L
28 LADI, BOUL	L	28 CHCR, CLSP	L
29 BOHA, CO	BM	29 LADI, thick b/m stickup	SH
30 BOHA, CO	L	30 PLS, CO	L
31 MAST, SLJ	BL	31	SH
32 LADI	SH	32 SL	SH
33 LADI, FUCR	BS	33 HJ, CO	L
34 LADI, MAST	BL	34 PLS, CO	BL
35 LSL, DEV, ATM	BL	35 LADI, PF	BL
36 MEMA, LADI, green rope	SH	36 LADI, CO MAST	L
37 LADI, PLS	BM	37 BOHA, CO	L
38 MEMA, MAST	BL	38 BOHA, CO	L
39 MAST	SH	39 LADI, HJ	BM
40 CO	L	40 LADI, BOUL	L

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Updated 7/14/17

DATA SHEET

KEEN GOM BENTHIC MONITORING DATA

SITE: Penna

TR: 3

DATE 8 / 11 / 17

Observer: BM

Depth (m) at 0m: _____

Depth (m) at 40m: _____

Visibility (m): _____

Brown Algae

CHFI Chorda filum (*long whip - NOT fuzzy*)
HATO Halosiphon tomentosus (*long whip - fuzzy*)

Crustaceans > 5cm

CABO Cancer borealis (*rounded, bumpy shell = Jonah crab*)
CAIR Cancer irroratus (*pointed shell = Atlantic Rock crab*)
CAMA Carcinus maenas (*Dark & mottled shell = Green crab*)
CASA Callinectes sapidus (*blue crab*)

Ovalipes Ucelli

Chloranilus
 ALDI *Alcyonium digitatum* (*white fingers*)
 ASDA *Astrangia danae* (*star coral*)
 CEBO *Cereanthus borealis* (*buried anemone*)
 GERII *Gergenia rubiformis* (*orange soft coral*)

Molluscs

OCTO Octopus spp.
 LUHE Lunatia heros (*moon snail*)
 BUUN Buccinum undatum (*wavy whelk*)
 BUCU Busycon canaliculatum (*channeled whelk*)
 BUCR Busycon carica (*knobbed whelk*)
 NEDE Neptunea decemcostata (*10 ring whelk*)

Demersal Fish

CYLU *Cyclopterus lumpus*
 HEAM *Hemitripterus americanus*
 MYOC *Myoxocephalus octodecemspinosus*
 MYSC *Myoxocephalus scorpius*
 PHGU *Pholis gunnelus*
 ULSP Unidentified shanny (radiated or arctic)
 MYSP *Myoxocephalus* sp. (*grubby* or *sculpin* < 10cm)

Echinoderms >3cm

CUFR *Cucumaria frondosa*
ASFO *Asterias forbesii* (*orange madroporite*)
ASRU *Asterias rubens* (*white madroporite*)
CRPA *Crossaster papposus* (*Spiny Sun Star*)
HESA *Henricia sanguinolenta* (*Blood Star*)
SOEN *Solaster endeca* (*Smooth Sun Star*)

(Lumpfish, larger)
(Sea Raven)
(Long horned sculpin, id at >10cm)
(Short horned sculpin, id at >10cm)
(Rock Gunnel)

Data entry by: _____
Date entered:

Checked by: _____
Date checked:

This Big ISTJ Kelp

SITE: *✓*

TR: 1

DATE 8/11/17

Observer: CC

Depth (m) at On:

Depth ('m) at 40m:

Visibility (m):

Brown Algae

CHFI Chorda filum (*long whip - NOT fuzzy*)
HATO Halosiphon tomentosus (*long whip - fuzzy*)
Crustaceans > 5cm

Crustaceans > 5cm

CABO *Cancer borealis* (*rounded, bumpy shell* = Jones)
CAIR *Cancer irroratus* (*pointed shell* = *Atlantic Rock Crab*)
CAMA *Carcinus maenas* (*Dark & mottled shell* = *Green crab*)
CASA *Callinectes sapidus* (*blue crab*)

Hamerus

HOAM *Himantura americana* (*stonefish*)
 HYCO *Hyas coarctatus* (*decorator crab*)
 LIEM *Libinia emarginata* (*big spider crab*)
 OVOC *Ovalipes ocellatus* (*ladycrab*)

Cnidarians

ALDI *Alcyonium digitatum* (*white fingers*)
 ASDA *Astrangia danae* (*star coral*)
 CEBO *Cereanthus borealis* (*buried anemone*)

Molluscs

OCTO Octopus spp.
 LUHE Lunatia heros (*moon snail*)
 BUUN Buccinum undatum (*wavy whelk*)
 BUCA Busycon canaliculatum (*channeled whelk*)
 BUCR Busycon carica (*knobbed whelk*)
 NEDE Neptunea decemcostata (*10 ring whelk*)

Demersal Fish

Dealers Fish

- CYLU** Cyclopterus lumpus
- HEAM** Hemitripterus americanus
- MYOC** Myoxocephalus octodecemspinosus
- MYSC** Myoxocephalus scorpius
- PHGU** Pholis gunnelus
- ULSP** Unidentified shanny (radiated or arctic)
- MYSP** Myoxocephalus sp. (grubby or sculpin < 10cm)

Echinoderms >3cm

CUFR *Cucumaria frondosa*
ASFO *Asterias forbesii* (*orange madroporite*)
ASRU *Asterias rubens* (*white madroporite*)
CRPA *Crossaster papposus* (*Spiny Sun Star*)
HESA *Henricia sanguinolenta* (*Blood Star*)
SOEN *Solaster endeca* (*Smooth Sun Star*)

- (Lumpfish, larger)
- (Sea Raven)
- (Long horned sculpin, id at >10cm)
- (Short horned sculpin, id at >10cm)
- (Rock Gunnel)

Data entry by: KF
Date entered: 1/20/18

Checked by: M.M
Date checked: 3/7/18

SITE: Pluma TR: 4 DATE 8/11/17 Observer: MM
Depth (m) at 0m: 22 ft (7.3 m) Depth (m) at 40m: 24 ft (8 m) Visibility (m): 4-5

Brown Algae

- CHFI** Chorda filum (*long whip - NOT fuzzy*)
HATO Halosiphon tomentosus (*long whip - fuzzy*)
Crustaceans > 5cm
CABO Cancer borealis (*rounded, bumpy shell = Jonah*)
CAIR Cancer irroratus (*pointed shell = Atlantic Rock*)
CAMA Carcinus maenas (*Dark & mottled shell = Green*)
CASA Callinectes sapidus (*blue crab*)

Homarus americanus (lobster)

- HOAM** Homarus americanus (*lobster*)
HYCO Hyas coarctatus (*decorator crab*)
LIEM Libinia emarginata (*big spider crab*)

Ovalipes ocellatus

- Cnidarians**

 - ALDI *Alcyonium digitatum* (*white fingers*)
 - ASDA *Astrangia danae* (*star coral*)
 - CEBO *Cereanthus borealis* (*buried anemone*)
 - GERU *Gersemia rubiformis* (*orange soft coral*)

Molluscs

- OCTO Octopus spp.
 LUHE Lunatia heros (*moon snail*)
 BUUN Buccinum undatum (*wavy whelk*)
 BUCU Busycon canaliculatum (*channeled whelk*)
 BUCR Busycon carica (*knobbed whelk*)
 NEDE Neptunea decemcostata (*10 ring whelk*)

Demersal Fish

- CYLU** Cyclopterus lumpus
HEAM Hemipterurus americanus
MYOC Myoxocephalus octodecemspinosus
MYSC Myoxocephalus scorpius
PHGU Pholis gunnelus
ULSP Unidentified shanny (radiated or arctic)
MYSP Myoxocephalus sp. (grubby or sculpin < 10cm)

Echinoderms >3cm

- CUFR** Cucumaria frondosa
 - ASFO** Asterias forbesii (*orange madroporite*)
 - ASRU** Asterias rubens (*white madroporite*)
 - CRPA** Crossaster papposus (*Spiny Sun Star*)
 - HESA** Henricia sanguinolenta (*Blood Star*)
 - SOEN** Selaster endeca (*Smooth Sun Star*)

(Lumpfish, larger)
(Sea Raven)
(Long horned sculpin)
(Short horned sculpin)
(Rock Gunnel)

Data entry by: EJ
Date entered: 11/20/18

Checked by: MW
Date checked: 3/31/18

SWATH COUNTS

Scanned by: MM
Date scanned: Jan 2018SITE: Demaguind TR: X2
Depth (m) at 0m: 4.5DATE 8/11/17 Observer: X2-22 ft
Depth (m) at 40m: 27.5 Visibility (m): 13

SP_CODE	0-20 m Inshore	20-40 m Inshore	40-20m Offshore	20-0 m Offshore
	COUNT	COUNT	COUNT	COUNT
CABO	/ / / / /	/ / / / /		
CAIR	/ / / / /			
HOAM	/ / / /	/ / / /		
ASRU				
ASFO	/ / / /			
HESA		/ / / /		
PHGU				
MYSP				

~~Brown Algae~~

CHFI Chorda filum (*long whip - NOT fuzzy*)
 HATO Halosiphon tomentosus (*long whip - fuzzy*)
Crustaceans > 5cm
 CABO Cancer borealis (*rounded, bumpy shell = Jonah*)
 CAIR Cancer irroratus (*pointed shell = Atlantic Rock*)
 CAMA Carcinus maenas (*Dark & mottled shell = Green*)
 CASA Callinectes sapidus (*blue crab*)

HOAM Homarus americanus (*lobster*)
 HYCO Hyas coarctatus (*decorator crab*)
 LIEM Libinia emarginata (*big spider crab*)

OVOC Ovalipes ocellatus (*lady crab*)**Cnidarians**

ALDI Alcyonium digitatum (*white fingers*)
 ASDA Astrangia danae (*star coral*)
 CEBO Cereanthes borealis (*buried anemone*)
 GERU Gersemia rubiformis (*orange soft coral*)

Molluscs

OCTO Octopus spp.
 LUHE Lunatia heros (*moon snail*)
 BUUN Buccinum undatum (*wavy whelk*)
 BUCU Busycon canaliculatum (*channeled whelk*)
 BUCR Busycon carica (*knobbed whelk*)
 NEDE Neptunea decemcostata (*10 ring whelk*)

Demersal Fish

CYLU Cyclopterus lumpus
 HEAM Hemipterurus americanus
 MYOC Myoxocephalus octodecemspinosis
 MYSC Myoxocephalus scorpius
 PHGU Pholis gunnelus
 ULSP Unidentified shanny (*radiated or arctic*)
 MYSP Myoxocephalus sp. (*grubby or sculpin < 10cm*)

Echinoderms >3cm

CUFR Cucumaria frondosa
 ASFO Asterias forbesii (*orange madroporite*)
 ASRU Asterias rubens (*white madroporite*)
 CRPA Crossaster papposus (*Spiny Sun Star*)
 HESA Henricia sanguinolenta (*Blood Star*)
 SOEN Solaster endeca (*Smooth Sun Star*)

Data entry by: EF
 Date entered: 1/10/18

Checked by: MM
 Date checked: 3/8/18

Scanned by: M.N
Date scanned: TUES 2018

FISH COUNTS

SITE: Demarest
TR: 2

DATE: 8/11/17
Observer: MMW

*no cryptic fish counted ie: gurnards, gribbles, sculpins, sea raven

ANLU	Wolfish
GAMO	Cod (barbel)
PRCA	Northern Sea Robin
SEFA	Acadian Redfish
SYFU	Northern Pipefish
MEAE	Haddock, black spot on body
MEBI	Silver hake, long, large head
STCH	Scorpionfish, eye high on head, silver dollar
ANRO	American Eel
POSA	Bluefish, lower lip protrudes, big dorsal fin
SPMA	Northern Puffer
LEER	Little Skate, no spots
LEOC	Winter Skate, extending nose, may have spots
SQAC	Spiny Dogfish

Data entry by: BF Limanda ferruginea
Date entered: 11/20/16

(YOY = Young of the Year)

Updated: 7/14/17

FISH COUNTS

Scanned by: MW
Date scanned: Jun 2016

SITE: Bengalid
TR: H

DATE: 8/11/17
Observer: AKA

Visibility (m): 4
Temperature (C): 15

*no cryptic fish counted ie: gunnels, grubbys, sculpins, sea raven

ANLU	Wolffish	STCH	Scup/Porgy, eye high on head, silver dollar
GAMO	Cod (barbel)	ANRO	American Eel
PRCA	Northern Sea Robin	POSA	Bluefish, lower lip protrudes, big dorsal fin
SEFA	Acadian Redfish	SPMA	Northern Puffer
SYFU	Northern Pinefish	I EEP	Little Stinkie, no scales

Data entry by: EJ Limanda ferruginea

Data entry by: EJF Lima
Date entered: 11/30/04

URRE Spotted Hake, banding on lateral line, eel-like
LIE Checked by: Yellowtail flounder

(YOY = Young of the Year)

Updated: 7/14/17

FISH COUNTS

SITE: RENAQUA
TR: 1DATE: 6/11/17
Observer: MVNDepth (m) at 0m: 7.3
Depth (m) at 40m: 8Visibility (m): 3
Temperature (C): 15Scanned by: MVN
Date scanned: 7/14/17

Free Swimming	
Cunner	(<i>Tautogolabrus adspersus</i>), wrasse-like
Tautog	(<i>Tautoga onitis</i>), blunt nose, thick lips
Black Sea Bass	(<i>Centropristes striata</i>), big mouth, round tail
Striped Bass	(<i>Morone saxatilis</i>)
Pollock	(<i>Pollachius virens</i>), no barbel, unate tail
Spotted Hake	(<i>Urophycis regia</i>)
Summer Flounder	(<i>Paralichthys dentatus</i>) L-eyed
Winter Flounder	(<i>Pseudopleuronectes americanus</i>) R-eyed.
Windowpane Flounder	(<i>Scophthalmus aquosus</i>), oval, arched line
Fourspot Flounder	(<i>Paralichthys oblongus</i>)

Flatfish	
Cunner	(<i>Tautogolabrus adspersus</i>), wrasse-like
Tautog	(<i>Tautoga onitis</i>), blunt nose, thick lips
Black Sea Bass	(<i>Centropristes striata</i>), big mouth, round tail
Striped Bass	(<i>Morone saxatilis</i>)
Pollock	(<i>Pollachius virens</i>), no barbel, unate tail
Spotted Hake	(<i>Urophycis regia</i>)
Summer Flounder	(<i>Paralichthys dentatus</i>) L-eyed
Winter Flounder	(<i>Pseudopleuronectes americanus</i>) R-eyed.
Windowpane Flounder	(<i>Scophthalmus aquosus</i>), oval, arched line
Fourspot Flounder	(<i>Paralichthys oblongus</i>)

	YOY	0-10cm	10-50cm	50-100cm	>100cm	TOTAL
Cunner	111 (5)	111 (1)				
Tautog						
Black Sea Bass						
Striped Bass						
Pollock						
Spotted Hake						
Summer Flounder						
Winter Flounder						
Windowpane Flounder						
Fourspot Flounder						

*no cryptic fish counted ie: gunnels, grubbys, sculpins, sea raven

ANLU	Wolfish
GAMO	Cod (barbel)
PRCA	Northern Sea Robin
SEFA	Acadian Redfish
SYFU	Northern Pipefish
MEAE	Haddock, black spot on body
MEBI	Silver Hake, long, large head
ZOAM	Ocean Pout, big upper lip
URRE	Spotted Hake, banding on lateral line, eel-like
LIEE	Yellowtail flounder

Data entry by: E.F Limanda ferruginea
Date entered: 11/25/18(YOY = Young of the Year)
Checked by: MVN
Date checked: 7/14/17

BENTHIC QUADRAT COUNTS

Scanned by: MN
Date scanned: Tan 2018

SITE Penang

TR /

DATE 9 / 11 / 17

OBSERVER JH

Depth (m) at 0m: 7.3

Depth (m) at 40m: 25.148

Visibility (m): _____

Brown Algae

- | | |
|------|--|
| AGCL | Agarum clathratum (<i>shotgun kelp</i>) |
| AGJ | Agarum clathralum - juvenile <10cm |
| ALES | Alaria esculenta (<i>distinctive midrib</i>) |
| ALJ | Alaria esculenta - juvenile <20cm |
| BLD | UNID Juv Laminariales; <3cm kelps |
| CHFI | Chorda filum (<i>not fuzzy rope</i>) |
| COPE | Colpomenia peregrina (<i>sea potato</i>) |
| DEAC | Desmerestia aculeata (<i>coarse, alternate branches</i>) |
| DEVI | Desmerestia viridis (<i>fine, opposite branches</i>) |
| HATO | Halosiphon tormentosus (<i>fuzzy rope</i>) |
| LADI | Laminaria digitata |
| LDJ | Laminaria digitata juvenile <20cm |
| SADE | Saccorhiza dermatodea (<i>flat & scuzzy</i>) |
| SAJ | Saccorhiza dermatodea juvenile <20cm |
| SL | Saccharina spp. (<i>lasagne</i>) |
| SLJ | Saccharina spp. juvenile <20cm |
| FUSP | Fucus sp. |

Tunicates

- BOEC *Boltenia echinata* (*cactus-like*)
STCL *Styela clava* (*stalked tunicate*)
BOOV *Boltenia ovifera* (*lollipop*)

Anemones

- URFE** *Urticina felina* (*bands run from top to bottom*)

Molluscs

- BUCA** *Busyctopus canaliculatum* (*channeled whelk*)
BUCR *Busycon carica* (*knobbed whelk*)
BUUN *Buccinum undatum* (*wavy whelk*)
CRVI *Crassostrea virginica* (*native oyster*), long
NEDE *Neptunea decemcostata* (*10 ring whelk*)
OSED *Ostrea edulis* (*euro oyster*), wide
PIMA *Placopecten magellanicus* (*big sea scallop*)

Other Echinoids

- CUFR *Cucumaria frondosa* (*brown, bumpy*)
 ECPA *Echinarachnius parma* (*sand dollar*)
 PSFA *Psolus fabricii* (*scarlet cucumber*)
 SDL *Strongylocentrotus droebachiensis* >20mm
 SDS *Strongylocentrotus droebachiensis* <20mm
 ARPL *Arcbia punctulata* >20mm
 ARPS *Arcbia punctulata* <20mm

Stars (less than 3cm, add S)

- ASFO *Asterias forbesii* (*orange madroporite*)
 - ASRU *Asterias rubens* (*white madroporite*)
 - CRPA *Crossaster papposus* (*Spiny Sun Star*)
 - HESA *Henricia sanguinolenta* (*Blood Star*)
 - SOEN *Solaster endeca* (*Smooth Sun Star*)

Small Crustaceans <5cm

- | | |
|------|---|
| CABS | <i>Cancer borealis</i> (<i>rounded, bumpy shell = Jonah</i>) |
| CAIS | <i>Cancer irroratus</i> (<i>pointed shell = Atlantic Rock</i>) |
| CAMS | <i>Carcinus maenas</i> (<i>Dark & mottled shell = Green</i>) |
| CASS | <i>Callinectes sapidus</i> (<i>blue crab</i>) |
| HOAS | <i>Homarus americanus</i> (<i>lobster</i>) |
| HYCS | <i>Hyas coarctatus</i> (<i>decorator crab</i>) |
| LIES | <i>Libinia emarginata</i> (<i>big spider crab</i>) |
| OVOS | <i>Ovalipes ocellatus</i> (<i>lady crab</i>) |
| PAHE | <i>Panopeus herbstii</i> |
| HOAS | Lobster, <10cm |
| HESN | <i>Hemigrapsus sanguinolenta</i> |
| | <i>Cryptic Fish</i> |
| MYSP | <i>Myoxocephalus</i> sp. (<i>grubby or sculpin < 10cm</i>) |
| ULSP | Unidentified shanny (<i>radiated or arctic</i>) |
| EUSP | <i>Eumicrotremus spinosus</i> (<i>spiny lump sucker, < 15cm</i>) |
| LULU | <i>Lumpenus lumpertaeformis</i> (<i>Snake Blenny</i>) |
| PHGU | <i>Pholis gunnelus</i> (<i>Rock Gunnel</i>) |

Note small OCTO's

Data entry by: EF
Date entered: 1/31/18

Checked by: MH
Date checked: 3/10/18

SITE Penagrid TR 2

TR 2

DATE 8/11/17

OBSERVER CC+JB

Depth (m) at 0m: 4.5

Depth (m) at 40m: 7.5

Visibility (m): _____

Depth (m) at 0m: 4.5 Depth (m) at 40m: 7.5 Visibility (m): _____

	Q0 OFF COUNT	Q8 ON COUNT	Q16 OFF COUNT	Q24 ON COUNT	Q32 OFF COUNT	Q40 ON COUNT
SP_CODE	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT
SL	3	7	30	40	80	45
SLJ	2					
BLD						
DEVI						
AGCL						
DEAC						
CARO						
CAIR						
HOAM		(1)				
HOAS						
ASFO						
ASFOS						
ASRU						
ASRUS						
HESA		1 (1)	1 (1)			
PHGU		1 (1)	1 (1)			
MYSP						
LAD1						

Brown Algae

- AGCL Agarum clathratum (*shotgun kelp*)
 - AGJ Agarum clathratum - juvenile <10cm
 - ALES Alaria esculenta (*distinctive midrib*)
 - ALJ Alaria esculenta - juvenile <20cm
 - BLD UNID Juv Laminariales; <3cm kelps
 - CHFI Chorda filum (*not fuzzy rope*)
 - COPE Colpomenia peregrina (*sea potato*)
 - DEAC Desmarestia aculeata (*coarse, alternate branches*)
 - DEVI Desmarestia viridis (*fine, opposite branches*)
 - HATO Halosiphon tomentosus (*fuzzy rope*)
 - LADI Laminaria digitata
 - LDJ Laminaria digitata juvenile <20cm
 - SADE Saccorhiza dermatodea (*flat & scuzzy*)
 - SJJ SA Saccorhiza dermatodea juvenile <20cm
 - SL Saccharina spp. (*lasagne*)
 - SLJ Saccharina spp. juvenile <20cm
 - FUSP Fucus sp.

Tunicates

- BOEC *Boltenia echinata* (*cactus-like*)
 - STCL *Styela clava* (*stalked tunicate*)
 - BOOV *Boltenia ovifera* (*lollipop*)

Anemones

- MESE** Metridium senile (*white frilled*)
UIREF Urticina felina (*bands run from top to bottom*)

Molluscs

- BUCA *Busyctopus canalicularum* (*channeled whelk*)
 BUCR *Busycon carica* (*knobbed whelk*)
 BUJN *Buccinum undatum* (*wavy whelk*)
 CRVI *Crassostrea virginica* (*native oyster*), long
 NEDE *Neptunea decemcostata* (*10 ring whelk*)
 OSRE *Ostrea edulis* (*euro oyster*), wide
 PI MA *Placopecten magellanicus* (*big sea scallop*)

Other Echinoids

- CUFR *Cucumaria frondosa* (brown, bumpy)
 ECPA *Echinarachnius parma* (sand dollar)
 PSFA *Psolus fabricii* (scarlet cucumber)
 SDL *Strongylocentrotus droebachiensis* >20mm
 SDS *Strongylocentrotus droebachiensis* <20mm
 ARPL *Arbacia punctulata* >20mm
 ARPS *Arbacia punctulata* <20mm

Stars (less than 3cm. add S)

- ASFO *Asterias forbesii* (*orange madroporite*)
 ASRU *Asterias rubens* (*white madroporite*)
 CRPA *Crossaster papposus* (*Spiny Sun Star*)
 HESA *Henricia sanguinolenta* (*Blood Star*)
 SOEN *Selaster endeca* (*Smooth Sun Star*)

Small Crustaceans & Fam.

- | Small Crustaceans (SCH) | |
|-------------------------|---|
| CABS | Cancer borealis (<i>rounded, bumpy shell = Jonah</i>) |
| CAIS | Cancer irrutatus (<i>pointed shell = Atlantic Rock</i>) |
| CAMS | Carcinus maenas (<i>Dark & mottled shell = Green</i>) |
| CASS | Callinectes sapidus (<i>blue crab</i>) |
| HOAS | Homarus americanus (<i>lobster</i>) |
| HYCS | Hyas coarctatus (<i>decorator crab</i>) |
| LIES | Libinia emarginata (<i>big spider crab</i>) |
| OVOS | Ovalipes ocellatus (<i>lady crab</i>) |
| PAHE | Panopeus herbistii |

Lobster, <10cm

- HESN** *Hemigrapsus sanguinolenta*
Cryptic Fish

 - MYSP** *Myoxocephalus* sp. (*grubby or sculpin* < 10cm)
 - ULUS** *Unidentified shanny* (radiated or arctic)
 - EUSP** *Eumicrotremus spinosus* (*spiny lump sucker*, <15cm)
 - LULU** *Lumpenus lumpretaeformis* (*Snake Blenny*)
 - PHGU** *Pholis gunnellus* (*Rock Gunnel*)

Data entry by: EF
Date entered: 1/31/18

Checked by: MM
Date checked: 3/18/15

BENTHIC QUADRAT COUNTS

Scanned by: MM
Date scanned: Jun 2018

SITE Benthic TR 4 DATE 8/11/17 OBSERVER CC
Depth (m) at 0m: 7.3 Depth (m) at 40m: 8 Visibility (m): 4.5

Brown Algae

- AGCL** Agarum clathratum (*shaggy kelp*)
AGJ Agarum clathratum - juvenile <10cm
ALES Alaria esculenta (*distinctive midrib*)
ALJ Alaria esculenta - juvenile <20cm
BLD UNID Juv Laminariales; <3cm kelps
CHFI Chorda filum (*not fuzzy rope*)
COPE Colpomenia peregrina (*sea potato*)
DEAC Desmarestia aculeata (*coarse, alternate branches*)
DEVI Desmarestia viridis (*fine, opposite branches*)
HATO Halosiphon tomentosus (*fuzzy rope*)
LADI Laminaria digitata
LDJ Laminaria digitata juvenile <20cm
SADE Saccorhiza dermatodea (*flat & scuzzy*)
SAJ Saccorhiza dermatodea juvenile <20cm
SL Saccharina spp. (*lasagna*)
SLJ Saccharina spp. juvenile <2L:m
EUSP Fucus sp.

Tunicates

- BOEC *Boltenia echinata* (cactus-like)
 STCL *Styela clava* (stalked tunicate)
 BOOV *Boltenia ovifera* (lollipop)

Anemones

- MESE** Metridium senile (*white frilled*)
URFF Urticina felina (*bands run from top to bottom*)

Molluscs

- BUCA *Busyctopus canaliculatum* (*channeled whelk*)
 BUCR *Busycon carica* (*knobbed whelk*)
 BUUN *Buccinum undatum* (*wavy whelk*)
 CRVI *Crassostrea virginica* (*native oyster*), long
 NEDE *Neptunea decemcostata* (*10 ring whelk*)
 OSED *Ostrea edulis* (*euro oyster*), wide
 PI MA *Plicatocerat manilanicus* (*bis sea scallop*)

Other Echinoids

- | | | | | |
|------|---|------------|----------------------------|---|
| CUFR | Cucumaria frondosa (brown, bumpy) | 13 Sept 17 | OVALIPES | Ovalipes ocellatus (ladycrab) |
| ECPA | Echinarachnius parma (sand dollar) | 13 Sept 17 | PAHE | Panopeus herbistii |
| PSFA | Psolus fabricii (scarlet cucumber) | 13 Sept 17 | HOAS | Lobster, <10cm |
| SDL | Strongylocentrotus droebachiensis >20mm | 13 Sept 17 | HESN | Hemigrapsus sanguinolenta |
| SDS | Strongylocentrotus droebachiensis <20mm | 13 Sept 17 | <u>Cryptic Fish</u> | |
| ARPL | Arbacia punctulata >20mm | T484 | MYSP | Myoxocephalus sp. (grubby or sculpin < 10cm) |
| ARPS | Arbacia punctulata < 20mm | 3rd | ULSP | Unidentified shanny (radiated or arctic) |
| | | 432 | EUSP | Eumicrotremus spinosus (spiny lump sucker, <15cm) |
| | | 435 | LULU | Lumpenus lumpretiformis (Snake Blenny) |
| | | 437 | PHGU | Pholis gunnelus (Rock Gunnel) |
| | | | Note small OCTO's | |

Note small OCTO's

Data entry by: FCT
Date entered: 1/31/2018

Checked by: M
Date checked: 3/10/18

BENTHIC QUADRAT COUNTS

Scanned by: _____
Date scanned: _____

SITE Demarest TR #3 DATE 8/11/17 OBSERVER JB
Depth (m) at 0m: ~~15.5~~ Depth (m) at 40m: 7 Visibility (m): 4

Brown Algae

- AGCL** Agarum clathratum (*shotgun keip*)
AGJ Agarum clathratum - juvenile <10cm
ALES Alaria esculenta (*distinctive midrib*)
ALJ Alaria esculenta - juvenile <20cm
BLD UNID .!v Laminariales; <3cm kelps
CHFI Chorda filum (*not fuzzy rope*)
COPE Colpomenia peregrina (*sea potato*)
DEAC Desmerestia aculeata (*coarse, alternate branches*)
DEVI Desmerestia viridis (*fine, opposite branches*)
HATO Halosiphon tomentosus (*fuzzy rope*)
LADI Laminaria digitata
LDJ Laminaria digitata juvenile <20cm
SADE Saccorhiza dermatodea (*flat & scuzzy*)
SAJ Saccorhiza dermatodea juvenile <20cm
SL Saccharina spp. (*lasagne*)
SLJ Saccharina spp. juvenile <20cm
FUSP Fucus sp.

Tunicates

- BOEC** *Boltenia echinata* (*cactus-like*)
STCL *Styela clava* (*stalked tunicate*)
BOOV *Boltenia ovifera* (*lollipop*)

Anemones

- MESE** *Metridium senile* (*white frilled*)
URFE *Urticina felina* (*bands run from top to bottom*)

Molluscs

- BUCA Busycotypus canalicolatum (*channeled whelk*)
 - BUCR Busycon carica (*knobbed whelk*)
 - BUUN Buccinum undatum (*wavy whelk*)
 - CRVI Crassostrea virginica (*native oyster*), long
 - NEDE Neptunea decemcostata (*10 ring whelk*)
 - OSED Ostrea edulis (*euro oyster*), wide
 - PILMA Plicatoceras magellanicum (*bis sea scallop*)

Other Echinoids

- CUFR *Cucumaria frondosa* (*brown, bumpy*)
 ECPA *Echinarachnius parma* (*sand dollar*)
 PSFA *Psolus fabricii* (*'scarlet cucumber'*)
 SDL *Strongylocentrotus droebachiensis* >20mm
 SDS *Strongylocentrotus droebachiensis* <20mm
 ARPL *Arbacia punctulata* >20mm
 ARPS *Arbacia punctulata* <20mm

Stars (less than 3cm, add S)

- ASFO** *Asterias forbesii* (*orange madroporite*)
ASRU *Asterias rubens* (*white madroporite*)
CRPA *Crossaster papposus* (*Spiny Sun Star*)
HESA *Henricia sanguinolenta* (*Blood Star*)
SCEN *Scleraster ericioides* (*Smooth Sun Star*)

Small Crustaceans <5cm

- | <u>Small Crustaceans & Fish</u> |
|---|
| CABS Cancer borealis (<i>rounded, bumpy shell = Jonah</i>) |
| CAIS Cancer irroratus (<i>pointed shell = Atlantic Rock</i>) |
| CAMS Carcinus maenas (<i>Dark & mottled shell = Green</i>) |
| CASS Callinectes sapidus (<i>blue crab</i>) |
| HOAS Homarus americanus (<i>lobster</i>) |
| HYCS Hyas coarctatus (<i>decorator crab</i>) |
| LIES Libinia emarginata (<i>big spider crab</i>) |
| OVOS Ovalipes ocellatus (<i>lady crab</i>) |
| PAHE Panopeus herbstii |
| HOAS Lobster, <10cm |
| HESN Hemigrapsus sanguinolenta |
| <u>Cryptic Fish</u> |
| MYSP Myoxocephalus sp. (<i>grubby or sculpin < 10cm</i>) |
| ULSP Unidentified shanny (<i>radiated or arctic</i>) |
| EUSP Eumicrotremus spinosus (<i>spiny lump sucker, < 15cm</i>) |
| LULU Lumpenus lumpretaeformis (<i>Snake Blenny</i>) |
| PHGU Pholis gunnelus (<i>Rock Gunnel</i>) |

**Subsurface Kelp
Morphometrics**SITE: Pema DATE 8/11/17 Observer: MM

#	Transect	SPECIES	Blade Length (cm)	Widest Width (cm)	Stipe Length (cm)
1	3	SL	162	12	4
2	1	LADI	124	54	8
3	1	SL	15	56	4
4	1	LADI	70	31	3
5	1	SL	96	25	4
6	1	LADI	84	25	10
7	1	SL	120	15	6
8	1	LADI	123	40	12
9	1	LADI	90	36	6
10	1	SL	64	20	5
11	1	LADI	153	42	11
12	1	LADI	43	20	1
13	1	SL	67	15	10
14	1	SL	164	19	4
15	1	LADI	110	54	17
16	1	LADI	90	29	5
17	1	SL	85	15	3
18	1	SL	90	24	7
19	1	SL	68	10	3
20	1	LADI	152	50	19
21	2	SL	99	16	11
22	1	LADI	45	13	4
23	1	SL	174	23	9
24	1	SL	120	23	9
25	1	SL	54	10	8
26	1	LADI	40	29	3
27	1	SL	54	10	9
28	1	SL	29	10	4
29	1	LADI	147	38	14
30	1	SL	112	26	6
31	1	LADI	138	60	13
32	1	LADI	56	20	5
33	1	LADI	48	15	5
34	1	SL	99	21	6
35	1	SL	100	20	15
36					
37					
38					
39					
40					

Collect 1 kelp of each sp. every 4 m, or a total of 10 pieces

KelpsAGCL Agarum clathratum (*shotgun kelp*)ALES Alaria esculenta (*distinctive midrib*)

LADI Laminaria digitata

SL Saccharina spp. (*lasagne*)

LADI width is taken with all blades placed together

**Subsurface Kelp
Morphometrics**Scanned by: MM
Date scanned: Jan 18SITE: PEMADATE 3/11/17Observer: MM

#	Transect	SPECIES	Blade Length (cm)	Widest Width (cm)	Stipe Length (cm)
1	1	LADI	120	50	19
2	1	LADI	116	35	5
3	1	LADI	88	16	7
4	1	LADI	73	25	2
5	1	LADI	56	16	4
6	1	LADI	60	31	5
7	1	LADI	116	70	15
8	1	LADI	63	30	3
9	1	SL	53	12	5
10	1	SL	80	20	7
11	1	SL	97	17	7
12	1	SL	100	21	12
13	1	SL	103	20	5
14	1	SL	28	10	2
15	1	SL	57	12	4
16	1	SL	76	19	N/A
17	1	SL	21	10	1.5
18	1	AGCL	43	18	N/A
19	1	AGCL	21	16	N/A
20	1	LADI	44	15	3
21	1 2 4	LADI	102	20	9
22	1 4	LADI	72	23	4
23	1 4	LADI	140	45	7
24	1 4	LADI	80	19	2
25	2 4	LADI	55	23	2
26	2 4	SL	23	5	1
27	2 4	SL	40	14	6
28	2 4	SL	61	14	4
29	2 4	SL	135	19	9
30	2 4	SL	45	13	6
31					
32					
33					
34					
35					
36					
37					
38					
39					
40					

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Data entry by: EF
Date entered: 1/31/18Checked by: MM
Date checked: 3/10/18

Updated: 7/14/17