2019 Scallop Survey Short Report

Prepared by:

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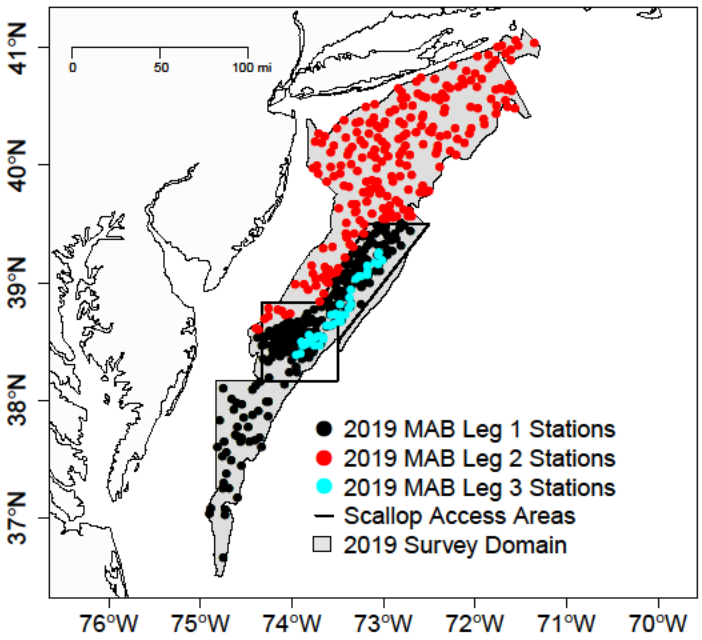
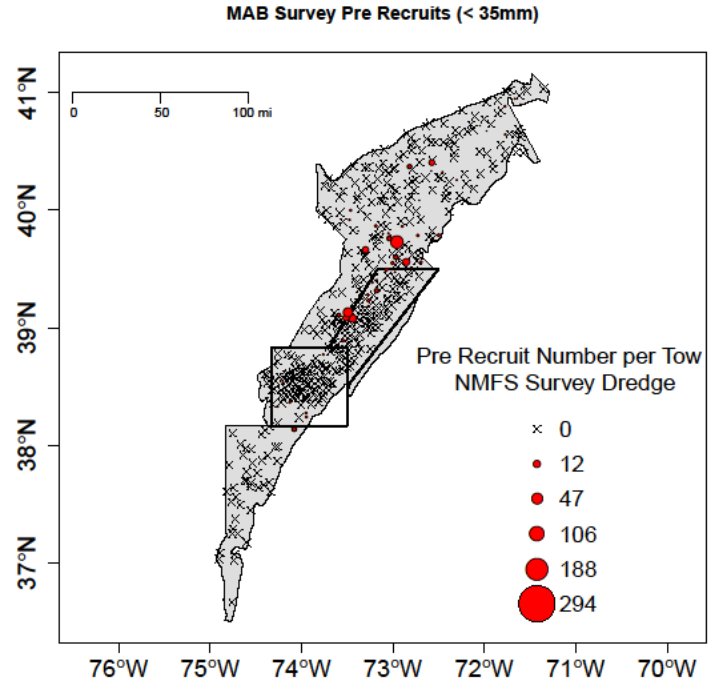
1 2019 SURVEY BIOMASS ESTIMATES

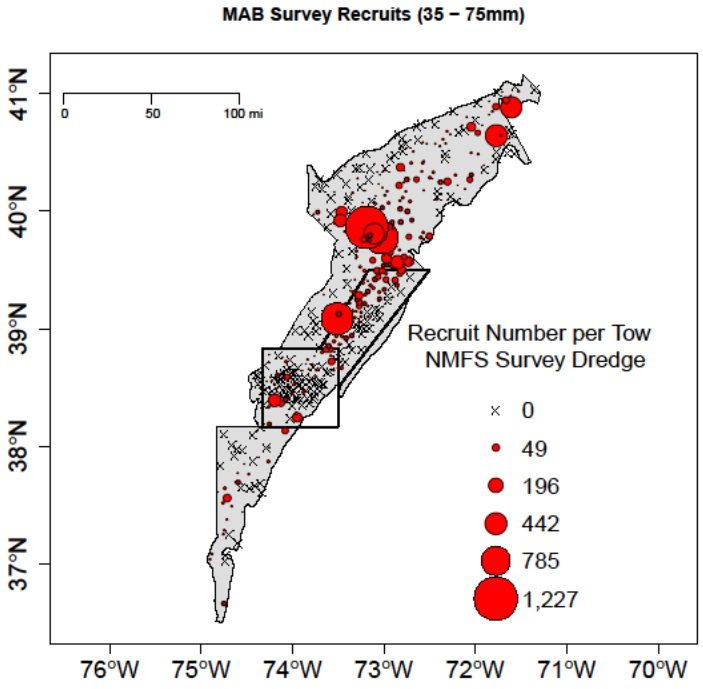
Dredge – SARC 65 SHMW[1], VIMS 2016 – 2019 SHMW[2]							
GB	**NumMill**	**BmsMT**	**SE**	**MeanWt**	**Avg. Size**	**Scallop density**	**# Tows/Drops, HabCam images annotated**
CL1-Access[1]	1,670,993,750	693.40	83.55	35.57	112.24	0.02	26
CL1-Sliver[1]	258,991,330	7,856.85	911.86	29.54	115.05	0.32	36
CL2-Access[1]	1,670,993,750	20,689.43	1,129.01	15.49	71.69	0.56	60
CL2-Ext[1]	312,054,690	5,567.79	565.55	17.49	82.24	0.17	41
NLS-North[2]	81,516,050	3,368.23	209.81	41.26	117.43	0.08	42
NLS-South-Deep[2]	1,176,063,622	11,897.84	1,181.65	10.11	86.36	1.62	35
NLS-South-Shallow[2]	117,563,486	1,721.07	425.60	14.64	90.86	0.40	11
NLS-West[2]	195,268,579	3,276.12	663.54	16.68	96.66	0.20	41
SF[1]	529,788,692	6,437.53	646.95	12.15	72.50	0.29	24
MidAtlantic							
BI[1]	94,885,840	1,514.65	254.05	17.33	86.71	0.11	8
LI[1]	407,307,126	9,079.02	349.85	22.44	100.53	0.03	124
NYB	537,825,315	7,424.97	522.70	14.84	83.63	0.12	69
MA – Nearshore[1]	53,427,827	1,264.53	180.52	23.67	103.48	0.02	24
HCS[1]	380,404,883	8,544.00	774.62	22.63	109.5	0.13	79
ET-Open[1]	592,011,891	15,104.89	896.65	25.84	115.08	0.30	61
ET-Flex[1]	523,603,853	13,528.87	1,174.25	25.46	113.39	0.44	43
DMV[1]	20,305,939	203.02	43.41	10.48	72.51	0.01	35
VIR[1]	4,182,976	13.76	1.12	2.98	50.6	0.001	7

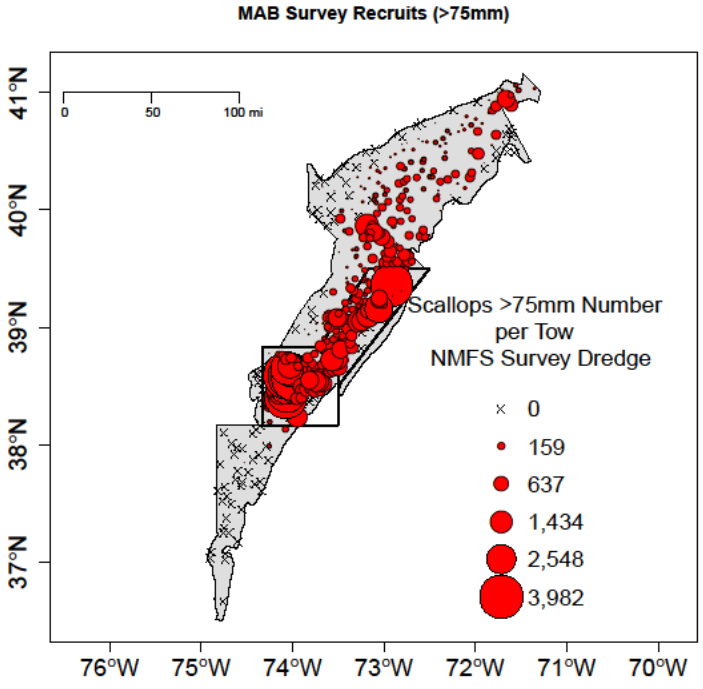
2 FIGURES OF SURVEY COVERAGE

MAB Survey

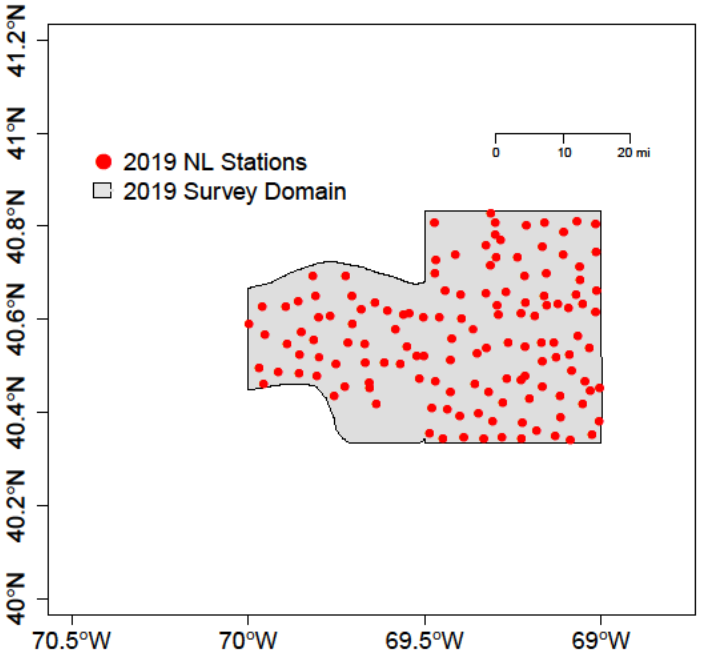


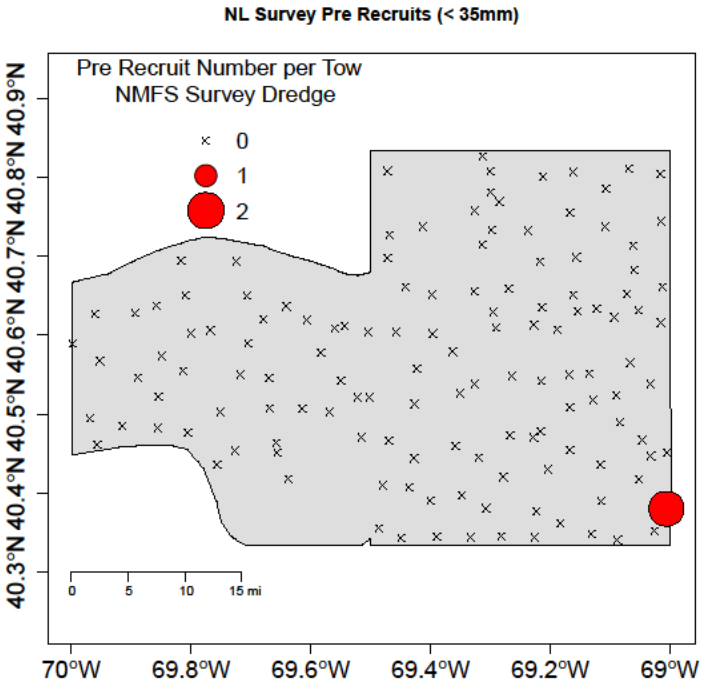



MAB Survey Recruits (35 – 75mm)
0
50
100 mi
41°N
40°N
39°N
38°N
37°N
76°W
75°W
74°W
73°W
72°W
71°W
70°W
Recruit Number per Tow
NMFS Survey Dredge
0
49
196
442
785
1,227

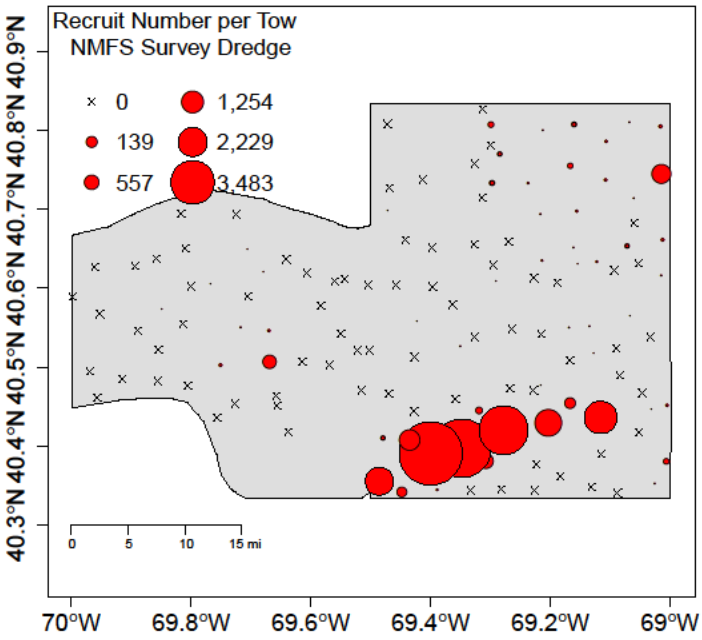

MAB Survey Recruits (>75mm)
0
50
100 mi
41°N
40°N
39°N
38°N
37°N
76°W
75°W
74°W
73°W
72°W
71°W
70°W
Scallops >75mm Number
per Tow
NMFS Survey Dredge
0
159
637
1,434
2,548
3,982

NL Survey

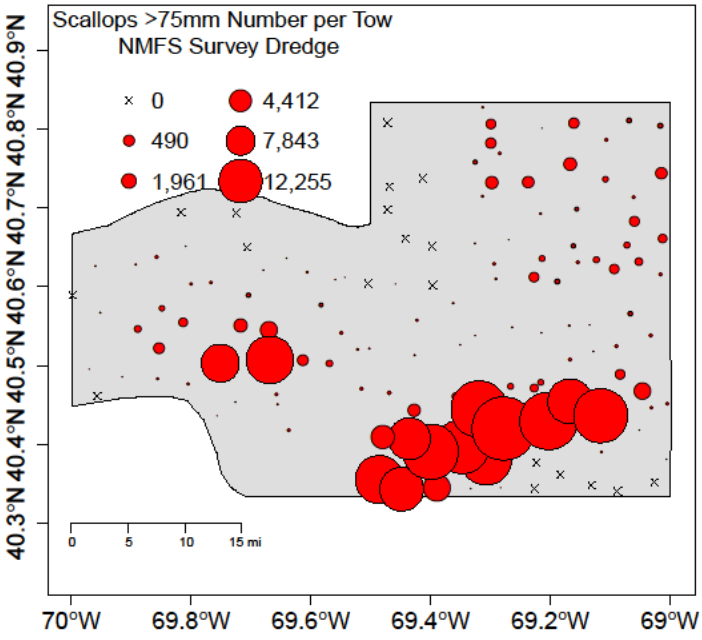

2019 NL Stations
2019 Survey Domain
0
10
20 mi
41.2°N
41°N
40.8°N
40.6°N
40.4°N
40.2°N
40°N
70.5°W
70°W
69.5°W
69°W


NL Survey Pre Recruits (< 35mm)
Pre Recruit Number per Tow
NMFS Survey Dredge
0
1
2
0
5
10
15 mi
40.9°N
40.8°N
40.7°N
40.6°N
40.5°N
40.4°N
40.3°N
70°W
69.8°W
69.6°W
69.4°W
69.2°W
69°W

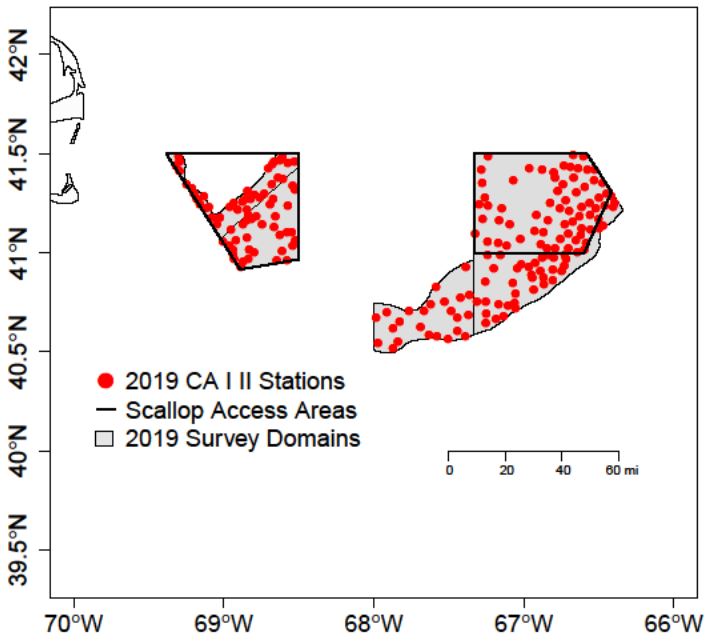
NL Survey Recruits (35 – 75mm)

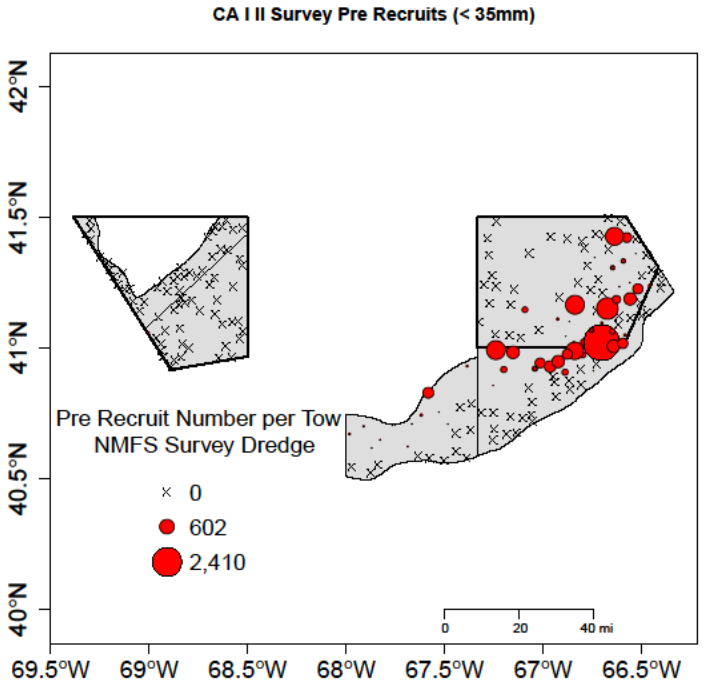


NL Survey Recruits (>75mm)

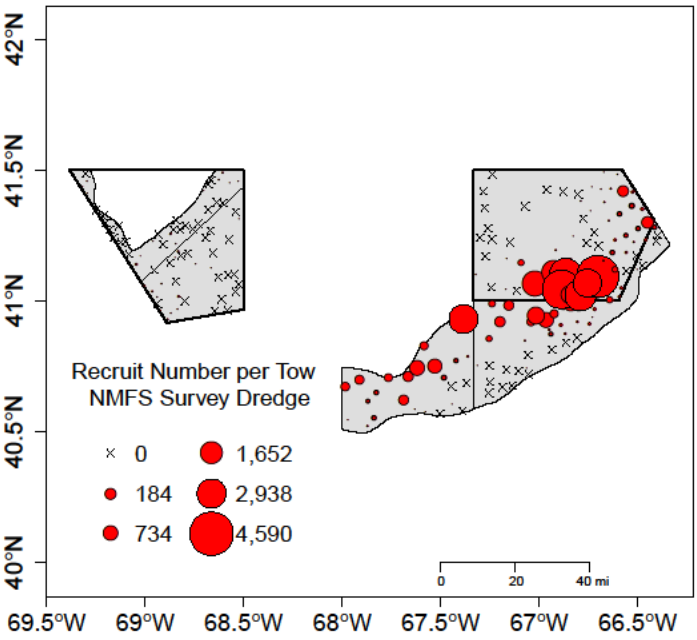


CA I II Survey

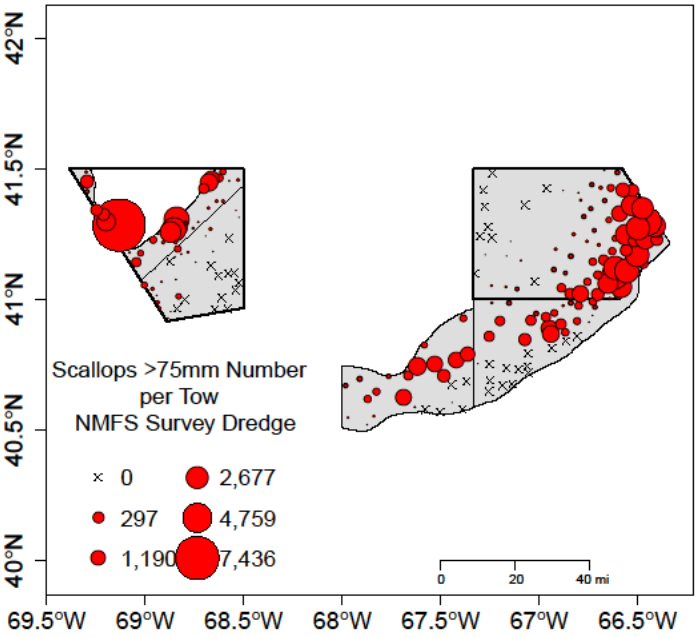




CA I II Survey Recruits (35 – 75mm)



CA I II Survey Recruits (>75mm)



3 LENGTH FREQUENCY DISTRUBTIONS

Length frequency distribution order:

MAB Survey

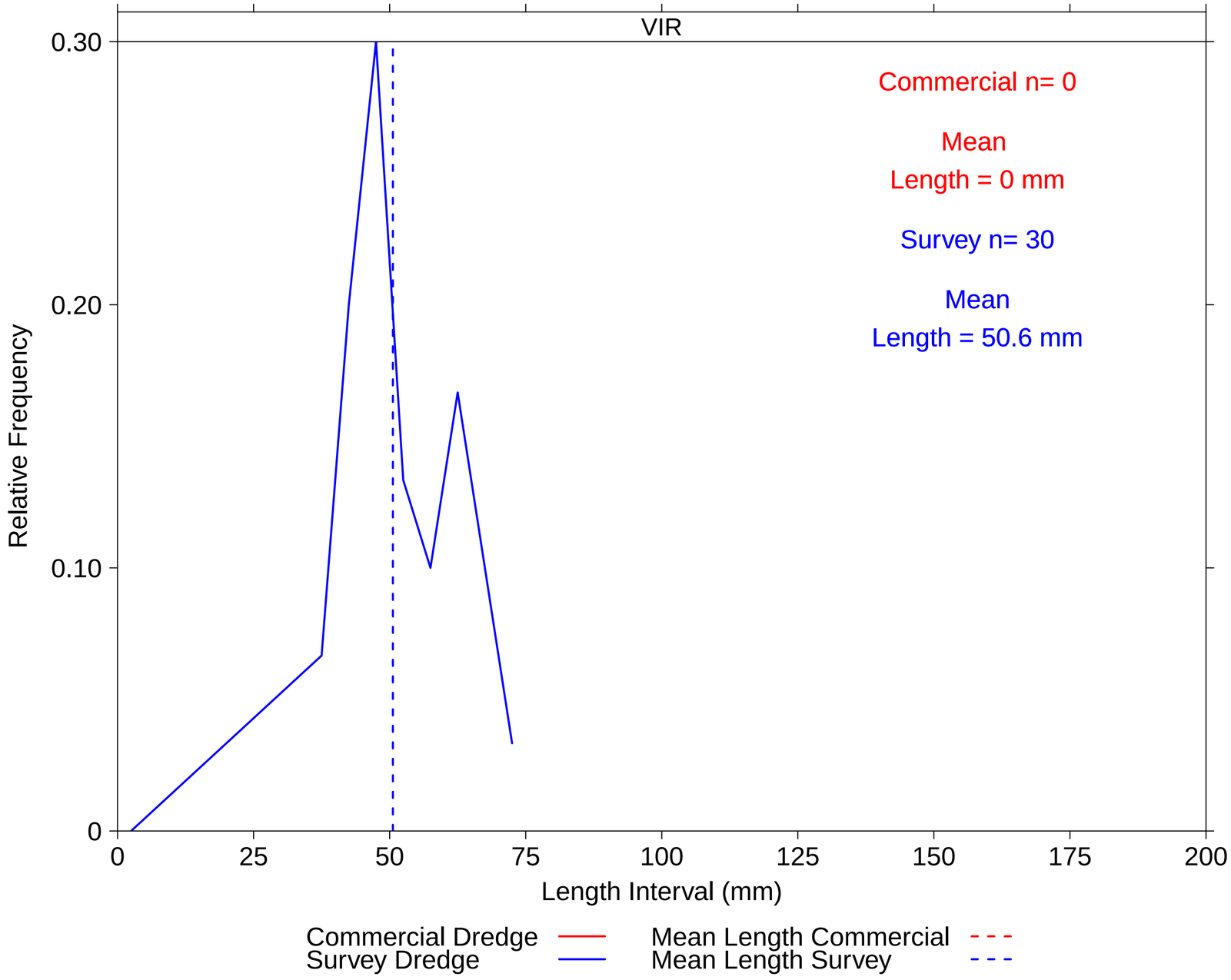
NL Survey

CA I II Survey

Number Caught at Length by Gear

Left − Relative Length Frequency Graph

Right − Absolute Number of Scallops Caught at Length Table

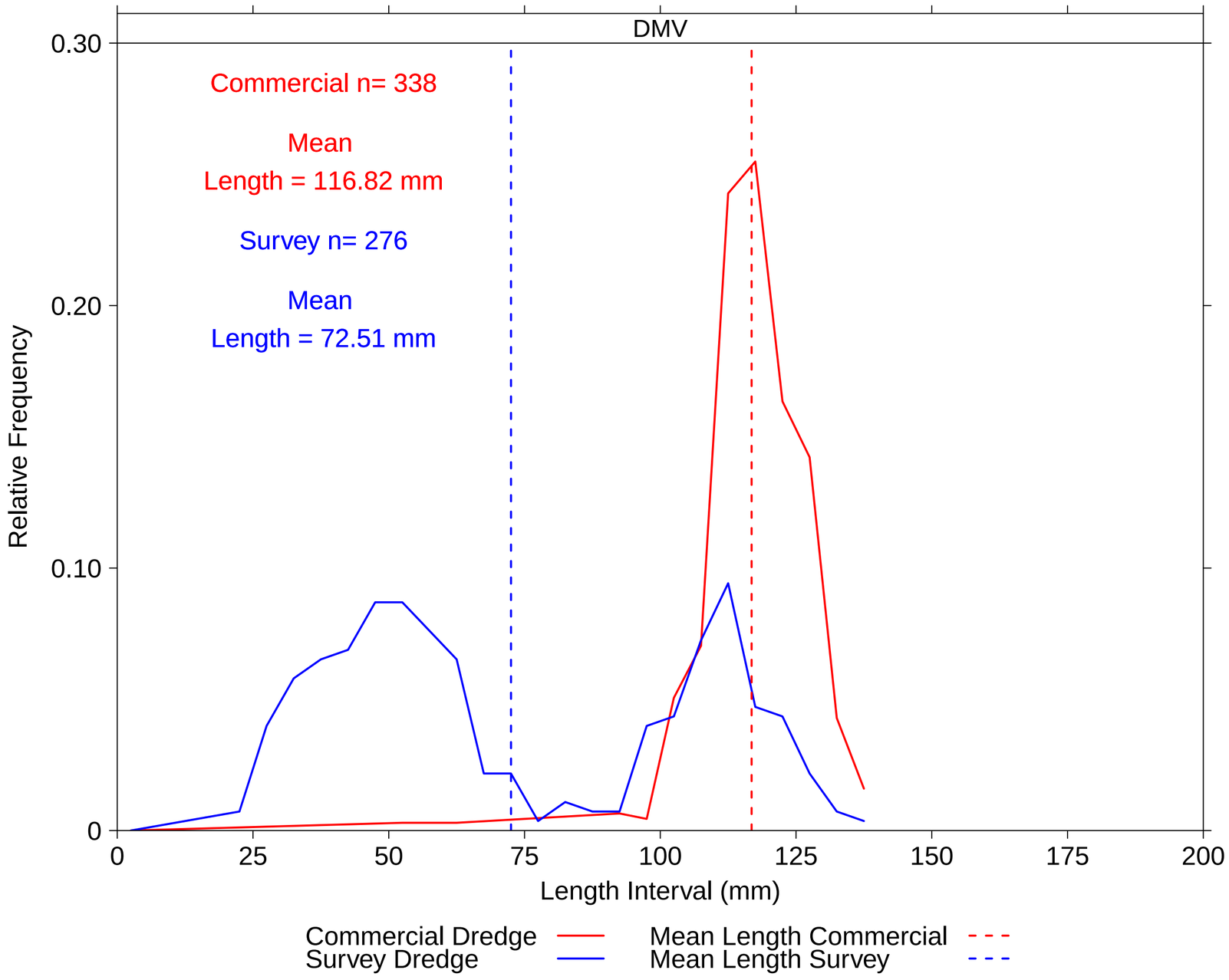


SAMS_Area	Length	Commercial	Survey
VIR	37.5	0	2
VIR	42.5	0	6
VIR	47.5	0	9
VIR	52.5	0	4
VIR	57.5	0	3
VIR	62.5	0	5
VIR	72.5	0	1

Number Caught at Length by Gear

Left − Relative Length Frequency Graph

Right − Absolute Number of Scallops Caught at Length Table

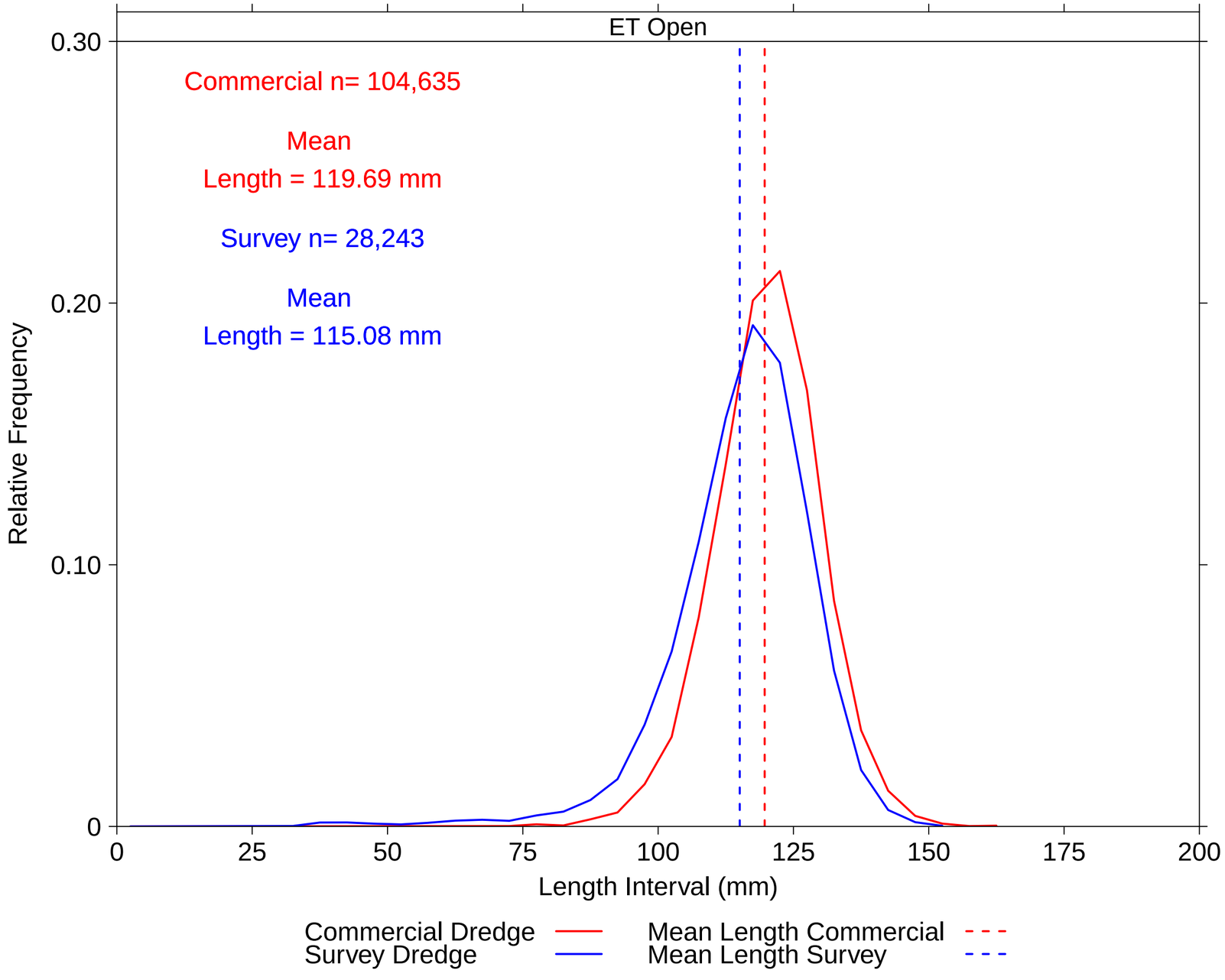


SAMS_Area	Length	Commercial	Survey
DMV	22.5	0	2
DMV	27.5	0	11
DMV	32.5	0	16
DMV	37.5	0	18
DMV	42.5	0	19
DMV	47.5	0	24
DMV	52.5	1	24
DMV	57.5	0	21
DMV	62.5	1	18
DMV	67.5	0	6
DMV	72.5	0	6
DMV	77.5	0	1
DMV	82.5	0	3
DMV	87.5	0	2
DMV	92.5	2	2
DMV	97.5	2	11
DMV	102.5	17	12
DMV	107.5	24	20
DMV	112.5	82	26
DMV	117.5	86	13
DMV	122.5	55	12
DMV	127.5	48	6
DMV	132.5	14	2
DMV	137.5	5	1

Number Caught at Length by Gear

Left − Relative Length Frequency Graph

Right − Absolute Number of Scallops Caught at Length Table



SAMS_Area	Length	Commercial	Survey
ET_Open	32.5	0	5
ET_Open	37.5	0	42
ET_Open	42.5	0	43
ET_Open	47.5	0	30
ET_Open	52.5	0	22
ET_Open	57.5	0	39
ET_Open	62.5	0	62
ET_Open	67.5	0	72
ET_Open	72.5	15	60
ET_Open	77.5	84	118
ET_Open	82.5	39	160
ET_Open	87.5	284	285
ET_Open	92.5	557	511
ET_Open	97.5	1,688	1,098
ET_Open	102.5	3,578	1,888
ET_Open	107.5	8,361	3,072
ET_Open	112.5	14,482	4,408
ET_Open	117.5	21,031	5,410
ET_Open	122.5	22,210	5,004
ET_Open	127.5	17,441	3,395
ET_Open	132.5	9,018	1,682
ET_Open	137.5	3,844	609
ET_Open	142.5	1,428	177
ET_Open	147.5	422	46
ET_Open	152.5	112	6
ET_Open	157.5	14	0
ET_Open	162.5	29	0

Number Caught at Length by Gear

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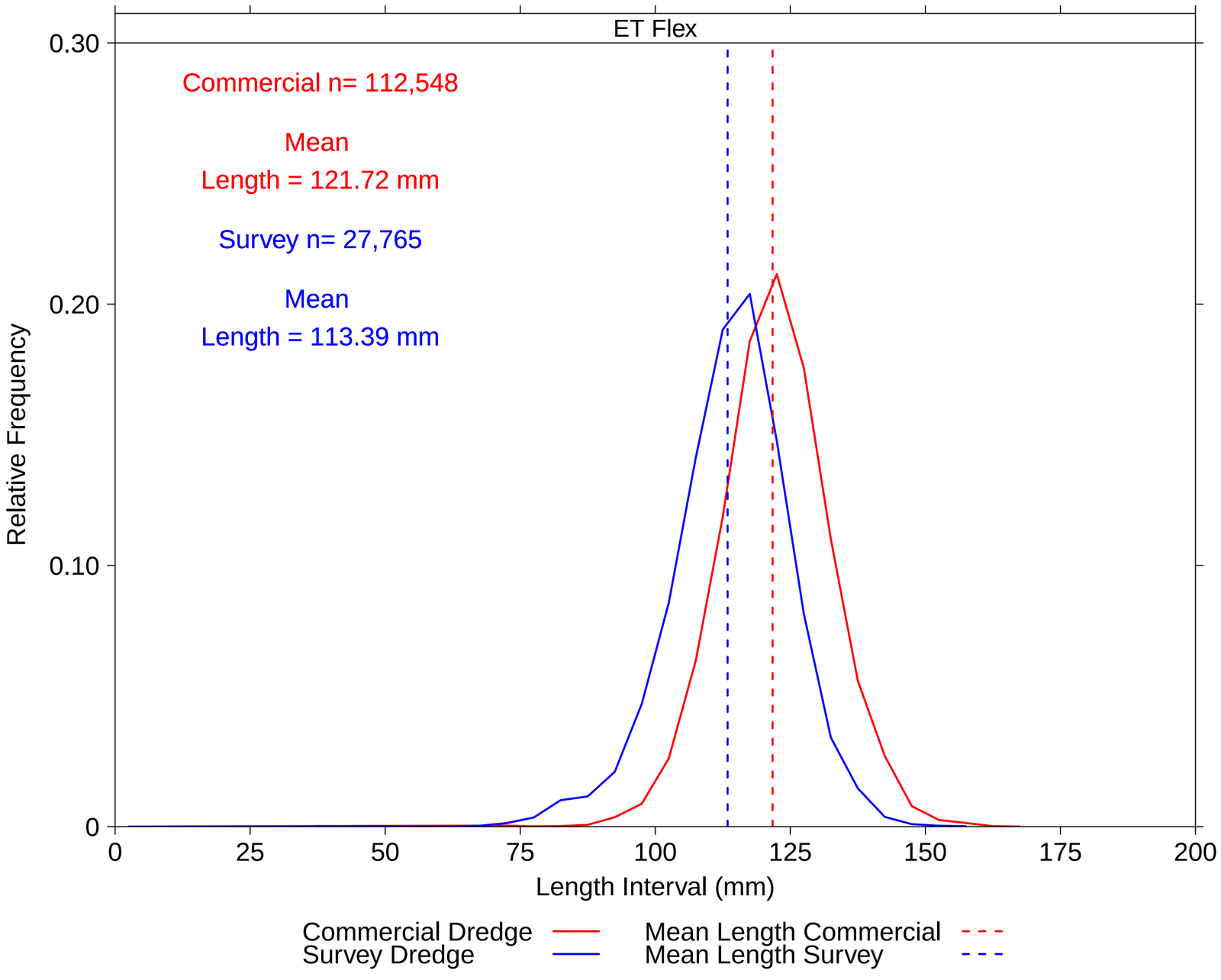
Right − Absolute Number of Scallops Caught at Length Table

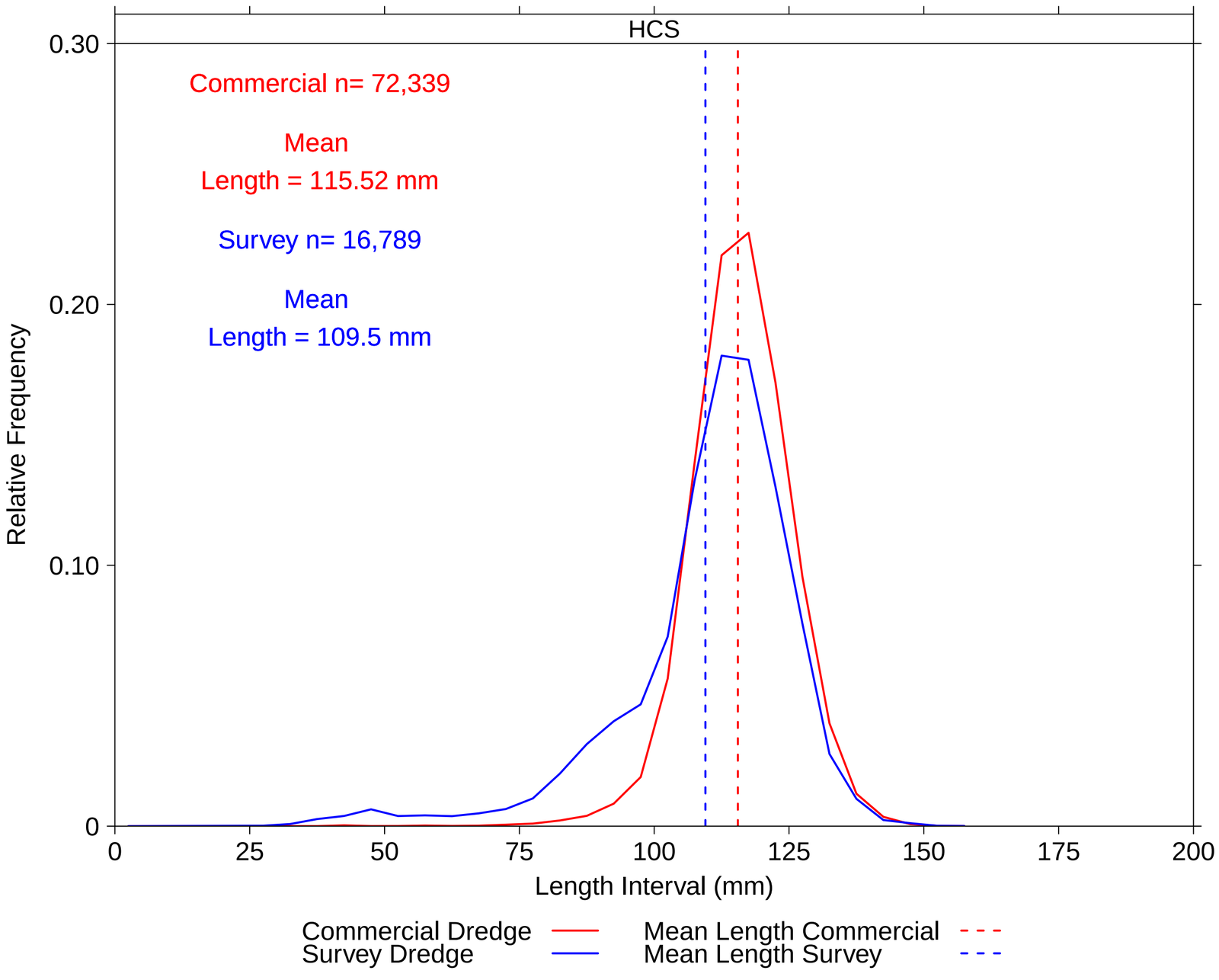


SAMS_Area	Length	Commercial	Survey
ET_Flex	27.5	0	2
ET_Flex	32.5	0	1
ET_Flex	37.5	0	6
ET_Flex	42.5	0	4
ET_Flex	47.5	0	6
ET_Flex	52.5	0	3
ET_Flex	57.5	0	2
ET_Flex	62.5	0	2
ET_Flex	67.5	0	10
ET_Flex	72.5	45	38
ET_Flex	77.5	13	97
ET_Flex	82.5	25	282
ET_Flex	87.5	79	322
ET_Flex	92.5	406	583
ET_Flex	97.5	987	1,305
ET_Flex	102.5	2,938	2,378
ET_Flex	107.5	7,148	3,922
ET_Flex	112.5	13,359	5,283
ET_Flex	117.5	20,915	5,662
ET_Flex	122.5	23,803	4,098
ET_Flex	127.5	19,761	2,262
ET_Flex	132.5	12,392	948
ET_Flex	137.5	6,283	407
ET_Flex	142.5	3,037	104
ET_Flex	147.5	883	26
ET_Flex	152.5	288	10
ET_Flex	157.5	159	4
ET_Flex	162.5	23	0
ET_Flex	167.5	3	0

Number Caught at Length by Gear

Left − Relative Length Frequency Graph

Right − Absolute Number of Scallops Caught at Length Table



SAMS_Area	Length	Commercial	Survey
HCS	27.5	0	3
HCS	32.5	0	14
HCS	37.5	1	46
HCS	42.5	23	65
HCS	47.5	2	108
HCS	52.5	4	65
HCS	57.5	17	69
HCS	62.5	6	64
HCS	67.5	14	82
HCS	72.5	41	110
HCS	77.5	70	178
HCS	82.5	157	338
HCS	87.5	285	528
HCS	92.5	624	675
HCS	97.5	1,362	784
HCS	102.5	4,090	1,219
HCS	107.5	10,089	2,226
HCS	112.5	15,831	3,028
HCS	117.5	16,454	3,001
HCS	122.5	12,290	2,182
HCS	127.5	6,902	1,301
HCS	132.5	2,852	464
HCS	137.5	899	176
HCS	142.5	258	39
HCS	147.5	56	19
HCS	152.5	10	2
HCS	157.5	2	1

Number Caught at Length by Gear

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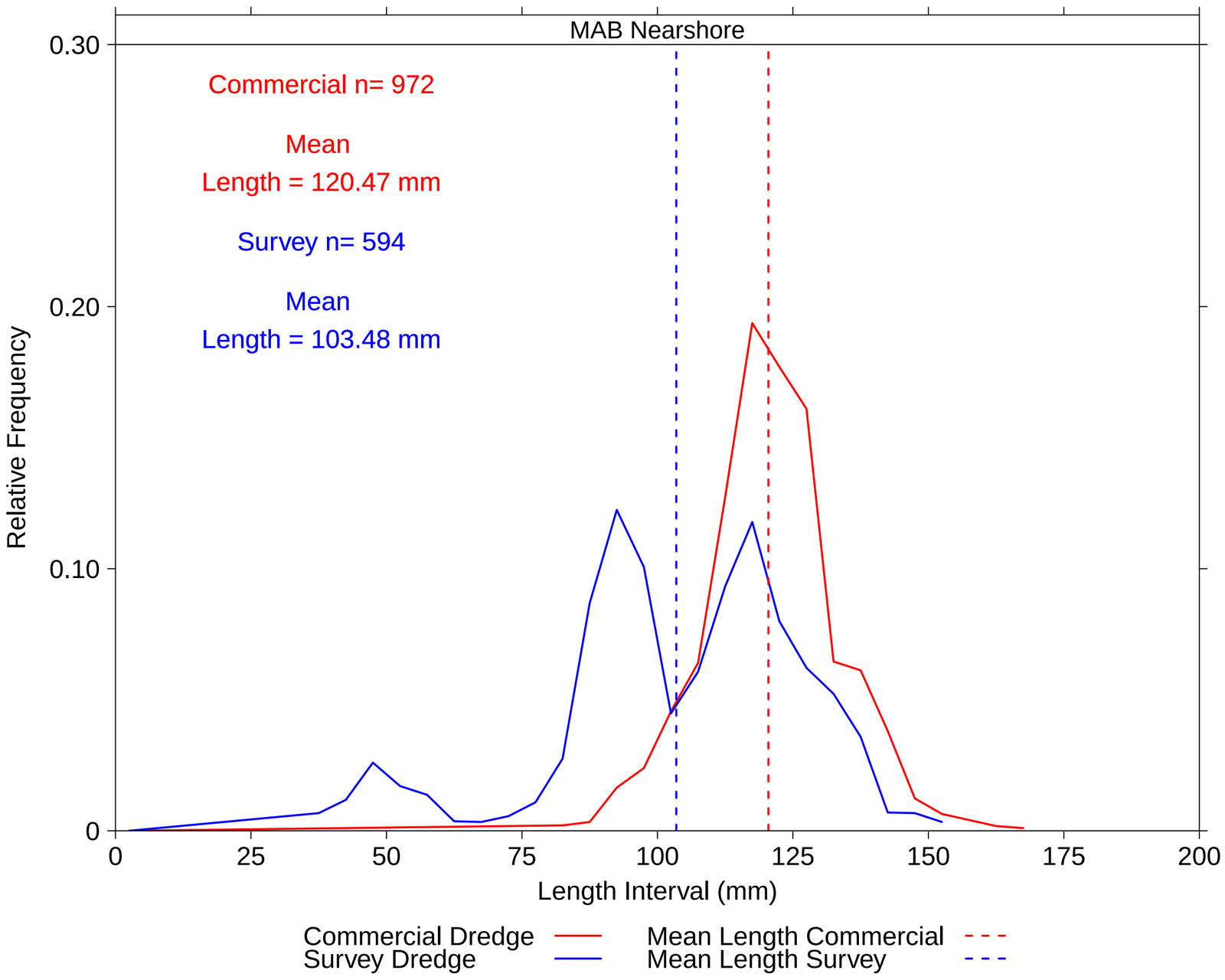
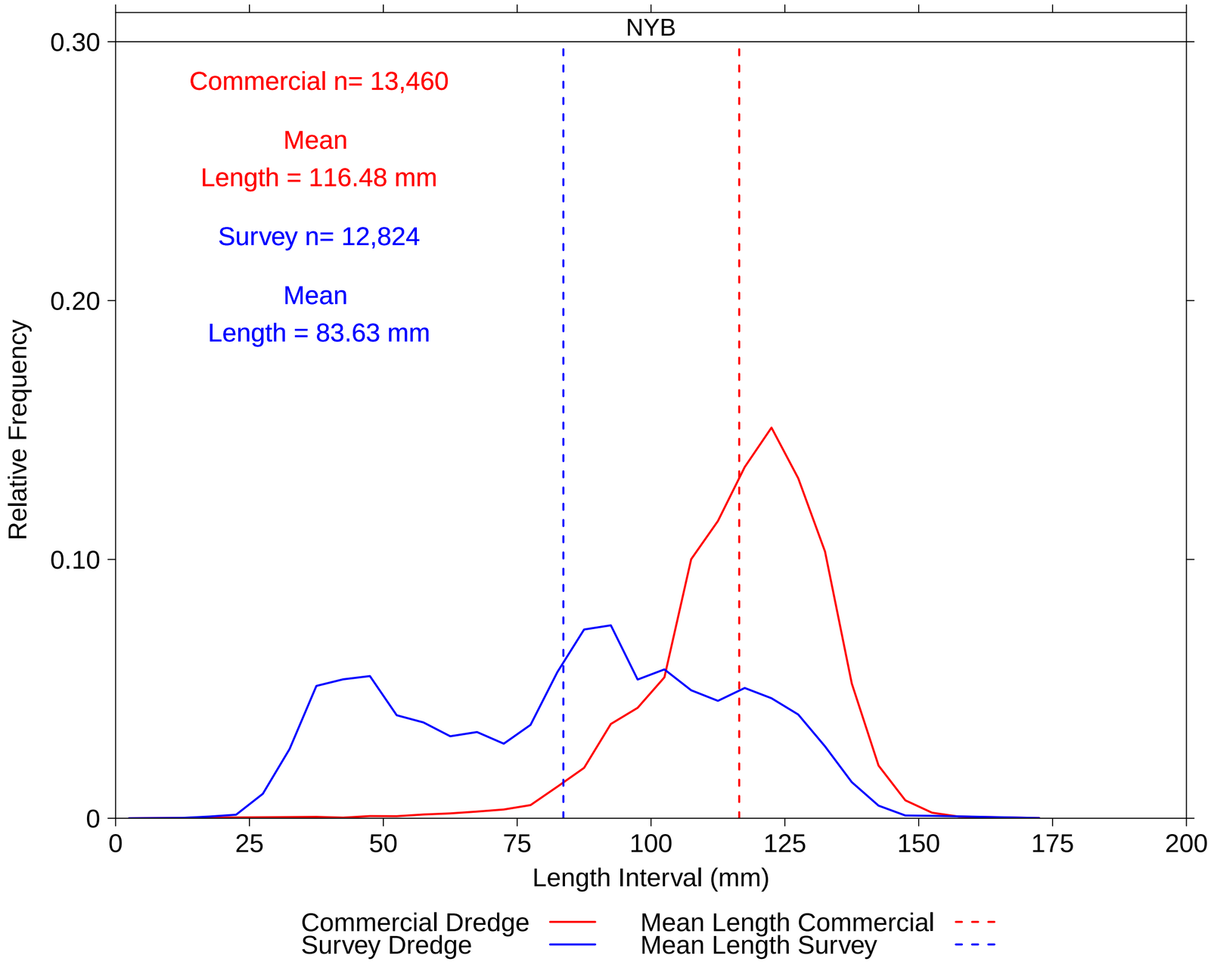


SAMS_Area	Length	Commercial	Survey
MAB_Nearshore	37.5	0	4
MAB_Nearshore	42.5	0	7
MAB_Nearshore	47.5	0	15
MAB_Nearshore	52.5	0	10
MAB_Nearshore	57.5	0	8
MAB_Nearshore	62.5	0	2
MAB_Nearshore	67.5	0	2
MAB_Nearshore	72.5	0	3
MAB_Nearshore	77.5	0	6
MAB_Nearshore	82.5	2	16
MAB_Nearshore	87.5	3	52
MAB_Nearshore	92.5	16	73
MAB_Nearshore	97.5	23	60
MAB_Nearshore	102.5	44	27
MAB_Nearshore	107.5	62	36
MAB_Nearshore	112.5	124	55
MAB_Nearshore	117.5	188	70
MAB_Nearshore	122.5	172	48
MAB_Nearshore	127.5	156	37
MAB_Nearshore	132.5	63	31
MAB_Nearshore	137.5	60	21
MAB_Nearshore	142.5	37	4
MAB_Nearshore	147.5	12	4
MAB_Nearshore	152.5	6	2
MAB_Nearshore	162.5	2	0
MAB_Nearshore	167.5	1	0

Number Caught at Length by Gear

Left − Relative Length Frequency Graph

Right − Absolute Number of Scallops Caught at Length Table



SAMS_Area	Length	Commercial	Survey
NYB	12.5	0	2
NYB	17.5	0	8
NYB	22.5	0	17
NYB	27.5	0	121
NYB	32.5	0	343
NYB	37.5	7	656
NYB	42.5	3	688
NYB	47.5	11	704
NYB	52.5	11	510
NYB	57.5	20	475
NYB	62.5	25	406
NYB	67.5	35	427
NYB	72.5	46	369
NYB	77.5	68	463
NYB	82.5	164	724
NYB	87.5	262	935
NYB	92.5	490	956
NYB	97.5	574	687
NYB	102.5	733	737
NYB	107.5	1,347	634
NYB	112.5	1,546	582
NYB	117.5	1,826	645
NYB	122.5	2,031	595
NYB	127.5	1,768	514
NYB	132.5	1,387	356
NYB	137.5	701	179
NYB	142.5	274	62
NYB	147.5	93	14
NYB	152.5	29	12
NYB	157.5	9	0
NYB	172.5	1	1

Number Caught at Length by Gear

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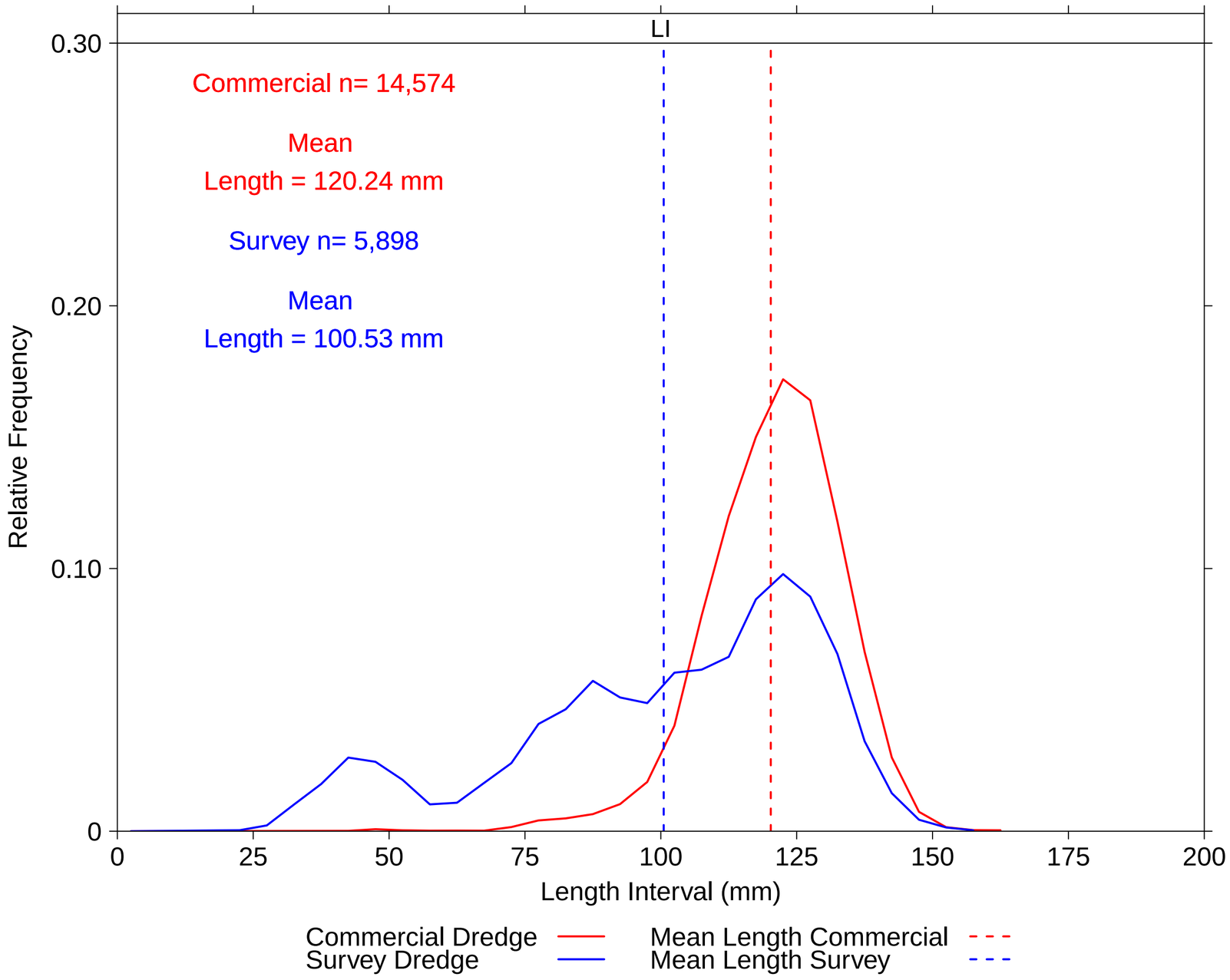

SAMS_Area	Length	Commercial	Survey
LI	22.5	0	2
LI	27.5	0	13
LI	32.5	0	60
LI	37.5	0	106
LI	42.5	2	165
LI	47.5	11	156
LI	52.5	5	115
LI	57.5	3	60
LI	62.5	3	64
LI	67.5	3	108
LI	72.5	23	153
LI	77.5	60	241
LI	82.5	71	274
LI	87.5	95	337
LI	92.5	150	300
LI	97.5	273	288
LI	102.5	585	356
LI	107.5	1,194	363
LI	112.5	1,748	391
LI	117.5	2,187	521
LI	122.5	2,507	577
LI	127.5	2,391	527
LI	132.5	1,717	398
LI	137.5	995	202
LI	142.5	409	85
LI	147.5	107	26
LI	152.5	22	8
LI	157.5	6	2
LI	162.5	5	0

Number Caught at Length by Gear

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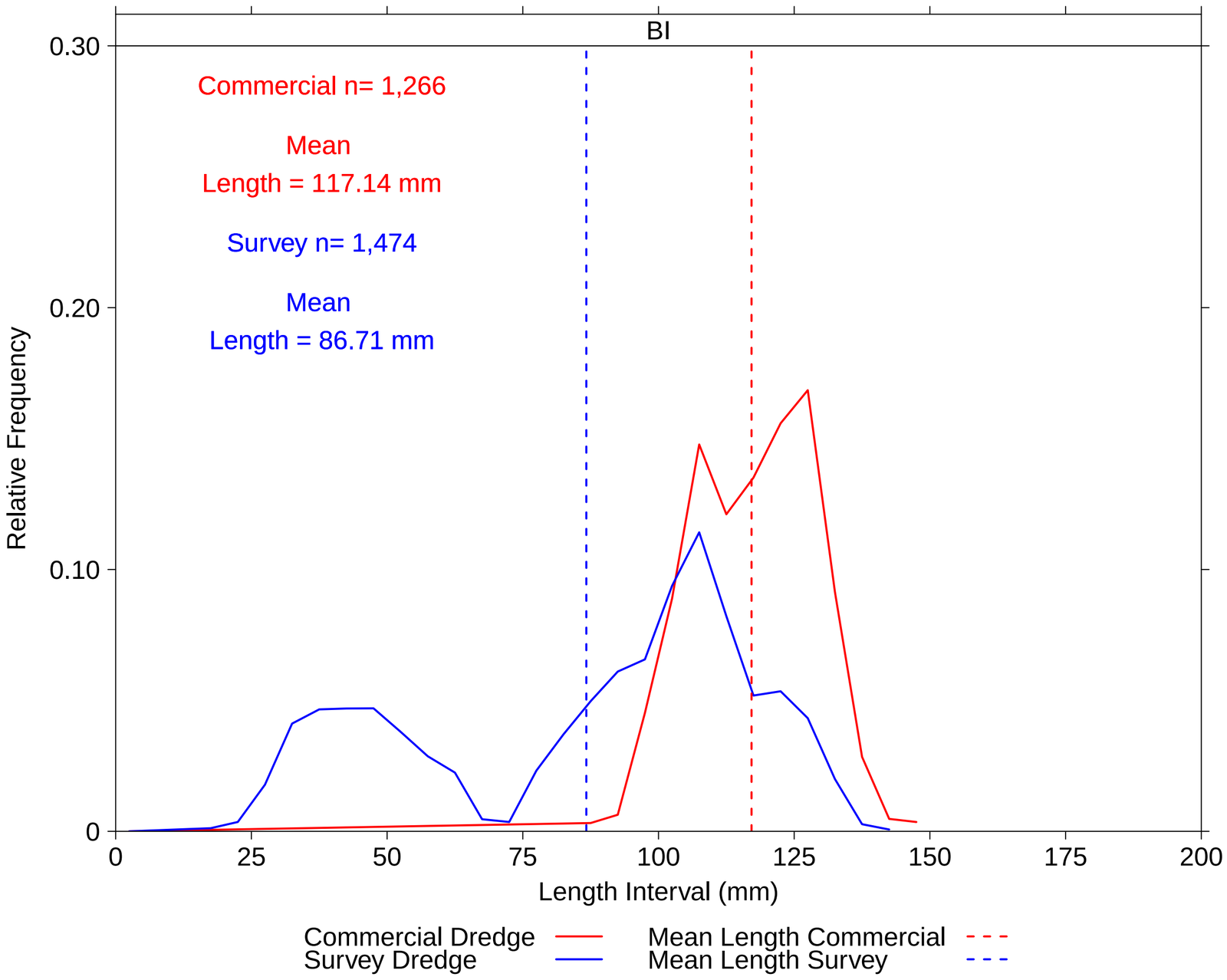

SAMS_Area	Length	Commercial	Survey
BI	17.5	0	2
BI	22.5	0	5
BI	27.5	0	26
BI	32.5	0	61
BI	37.5	0	69
BI	42.5	0	69
BI	47.5	0	69
BI	52.5	0	56
BI	57.5	0	42
BI	62.5	0	33
BI	67.5	0	7
BI	72.5	0	5
BI	77.5	0	34
BI	82.5	0	55
BI	87.5	4	73
BI	92.5	8	90
BI	97.5	57	97
BI	102.5	112	138
BI	107.5	187	168
BI	112.5	153	121
BI	117.5	171	76
BI	122.5	197	79
BI	127.5	213	64
BI	132.5	116	29
BI	137.5	36	4
BI	142.5	6	1
BI	147.5	4	0

Number Caught at Length by Gear

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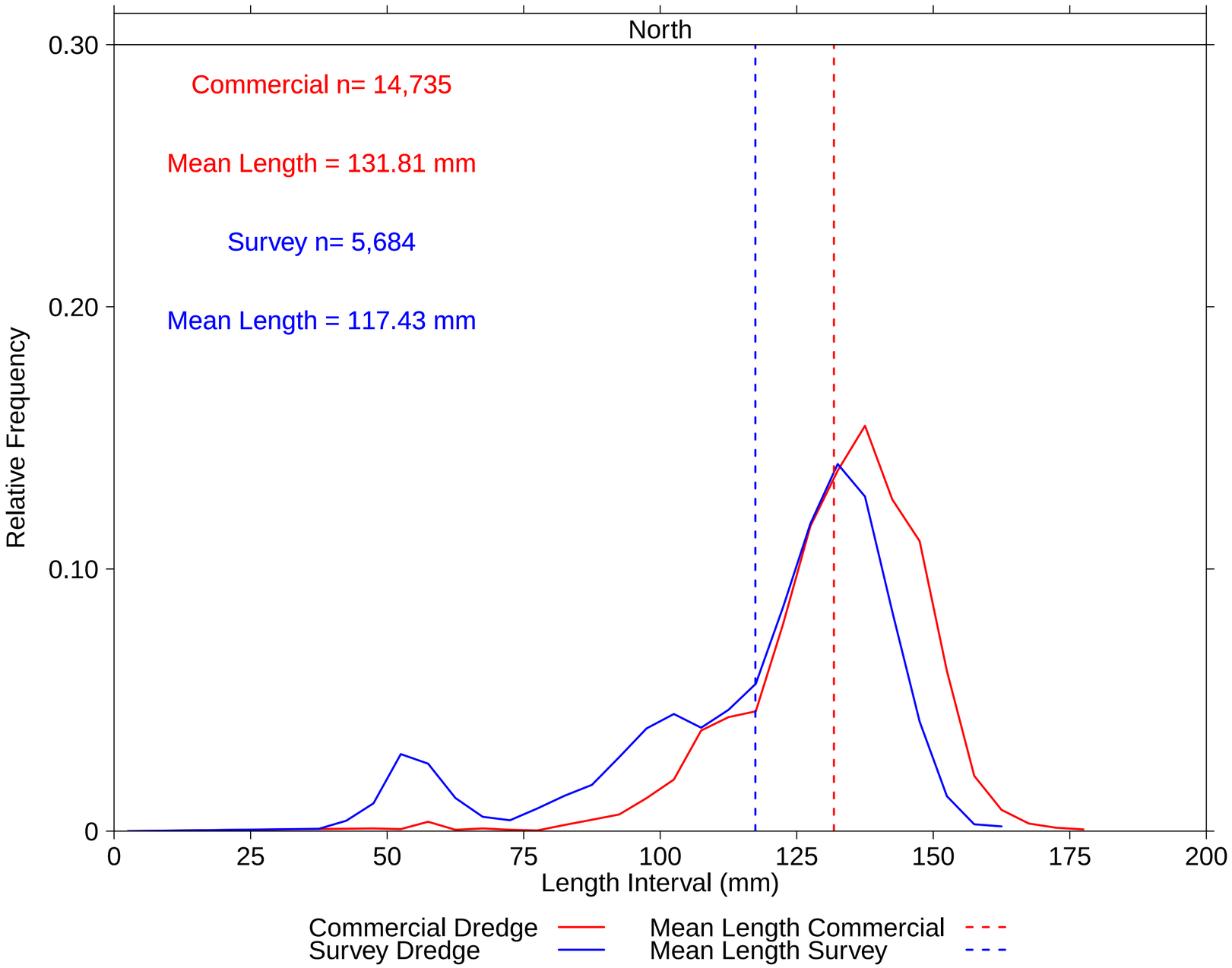
Right − Absolute Number of Scallops Caught at Length Table



SAMS_Area	Length	Commercial	Survey
NLS_North	37.5	0	5
NLS_North	42.5	0	22
NLS_North	47.5	15	60
NLS_North	52.5	11	167
NLS_North	57.5	52	146
NLS_North	62.5	8	72
NLS_North	67.5	15	31
NLS_North	72.5	8	24
NLS_North	77.5	4	49
NLS_North	82.5	35	77
NLS_North	87.5	64	100
NLS_North	92.5	94	160
NLS_North	97.5	185	223
NLS_North	102.5	290	254
NLS_North	107.5	565	224
NLS_North	112.5	640	263
NLS_North	117.5	673	319
NLS_North	122.5	1,164	486
NLS_North	127.5	1,714	667
NLS_North	132.5	2,026	796
NLS_North	137.5	2,278	725
NLS_North	142.5	1,864	476
NLS_North	147.5	1,630	238
NLS_North	152.5	899	76
NLS_North	157.5	311	15
NLS_North	162.5	119	10
NLS_North	167.5	42	0
NLS_North	172.5	19	0
NLS_North	177.5	10	0

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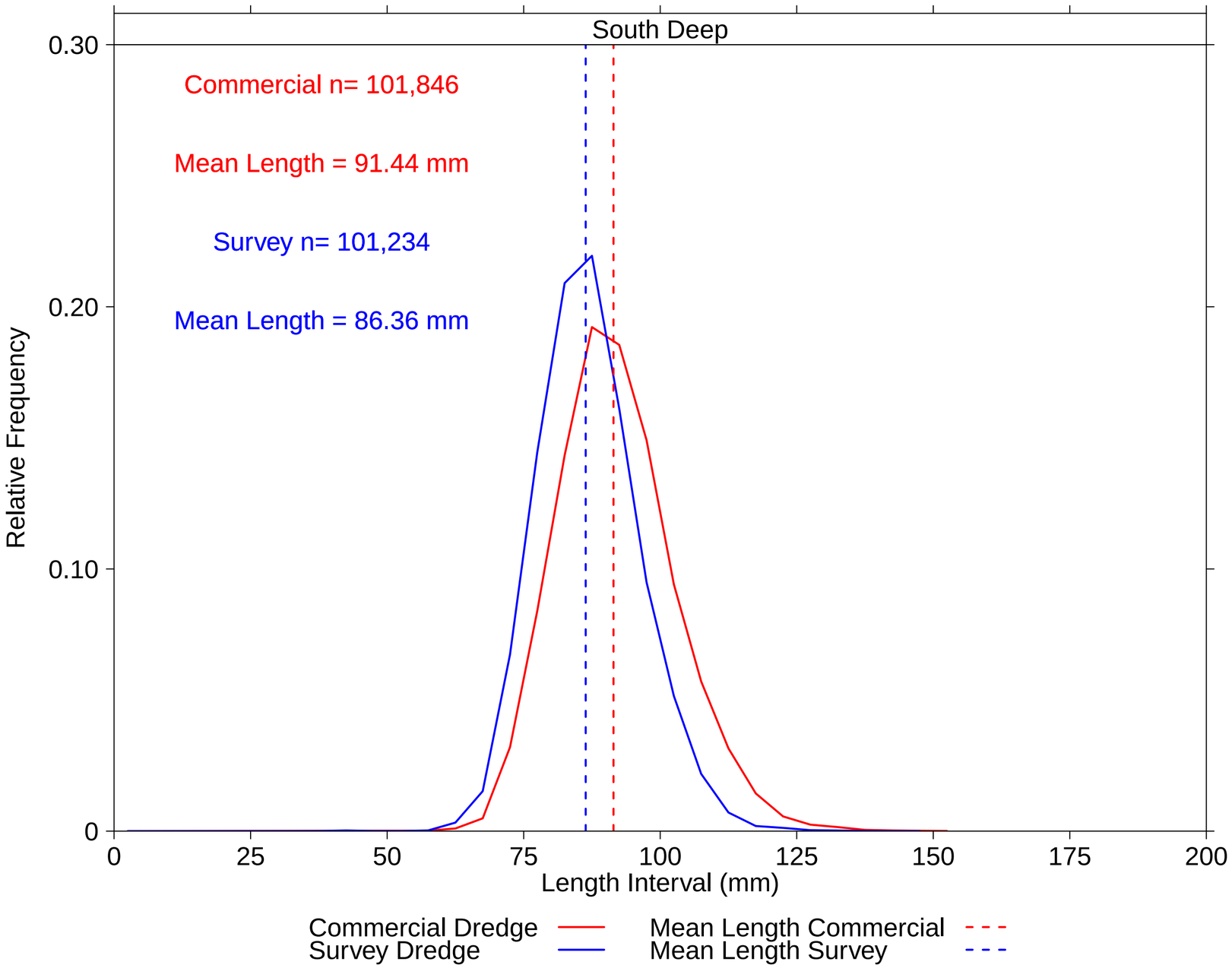
Left − Relative Length Frequency Graph

Right − Absolute Number of Scallops Caught at Length Table

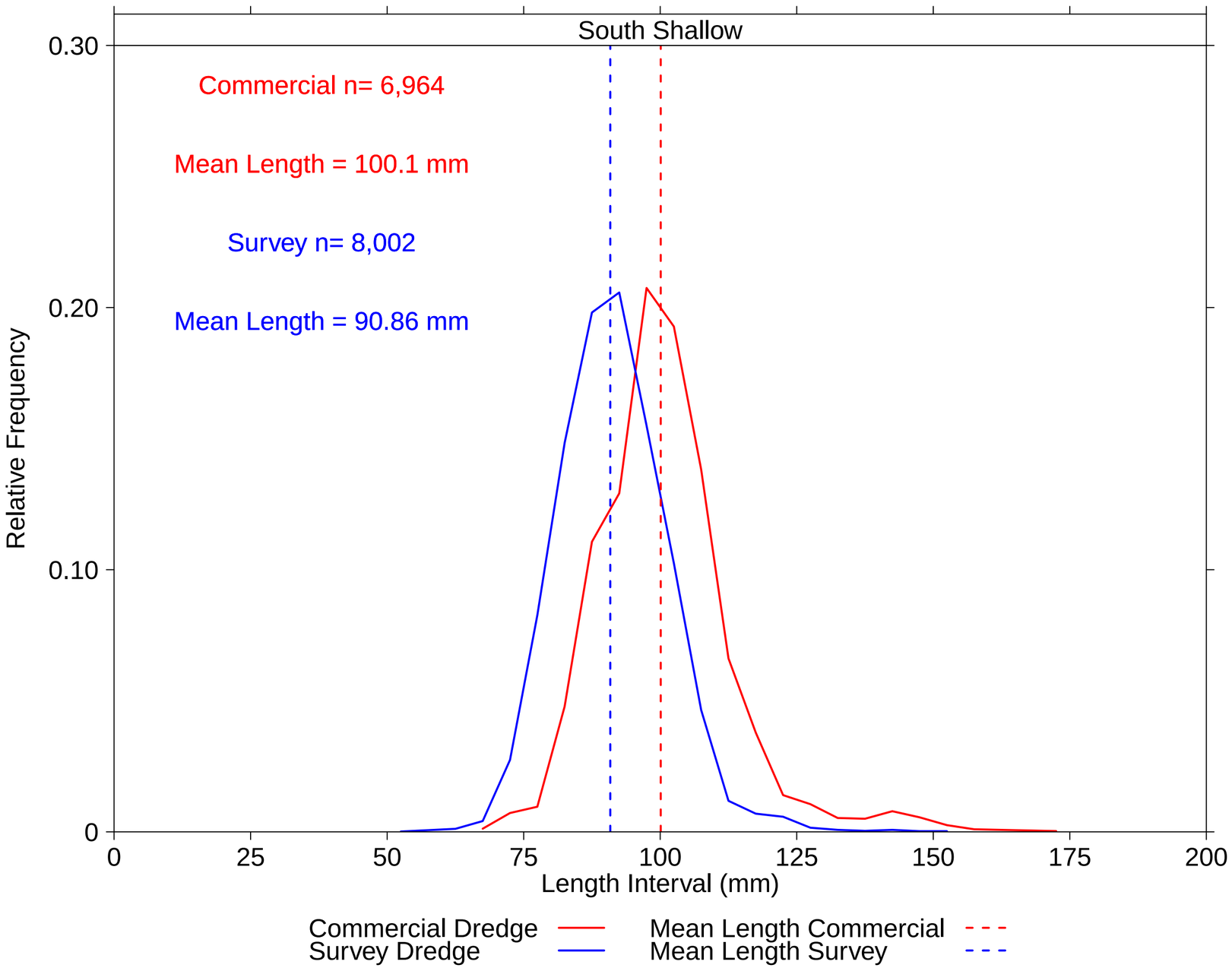


SAMS_Area	Length	Commercial	Survey
NLS_South_Deep	32.5	0	2
NLS_South_Deep	37.5	0	5
NLS_South_Deep	42.5	0	25
NLS_South_Deep	47.5	0	5
NLS_South_Deep	52.5	0	4
NLS_South_Deep	57.5	17	25
NLS_South_Deep	62.5	102	328
NLS_South_Deep	67.5	496	1,542
NLS_South_Deep	72.5	3,262	6,822
NLS_South_Deep	77.5	8,566	14,644
NLS_South_Deep	82.5	14,597	21,161
NLS_South_Deep	87.5	19,581	22,217
NLS_South_Deep	92.5	18,890	16,311
NLS_South_Deep	97.5	15,189	9,609
NLS_South_Deep	102.5	9,587	5,218
NLS_South_Deep	107.5	5,816	2,211
NLS_South_Deep	112.5	3,212	717
NLS_South_Deep	117.5	1,464	196
NLS_South_Deep	122.5	570	125
NLS_South_Deep	127.5	250	35
NLS_South_Deep	132.5	156	22
NLS_South_Deep	137.5	47	6
NLS_South_Deep	142.5	24	2
NLS_South_Deep	147.5	14	1
NLS_South_Deep	152.5	6	0

Number Caught at Length by Gear

Left − Relative Length Frequency Graph

Right − Absolute Number of Scallops Caught at Length Table

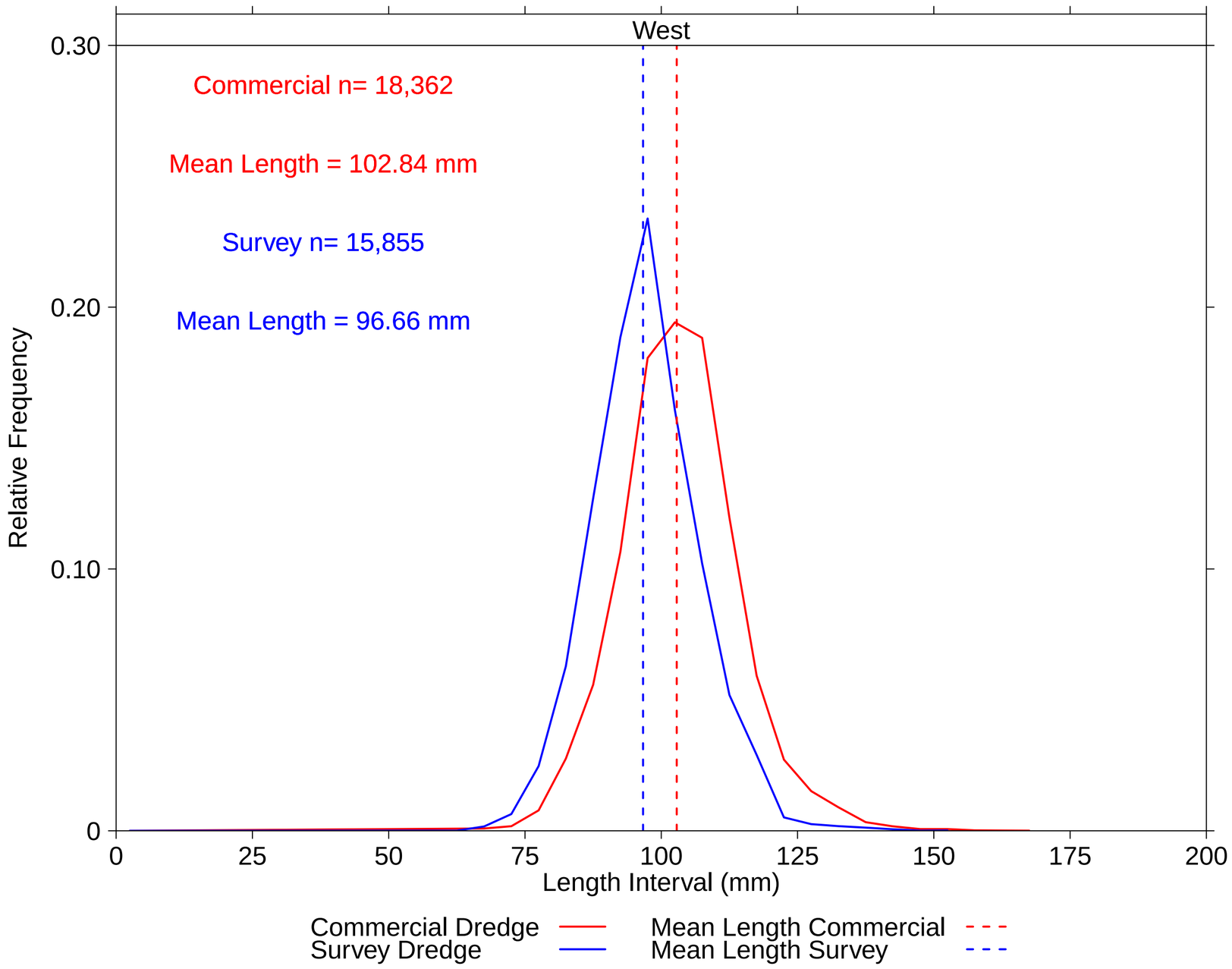


SAMS_Area	Length	Commercial	Survey
NLS_South_Shallow	52.5	0	1
NLS_South_Shallow	62.5	0	9
NLS_South_Shallow	67.5	8	33
NLS_South_Shallow	72.5	50	220
NLS_South_Shallow	77.5	67	661
NLS_South_Shallow	82.5	333	1,187
NLS_South_Shallow	87.5	771	1,585
NLS_South_Shallow	92.5	899	1,646
NLS_South_Shallow	97.5	1,445	1,240
NLS_South_Shallow	102.5	1,342	820
NLS_South_Shallow	107.5	963	372
NLS_South_Shallow	112.5	461	95
NLS_South_Shallow	117.5	264	55
NLS_South_Shallow	122.5	98	46
NLS_South_Shallow	127.5	74	13
NLS_South_Shallow	132.5	37	6
NLS_South_Shallow	137.5	35	3
NLS_South_Shallow	142.5	55	6
NLS_South_Shallow	147.5	38	2
NLS_South_Shallow	152.5	18	2
NLS_South_Shallow	157.5	7	0
NLS_South_Shallow	172.5	2	0

Number Caught at Length by Gear

Left − Relative Length Frequency Graph

Right − Absolute Number of Scallops Caught at Length Table

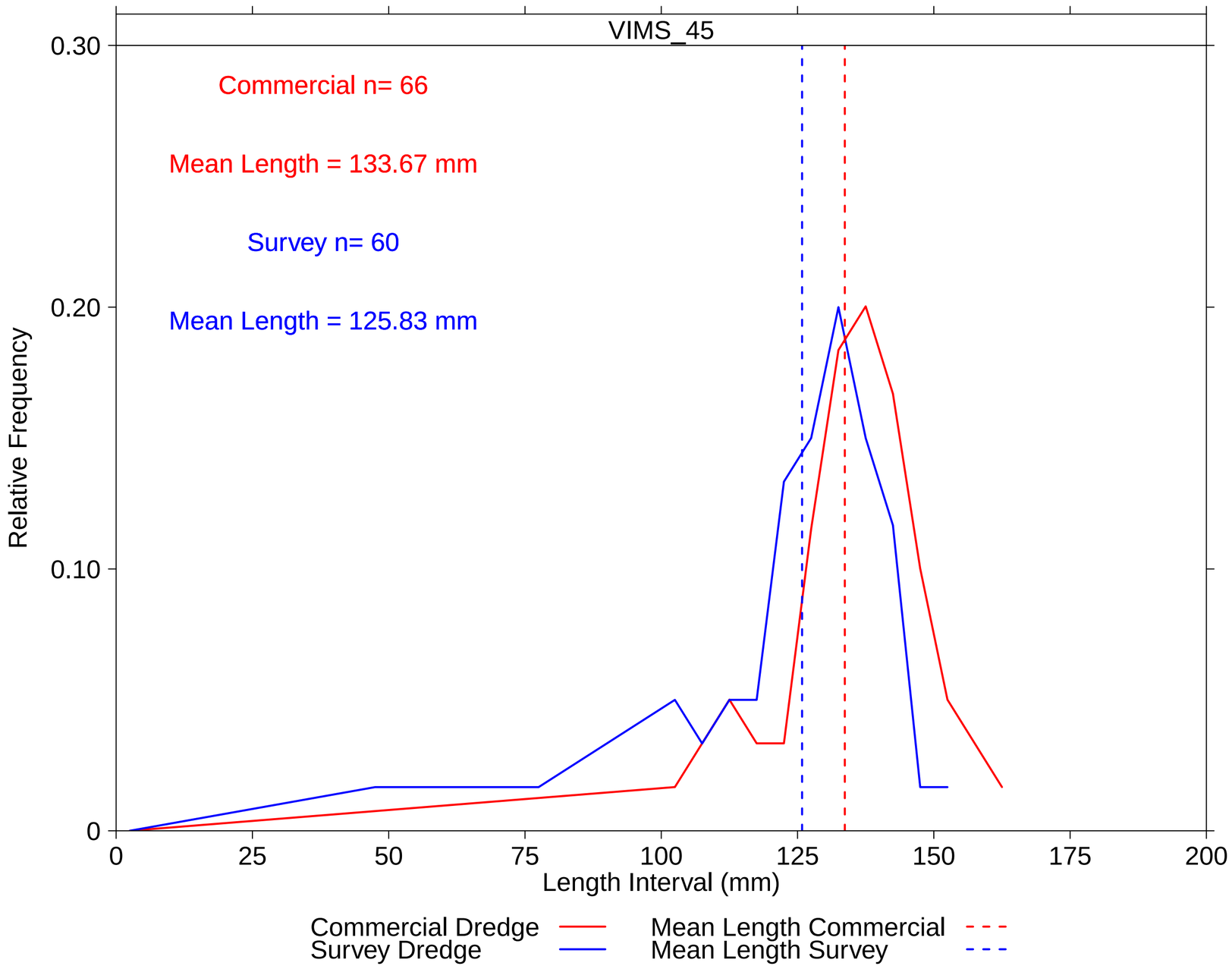


SAMS_Area	Length	Commercial	Survey
NLS_West	52.5	0	1
NLS_West	57.5	0	1
NLS_West	62.5	0	1
NLS_West	67.5	16	26
NLS_West	72.5	32	101
NLS_West	77.5	143	392
NLS_West	82.5	506	997
NLS_West	87.5	1,024	2,012
NLS_West	92.5	1,956	2,989
NLS_West	97.5	3,316	3,708
NLS_West	102.5	3,566	2,547
NLS_West	107.5	3,457	1,619
NLS_West	112.5	2,196	822
NLS_West	117.5	1,087	459
NLS_West	122.5	499	81
NLS_West	127.5	278	40
NLS_West	132.5	165	28
NLS_West	137.5	60	19
NLS_West	142.5	31	9
NLS_West	147.5	12	1
NLS_West	152.5	12	2
NLS_West	157.5	3	0
NLS_West	162.5	2	0
NLS_West	167.5	1	0

Number Caught at Length by Gear

Left − Relative Length Frequency Graph

Right − Absolute Number of Scallops Caught at Length Table

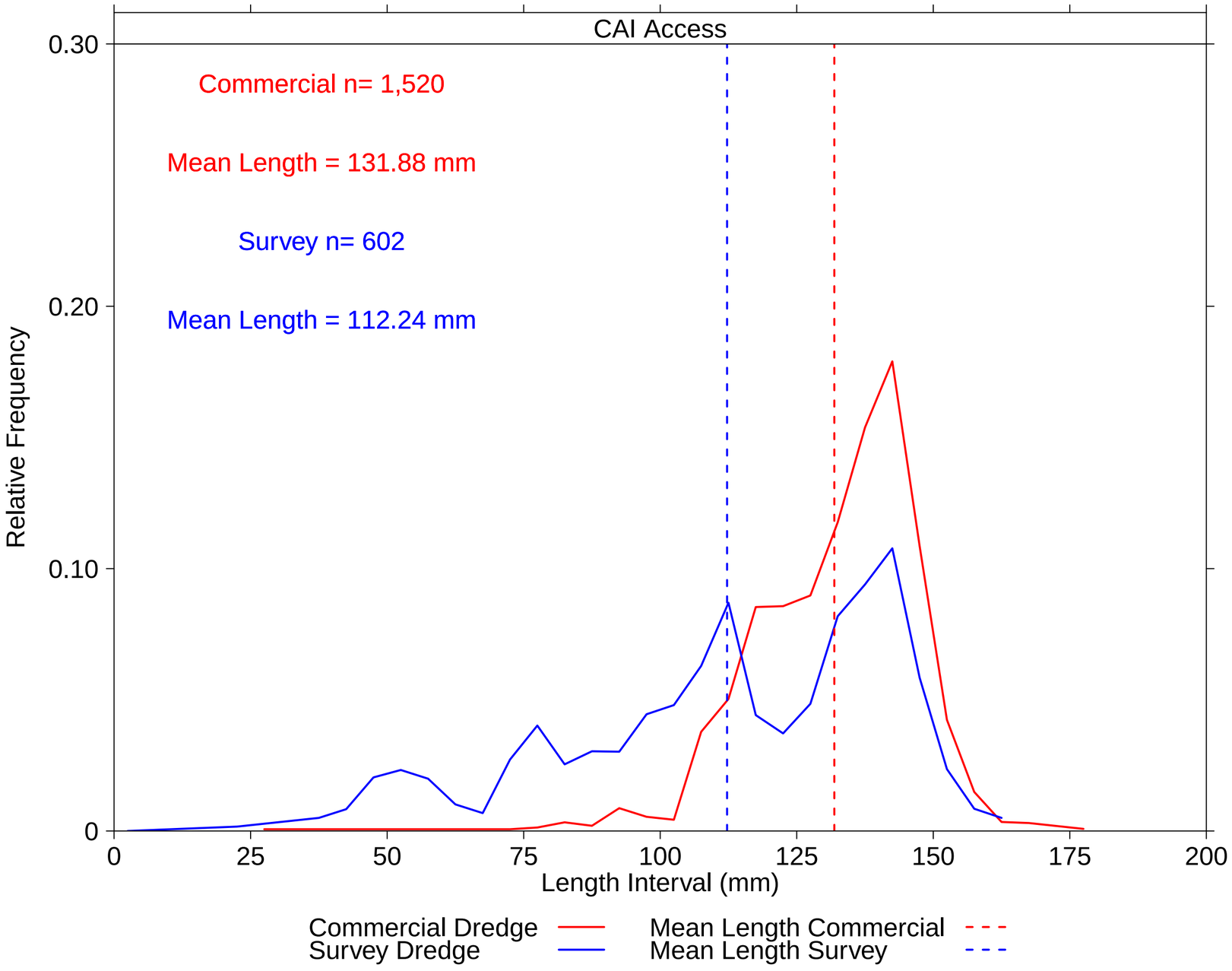


SAMS_Area	Length	Commercial	Survey
VIMS_45	47.5	0	1
VIMS_45	77.5	0	1
VIMS_45	102.5	1	3
VIMS_45	107.5	2	2
VIMS_45	112.5	3	3
VIMS_45	117.5	2	3
VIMS_45	122.5	2	8
VIMS_45	127.5	8	9
VIMS_45	132.5	12	12
VIMS_45	137.5	13	9
VIMS_45	142.5	11	7
VIMS_45	147.5	7	1
VIMS_45	152.5	3	1
VIMS_45	162.5	1	0

Number Caught at Length by Gear

Left − Relative Length Frequency Graph

Right − Absolute Number of Scallops Caught at Length Table

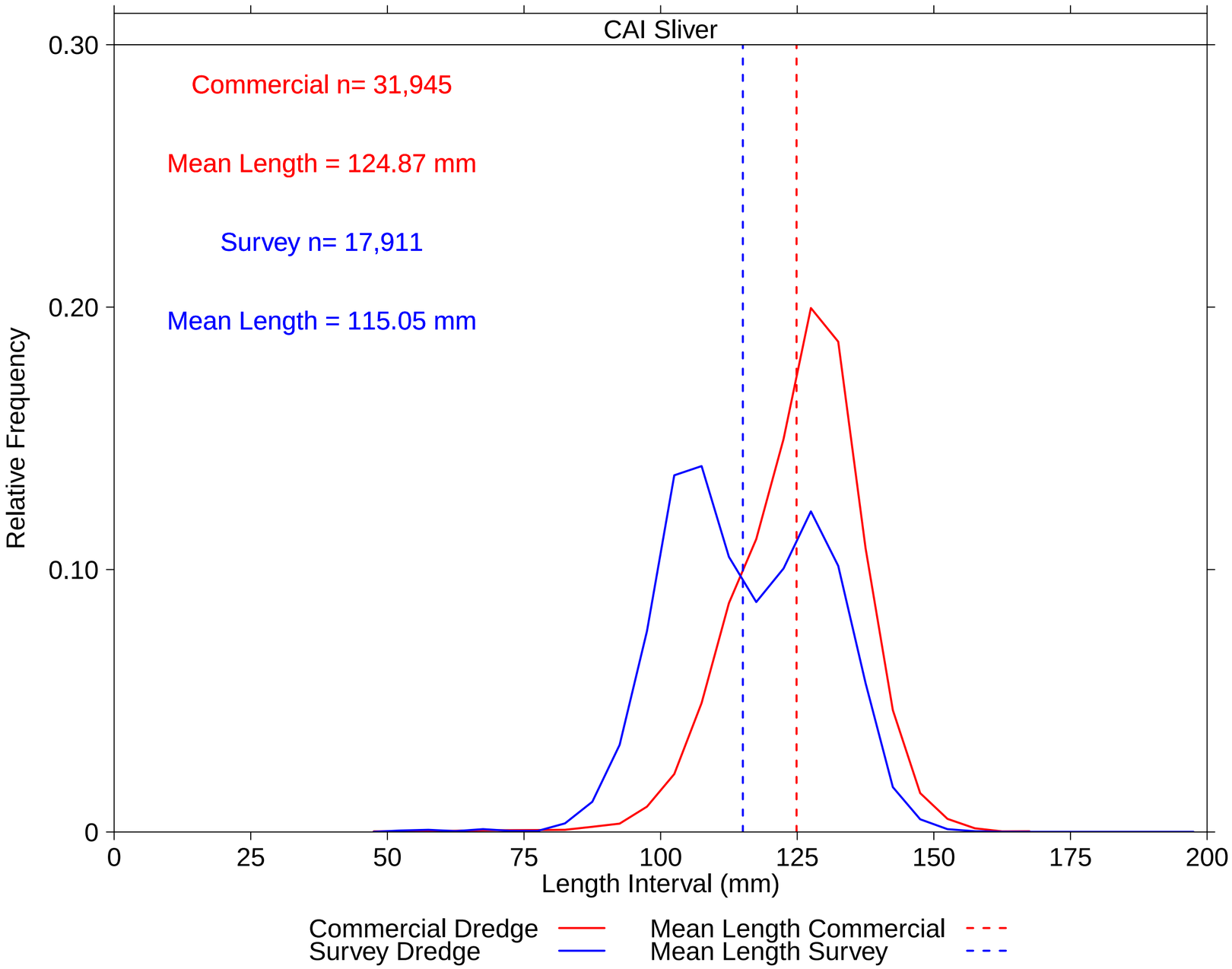


SAMS_Area	Length	Commercial	Survey
CAI_Access	22.5	0	1
CAI_Access	27.5	1	0
CAI_Access	37.5	0	3
CAI_Access	42.5	1	5
CAI_Access	47.5	0	12
CAI_Access	52.5	0	14
CAI_Access	57.5	0	12
CAI_Access	62.5	0	6
CAI_Access	67.5	1	4
CAI_Access	72.5	1	16
CAI_Access	77.5	2	24
CAI_Access	82.5	5	15
CAI_Access	87.5	3	18
CAI_Access	92.5	13	18
CAI_Access	97.5	8	27
CAI_Access	102.5	6	29
CAI_Access	107.5	57	38
CAI_Access	112.5	76	52
CAI_Access	117.5	130	27
CAI_Access	122.5	130	22
CAI_Access	127.5	136	29
CAI_Access	132.5	179	49
CAI_Access	137.5	234	57
CAI_Access	142.5	272	65
CAI_Access	147.5	165	35
CAI_Access	152.5	64	14
CAI_Access	157.5	23	5
CAI_Access	162.5	5	3
CAI_Access	167.5	5	0
CAI_Access	177.5	1	0

Number Caught at Length by Gear

Left − Relative Length Frequency Graph

Right − Absolute Number of Scallops Caught at Length Table

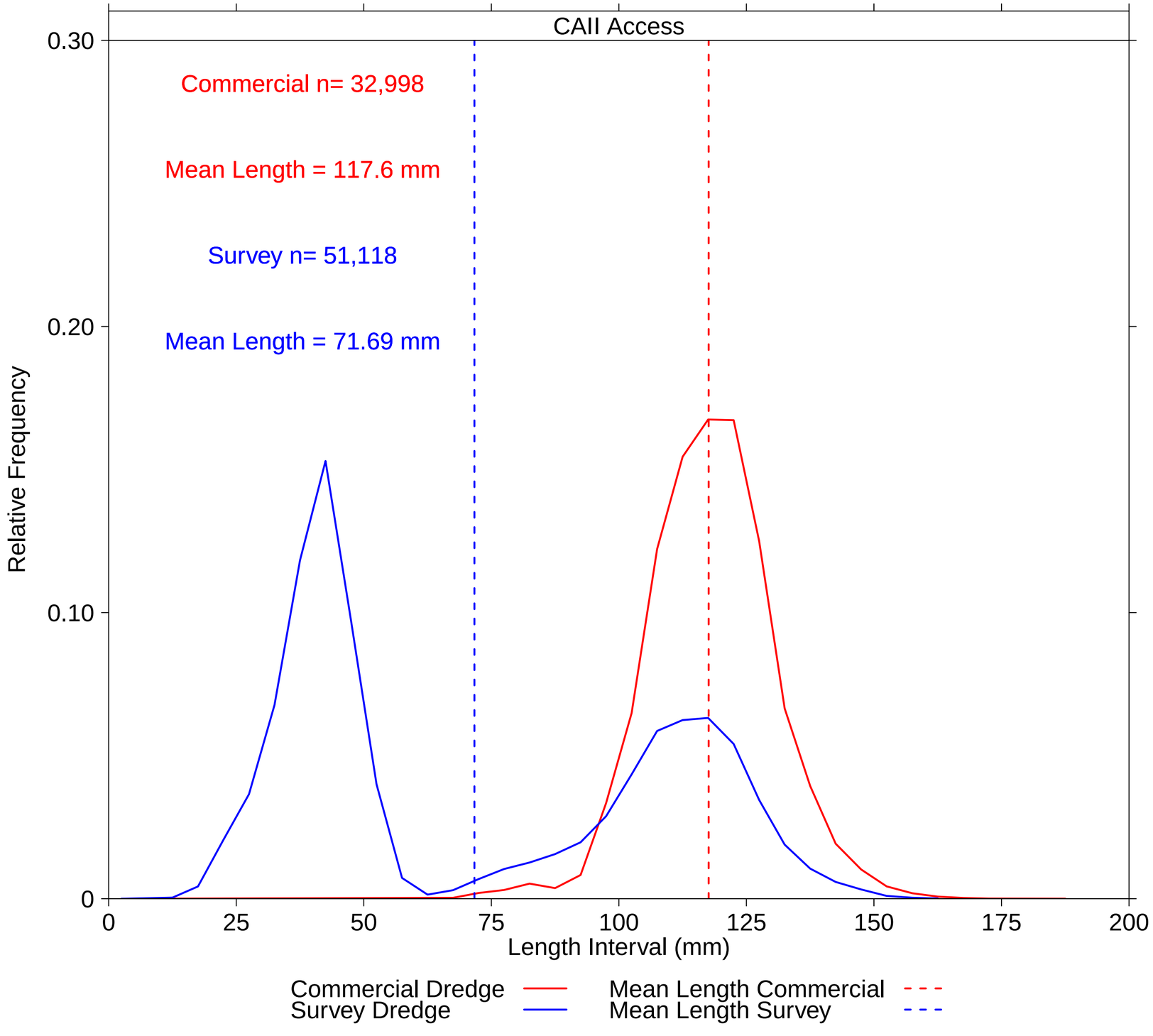


SAMS_Area	Length	Commercial	Survey
CAI_Sliver	47.5	7	1
CAI_Sliver	52.5	0	10
CAI_Sliver	57.5	8	15
CAI_Sliver	62.5	0	6
CAI_Sliver	67.5	20	19
CAI_Sliver	72.5	0	8
CAI_Sliver	77.5	23	7
CAI_Sliver	82.5	26	59
CAI_Sliver	87.5	63	206
CAI_Sliver	92.5	102	594
CAI_Sliver	97.5	308	1,371
CAI_Sliver	102.5	705	2,434
CAI_Sliver	107.5	1,570	2,497
CAI_Sliver	112.5	2,786	1,878
CAI_Sliver	117.5	3,565	1,569
CAI_Sliver	122.5	4,784	1,799
CAI_Sliver	127.5	6,378	2,188
CAI_Sliver	132.5	5,968	1,816
CAI_Sliver	137.5	3,456	1,017
CAI_Sliver	142.5	1,482	306
CAI_Sliver	147.5	473	87
CAI_Sliver	152.5	159	19
CAI_Sliver	157.5	45	5
CAI_Sliver	162.5	7	1
CAI_Sliver	167.5	8	0
CAI_Sliver	197.5	0	1

Number Caught at Length by Gear

Left − Relative Length Frequency Graph

Right − Absolute Number of Scallops Caught at Length Table

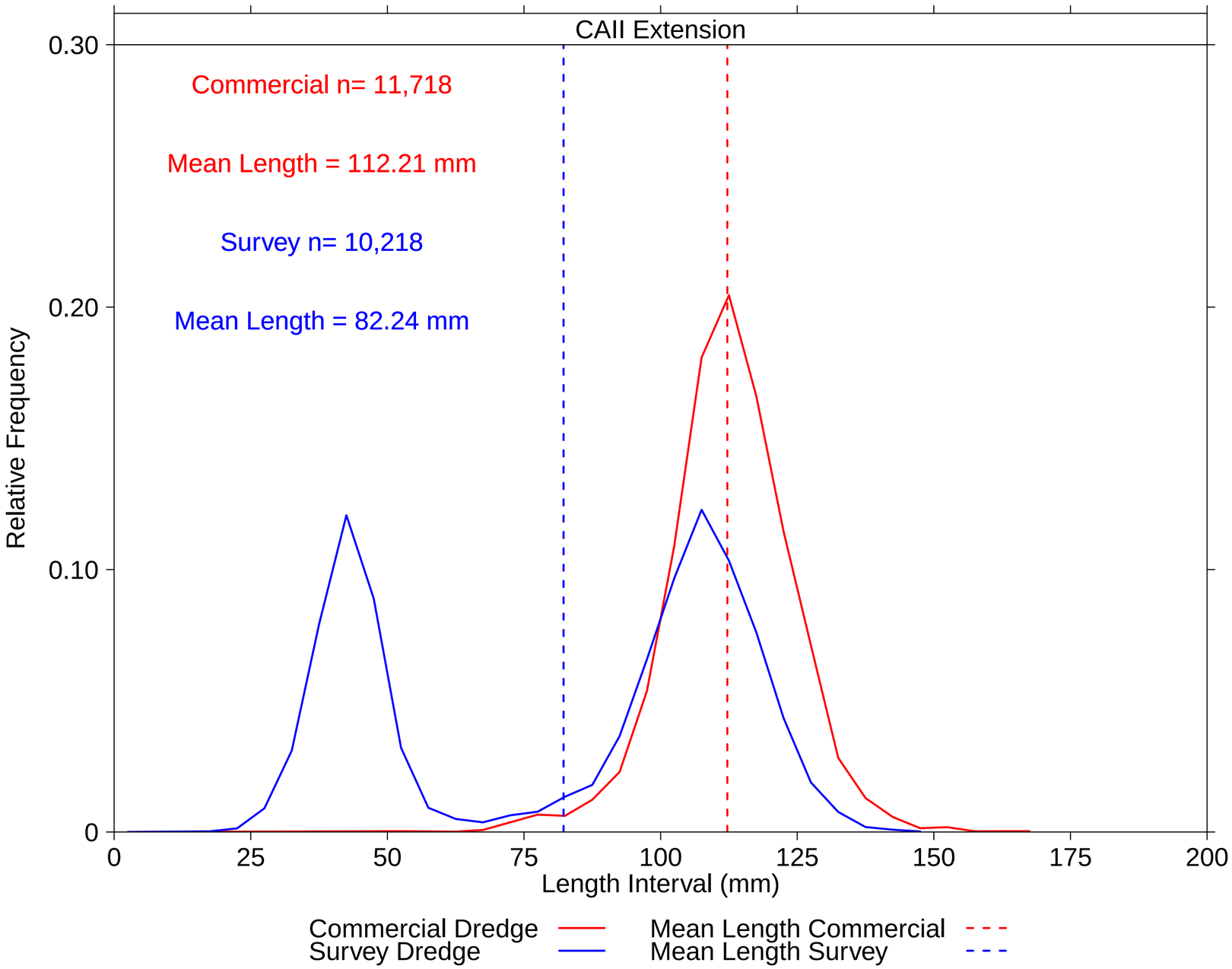


SAMS_Area	Length	Commercial	Survey
CAII_Access	12.5	0	20
CAII_Access	17.5	0	219
CAII_Access	22.5	0	1,054
CAII_Access	27.5	0	1,868
CAII_Access	32.5	0	3,461
CAII_Access	37.5	0	6,047
CAII_Access	42.5	0	7,820
CAII_Access	47.5	0	4,969
CAII_Access	52.5	0	2,044
CAII_Access	57.5	0	371
CAII_Access	62.5	0	73
CAII_Access	67.5	11	153
CAII_Access	72.5	66	351
CAII_Access	77.5	101	531
CAII_Access	82.5	174	647
CAII_Access	87.5	122	797
CAII_Access	92.5	273	1,008
CAII_Access	97.5	1,104	1,474
CAII_Access	102.5	2,140	2,221
CAII_Access	107.5	4,033	2,997
CAII_Access	112.5	5,097	3,192
CAII_Access	117.5	5,526	3,230
CAII_Access	122.5	5,519	2,765
CAII_Access	127.5	4,123	1,765
CAII_Access	132.5	2,194	966
CAII_Access	137.5	1,300	538
CAII_Access	142.5	634	300
CAII_Access	147.5	337	166
CAII_Access	152.5	142	50
CAII_Access	157.5	63	18
CAII_Access	162.5	24	5
CAII_Access	167.5	9	0
CAII_Access	172.5	2	0
CAII_Access	187.5	1	0

Number Caught at Length by Gear

Left − Relative Length Frequency Graph

Right − Absolute Number of Scallops Caught at Length Table

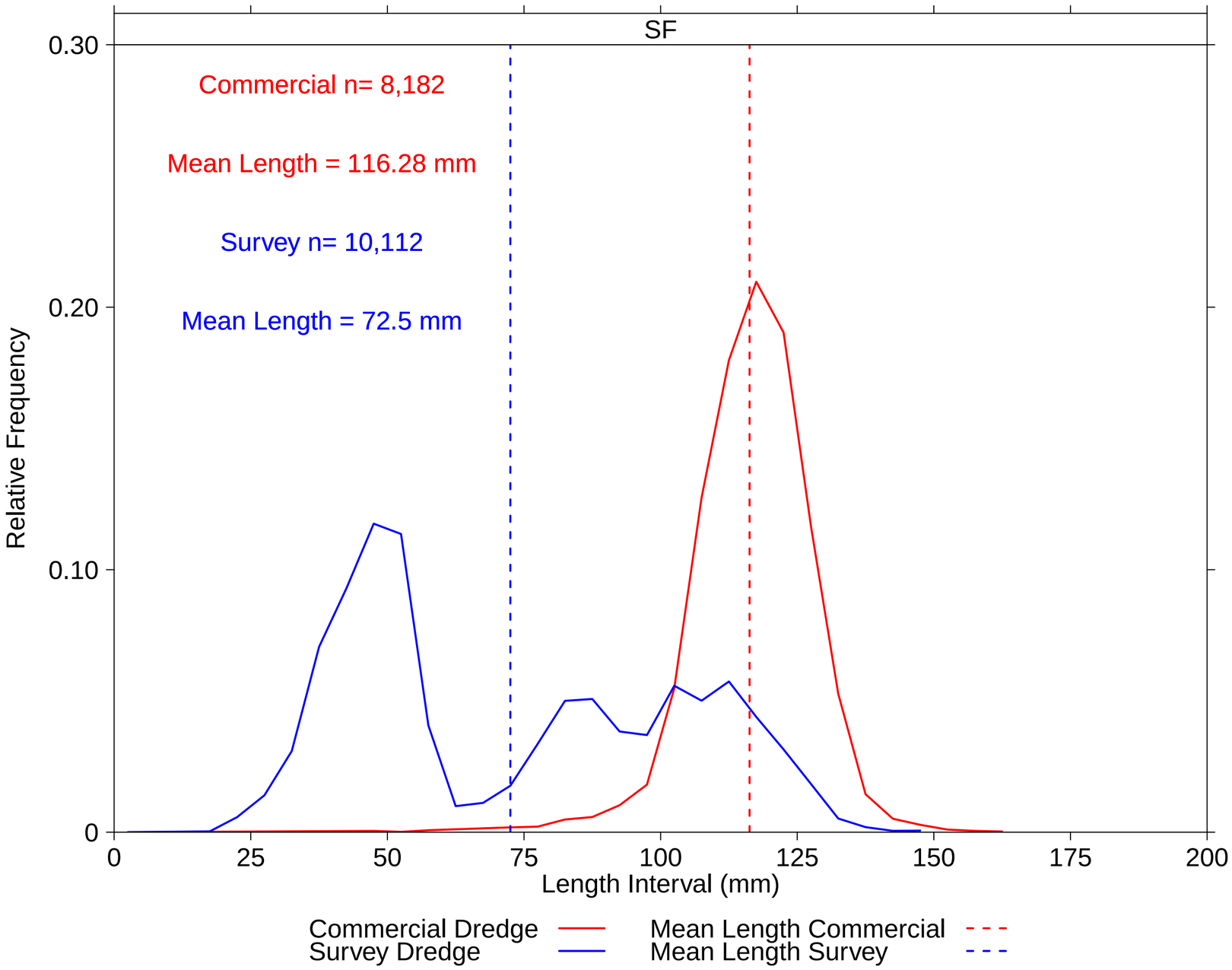


SAMS_Area	Length	Commercial	Survey
CAII_Ext	17.5	0	2
CAII_Ext	22.5	0	14
CAII_Ext	27.5	0	92
CAII_Ext	32.5	0	317
CAII_Ext	37.5	0	809
CAII_Ext	42.5	0	1,233
CAII_Ext	47.5	0	909
CAII_Ext	52.5	4	328
CAII_Ext	57.5	3	94
CAII_Ext	62.5	1	51
CAII_Ext	67.5	9	38
CAII_Ext	72.5	0	65
CAII_Ext	77.5	77	79
CAII_Ext	82.5	72	137
CAII_Ext	87.5	144	183
CAII_Ext	92.5	268	373
CAII_Ext	97.5	630	672
CAII_Ext	102.5	1,278	988
CAII_Ext	107.5	2,118	1,254
CAII_Ext	112.5	2,397	1,057
CAII_Ext	117.5	1,948	778
CAII_Ext	122.5	1,342	443
CAII_Ext	127.5	834	193
CAII_Ext	132.5	331	78
CAII_Ext	137.5	151	19
CAII_Ext	142.5	67	9
CAII_Ext	147.5	17	2
CAII_Ext	152.5	21	0
CAII_Ext	157.5	3	0
CAII_Ext	167.5	4	0

Number Caught at Length by Gear

Left − Relative Length Frequency Graph

Right − Absolute Number of Scallops Caught at Length Table



SAMS_Area	Length	Commercial	Survey
SF	17.5	0	3
SF	22.5	0	58
SF	27.5	0	142
SF	32.5	0	312
SF	37.5	0	714
SF	42.5	0	939
SF	47.5	4	1,189
SF	52.5	1	1,149
SF	57.5	6	411
SF	62.5	0	100
SF	67.5	0	113
SF	72.5	15	179
SF	77.5	17	340
SF	82.5	40	506
SF	87.5	47	513
SF	92.5	84	388
SF	97.5	148	374
SF	102.5	448	564
SF	107.5	1,043	506
SF	112.5	1,471	580
SF	117.5	1,716	444
SF	122.5	1,558	319
SF	127.5	955	186
SF	132.5	432	53
SF	137.5	118	19
SF	142.5	42	5
SF	147.5	23	6
SF	152.5	8	0
SF	157.5	4	0
SF	162.5	2	0

4.0 SPECIAL COMMENTS

RECRUITMENT

Recruitment was observed in CAII Access Area and CAII Ext SAMS Areas on Georges Bank. This recruitment was observed on the boundary of the two SAMS Areas, as well as on the Eastern side of the Access Area. The spatial overlap between these recruits and scallops larger than 75 mm appears to be limited in the Access Area SAMS Area.

Small scale recruitment was observed throughout the open area in the Mid-Atlantic, mainly in the NYB, LI, and BI SAMS Areas. The highest concentrations of recruits were observed north of HCS around the Gully.

MAB SURVEY NEMATODE DISTRIBUTION

The prevalence and intensity of nematodes present in scallops in the MAB has been monitored by VIMS since 2015. Prevalence is defined as the number of scallops observed to be infected with nematodes out of all scallops sampled for SHMW analysis at the station-level. Intensity is defined as the number of lesions observed in infected scallops. Figures 1 and 2 below illustrate the spatial distribution of the prevalence and intensity of nematode infected scallops observed in the VIMS surveys for 2015 - 2019. The majority of infected scallops have been observed in the southern extent of the resource (VIR, DMV, and the ET areas). Since 2016, nematode infected scallops have also been detected in the HCS, although the distribution is patchy and prevalence is low. The distribution of infected scallops observed in 2019 was greatly reduced compared to previous years for both prevalence and intensity. The ET Open and ET Flex were the only areas with a higher proportion of infected scallops, as well as the greatest number of lesions observed per scallop. The distribution of infected scallops in these two areas was patchy in terms of the number of lesions observed per scallop. The number of infected scallops in the southern portion of the resource area also declined since 2018. There were a few stations where a high percentage of infected scallops were observed, but for the majority of the DMV and VIR the proportion of infected scallops was less than 20% and the number of lesions observed ranged from 1 - 2. Very few infected scallops were observed north of Delaware Bay in portions of HCS, MAB Nearshore, NYB or the open areas off of LI and BI.

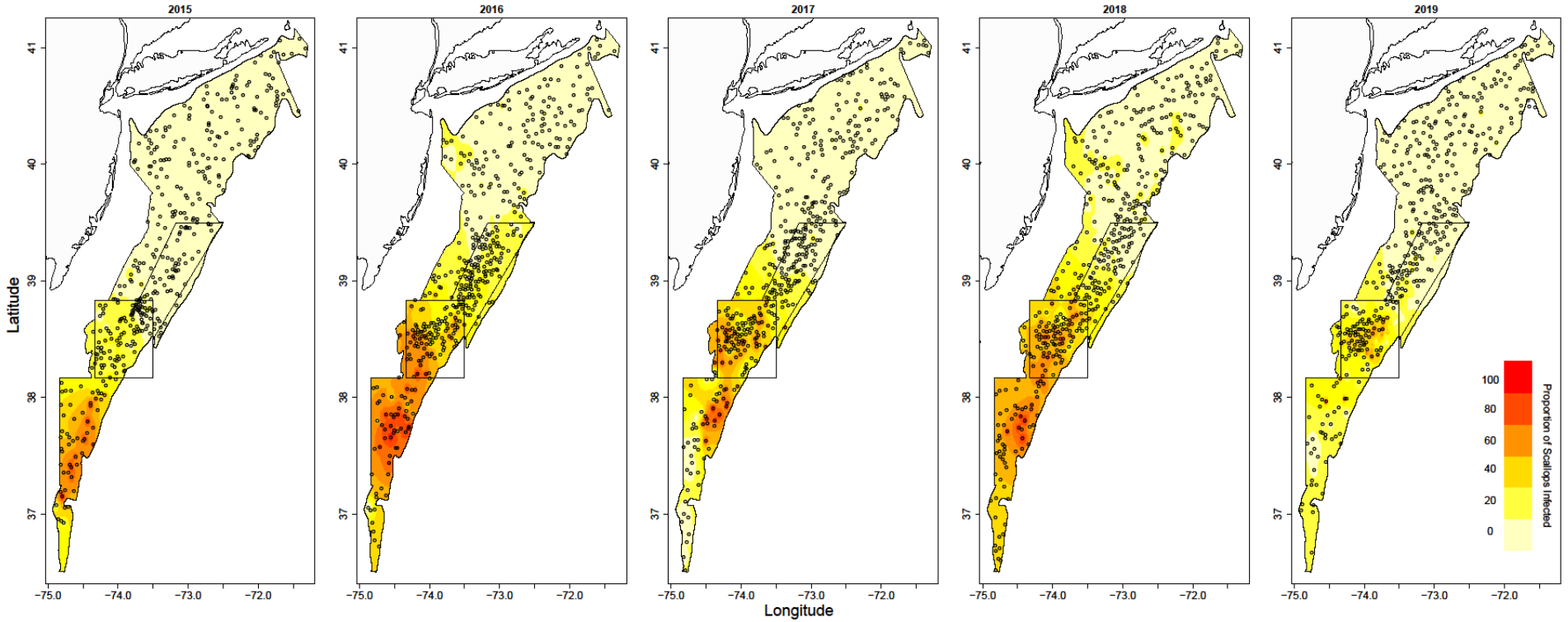


Figure 1. Proportion of nematode infected scallops as a percentage of all scallops assessed during SHMW analysis at the station-level by year for 2015 - 2019 from the VIMS dredge survey.

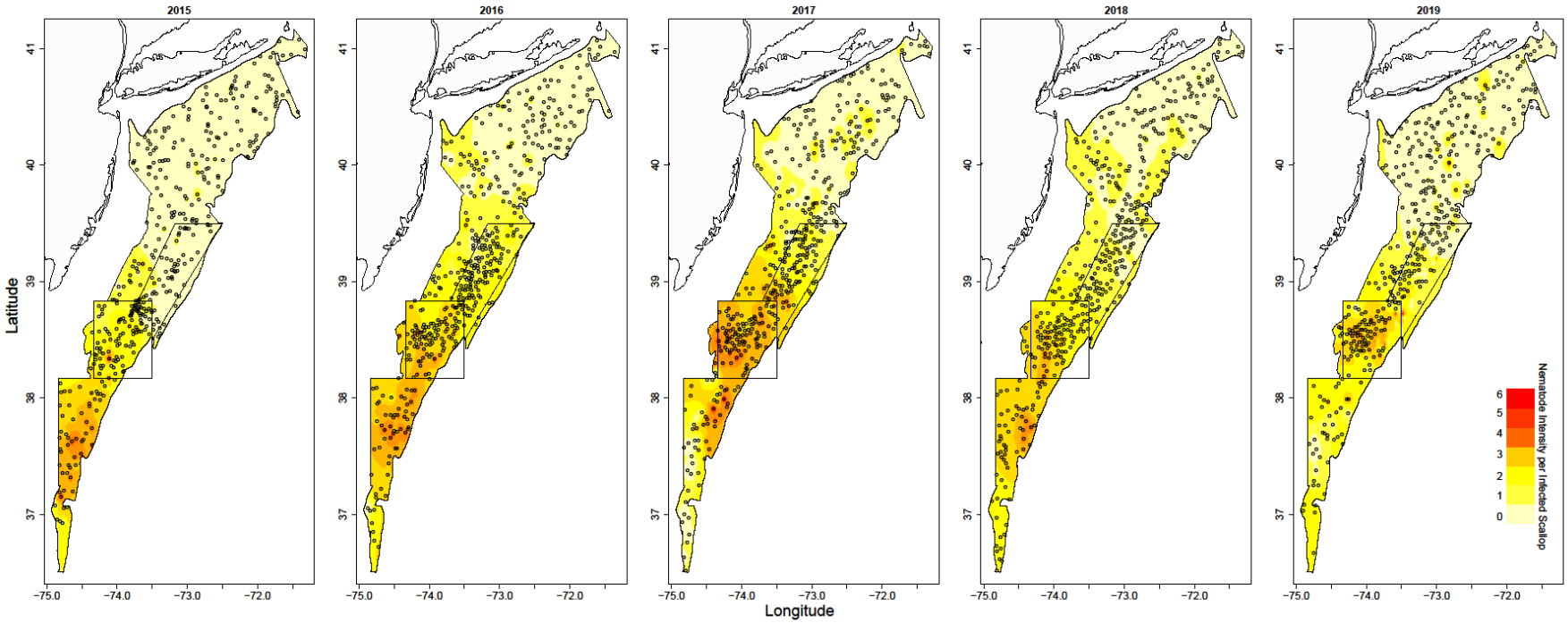


Figure 2. Intensity of nematode lesions observed in infected scallops assessed during SHMW analysis at the station-level by year for 2015 - 2019 from the VIMS dredge survey.

NLS-WEST CLAPPER INFORMATION

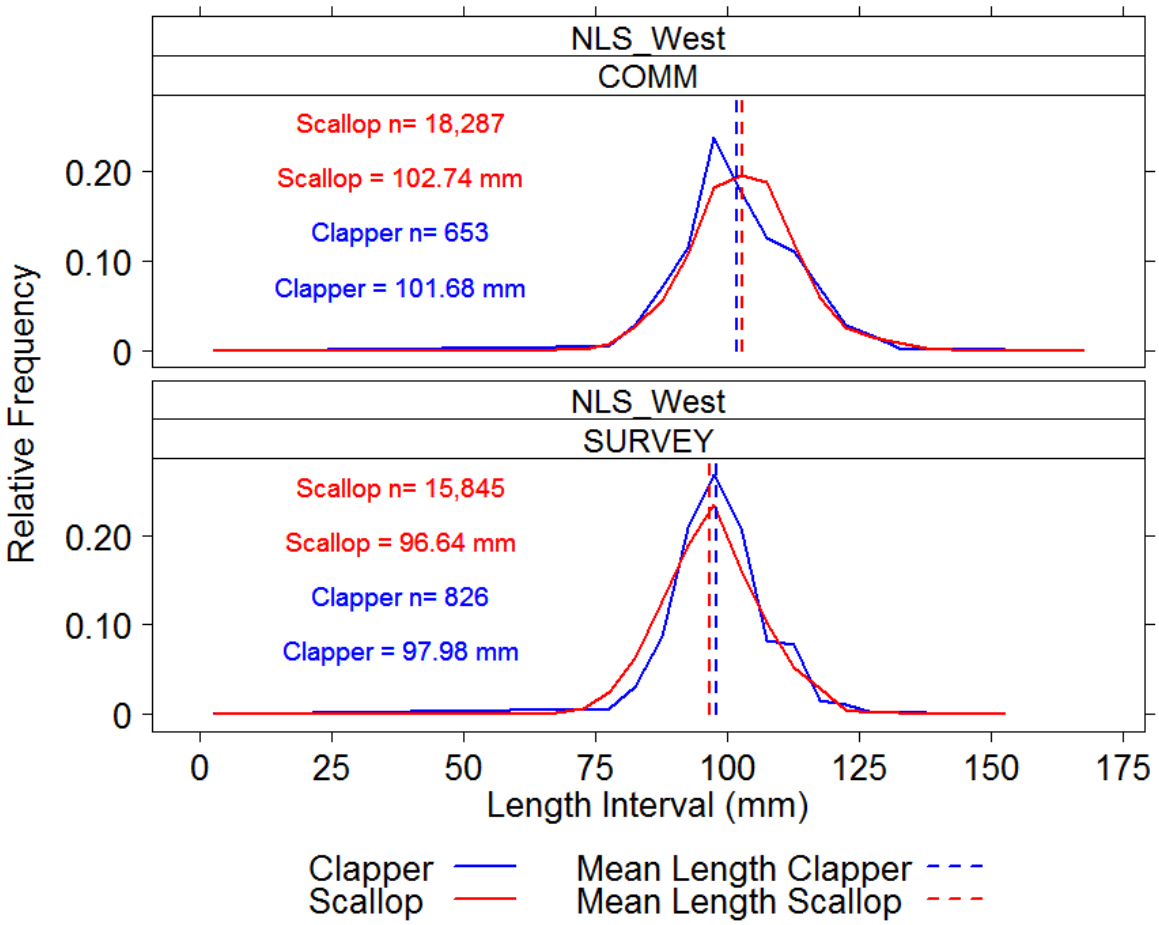
We observed large quantities of clappers in the NLS-West SAMS Area. While the presence of clappers can be associated with natural mortality, the increased number of clappers present in conjunction with the amount of fishing effort in this SAMS area maybe an indication of higher than expected discard and/or incidental mortality. This information may provide insight into potential fishery behavior in the South Deep SAMS Area in the future, due to the size range of scallops in this SAMS Area. We looked at the percentage of stations were at least on clapper was observed, length frequency distributions of clappers and live scallops, the spatial distribution of clappers, and the spatial distribution of predators in our NL survey domain.

The percentage of clappers observed in stations in the NLS-West was the greatest out of the four NL SAMS Areas (Table 1). Clappers were observed in 69% of stations in this SAMS Area for the commercial dredge and 74% of stations for the survey gear.

Table 1. Number of stations were at least on scallop or one clapper was observed by gear and SAMS Area. The percentage of stations with clappers column is the number of stations with at least on observed clapper divided by the total number of stations completed within a SAMS Area.

SAMS Area	Gear	Scallop	Clapper	Percentage of Stations with Clappers
NLS_North	COMM	40	21	50%
	SURVEY	38	23	55%
NLS_South_Deep	COMM	29	15	36%
	SURVEY	30	17	40%
NLS_South_Shallow	COMM	11	6	14%
	SURVEY	11	7	17%
NLS_West	COMM	39	29	69%
	SURVEY	37	31	74%
VIMS_45	COMM	2	1	2%
	SURVEY	2	1	2%

Length frequency distributions in the SAMS Area by gear indicated a similar distribution of clappers and scallops. The mean length of clappers and live scallops were also similar (Figure 3). A large percentage of clappers observed in the commercial gear were between 92.7 to 97.5 mm in length, with a peak at 97.5 mm. This may be an indication high grading of smaller scallops.



The spatial distribution of clappers in the NLS-West overlaps with the distribution of live scallops (Figure 4).

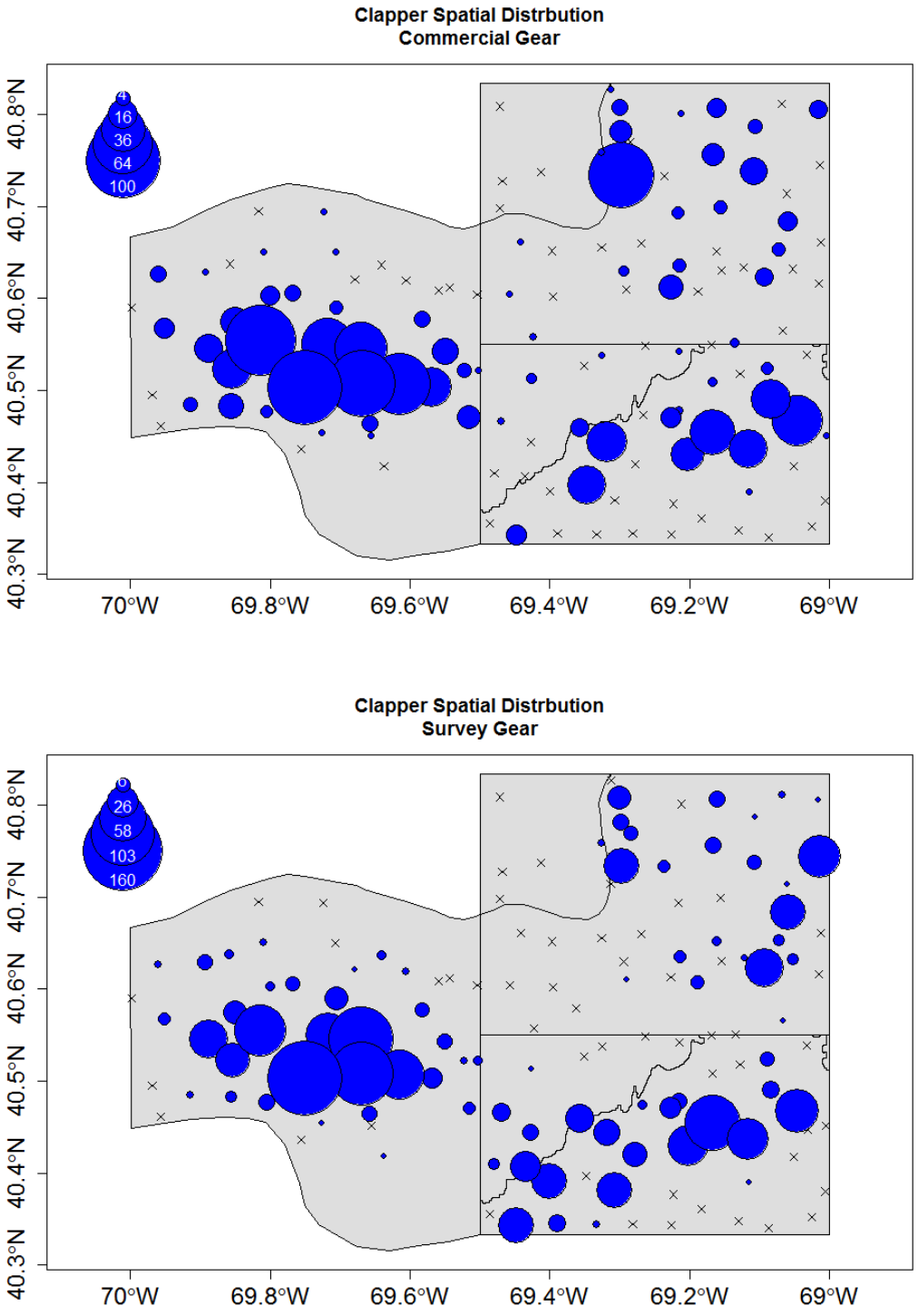


Figure 4. The spatial distribution of the expanded number of clappers by station in the NL survey domain with SAMS Areas for the commercial and survey gears.

We also calculated the percentage of clappers observed at each station. The percentage of clappers was calculated as the expanded number of clappers caught divided by the total expanded catch of live scallops and clappers. The percentage of clappers in the catch was greatest in the NLS-West SAMS Area for both gears (Figure 5). For the majority of stations for the commercial gear, the percentage of clappers in the catch ranged from 1 to 26%. There was one station where only clappers were caught, which resulted in a 100%. Another station had a low catch of live scallops, which also increased the percentage of clappers caught. The percentage of clappers in the catch ranged from 1.6 to 26% in the survey dredge.

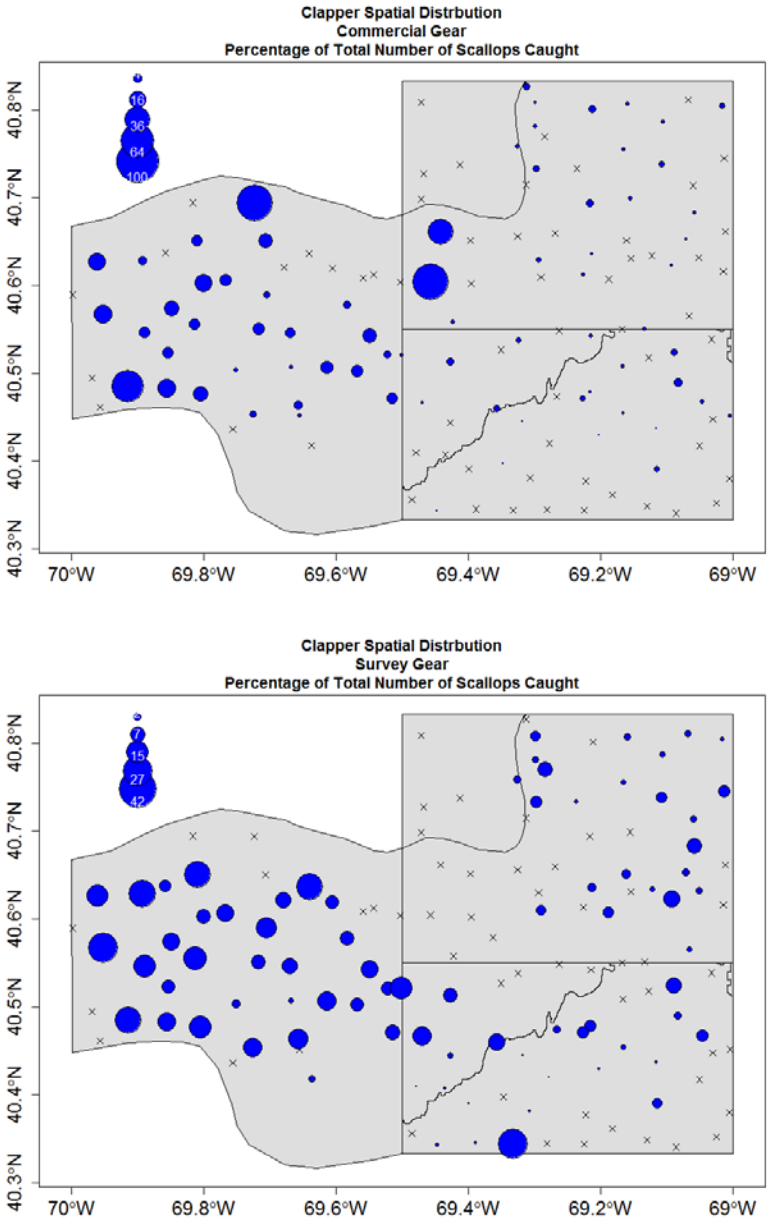


Figure 5. Spatial distribution of the percentage of clappers in the expanded catch by station in the NL survey domain with SAMS Areas for the commercial and survey gears.

The spatial distribution of predators (cancer crabs, sea stars, and whelk) in the survey domain did not indicate a substantial overlap between predators and clappers in the NLS-West SAMS Area (Figure 6). The VIMS predator data should be interpreted with caution. We collect predator data with a systematic approach, where predators are sampled at every fifth station. The data represented in Figure 5 is also the subsample amount of predators observed at a station in weight (grams). The data have not been expanded.

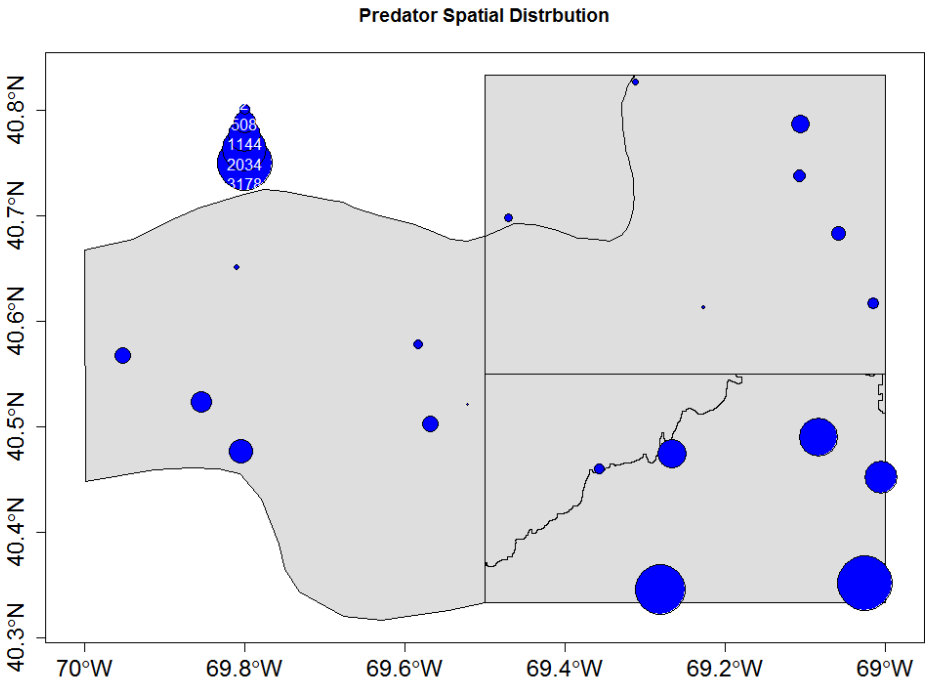
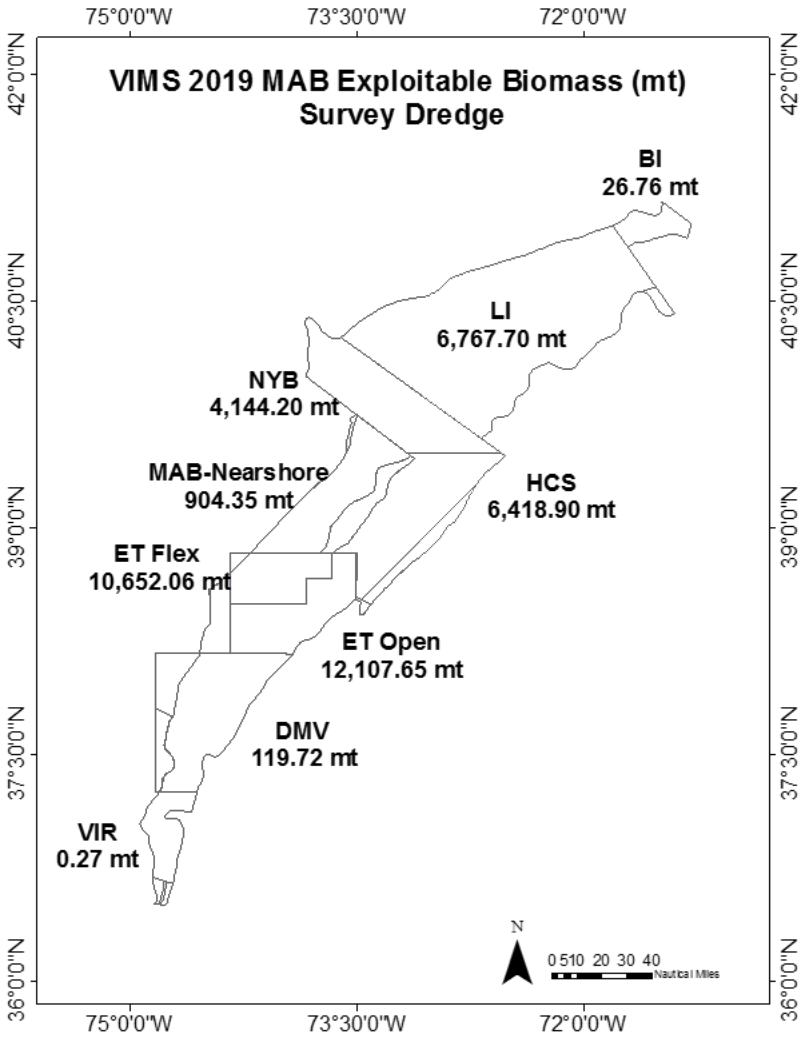
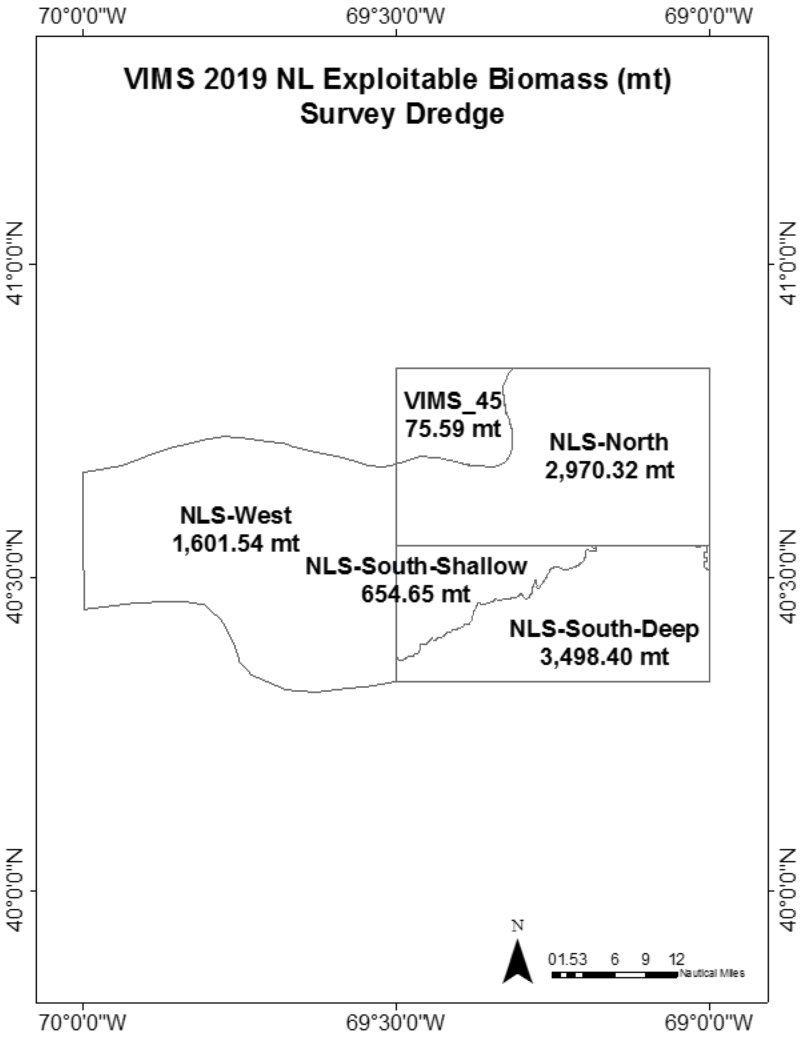


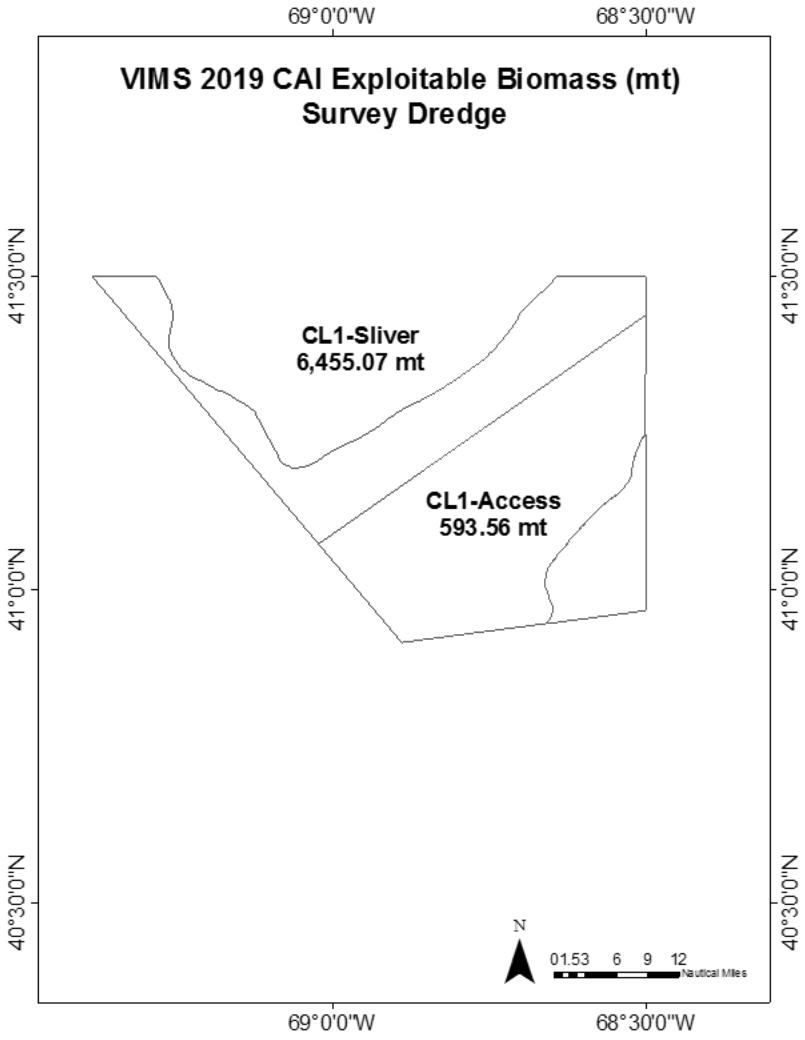
Figure 6. The spatial distribution of predator subsamples in weight (grams) for the NL survey domain.

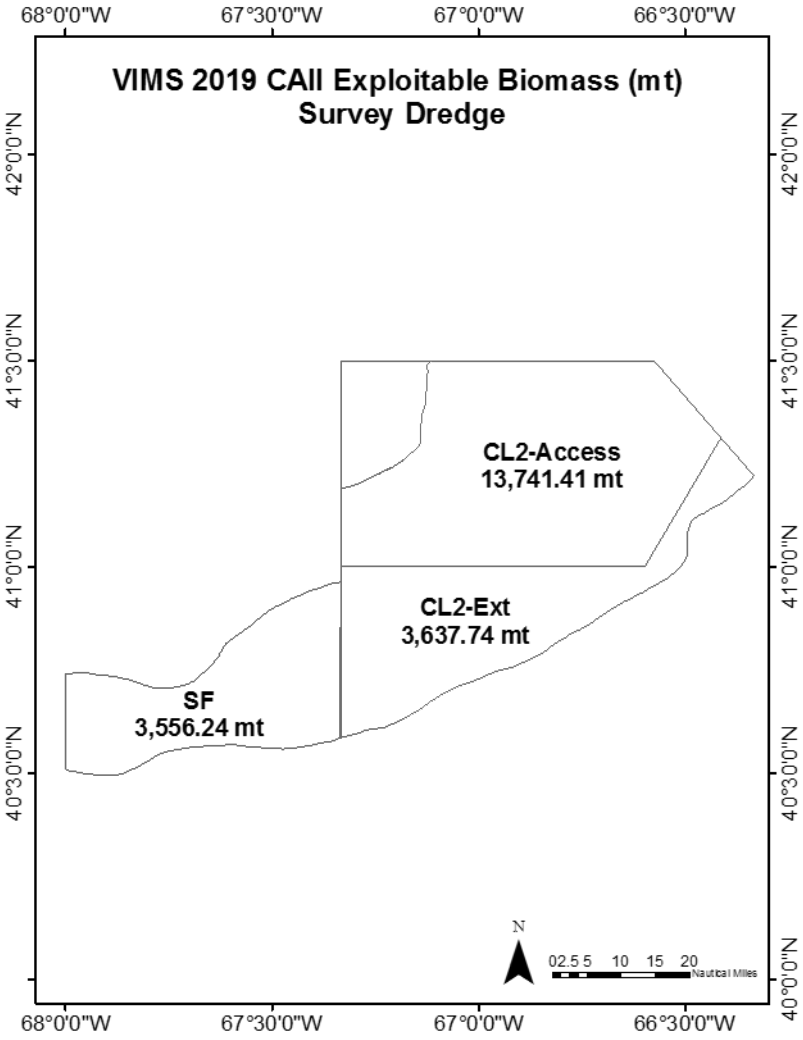
5.0 EXPLOITABLE BIOMASS ESTIMATES FOR 2018 (CURRENT FY)

Dredge				
Georges Bank	**NumMill**	**Exploitable BmsMT**	**SE**	**MeanWt**
CL1-Access	12,517,283	593.56	71.25	45.27
CL1-Sliver	194,799,161	6,455.07	672.07	32.38
CL2-North				
CL2-Access	380,856,513	13,741.41	755.01	35.01
CL2-Ext	125,840,417	3,637.74	366.14	29.06
NLS-North	61,131,037	2,970.32	181.89	48.57
NLS-South-Deep	288,902,180	3,498.40	380.00	12.10
NLS-South-Shallow	37,787,794	654.65	139.16	17.32
NLS-West	84,206,262	1,601.54	306.57	18.85
NF				
GSC				
SF	133,356,748	3,556.24	371.35	26.67
MidAtlantic				
BI	35,511,021	951.59	153.15	26.76
LI	223,930,752	6,767.70	258.85	30.37
NYB	166,911,828	4,144.20	201.40	25.85
MAB Nearshore	30,521,959	904.35	128.64	29.63
HCS	257,800,743	6,418.90	565.17	25.09
ET-Open	441,797,615	12,107.65	675.08	27.37
ET-Flex	389,225,489	10,652.06	933.47	26.85
DMV	5,286,765	119.72	30.43	22.79
VIR	63,239	0.27	0.02	4.23


VIMS 2019 MAB Exploitable Biomass (mt)
Survey Dredge
BI
26.76 mt
LI
6,767.70 mt
NYB
4,144.20 mt
MAB-Nearshore
904.35 mt
HCS
6,418.90 mt
ET Flex
10,652.06 mt
ET Open
12,107.65 mt
DMV
119.72 mt
VIR
0.27 mt
N
0 5 10 20 30 40
Nautical Miles
75°0'0"W
73°30'0"W
72°0'0"W
42°0'0"N
40°30'0"N
39°0'0"N
37°30'0"N
36°0'0"N


VIMS 2019 NL Exploitable Biomass (mt)
Survey Dredge
70°0'0"W
69°30'0"W
69°0'0"W
41°0'0"N
40°30'0"N
40°0'0"N
VIMS_45
75.59 mt
NLS-North
2,970.32 mt
NLS-West
1,601.54 mt
NLS-South-Shallow
654.65 mt
NLS-South-Deep
3,498.40 mt
N
0 1.5 3 6 9 12
Nautical Miles


VIMS 2019 CAI Exploitable Biomass (mt)
Survey Dredge
69°0'0"W
68°30'0"W
41°30'0"N
41°0'0"N
40°30'0"N
CL1-Sliver
6,455.07 mt
CL1-Access
593.56 mt
N
0 1.5 3 6 9 12
Nautical Miles


VIMS 2019 CAll Exploitable Biomass (mt)
Survey Dredge
68°0'0"W
67°30'0"W
67°0'0"W
66°30'0"W
42°0'0"N
41°30'0"N
41°0'0"N
40°30'0"N
40°0'0"N
CL2-Access
13,741.41 mt
CL2-Ext
3,637.74 mt
SF
3,556.24 mt
N
0 2.5 5 10 15 20
Nautical Miles