

2016 NEFSC Sea Scallop Survey

Scallop survey summary

LPUE modeling

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NEFSC Survey Summary

Dredge survey of Georges Bank only, excluding Closed Area II South and extension, and Nantucket Lightship (but did 2 non-randoms)

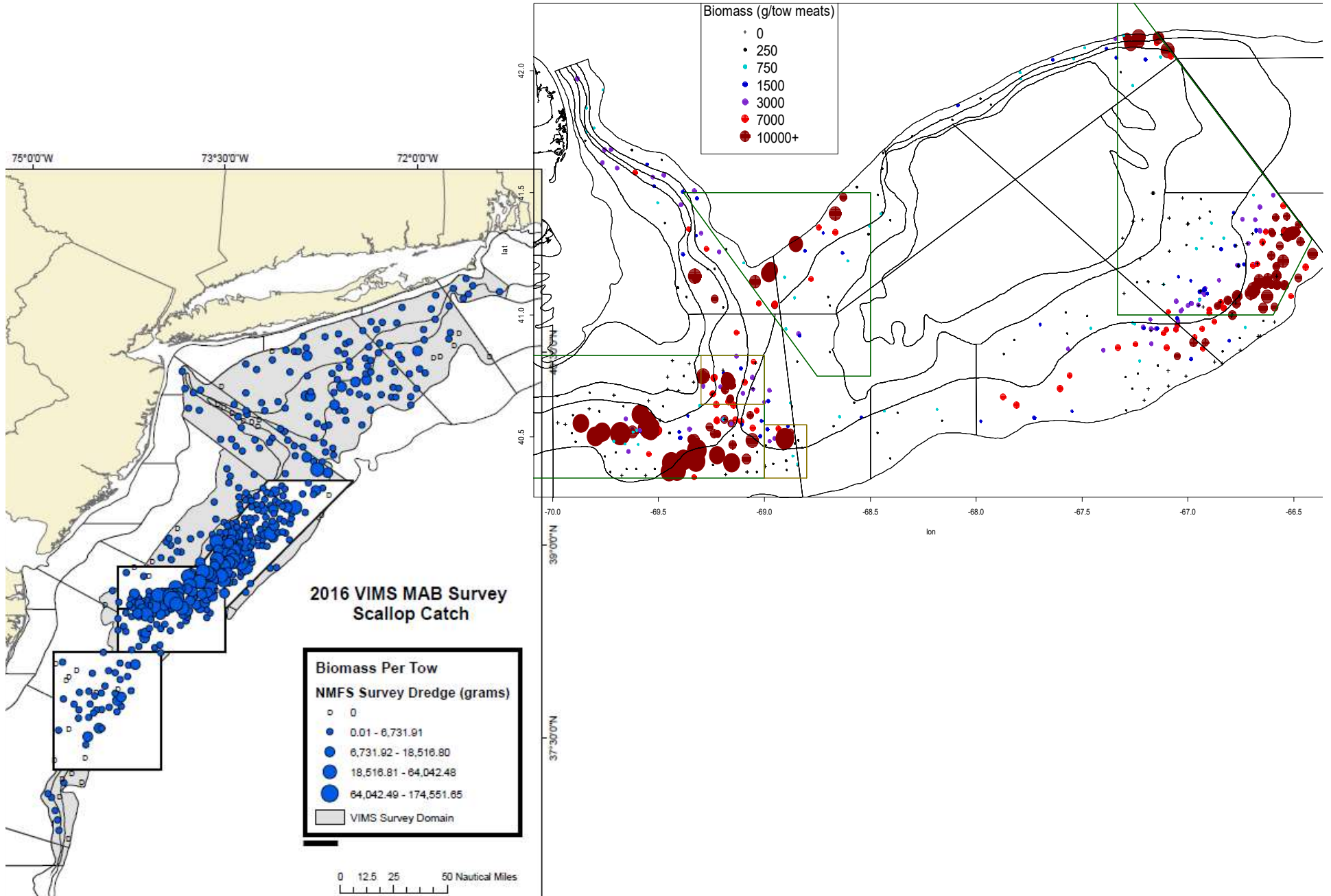
Habcam survey of both regions, supplemented by RSA v3 Habcam survey of Elephant Trunk on F/V Kathy Marie, and RSA v4 survey of CL2 HAPC and adjacent regions on F/V Jersey Cape. Over 100,000 manually annotated photos

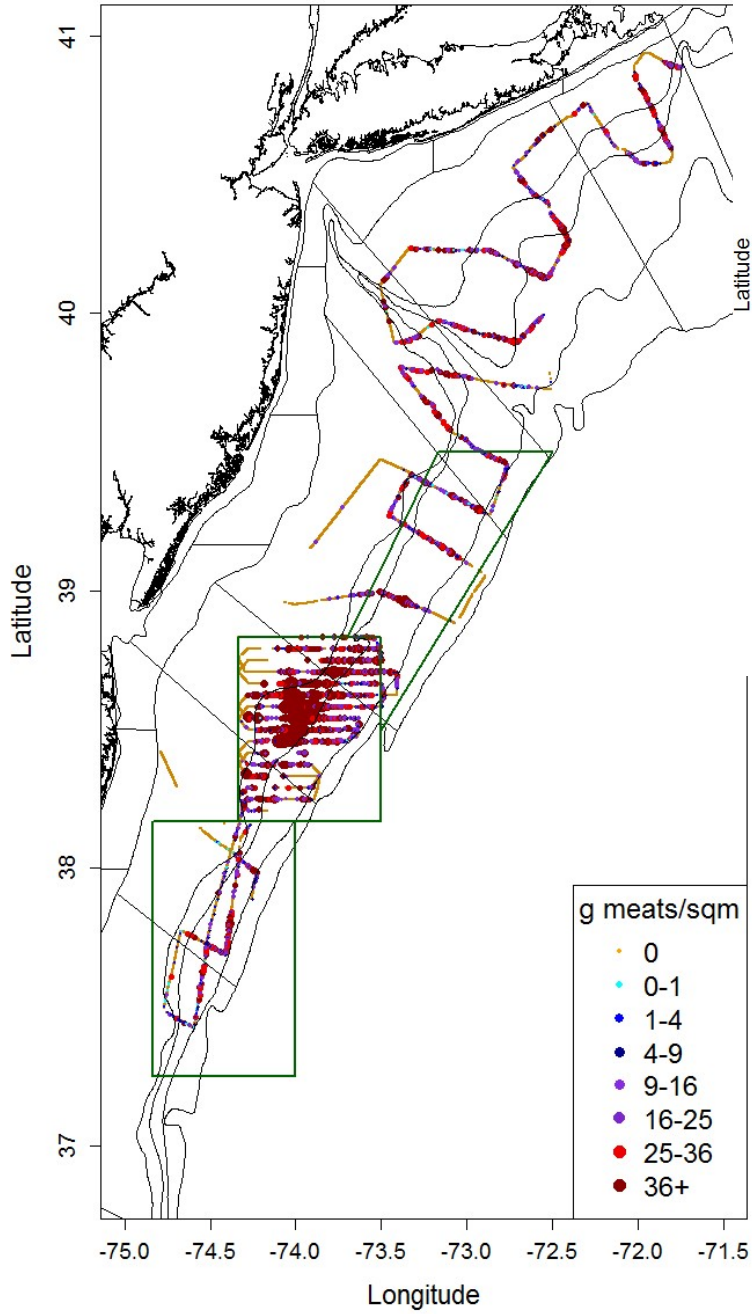
Survey Highlights

High densities of 4 year old scallops in Nantucket Lightship Area and Extension, and 3 year old scallops in HCCA and Elephant Trunk. However, scallops in the southern portion of NLS (deep water) are growing very slowly

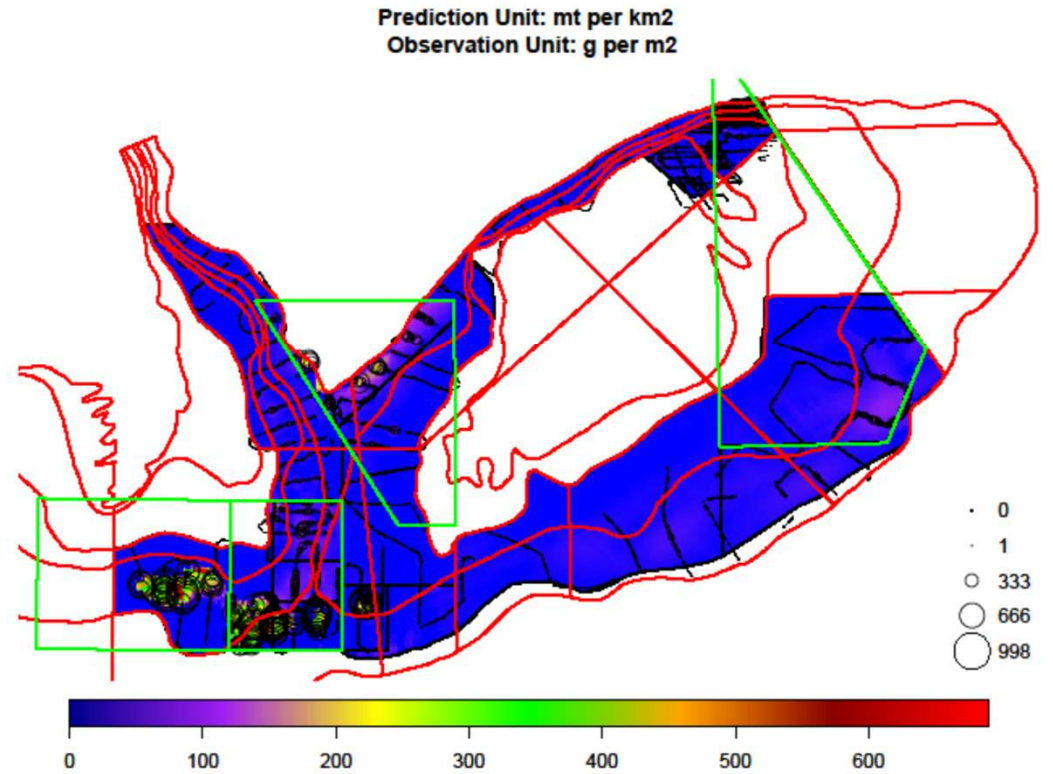
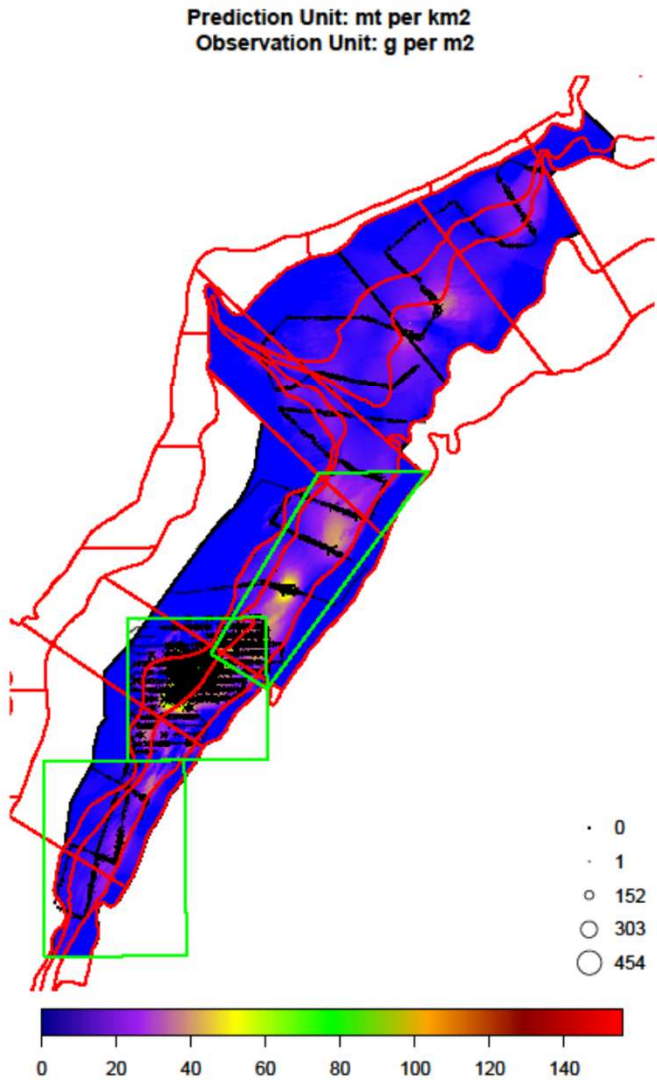
Patches of high densities of 6 year old scallops in the northern portion of Closed Area I observed both with dredge tows and with Habcam. Decent densities of scallops in southern portion of Closed Area II, but scallops in the CL-II extension area still small. Open area exploitable biomass moderate at best

Dredge Biomass Charts





Habcam survey charts



Habcam survey charts
with geostatistical
model estimates

Large non-random tow
of 4 year olds: west-
central Nantucket
Lightship (EFH area)



Dredge survey highlights

Large non-random tow
of 4 year olds:
Nantucket Lightship
extension



2013 tow in NLS
extension – 60,000+
small scallops, an all
time record



Nice tow of 6 year old scallops in northern portion of Closed Area I

Dredge survey highlights

Tow in deep portion of HAPC



Star tow in shallow
portion of HAPC,
with big lobster

**Dredge survey
lowlights**

***Didemnum* on
scallop**





Habcam highlights



Some issues for combining survey estimates

Evidence that survey dredges operate at reduced efficiency in the very high densities observed in Nantucket Lightship and Elephant Trunk areas, so dredge values may be underestimates

The PDT decided to use SMAST digital camera estimates (for the first time) rather than the large camera. The digital camera is higher resolution but covers a smaller area than the large camera

Because of an error in a shapefile, the split between the access and no access portions of the Nantucket Lightship area was incorrect. This has been corrected for Habcam, but still needs to be corrected for SMAST and perhaps VIMS dredge

Meat weights in the southern Nantucket Lightship area may be overestimated (waiting for VIMS data on this)

Preliminary 2016 Survey Estimates - some changes are expected

2016 Scallop Survey Estimates																		
	Dredge				Drop Camera (Digital)				Habcam				Means					
Georges Bank	NumMill	BmsMT	SE	MeanWt	NumMil	BmsMT	SE	MeanWt	NumMill	BmsMT	SE	MeanWt	NumMil	BmsMT	SE	MeanWt	IVWMBms	SE
CL1ACC	82	2250	815	27.3	85	1374	283	16.2	41	1135	11	27.7	70	1586	862	22.8	1136	11
CL1NA	428	11539	4631	27.0	231	5524	1403	23.9	973	16518	1734	17.0	544	11194	5140	20.6	9961	1062
CL-2(N)	209	4391	1288	21.0					260	6887	1092	26.5	234	5639	1689	24.1	5843	833
CL-2(S)	688	13876	866	20.2					500	8632	765	17.3	594	11254	1156	18.9	10932	574
CL2Ext	478	4963	427	10.4					472	3877	154	8.2	475	4420	454	9.3	4002	145
NLSAccN	119	3576	298	30.1	210	7474	1234	35.6	286	9665	1645	33.8	205	6905	2078	33.7	3968	285
NLSAccS	3218	22658	2345	7.0	6844	41899	10909	6.1	12423	86006	6359	6.9	7495	50188	12843	6.7	30694	2156
NLSNA	2231	25802	3971	11.6	2189	32636	11959	14.9	5229	92014	2344	17.6	3216	50151	12817	15.6	73732	1990
NLSExt	100	1697	510	16.9	291	4697	4227	16.1	256	6904	1342	27.0	216	4432	4464	20.5	2382	473
NF	955	6476	3380	6.8					106	1033	735	9.8	530	3755	3460	7.1	1279	719
SCH	661	9166	3212	13.9					392	3015	214	7.7	526	6090	3219	11.6	3042	214
SF	429	5313	1628	12.4					287	3774	146	13.2	358	4544	1635	12.7	3787	146
Total Rotational	4686	49020	2694	10.5					13978	116219	6748	8.3	9054	78785	13830	8.7	58259	2502
Total EFH Closures	2867	41732	6234	14.6					6462	115419	3114	17.9	3995	66983	13912	16.8	100708	2786
Total Open	2045	20955	4940	10.2					784	7823	780	10.0	1415	14389	5001	10.2	8142	770
TOTAL	9598	111706	8409	11.6					21224	239461	7474	11.3	14463	160157	20249	11.1	183076	5586
MidAtlantic																		
Block Island	74	1510	83	20.4									74	1510	83	20.4	1510	83
Long Island	849	14711	735	17.3					1433	21883	10173	15.3	1141	18297	10200	16.0	14749	733
NYB	692	7600	978	11.0					396	6129	4	15.5	544	6865	978	12.6	6129	4
MA inshore	60	726	74	12.2					27	285	1	10.6	43	506	74	11.7	285	1
HCSAA	1171	13824	634	11.8					2046	22311	791	10.9	1609	18068	1013	11.2	17146	495
ET Open	981	11250	450	11.5					2300	26039	1922	11.3	1640	18645	1974	11.4	12018	438
ET Closed	990	10682	821	10.8					4235	39140	4342	9.2	2613	24911	4419	9.5	11665	807
DMV	382	4096	394	10.7					474	6070	1046	12.8	428	5083	1118	11.9	4341	369
Virginia	7	17	3	2.2									7	17	3	2.2	17	3
Total Access	2534	29170	1197	11.5					4819	54421	4926	11.3	3677	41795	5069	11.4	30579	1164
Total Open	1682	24564	1228	14.6					1856	28298	10173	15.2	1810	27195	10247	15.0	24618	1220
TOTAL	5207	64416	1716	12.4					10910	121859	11303	11.2	8099	93901	11433	11.6	65710	1696
OVERALL TOTAL	14805	176122	8582	11.9					32134	361320	13551	11.2	22562	254058	23254	11.3	229140	7250

Comparison of 2015 surveys and projections to 2016 surveys

	GB	MA	Total
2015 Surveys	90704	106024	196728
2016 Projected	142690	169354	312044
2016 Surveys	160157	93901	254058
2017 Projected	165102	202141	367243

Units are mt meats

2016 overall biomass is higher than the 2015 surveys, but this increase was less projected (there was concern that the projections were over-optimistic during FW 27)

What does this mean for ACL/ABC calculations?

2016 ABC from 2015 data: 37,852 mt

Estimated 2017 ABC from 2015 data: 62,929 mt

(FW 27 used 37,852 mt for the 2017 default because of concern that the estimate was too large)

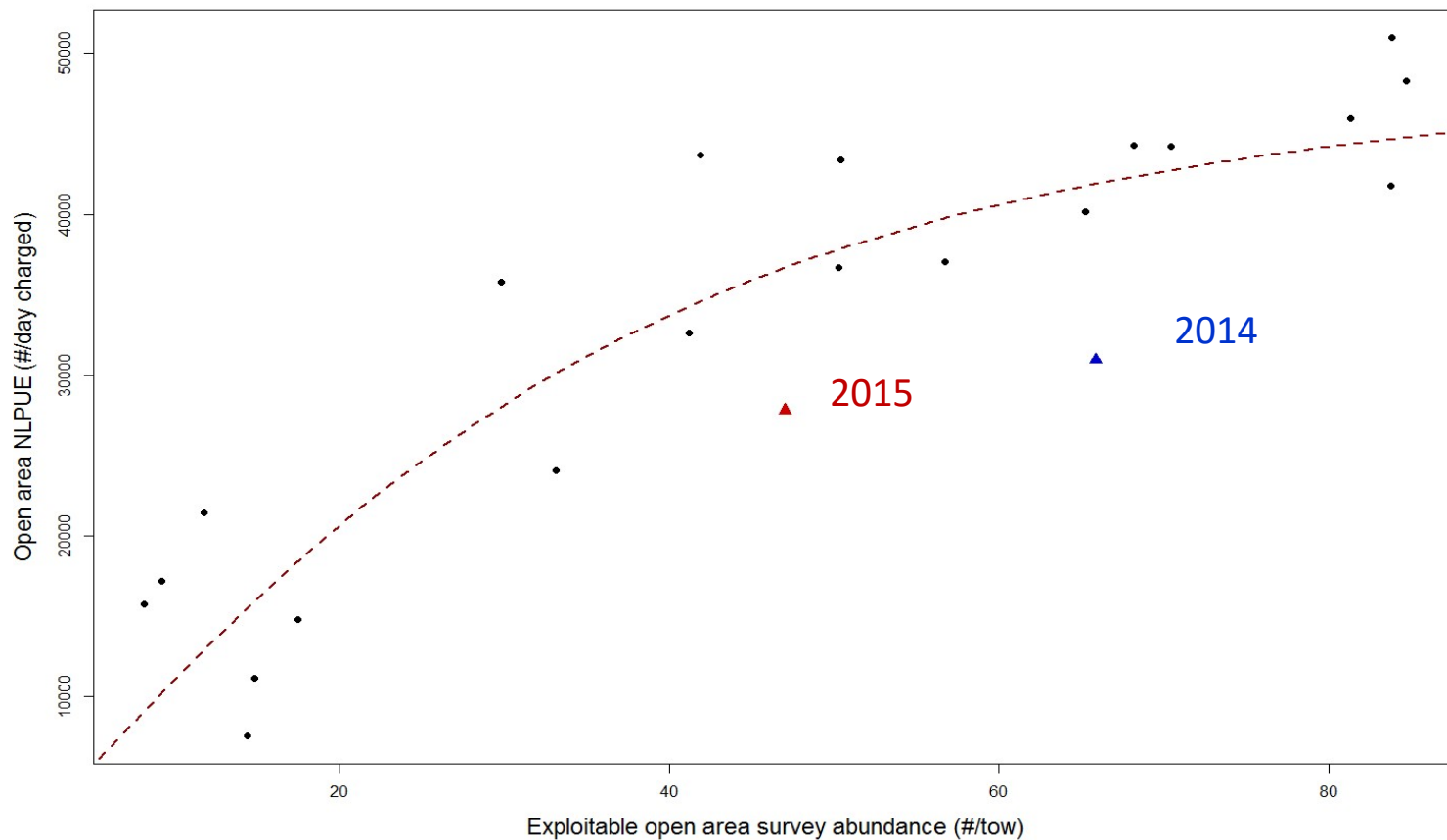
Actual 2017 ABC will be higher than 2016 (37,852 mt), but lower than the 62,929 mt estimates in FW 27

LPUE Modeling

The current approach models LPUE (in numbers) as a saturating function of mean survey exploitable numbers.

This approach overestimated LPUE considerably in 2014-15, especially in 2014

Most of the non-linearity is due to the differences between the data in the 1990s and more recent years.



Current fishery practices are different now than before Amendment 10 was implemented in late 2004. For that reason, and because there is now sufficient post-A10 data, only data since 2004 was used in the current analysis. These data show no evidence of non-linearity between LPUE and exploitable biomass

