Northern Gulf of Maine Management Area Discussion Document

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1.0 2017 WORK PRIOIRTY

The Council began work to address management measures in the Northern Gulf of Maine (NGOM) through multiple motions at the April 20, 2016 meeting in Mystic, CT (link to meeting motions). As described in Section 2.3, the Council has recommended measures in Framework Adjustment 28 to address the ability of limited access vessels to process more than 50 bu of in-shell scallops north of 42°20' N while off the DAS clock. Additionally, the Council has recommended NGOM management as one of several work priorities in 2017.

2.0 CREATION, MANAGEMENT, AND REGULATIONS

2.1 CREATION OF NORTHERN GULF OF MAINE MANAGEMENT AREA (AMENDMENT 11, 2008)

The major elements of Amendment 11 included the creation of the LAGC fishery and establishment of the NGOM program. The Council's vision in Amendment 11 for the general category fishery in the Gulf of Maine was a fleet made up of relatively small vessels, with possession limits to maintain the historical character of this fleet and provide opportunities to various participants including vessels from small communities (NEFMC, 2007 Amendment 11). Traditionally this small-vessel fleet fished only seasonally for scallops in months when primary fisheries (i.e. lobster, groundfish) were slow. This pattern has continued in recent years; for example, NGOM landings have consistently increased in months where Maine lobster landings decrease further demonstrating the value of this opportunistic winter fishery.

Since the creation of the NGOM management area, LA vessels have seldom fished within the current NGOM bounds prior to FY2016. Generally speaking the Gulf of Maine had not been heavily fished since the late 1980's to early 1990's, when scallop stocks were depleted in other areas and abundant in the Gulf of Maine. In Amendment 11 the Council did not recommend additional restrictions on LA vessels fishing in NGOM because "the improved management and abundance of scallops in the major resource areas on Georges Bank and in the Mid-Atlantic region has made access to GOM scallops less important for the limited access boats and general category boats from other regions. As a result, a separate management program for scallops in the NGOM is unlikely to have any impact on these vessels" (see Amendment 11 Executive Summary NEFMC, 2007 page ix). Furthermore, in Amendment 11, the Council's preferred alternative was designed to address concerns related to conservation, administrative burden, and enforceability of a separate entry program for the NGOM, and to allow for a place holder for future management of scallops in the NGOM if and when they return.

2.2 MAJOR ELEMENTS OF THE NORTHERN GULF OF MAINE PROGRAM

1. Hard TAC of 70,000 lbs from FY 2008 – FY 2016. Slightly higher TAC in FY 2017.
2. Possession limit of 200 lbs for all LAGC IFQ and NGOM boats
3. LAGC IFQ catch applied against NGOM TAC and individual IFQ
4. LAGC Incidental catch is not applied against TAC, 40 lb possession limit

5. Landings from NGOM vessels fishing exclusively in state waters are not deducted from TAC
6. LAGC IFQ and NGOM vessels' combined dredge width cannot exceed 10.5 ft
7. LA catch is not applied against the TAC, vessels under DAS management
8. Once TAC is reached, NGOM is shut down to all federally permitted vessels
9. NGOM landings not included in annual projected landings used to set overall allocations for LA and LAGC IFQ components

Figure 1. The monthly proportion of cumulative annual NGOM scallop landings (FY2010-FY2016) vs. monthly proportion of cumulative annual Maine lobster landings (FY2010-FY2015) (ME DMR). NGOM landings are ordered by homeported state of active vessels.

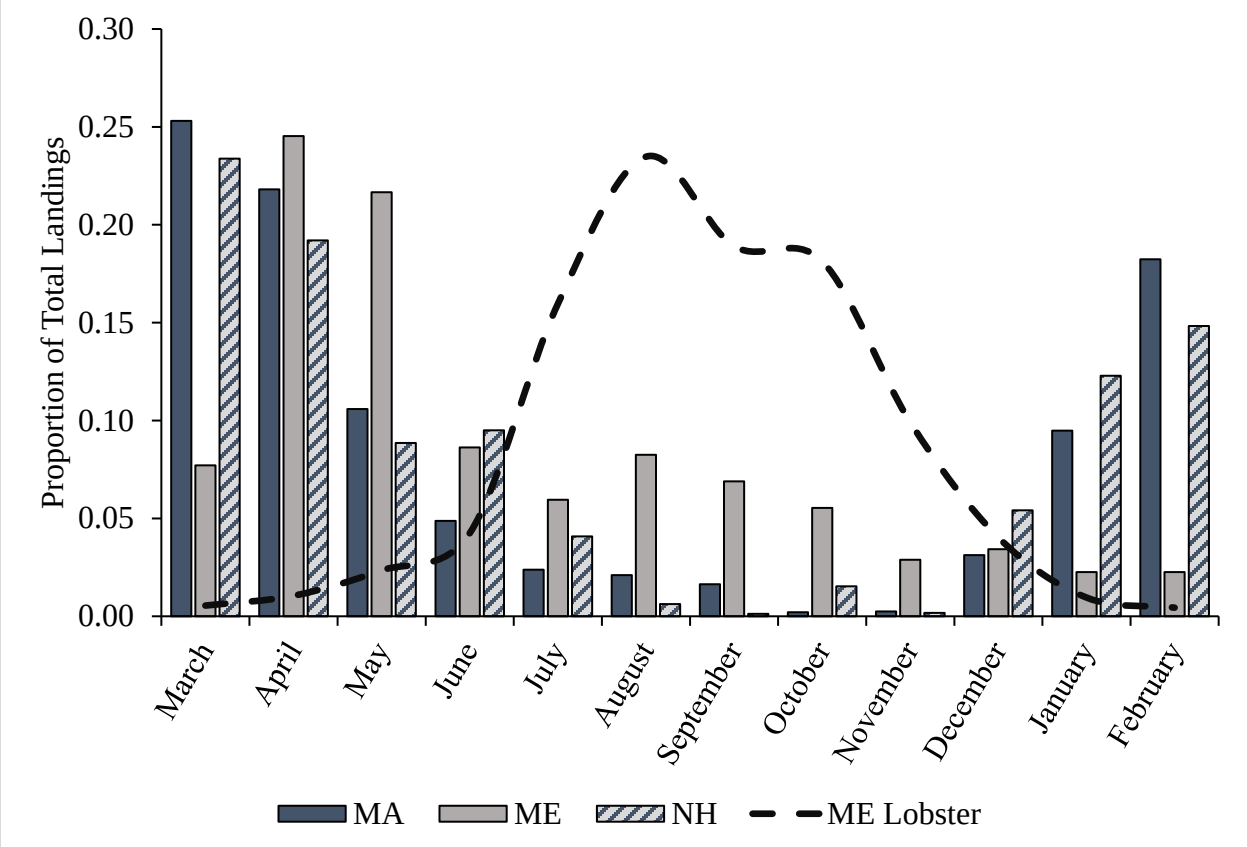


Table 1. (Table B4.1 from 59th SAW, pp. 501, 2014) US scallop landings 1964-2013 (mt meats), by region and gear type. Dredge gear was recorded as "other" prior to 1978.

	Gulf of Maine				Georges Bank				S. New England				Mid Atlantic Bight				Total			
Year	dredge	trawl	other	sum	dredge	trawl	other	sum	dredge	trawl	other	sum	dredge	trawl	other	sum	dredge	trawl	other	sum
1964		0	208	208		0	6,241	6,241		52	3	55		0	137	137		52	6,590	6,642
1965		0	117	117		3	1,478	1,481		2	24	26		0	3,974	3,974		5	5,592	5,598
1966		0	102	102		0	883	884		0	8	8		0	4,061	4,061		1	5,055	5,056
1967		0	80	80		4	1,217	1,221		0	8	8		0	1,873	1,873		4	3,178	3,182
1968		0	113	113		0	993	994		0	56	56		0	2,437	2,437		0	3,599	3,599
1969		1	122	123		8	1,316	1,324		0	18	19		5	846	851		14	2,302	2,317
1970		0	132	132		5	1,410	1,415		0	6	6		14	459	473		19	2,006	2,026
1971		4	358	362		18	1,311	1,329		0	7	7		0	274	274		22	1,949	1,971
1972		1	524	525		5	816	821		0	2	2		5	653	658		11	1,995	2,006
1973		0	460	460		15	1,065	1,080		0	3	3		4	245	249		19	1,773	1,792
1974		0	223	223		15	911	926		0	4	5		0	937	938		16	2,076	2,091
1975		6	741	746		13	844	857		8	42	50		52	1,506	1,558		80	3,132	3,212
1976		3	364	366		38	1,723	1,761		4	3	7		819	2,972	3,791		361	5,061	5,422
1977		4	254	258		27	4,709	4,736		1	10	11		255	2,564	2,819		58	7,536	7,595
1978	242	1	0	243	5,532	37	0	5,569	25	2	0	27	4,435	207	0	4,642	10,234	247	0	10,481
1979	401	5	1	407	6,253	25	7	6,285	61	5	0	66	2,857	29	1	2,888	9,572	64	9	9,645
1980	1,489	122	3	1,614	5,382	34	2	5,419	130	3	0	133	2,202	85	79	2,366	9,204	245	83	9,532
1981	1,225	73	7	1,305	7,787	56	0	7,843	68	1	0	69	772	14	2	788	9,852	144	9	10,005
1982	631	28	5	664	6,204	119	0	6,322	126	0	0	126	1,602	6	2	1,610	8,562	153	7	8,723
1983	815	72	7	895	4,247	32	4	4,284	243	1	0	243	3,092	19	10	3,121	8,398	124	21	8,542
1984	651	18	10	678	3,011	29	3	3,043	161	3	0	164	3,695	53	2	3,750	7,518	103	14	7,635
1985	408	3	10	421	2,860	34	0	2,894	77	4	0	82	3,230	49	2	3,281	6,575	90	12	6,677
1986	308	2	6	316	4,428	10	0	4,438	76	2	0	78	3,407	386	6	3,799	8,218	400	12	8,631
1987	373	0	9	382	4,821	30	0	4,851	67	1	0	68	7,639	1,168	1	8,808	12,900	1,199	10	14,109
1988	506	7	13	526	6,036	18	0	6,054	65	4	0	68	6,071	938	8	7,017	12,678	966	21	13,666
1989	600	0	44	644	5,637	25	0	5,661	127	11	0	138	7,894	534	5	8,433	14,258	570	49	14,876
1990	545	0	28	574	9,972	10	0	9,982	110	6	0	116	6,364	541	10	6,915	16,991	558	38	17,587
1991	527	3	75	605	9,235	77	0	9,311	55	16	0	71	6,408	878	14	7,300	16,225	973	89	17,288
1992	676	2	45	722	8,230	7	0	8,238	119	5	0	124	4,562	570	5	5,137	13,587	584	50	14,221
1993	763	2	32	797	3,637	18	0	3,655	65	1	0	66	2,412	393	3	2,808	6,878	413	36	7,327
1994	410	6	9	425	1,182	7	0	1,189	29	1	0	30	5,211	754	0	5,965	6,832	768	9	7,609
1995	342	6	13	361	992	4	1	997	41	2	0	43	5,786	798	7	6,591	7,161	810	21	7,992
1996	544	5	12	561	2,126	7	4	2,137	59	5	0	64	4,467	653	4	5,124	7,196	670	20	7,886
1997	673	5	21	699	2,347	9	1	2,357	81	11	3	95	2,703	378	1	3,082	5,804	403	26	6,233
1998	392	5	15	412	2,045	19	1	2,065	103	3	0	106	2,411	564	6	2,981	4,951	591	22	5,564
1999	267	2	2	271	5,172	6	1	5,179	78	1	0	79	3,629	959	1	4,589	9,146	968	4	10,118
2000	162	21	43	226	4,910	40	5	4,955	85	3	1	89	8,139	1,210	2	9,351	13,296	1,274	51	14,621
2001	335	7	1	343	4,879	58	6	4,943	28	37	0	65	14,144	1,543	16	15,703	19,386	1,645	23	21,054
2002	386	18	1	405	5,967	33	11	6,011	20	12	0	32	15,981	1,426	36	17,443	22,354	1,489	48	23,891
2003	197	3	1	201	4,859	22	2	4,883	53	4	0	57	19,040	1,226	10	20,276	24,149	1,255	13	25,417
2004	165	12	0	177	4,249	146	11	4,406	830	151	11	992	22,313	1,194	26	23,533	27,557	1,503	48	29,108
2005	163	12	12	187	8,958	69	15	9,042	845	13	40	898	14,361	1,096	109	15,566	24,327	1,190	176	25,693
2006	147	3	5	155	15,688	51	21	15,760	2,029	10	8	2,047	7,944	782	46	8,772	25,808	846	80	26,734
2007	97	8	12	117	9,419	45	18	9,482	335	18	7	360	16,234	345	55	16,634	26,085	416	92	26,593
2008	103	12	5	120	6,405	24	11	6,440	303	6	16	325	16,819	556	13	17,388	23,630	598	45	24,273
2009	81	0	3	84	6,451	8	16	6,475	216	1	3	220	17,487	12	1,851	19,350	24,235	21	1,873	26,129
2010	148	13	6	168	5,826	18	47	5,890	254	9	26	290	19,172	281	97	19,550	25,400	321	177	25,898
2011	193	17	2	212	8,159	14	135	8,309	338	24	24	386	17,224	318	205	17,747	25,914	373	366	26,653
2012	392	22	3	417	13,671	37	16	13,724	118	4	32	154	11,172	272	176	11,620	25,353	334	228	25,915
2013	449	43	6	498	11,823	27	25	11,875	308	13	5	326	5,683	229	54	5,966	18,263	311	89	18,664

The NGOM scallop management area is the area north of 42º 20' North and within the boundaries of the Gulf of Maine Scallop Dredge Exemption Area. A vessel with an NGOM scallop permit may fish for and possess scallops only in the NGOM scallop management area. Scallop landings by vessels with LAGC scallop permits (including IFQ permits) and fishing in the NGOM are deducted from the NGOM scallop TAC and scallop landings by IFQ vessels in the NGOM will have those landings subtracted from their respective individual IFQs. Landings by the LA scallop vessels fishing under the scallop DAS program are not deducted from the NGOM total allowable catch. Vessels with an NGOM or IFQ scallop permit may land up to 200 lbs of shucked scallops in the NGOM. A vessel with an incidental catch GC permit can land up to 40 lbs shucked scallops in the NGOM. The NGOM TAC is specified via a framework adjustment and is based on the Federal portion of the scallop resource in the NGOM. Except for LA-permitted scallop vessels, the combined dredge width allowed for LAGC vessels fishing in the NGOM cannot exceed 10.5 feet (Amendment 15 DEIS, p. 21, 2009).

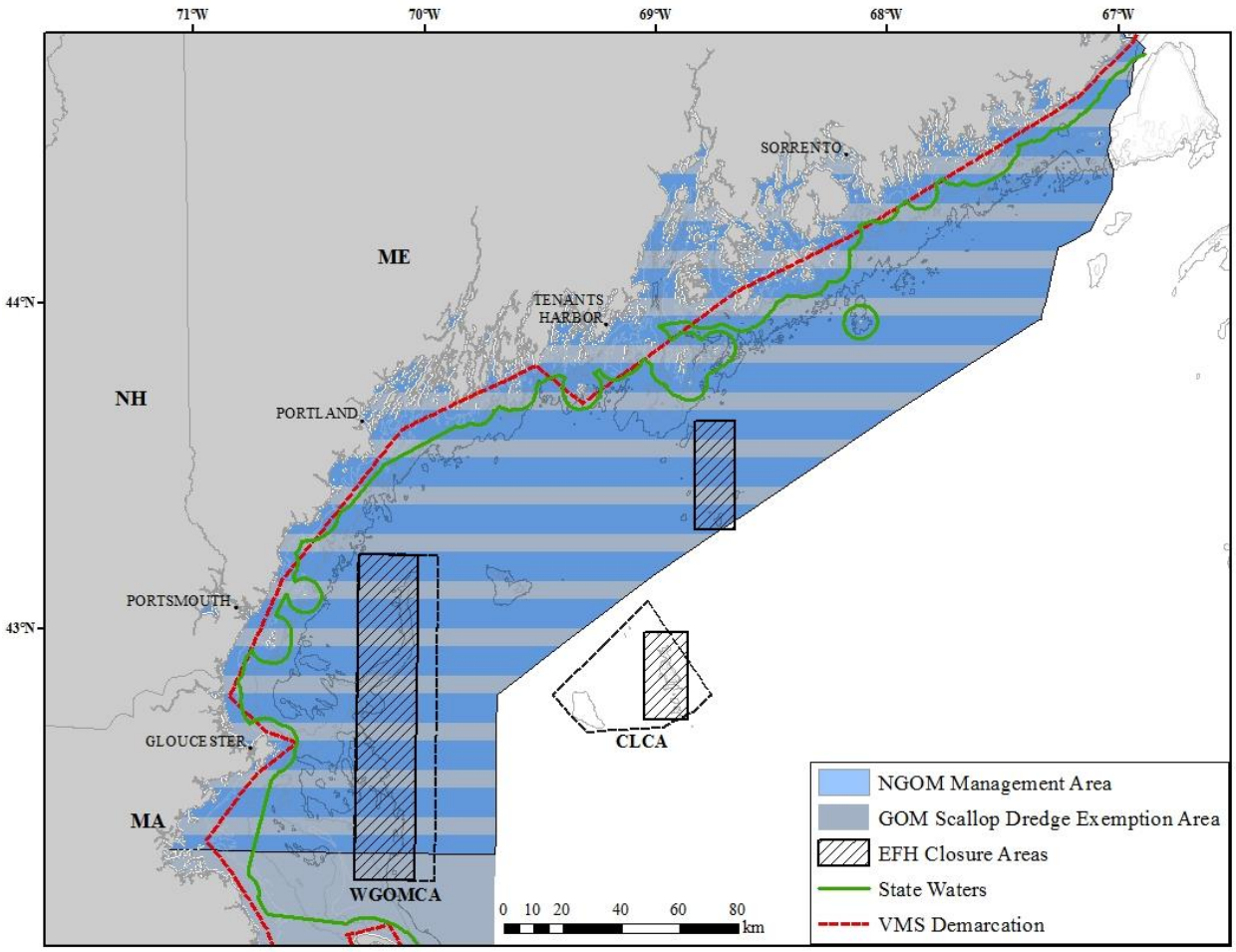


Figure 2. The extent of the Northern Gulf of Maine Management Area including the Gulf of Maine dredge exemption area, groundfish closed areas, essential fish habitat closure areas (EFH), and boundaries for state waters and the days-at-sea vessel monitoring system (VMS) demarcation line.

The NGOM TAC is specified separately from the ACL for the directed scallop fishery (LA and LAGC). Because resource in the NGOM is currently not incorporated in the overall assessment of the scallop resource, the TAC for this area is treated separately as long as it is within the overall OFL for the resource. Therefore, an estimate of catch from this area is added to the OFL and later removed before setting ABC and the overall ACL for the scallop fishery.

Framework 19 to the Scallop FMP was the first action to set a hard-TAC for NGOM. The TAC for FY2008 was set at 70,000 lbs and was based on the average VTR landings from 2000 to 2006 from federal waters outside EFH and groundfish mortality closed areas. The 70,000 lb TAC has remained constant since FY2008, excluding years that were adjusted to accommodate a pound-for-pound payback when an overage occurred in the previous year (i.e. FY2016 and FY2017). In Framework 28, the Council recommended that the NGOM TAC be set using survey and fishery data from 2016 (see Section 2.3.1.1).

2.3 MANAGEMENT CHANGES THROUGH FRAMEWORK 28 & 2016 STAKEHOLDER INPUT

2.3.1 Framework 28

Framework 28 to the Scallop FMP details the Council preferred management alternatives for FY2017 and identifies default measures for FY2018 for the entire resource. The following subsections (2.3.1.1 and 2.3.1.2) describe the two alternatives put forth by the Council pertinent to the NGOM. Default measures from Framework 27 (FY2016) will remain in place for the start of FY2017 until Framework 28 final rule is published.

2.3.1.1 NGOM TAC

The Council recommended a Northern Gulf of Maine Total Allowable Catch (TAC) of 95,000 lbs. The preferred alternative would set the TAC for the management area using fishery data from FY2016, as well as information from the 2016 survey.

The results of the 2016 NGOM survey suggest that the biomass in the area has increased substantially since the area was last surveyed in 2012. The Council's preferred alternative resulted in a realized TAC of ~75,000 lbs, which is close to what the fishery has been operating under (70,000 lbs) since the inception of the NGOM management area. The preferred alternative offered stability in landings for the LAGC component, and caps removals at a level where general category vessels will likely achieve the TAC and close the area to all fishing early in the fishing year (as in 2016).

The TAC alternatives considered by the Council were intentionally conservative with regard to the anticipated exploitation rate in the area, and potential landings limits as they are based on the lower end of modeled biomass estimates for the area. When considering recent fishing behavior in the NGOM, the preferred alternative was expected to result in a mid-season closure of the area.

2.3.1.2 No Possession of Shell Stock Inshore of DAS Demarcation Line

The Council recommended an alternative that would prohibit limited access and LAGC vessels which fish or transit inshore of the days-at-sea monitoring line north of 42°20' N from possessing more than 50 US bushels of shell stock when inshore of the day-at-sea monitoring line and from landing more than 50 US bushels from a fishing trip. Any vessel fishing in the state waters exemption program would also be exempt from the scallop shell stock limit.

The FMP relies on day-at-sea restrictions and crew limits to achieve its mortality targets and prevent overfishing. As catch rates rise, it becomes more attractive for vessels to deck load sea scallops and shuck them inside of the day-at-sea monitoring line, thereby circumventing the regulation's intent. Recently, limited access vessels began fishing in areas north of 42°20' N latitude within the NGOM management area, where there is no limit on the number of bushels a vessel may possess inside the demarcation line. This behavior has the potential to undermine the LPUE model used in the scallop assessment, which has the potential for negative long-term impacts on the fishery, such as the overestimation or underestimation of production in the open areas. This measure would restrict the number of bushels that limited access or general category vessels can possess to 50 when inshore of the day-at-sea monitoring line, effectively expanding

an existing provision that only applied to fishing activity south of 42°20' N latitude. This measure will prevent scallop vessels from possessing excessive amounts of shell stock inshore of the day-at-sea monitoring line, eliminating the incentive to deck load and shuck scallops "off the clock". The 50 US bushel limit will enable the vessels to bring a moderate amount of shell stock in to avoid poor weather and/or to land some shell stock for a small market for whole scallops or scallop parts.

2.3.1.3 NGOM STAKEHOLDER CORRESPONDANCE FROM 2016

The Council received approximately 20 letters as correspondence from nearly 30 stakeholders on the NGOM management area between March and October 2016. The majority of correspondence received by the Council was from fishermen with LAGC IFQ or LAGC NGOM permits, or organizations representing fishermen who hold LAGC permits. Some of the issues raised to the Council by these stakeholders are summarized below. See Appendix 1 for a complete list of NGOM related correspondence received in 2016.

1. Some stakeholders felt that the purpose of creating the NGOM management area was to rebuild and sustain the small-vessel scallop fishery via conservative daily catch limits, dredge size, and TAC, and suggested that allowing LA vessels to fish under different rules puts the resource at risk to be overfished.
   Some stakeholders recommended that the Council implement controls on LA vessels to curb fishing mortality and maintain the intended conservative harvest strategy followed by NGOM vessels.
2. Other letters stated that though NGOM may hold enough scallops to increase the TAC in FY 2017, a conservative catch limit would be necessary to prevent LA vessels from over-exploiting the resource.
   They suggested that the Council set a conservative TAC for FY2017.
3. Other stakeholders felt that access to NGOM scallops is critical in maintaining the rich fishing heritage of Maine's coastal, community driven, small-vessel fleet.
   This correspondence suggested that the Council address inconsistencies in current management by making NGOM a priority for FY2017.

2.4 STATE WATERS EXEMPTION

The Scallop State Waters Exemption Program has been in place since 1994. The purpose of the program is to allow federal permit holders to harvest scallops in state waters on a more equitable basis where federal and state laws are inconsistent. The program specifies that a state with a scallop fishery may be eligible for state waters exemptions if it has a scallop conservation program that does not jeopardize the biomass and fishing mortality/effort limit objectives of the Scallop FMP (CFR Vol. 80 No. 194).

Through Framework 26 (2015) to the Scallop FMP, the Council recommended a revision to this program, subsequently enabling a state to request specific exemption related to fishing for scallops in state waters after the federal NGOM TAC is reached.

2.4.1 Maine State Waters Exemption

Following Framework 26, the State of Maine requested to expand its exemptions to allow NGOM permitted vessels to fish in the Maine state waters portion of the management area once the TAC is reached (see Appendix 2a for full exemption request letter). Without this exemption,

vessels with state-only permits would be allowed to fish in state waters after the NGOM TAC is reached. Maine provided the following qualifying information:

1. Maine's state scallop fishery is limited access.
2. Fishing mortality is controlled by possession limits and a short (70 day) season.
3. The state fishery is managed by a rotational management plan.
4. A trigger mechanism is in place which closes an area once 30-40% of the harvestable biomass is removed.

Maine's scallop fishing restrictions were deemed to be as restrictive as federal scallop fishing regulations (CFR Vol. 80, No. 194), and fully capable of limiting fishing mortality and effort. Maine's exemption request was approved in October of 2015.

2.4.2 Massachusetts State Waters Exemption

In November of 2016, the Commonwealth of Massachusetts requested a state waters exempted scallop fishery in the state waters portion of the NGOM management area. The requested exemption pertained to LAGC IFQ and LAGC NGOM permit holders who also possess a valid Commonwealth Coastal Access Permit (CAP) for mobile fishing gear in Massachusetts state waters. The request remains under review by NMFS.

The Massachusetts state scallop fishery has predominantly targeted areas within Cape Cod Bay and along the eastern side of the Cape; historically, MA state landings have been dominated from the area surrounding Provincetown (northernmost point of Cape Cod). A MA state water fishery also exists in the Cape Ann region which is enclosed by the NGOM management area. Between 2012 and 2015, six dually-permitted vessels fished in the Cape Ann region. An additional six dully-permitted vessels fished in the NGOM but have not typically targeted the portion of the management area within Massachusetts state waters (see Appendix 2b for full exemption request letter).

3.0 FISHERY DATA

3.1 FY2016 OVERVIEW

FY2016 marked a high point in landings by all permit types fishing in NGOM, collectively totaling over 381,000 lbs (Table 2). From FY2008-FY2015, all NGOM landings came from the LAGC IFQ and LAGC NGOM fleets, during which time landings did not exceed the TAC (70,000 lbs)(Table 2). In FY2016, appreciable fishing effort from LA vessels in the management area harvested roughly 293,000 lbs from NGOM. LA vessels fishing in NGOM are managed under DAS usage where landings do not contribute to the NGOM TAC. As a response to the increase in LA fishing (targeting areas east and south east of Cape Ann, see Figure 3), LAGC IFQ and LAGC NGOM fishing also intensified in the same region in an effort to fulfil the TAC and close the management area to fishing for the remainder of the season. The management area was closed to fishing on May 13, 2016 with reported landings topping 381,000 lbs, of which approximately 89,000 lbs were landed by LAGC IFQ and LAGC NGOM vessels (131% of NGOM TAC).

Table 2. Total landings attributed to the NGOM Management Area by permit type.

	Landings by Permit Category			Total NGOM Landings	NGOM closure date, (days open)
FY	**LAGC IFQ**	**LAGC NGOM**	**LA**		
2009	0	5,793	0	5,793	n/a, (entire FY year)
2010	4,762	3,877	0	8,639	n/a, (entire FY year)
2011	6,092	816	0	6,908	n/a, (entire FY year)
2012	894	6,546	0	7,440	n/a, (entire FY year)
2013	8,907	46,543	0	55,450	n/a, (entire FY year)
2014	11,521	46,321	0	57,842	n/a, (entire FY year)
2015	26,395	46,151	0	72,546	n/a, (entire FY year)
2016	26,484	62,599	292,517	381,600	May 13, (74 days)

Figure 3. FY2016 Limited Access landings based on VTR fishing locations in the NGOM management area.

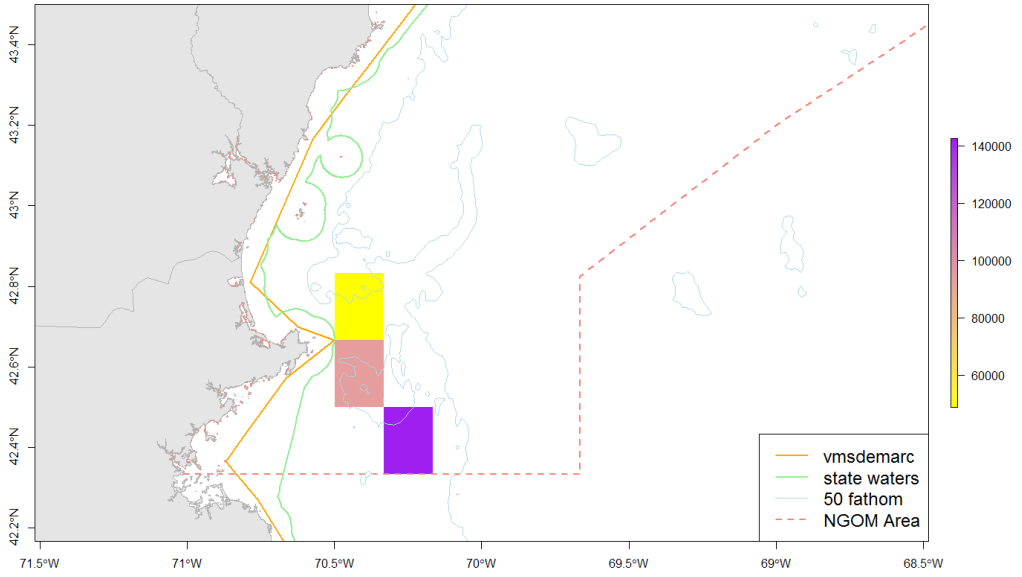
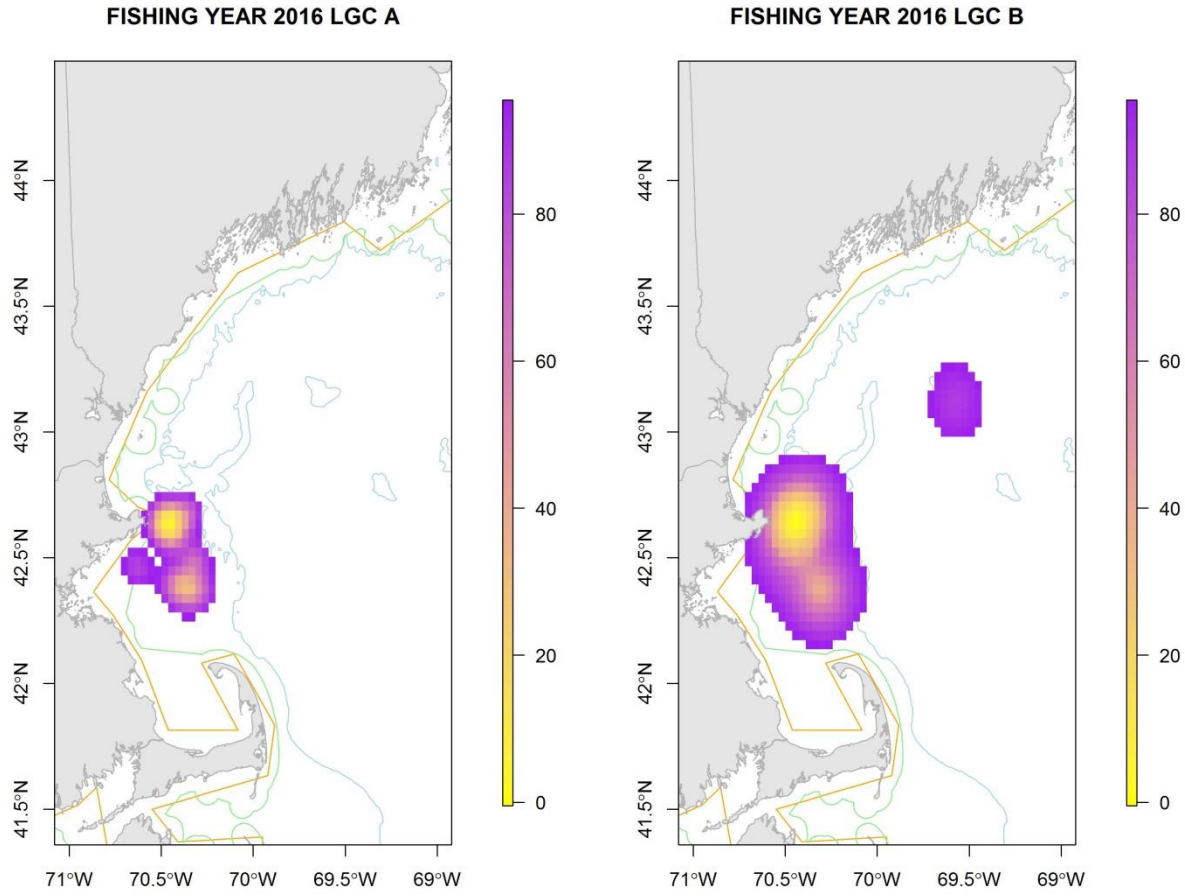


Figure 4. Kernel density plot (heatmap) of IFQ (LGC A) and NGOM (LGC B) fishing trips by permit type. Colors indicate density of trips; lower numbers (yellows) indicate more dense areas while higher numbers (purples) indicate less dense areas (the tail of the spatial distribution).



3.2 NGOM LAGC ACTIVITY

Though the majority of active permit holders and annual landings have come from LAGC NGOM vessels since FY2012, both LAGC NGOM and LAGC IFQ vessels fish within the management area and contribute to the NGOM TAC. Before FY2013, combined annual landings by IFQ and NGOM vessels filled a small portion of the NGOM TAC, in several years landing less than 20%. A strong year class of scallops on Platts Bank in FY2013 was followed by an increased LAGC NGOM fishing effort in this area through FY2014. LAGC IFQ vessels have typically focused effort to the southern portion of the management area, namely east and southeast of Cape Ann. IFQ landings nearly doubled between FY2014 and FY2015, with LAGC IFQ vessels working on aggregations of scallops located in Ipswich Bay and to the east and southeast of Cape Ann. FY 2015 marked the first year that the NGOM TAC was reached (overage of approximately 2,500 lbs). In FY2016, the NGOM TAC was exceeded by approximately 21,000 lbs.

Table 3. Combined annual landings and percent of the NGOM TAC used in the management area.

FY	NGOM & IFQ Landings	TAC	Percent of TAC used
2008	9,936	70,000	14%
2009	15,534	70,000	22%
2010	8,639	70,000	12%
2011	6,908	70,000	10%
2012	7,440	70,000	11%
2013	55,450	70,000	79%
2014	57,842	70,000	83%
2015	72,546	70,000	104%
2016	89,083	67,454	132%

3.2.1 Permit Trends

The percent of active LAGC NGOM vessels was minimal between FY2010 and FY2012 (4.9 - 8.6%), but was soon followed by notable increases from FY2013 to FY2016, peaking at 41% in FY2016 (Table 4). LAGC NGOM vessel activity from FY2010-FY2016 corresponded closely to annual landing trends from the management area (detailed in Table 2).

Table 4. The total number of vessels with LAGC NGOM permits, the number of vessels with LAGC NGOM permits excluding LA vessels, and the number and percent of LAGC NGOM vessels actively fishing in the management area from FY2010-FY2016.

FY	NGOM (including LA)	NGOM (excluding LA)	Active NGOM	Percent Active
2010	122	94	6	6.4%
2011	103	81	4	4.9%
2012	110	70	6	8.6%
2013	97	77	11	14.3%
2014	103	76	17	22.4%
2015	90	72	20	27.8%
2016	101	61	25	41.0%

The percent of active LAGC IFQ vessels fishing in the management area varied very little between FY2010 and FY2015 (1.3 - 3.7%), with a small increase seen in FY2016 (Table 5). LAGC IFQ vessels have generally landed scallops from the management area less than LAGC NGOM vessels during this time period (Table 2); however, it is important to note that LAGC IFQ vessels are able to fish outside of the NGOM (compared to LAGC NGOM vessels which are limited to the management area).

Table 5. The total number of vessels with LAGC IFQ permits, the number of vessels with LAGC IFQ permits excluding LA vessels, and the number and percent of LAGC IFQ vessels actively fishing in the management area from FY2010-FY2016.

FY	IFQ (including LA)	IFQ (excluding LA)	Active IFQ (in NGOM)	Percent Active
2010	333	293	6	2.0%
2011	288	248	6	2.4%
2012	290	237	3	1.3%
2013	278	222	7	3.2%
2014	260	220	7	3.2%
2015	242	217	8	3.7%
2016	262	205	11	5.4%

Though vessels fishing within the management area have typically been smaller 'day-boats', LA vessels have also held LAGC permits since the inception of the NGOM program in FY2008. The number of LAGC permits held by LA vessels has remained relatively stable for each permit category between FY2009 and FY2016 (Table 6).

Table 6. The number of LAGC permits held by LA vessels by permit category from FY2009-FY2016.

Fishing Year	IFQ	NGOM	INCIDENTAL
2009	41	26	112
2010	40	28	114
2011	41	27	113
2012	39	27	114
2013	40	27	112
2014	40	27	112
2015	43	27	112
2016	39	26	111

3.2.2 NGOM & IFQ Trends by State

3.2.2.1 NGOM & IFQ Permit Trends by State

Since FY2008, vessels with NGOM and IFQ (excluding LA vessels with IFQ permits) fishing in the management area have been homeported in Massachusetts, Maine, and New Hampshire. Table 7 describes the total number of vessels holding LAGC NGOM, LAGC IFQ, and LAGC Incidental permits in MA, ME, and NH from FY2010-FY2016. Table 8 details the number of active NGOM and IFQ vessels in the management area between FY2010 and FY2016. There were more active vessels from Massachusetts between FY2010 and FY2013. From FY2013 to FY2016, there were more active vessels fishing in the NGOM from Maine. Overall, the number

of active vessels from Massachusetts and Maine increased each year between FY2013 and FY2016; during this time, the number of active vessels from New Hampshire remained steady.

Table 7. The number of LAGC NGOM, LAGC IFQ, and LAGC Incidental permitted vessels in MA, ME, and NH by homeported state for FY2010-FY2016.

FY		NGOM	IFQ	Incidental
2010	MA	58	107	113
	ME	31	14	5
	NH	11	6	3
2011	MA	48	91	111
	ME	32	11	6
	NH	10	6	1
2012	MA	47	92	108
	ME	29	10	5
	NH	9	6	1
2013	MA	49	85	104
	ME	35	7	4
	NH	8	5	1
2014	MA	47	88	95
	ME	37	7	4
	NH	7	4	1
2015	MA	44	88	85
	ME	40	6	3
	NH	7	3	1
2016	MA	44	94	89
	ME	40	7	3
	NH	9	3	2

3.2.2.2 NGOM & IFQ Landing Trends by State

FY		NGOM	IFQ
2010	MA	6	
	ME	3	
	NH	3	
2011 & 2012	MA	4	
	ME	5	
	NH	4	
2013	MA	6	
	ME	7	

	NH	5	
2014	MA	3	5
	ME	10	
	NH	6	
2015	MA	4	7
	ME	11	
	NH	6	
2016	MA	4	8
	ME	18	
	NH	6	

Table 9Table 9 outlines the number of trips taken and annual landings for all NGOM and IFQ vessels fishing in the management area from FY2010 to FY2016. Between FY2010 and FY2012, Massachusetts vessels took more trips in the NGOM and landed more scallops than vessels from Maine and New Hampshire. In FY2013 and FY2014, vessels from New Hampshire fished the NGOM most frequently (approximately three times more than previous years combined), whereas vessels from Maine landed the most scallops. In FY2015, Massachusetts vessels fished in the management area most frequently and landed the most scallops, followed by vessels New Hampshire and Maine. FY2016 saw a peak high in trip frequency and landings by vessels from Maine.

Table 8. The number of active NGOM & IFQ permitted vessels fishing in the NGOM from FY2010-FY2016 by state. Note that active NGOM & IFQ permitted vessels are combined for FY2011 and FY2012.

FY		NGOM	IFQ
2010	MA	6	
	ME	3	
	NH	3	
2011 & 2012	MA	4	
	ME	5	
	NH	4	
2013	MA	6	
	ME	7	
	NH	5	
2014	MA	3	5
	ME	10	
	NH	6	
2015	MA	4	7
	ME	11	
	NH	6	

2016	MA	4	8
	ME	18	
	NH	6	

Table 9. The number of trips taken and landings from NGOM and IFQ fleets by homeported state from FY2010-FY2016. Note that trips and landings from FY2010-FY2012 are combined.

	MA		ME		NH	
FY	Trips	Landings	Trips	Landings	Trips	Landings
2010-2012	120	11,168	74	7,174	69	4,645
2013	32	9,780	182	27,614	198	18,056
2014	145	13,488	150	23,425	259	20,929
2015	335	39,443	100	10,114	273	23,219
2016	207	33,793	273	41,993	78	12,479
TOTAL	839	107,672	779	110,320	877	79,328

3.3 LA ACTIVITY IN NGOM

Table 10 describes LA vessel activity in the NGOM in FY2016. A total of 13 LA permitted vessels fished in the NGOM, of which, 5 were full time, 3 were full time small dredge, and 5 were part time small dredge. Of the total LA landings from the NGOM in FY2016, 64% were attributed to full time vessels, 31% were attributed to part time small dredge vessels, and 5% were attributed to full time small dredge vessels. Of the total trips taken by LA vessels, part time small dredge vessels took 55%, full time vessels took 36%, and full time small dredge vessels took 8%.

Table 10. The number of active permits, number of trips taken, and landings for LA vessels fishing in the NGOM management area in FY2016. Active permits, trips, and landings are broken down by LA permit category.

Permit Category	Active Permits	Trips	Landings
Full time	5	14	187,127
Full time small dredge	3	3	15,362
Part time small dredge	5	21	90,028
TOTAL	13	38	292,517

3.4 FY2017 PRELIMINARY FISHERY DATA

The NGOM management area was closed to all federally permitted scallop vessels effective at 12:01 AM on March 23rd, 2017. Upon closure, LA vessels were prohibited from fishing within the NGOM, but could continue fishing outside of the management area using open-area DAS. LAGC NGOM and LAGC IFQ vessels were allowed to complete a trip which sailed prior to, and crossed the VMS demarcation line before, the closure. Under Maine's state water exemption, vessels with both an LAGC NGOM and valid Maine state scallop permit were allowed to continue fishing in the state waters portion of the management area.

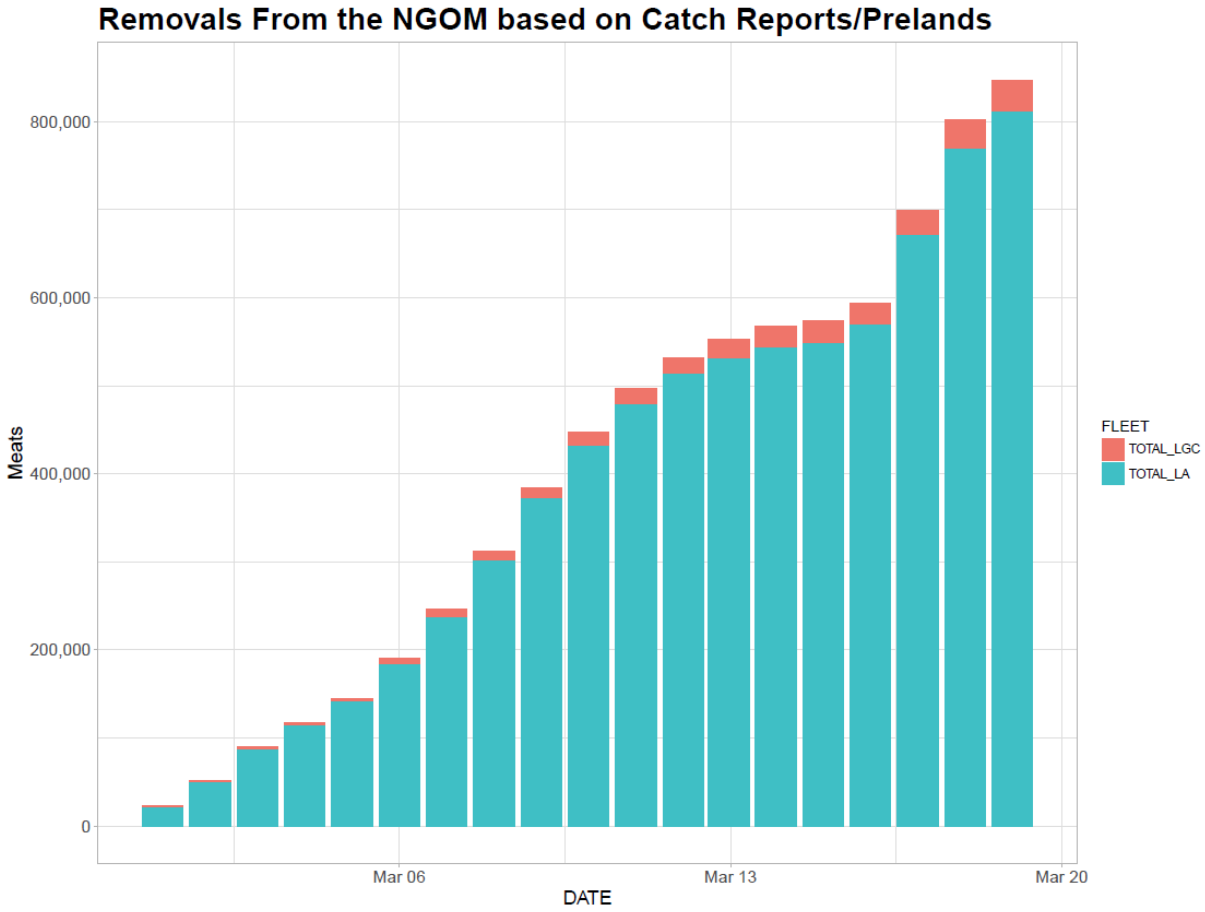
3.4.1 Landings by Permit Type

Table 11 and Figure 5 detail the cumulative total landings from the NGOM for LAGC and LA vessels between March 1st and March 19th, 2017. Total daily catch increased steadily until March 12th, 2017, when adverse weather forced many vessels to return to port. Daily catch increased notably from March 16th to March 19th after poor weather conditions subsided. During a PDT call on March 21st, 2016, GARFO staff estimated average daily catch of LA vessels fishing in the NGOM to be approximately 2,000 lbs.

Table 11. Cumulative total landings from the NGOM by permit type from March 1st - March 19th, 2017. Estimated landings were based on pre-landing reports for LAGC vessels and daily catch reports for LA vessels (source: GARFO).

Date	LAGC	LA	TOTAL
17-Mar-01	1,176	21,285	22,461
17-Mar-02	1,366	50,350	51,716
17-Mar-03	2,506	87,730	90,236
17-Mar-04	2,896	114,265	117,161
17-Mar-05	3,286	141,594	144,880
17-Mar-06	6,111	184,315	190,426
17-Mar-07	8,916	237,852	246,768
17-Mar-08	10,996	301,736	312,732
17-Mar-09	11,686	372,356	384,042
17-Mar-10	14,796	432,866	447,662
17-Mar-11	16,896	480,206	497,102
17-Mar-12	17,286	514,364	531,650
17-Mar-13	20,681	532,401	553,082
17-Mar-14	23,701	544,401	568,102
17-Mar-15	23,701	549,771	573,472
17-Mar-16	23,701	570,375	594,076
17-Mar-17	27,351	671,464	698,815
17-Mar-18	32,317	769,995	802,312
17-Mar-19	34,907	812,625	847,532

Figure 5. Cumulative total landings from the NGOM by permit type from March 1st – March 19th, 2017. Estimated landings were based on pre-landing reports for LAGC vessels and daily catch reports for LA vessels (source: GARFO).



3.4.2 Market Grade

Total reported auction landings from March 1st through March 21st, 2017 show the majority of landings to be in the '10 to 20' market category (Table 12). Table 13 describes the reported average auction price by market category for 'Gulf of Maine' scallops during this time period. Table 14 displays 'Gulf of Maine' scallop landings by market category.

Table 12. Total reported auction landings from the 'Gulf of Maine' by market category from March 1st - March 21st, 2017 (source: BASE New England).

Market Category	Landings (thousands of lbs)	Percent of Total Landings
10 TO 20	205.3	92.98%
20 TO 30	8.4	3.80%
U10	2.3	1.04%
U12	4.8	2.17%
Grand Total	**220.8**	**100.00%**

Table 13. Average auction price by market category and date for 'Gulf of Maine' scallops from March 1st - March 21st, 2017 (source: BASE New England).

Date	10 to 20	20 to 30	U10	U12
17-Mar-08	1290			
17-Mar-09	1255			
17-Mar-13	1252.5			1875
17-Mar-14	1220	1170	1860	
17-Mar-20	1262.5	1212.5	1927.5	1880

Table 14. Reported auction landings (thousands of lbs) by market category of 'Gulf of Maine' scallops from March 1st – March 21st, 2017 (source: BASE New England).

Date	10 to 20	20 to 30	U10	U12	TOTAL
17-Mar-08	2.2				2.2
17-Mar-09	30.4				30.4
17-Mar-13	98.9			4.3	103.2
17-Mar-14	42.1	3	0.1		45.2
17-Mar-20	31.7	5.4	2.2	0.5	39.8
TOTAL	205.3	8.4	2.3	4.8	**220.8**

3.4.3 Estimated Removals

Findings from the 2016 ME DMR/UMaine NGOM dredge survey were used to calculate removals in FY2017 removals in FY2017 at varying exploitation rates based on the total biomass of scallops > 88.9 mm (3.5") mm (3.5") estimated to be in the area (

Table 15).

Table 15. The estimated biomass of >88.9 mm (3.5") scallops removed from the NGOM at varying exploitation rates (assuming dredge efficiency of 0.4). Removals were calculated from two estimates (approx. 2.1 million lbs and 3.6 million lbs, respectively) of total biomass for the area based on findings from the 2016 ME DMR/UMaine dredge survey.

Dredge Efficiency	0.4	>88.9 mm (3.5") Scallops
Exploitation Rate	Biomass Removed (of 2,055,240 est. lbs q.15 equivalent)	Biomass Removed (of 3,640,385 est. lbs
0.1	205,524.00	364,038.50
0.15	308,286.00	546,057.75
0.2	411,048.00	728,077.00
0.25	513,810.00	910,096.25
0.3	616,572.00	1,092,115.50
0.35	719,334.00	1,274,134.75
0.4	822,096.00	1,456,154.00
0.45	924,858.00	1,638,173.25
0.5	1,027,620.00	1,820,192.50
0.55	1,130,382.00	2,002,211.75
0.6	1,233,144.00	2,184,231.00
0.65	1,335,906.00	2,366,250.25
0.7	1,438,668.00	2,548,269.50
0.75	1,541,430.00	2,730,288.75
0.8	1,644,192.00	2,912,308.00
0.85	1,746,954.00	3,094,327.25
0.9	1,849,716.00	3,276,346.50

4.0 SURVEYS AND HABITAT

4.1 NGOM SCALLOP SURVEY COVERAGE

The NGOM management area is data limited relative to Georges Bank and the Mid-Atlantic. Dredge surveys have been conducted by Maine Department of Marine Resources/University of Maine in 2002, 2006, 2010, 2012, and 2016. Coverage of this survey has varied each year and recently has focused mostly on areas with known aggregations of scallops commonly targeted in the NGOM. Additional drop camera surveys were conducted by the School for Marine Science and Technology (University of Massachusetts Dartmouth) in 2009, 2010, 2011, 2013, 2014, and 2015. SMAST drop camera surveys covered areas that have been closed to fishing (Jeffreys Ledge, Cashes Ledge, and Fippennies Ledge) and covered one area open to fishing in the NGOM (Platts Bank).

Data collected from these surveys have been useful in estimating localized scallop abundance, size distribution, and exploitable biomass; however, the relatively small proportion of the NGOM actually surveyed and lack of annual survey effort suggests our knowledge of the NGOM scallop population is highly uncertain. The following section briefly summarizes findings from the 2016 DMR/UMaine survey. A full summary of the 2016 ME DMR/UMaine survey can be found in Appendix 3.

4.1.1 2016 Maine DMR/University of Maine Dredge Survey

Findings from the 2016 ME DMR/UMaine dredge survey showed the majority of harvestable biomass in the NGOM management area to be off of Cape Ann. Smaller concentrations of biomass (>101mm) were seen in Machias/Seal Island, and on Platts Bank. The survey also covered bottom outside of the NGOM management area on Fippennies Ledge. Biomass estimates were substantially higher in 2016 (Table 16) than they were in 2012 (approximately 416,000 lbs). Biomass estimates were presented to the PDT using an exploitation rate of 0.38 and an 0.26. The PDT requested a new model run using an exploitation rate equal to 0.2, with estimates at the q.25 and q.10. The PDT noted that the NGOM is a relatively "data poor" situation when compared to the annual surveys of Georges Bank and the Mid-Atlantic, and viewed the biomass estimates coming out of the F=0.2 runs as upper bounds of removals.

Table 16. Biomass estimates from the 2016 ME DMR NGOM survey (Exploitation Rate=0.2, Dredge Efficieny=0.4).

Exploitation Rate = 0.20 Dredge Efficiency = 0.40	q0.05	q0.10	q0.15	q0.20	q0.25	Mean
Biomass Estimate (MT)	657	795	932	1018	1090	1651
TAC(MT)	131	159	186	204	218	330
Biomass Estimate (lbs)	1,447,797	1,751,822	2,055,240	2,244,263	2,402,140	3,640,385
TAC(lbs)	289,559	350,364	411,048	448,853	480,428	728,077

Figure 6 - 2016 ME DMR Survey Area

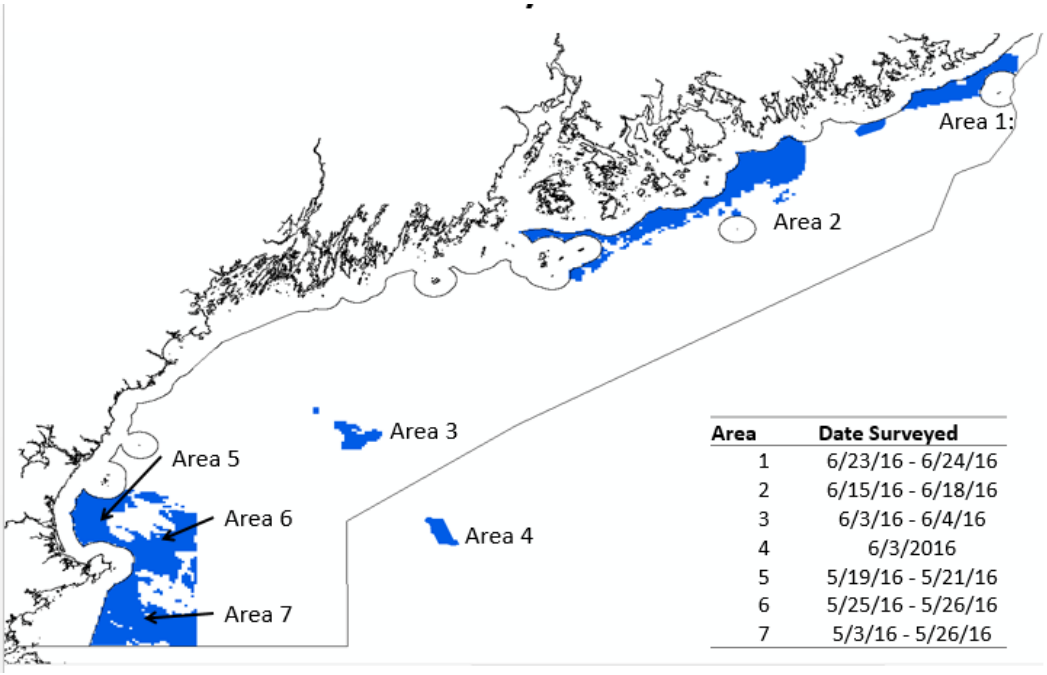
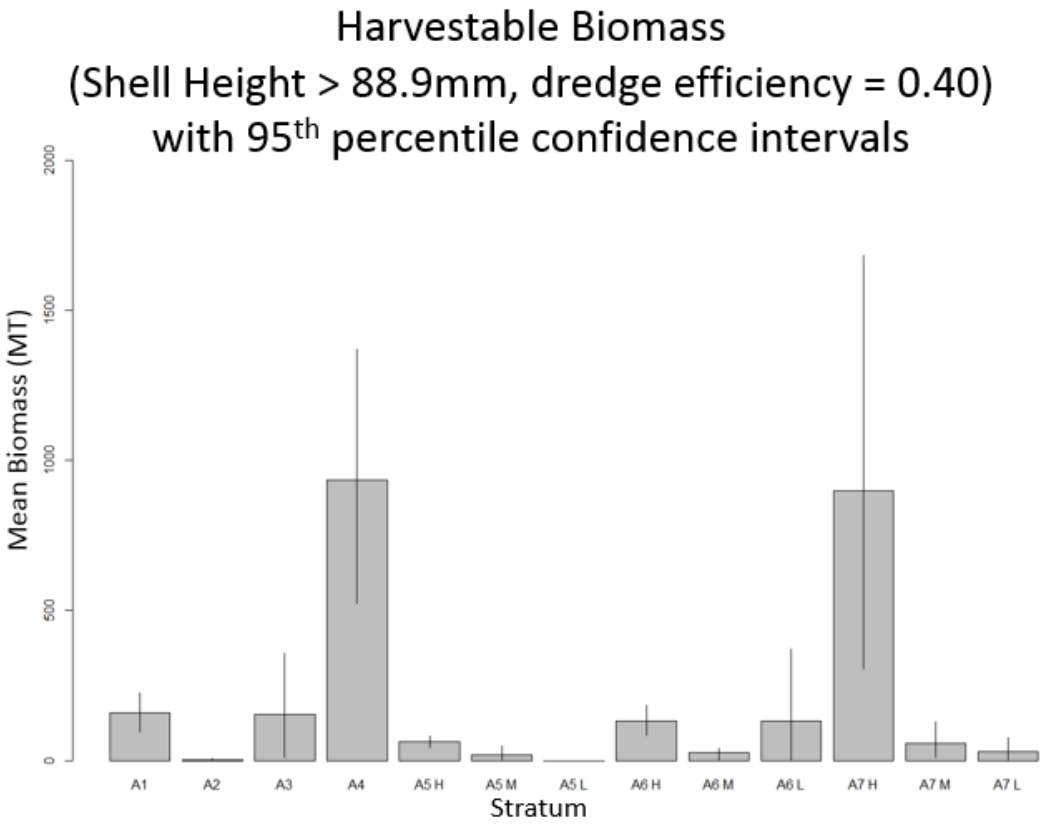


Figure 7. ME DMR NGOM survey-estimates of harvestable biomass for each survey area.



4.2 GULF OF MAINE HABITAT (SOURCE: OMNIBUS HABITAT AMENDMENT 2, AFFECTED ENVIRONMENT)

The Gulf of Maine is an enclosed coastal sea of 90,700 km^2, extending north of Cape Cod, east of Maine, and south and west of Nova Scotia. This region is topographically unique, as it was glacially derived and is comprised of a system of deep basins, moraines, and rocky pinnacles. The distinctive benthic terrain found here influences a complex web of oceanographic processes, which promote high productivity and support a rich, diverse biological assemblage.

The Gulf of Maine's geologic features, when coupled with vertical variations in water properties, result in a great diversity of habitat types. There are twenty-one distinct basins separated by ridges, banks, and swells. The three largest basins are Wilkinson, Georges, and Jordan. Depths in the basins exceed 250 m, with a maximum depth of 350 m in Georges Basin, just north of Georges Bank. The Northeast Channel between Georges Bank and Browns Bank leads into Georges Basin, and is one of the primary avenues for exchange of water between the Gulf of Maine and the North Atlantic Ocean.

Intense seasonal cycles of winter cooling and turnover, springtime freshwater run off, and summer warming influences oceanographic and biologic processes in the Gulf of Maine. Numerous factors dictate water properties and circulation (i.e. stratification, tidal mixing, warm/cold core Gulf Stream rings, internal waves), which can vary significantly from year to year. This drastic variation in water properties will often shift habitat conditions, ultimately impacting productivity and success of resident marine species.

Figure 8. Sedimentary features of the Gulf of Maine. Data sources include usSEABED and SMAST video (Map 21 from Omnibus Habitat Amendment 2).

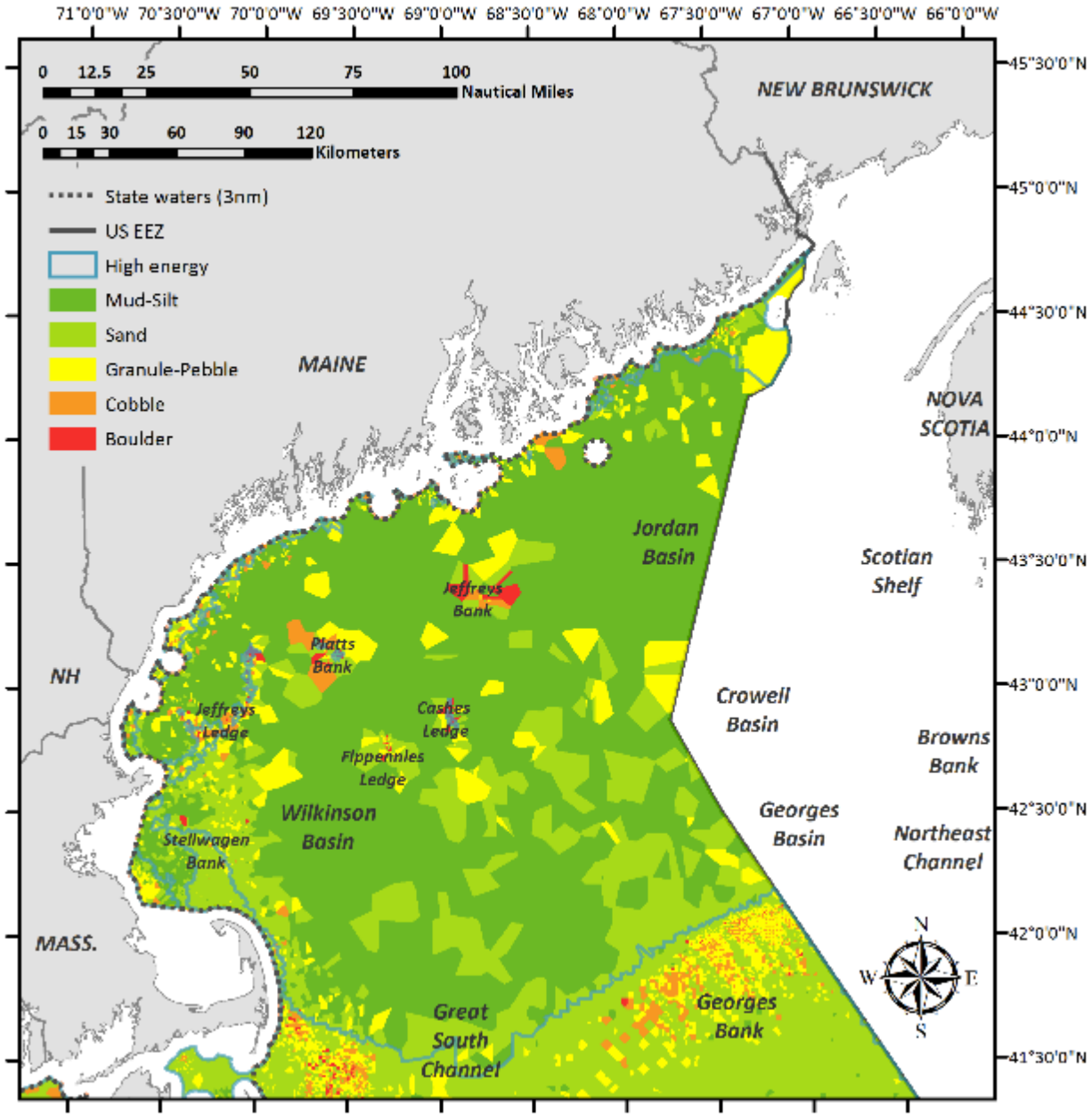
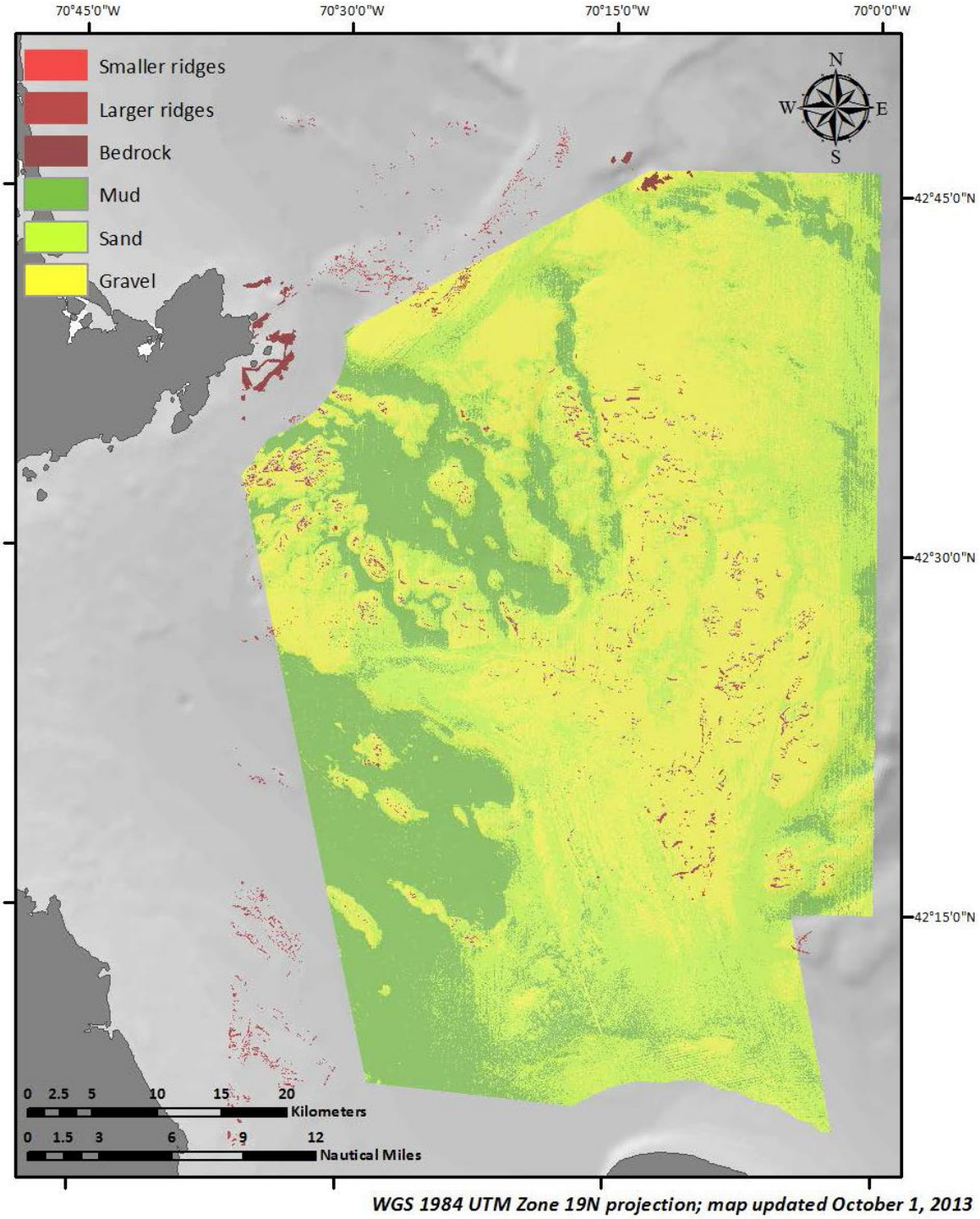


Figure 8 depicts dominant sediment type mapped as an unstructured or Voronoi grid, where polygon size reflects data density (i.e. the smaller grid, the more data points there are in that location). This sediment map was developed for use in the Swept Area Seabed Impact model. The muddier basins as well as hard-substrate shallower areas are shown in dark green to red coloration. Higher versus lower energy habitats are delimited by the blue line, with higher energy habitats inshore and on the tops of features including Cashes Ledge, Platts Bank, Jeffreys Ledge, and Stellwagen Bank. In the Gulf of Maine, a depth cut-off of 60 m was used to distinguish high versus low energy habitats. In general, sediment data are fairly low resolution in many parts of

the Gulf of Maine. However, one feature that has been mapped in detail is Stellwagen Bank (Figure 9).

Figure 9. Sedimentary features of Stellwagen Bank. Source: U.S. Geological Survey (Map 22 from Omnibus Habitat Amendment 2).



Acronym	
ABC	Allowable Biological Catch
ACL	Annual Catch Limit
bu	bushel
CAP	Coastal Access Permit
CFR	Code of Federal Regulations
DAS	Days-at-sea
EFH	Essential Fish Habitat
F	Fishing mortality
FMP	Fishery Management Plan
FY	Fishing Year
GOM	Gulf of Maine
LA	Limited Access
LAGC	Limited Access General Category
LAGC IFQ	Limited Access General Category Individual Fishing Quota
LAGC NGOM	Limited Access General Category Northern Gulf of Maine
LPUE	Landings per unit of effort
MA DMF	Massachusetts Division of Marine Fisheries
ME DMR	Maine Department of Marine Resources
mt	metric ton
NEFMC	New England Fishery Management Council
NGOM	Northern Gulf of Maine
NGOMMA	Northern Gulf of Maine scallop management area
NMFS	National Marine Fisheries Service
OFL	Overfishing Limit
PDT	Plan Development Team
SASI	Swept Area Seabed Impact model
SAW	Stock Assessment Workshop
SMAST	School for Marine Science and Technology
TAC	Total Allowable Catch
VMS	Vessel Monitoring System
VTR	Vessel Trip Report