August 12, 2014

Results from recent Maine sea scallop surveys

Introduction

An annual dredge-based fishery-independent survey by the Maine Department of Marine Resources (DMR) of the scallop resource within Maine state waters has been conducted since 2002 (with the exception of 2004). This survey provides information on size distribution, the shell height-meat weight relationship, abundance, spatial distribution and harvestable biomass of scallops from nearshore waters. For the first two years (2002, 2003) the entire coast was surveyed. Subsequent to this one of three (1.) New Hampshire border to western Penobscot Bay, 2.) eastern Penobscot Bay to Quoddy Head, and 3.) Cobscook Bay/St. Croix River) major sections of the coast has been surveyed each year on a rotating basis with a more intensive survey in each area than in 2002-03. A spring survey of management zone 2 (eastern Maine) was begun in 2013. The change to the spring allowed for time to enact management actions for the upcoming season based on survey results. The following is a chronology of survey coverage by year:

Year	Area surveyed
2002	Coastwide, including Cobscook Bay
2003	Coastwide, including Cobscook Bay
2004	no survey
2005	New Hampshire border to western Penobscot Bay
2006	eastern Penobscot Bay to St. Croix River, including Cobscook Bay
2007	Cobscook Bay
2008	Matinicus Is. to W. Quoddy Head
2009	New Hampshire border to western Penobscot Bay, and Cobscook Bay and St. Croix River, Mt. Desert Is. and Machias Seal Is.
2010	Cobscook Bay and St. Croix River
2011	Matinicus Is. to W. Quoddy Head, and closed portions of western Maine coast
2012	Cobscook Bay and St. Croix River, Mt. Desert Is. and Machias Seal Is.
2013	eastern Penobscot Bay to Cutler shore – open portions and limited access areas (spring); Cobscook Bay/St. Croix River (fall)
2014	upper Penobscot Bay to W. Quoddy Head – open portions (spring)

Cobscook Bay

Cobscook Bay (Fig. 1) has the most productive scallop fishery within Maine waters and is thus sampled with the most frequency and with the highest intensity of the survey

zones. A direct assessment of scallop abundance for Cobscook Bay is made using a systematic grid design. There are six (6) survey subareas within Cobscook Bay (South Bay, Johnson Bay, Whiting Bay/Dennys Bay, Pennamaquan River, East Bay, Moose Is.).

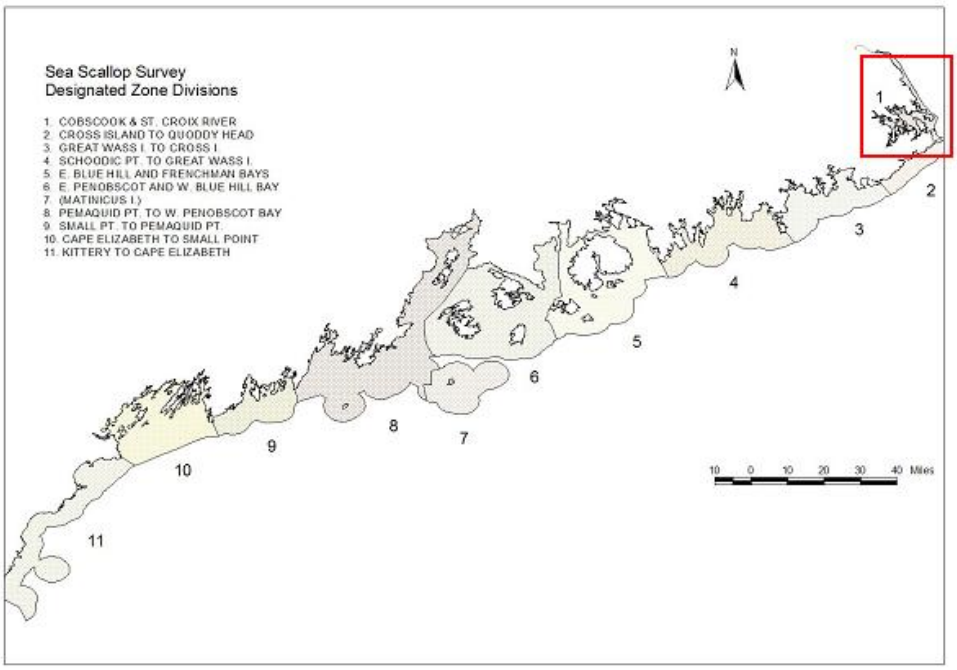

Figure 1. Survey strata - ME DMR scallop survey (with Cobscook Bay area highlighted).

In 2013 Cobscook Bay had the second highest amount of harvestable ($\geq$ 4 in. shell height) meat biomass (452,200 $\pm$ 27,200 lbs.) observed since the survey began in 2002 (Fig. 2). Meat weight in relation to shell height was slightly greater than the previous survey (2012) of Cobscook Bay and the highest since 2002-03.

Harvestable biomass in the Whiting Bay/Dennys Bay limited access area (LAA) decreased 13% between 2012 and 2013 but was still the second highest of the time series (Fig. 3). Whiting Bay/Dennys Bay had the highest density (0.331 per m^2) of harvestable scallops in Cobscook Bay in 2013.

South Bay had the largest proportion (53%) of harvestable biomass in Cobscook Bay in 2013. Harvestable density decreased in South Bay in 2013 but was still the second highest of the time series. Highest densities of both seed (0.101 per m^2) and sublegals (0.333 per m^2) were in Johnson Bay.

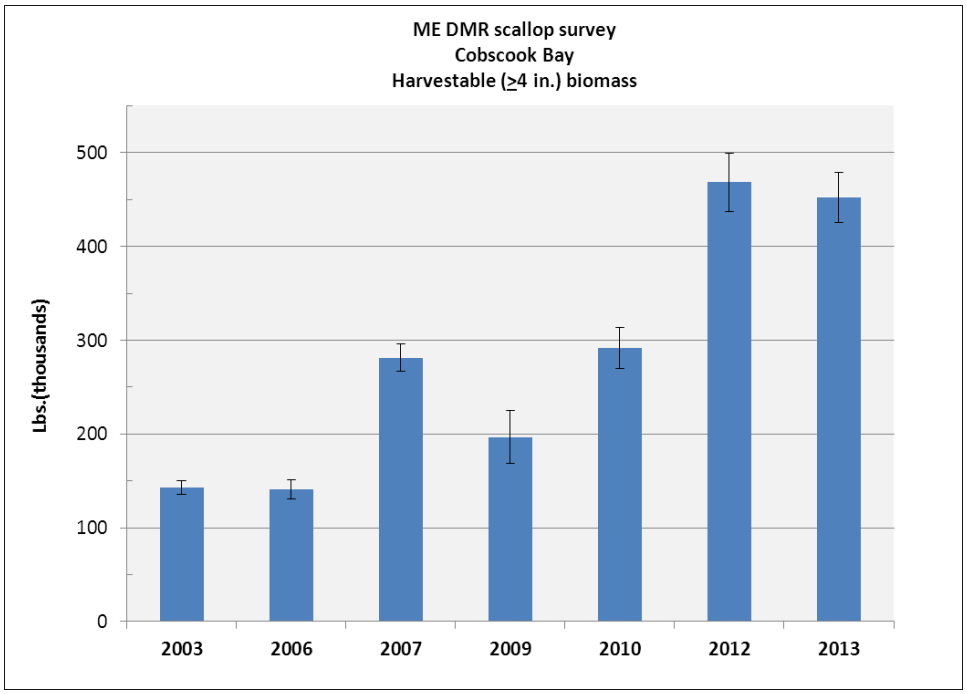

Figure 2. Biomass (meat weight, with standard error) of harvestable (legal-size) scallops in Cobscook Bay, 2003-13.

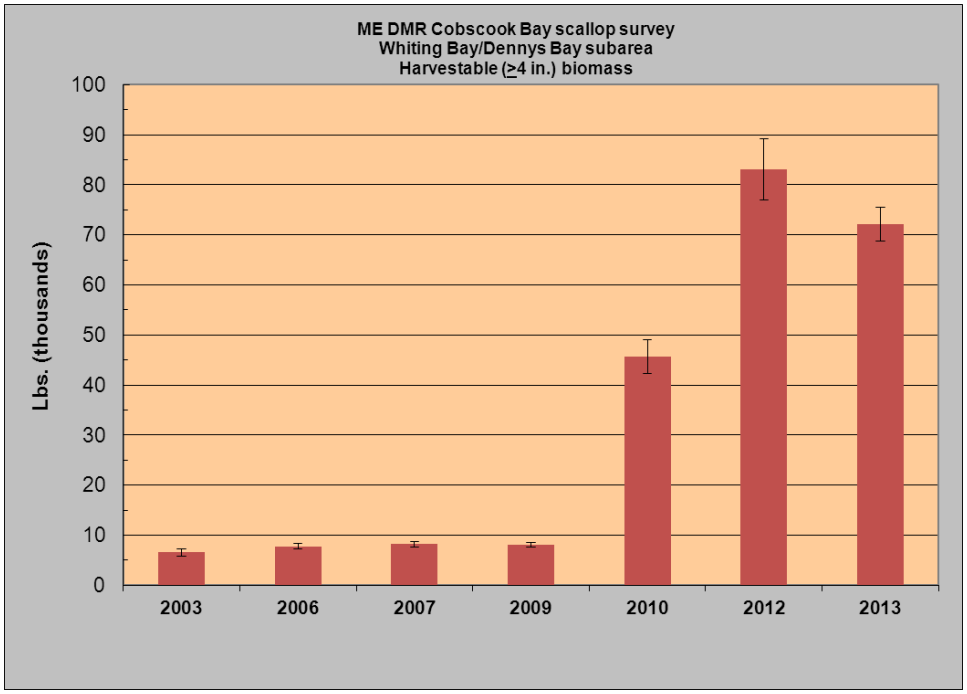

Figure 3. Biomass (meat weight, with standard error) of harvestable (legal-size) scallops in Whiting Bay/Dennys Bay, 2003-13.

Eastern Maine

Seven (7) areas along the Maine coast were closed by DMR to scallop fishing in 2009 (Fig. 4). These closures were re-opened in 2012-13 as LAAs and were the focus of the spring 2013 survey. The policy of DMR since 2012 has been to ensure that not more than 30-40% of the harvestable biomass will be removed from the LAAs during the fishing season.

Machias Bay LAA realized an increase in harvestable scallop biomass of 33% between fall 2011 and fall 2013 (projected) (Fig. 5). Density of harvestable scallops within the Machias Bay LAA was over 2X higher than the adjacent open area.

Chandler Bay LAA harvestable scallop abundance declined 58% since 2011. Moosabec Reach LAA realized an over 2X increase in harvestable abundance since 2011. Seed were also observed in this area in 2013.

Harvestable biomass within Gouldsboro Bay declined over 40% from the 2011 estimate and over 60% from the 2012 estimate.

Only 37 scallops were caught in 20 tows in Mt. Desert LAA. E. Penobscot Bay LAA harvestable scallop abundance declined 76% since 2011.

Blue Hill LAA had a 96% decline in harvestable density between fall 2011 and fall 2013 (projected) and appeared to suffer a significant loss in biomass prior to opening to fishing in December 2012.

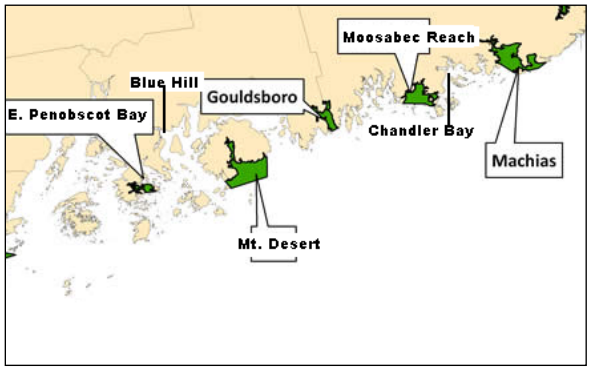

Figure 4. Maine scallop limited access areas (LAAs) surveyed in spring 2013.

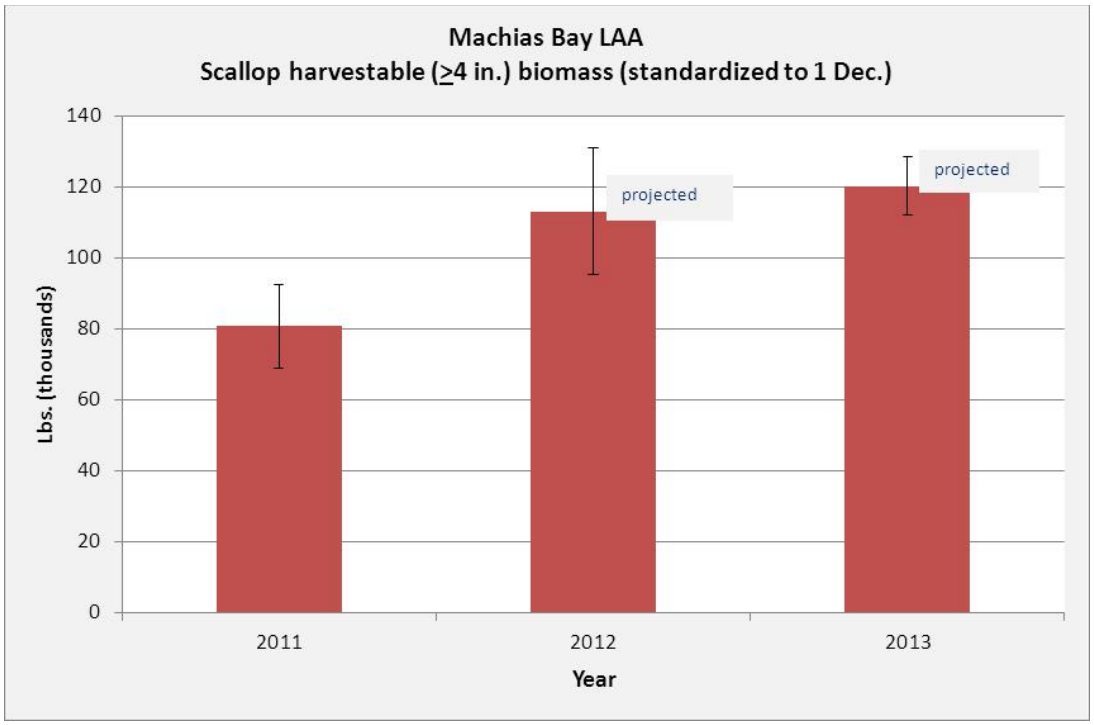

Figure 5. Estimated mean harvestable scallop biomass (meat lbs.), Machias Bay LAA, 2011-13.

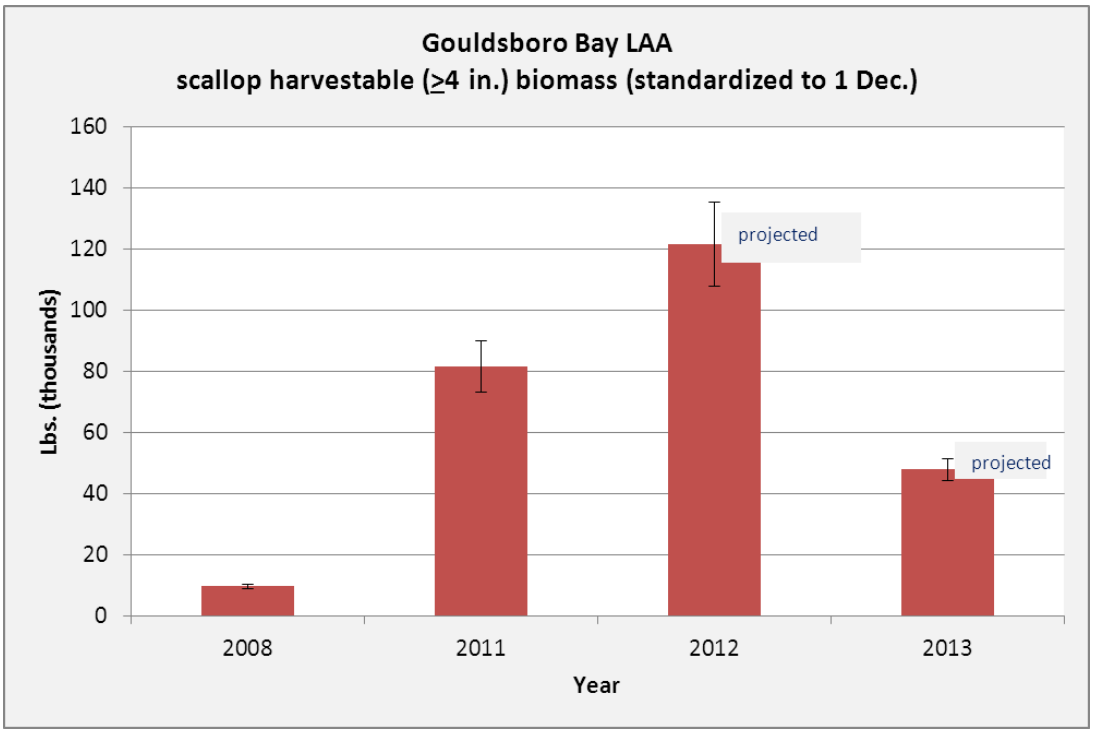

Figure 6 . Estimated mean harvestable scallop biomass (meat lbs.), Gouldsboro Bay LAA, 2008-13.