

Cape Cod Herring Counts, 2007 -2015



Stony Brook, photo by L. Keeran

October 15, 2015

River Herring Warden Network

Annual Meeting

Pembroke, MA

Jo Ann Muramoto, Ph.D.

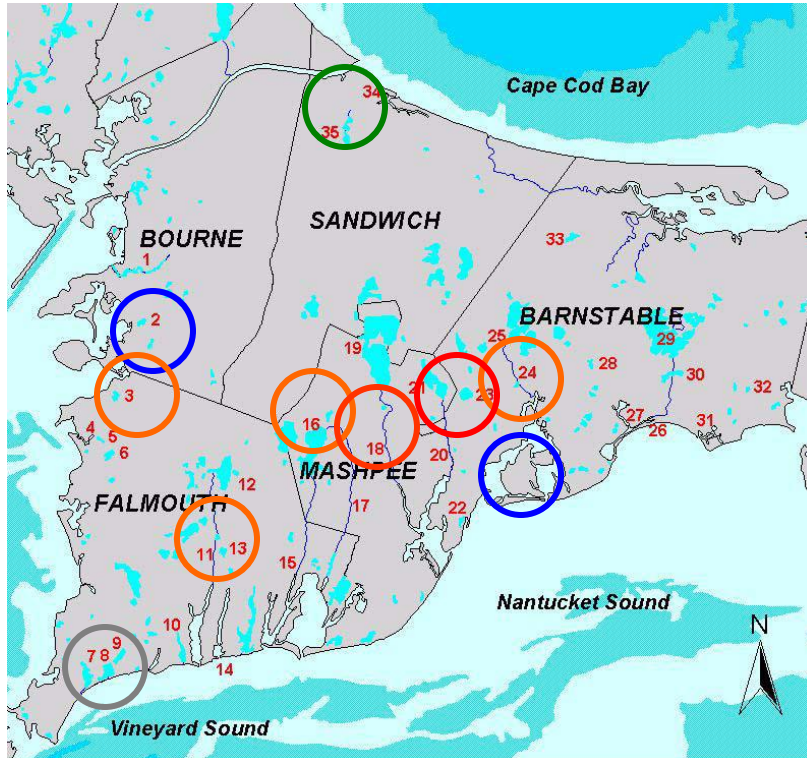
Director of Science Programs

Association to Preserve Cape Cod

Mass Bays Program Regional Coordinator, Cape Cod

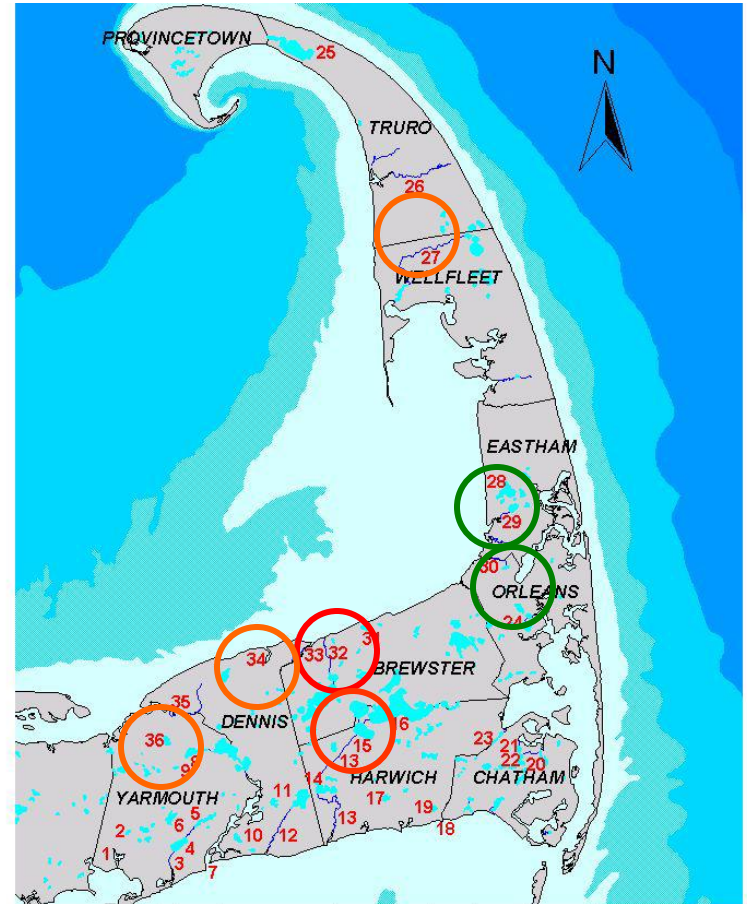


Volunteer Herring Count Programs on Cape Cod



Major streams and ponds of Western Cape Cod.

Stream/Pond Names:		
1 - Pocasset River	12 - Coonamessett Pond	24 - Marstons Mills River
2 - Red Brook Pond	13 - Flax Pond	25 - Middle Pond
3 - Cedar Lake	14 - Green Pond	26 - Centerville River
4 - Wild Harbor River	15 - Childs River	27 - Bumps River
5 - Dam Pond	16 - Johns Pond	28 - Lumbert Pond
6 - Wing Pond	17 - Quashnet River	29 - Wequaquet Lake
7 - Oyster Pond	18 - Mashpee River	30 - Long Pond
8 - Salt Pond	19 - Mashpee - Wakeby Pond	31 - Halls Creek
9 - Siders Pond	20 - Santuit River	32 - Aunt Bettys Pond
10 - Little Pond	21 - Santuit Pond	33 - Mill Pond
11 - Coonamessett River	22 - Rushy Marsh Pond	34 - Mill Creek
	23 - Lovells Pond	35 - Shawmee Lakes



Major streams and ponds of eastern Cape Cod

Stream/Pond Names:			
1 - Mill Creek	10 - Kelleys Pond	19 - Skinequit Pond	28 - Great Pond
2 - Little Sandy Pond	11 - Fresh Pond	20 - Frost Fish Creek	29 - Herring River
3 - Parkers River	12 - Swan Pond River	21 - Stillwater Pond	30 - Rock Harbor Creek
4 - Seine Pond	13 - Herring River	22 - Lovers Lake	31 - Cobbs Pond
5 - Long Pond	14 - West Reservoir	23 - Muddy Creek	32 - Stony Brook
6 - Plashes Pond	15 - Hinckleys Pond	24 - Pilgrim Lake	33 - Quivett Creek
7 - Bass River	16 - Long Pond	25 - Pilgrim Lake	34 - Sesuit Creek
8 - Mill Pond	17 - Grass Pond	26 - Pamet River	35 - Chase Gardens Creek
9 - Miss Thatchers Pond	18 - Red River	27 - Herring River	36 - Matthews Pond

Herring Run Restoration and Count Programs

Run name, town	Pre-Restoration / Planning	Under Construction	Restoration Completed	Volunteer Count Program?
Stony Brook, Brewster			Yes	Yes
Herring Brook, Eastham	Yes		Yes (more needed)	Yes
Cedar Lake, Falmouth			Yes	Yes
Tom Mathews Pond, Yarmouth			Yes	Yes
Pilgrim Lake, Orleans	Yes		Yes (more needed)	Yes
Santuit River, Mashpee			Yes	Yes
Mashpee River, Mashpee			Yes	Yes
Upper Shawme Pond, Sandwich			Yes	Yes
Mill Creek, Sandwich			Yes	Yes (not in 2015)
Herring River, Harwich			Yes (more needed)	Yes
Marstons Mills River, Barnstable	?			Yes
Red Lily Pond, Centerville, Barnstable	Yes			Yes
Red Brook, Bourne	Yes			No
Coonamessett River, Falmouth	Yes			Yes
Quashnet River, Mashpee	Yes			Yes
Herring River, Wellfleet	Yes			Yes
Trunk River, Falmouth				Yes
Bound Brook, Dennis				Yes

Summary of Volunteer Herring Counts, Cape Cod, 2007 - 2015

SUMMARY OF VOLUNTEER HERRING COUNTS, CAPE COD, 2007-2015

Association to Preserve Cape Cod (APCC) and Massachusetts Bay National Estuary Program, Cape Cod Region

10/13/15

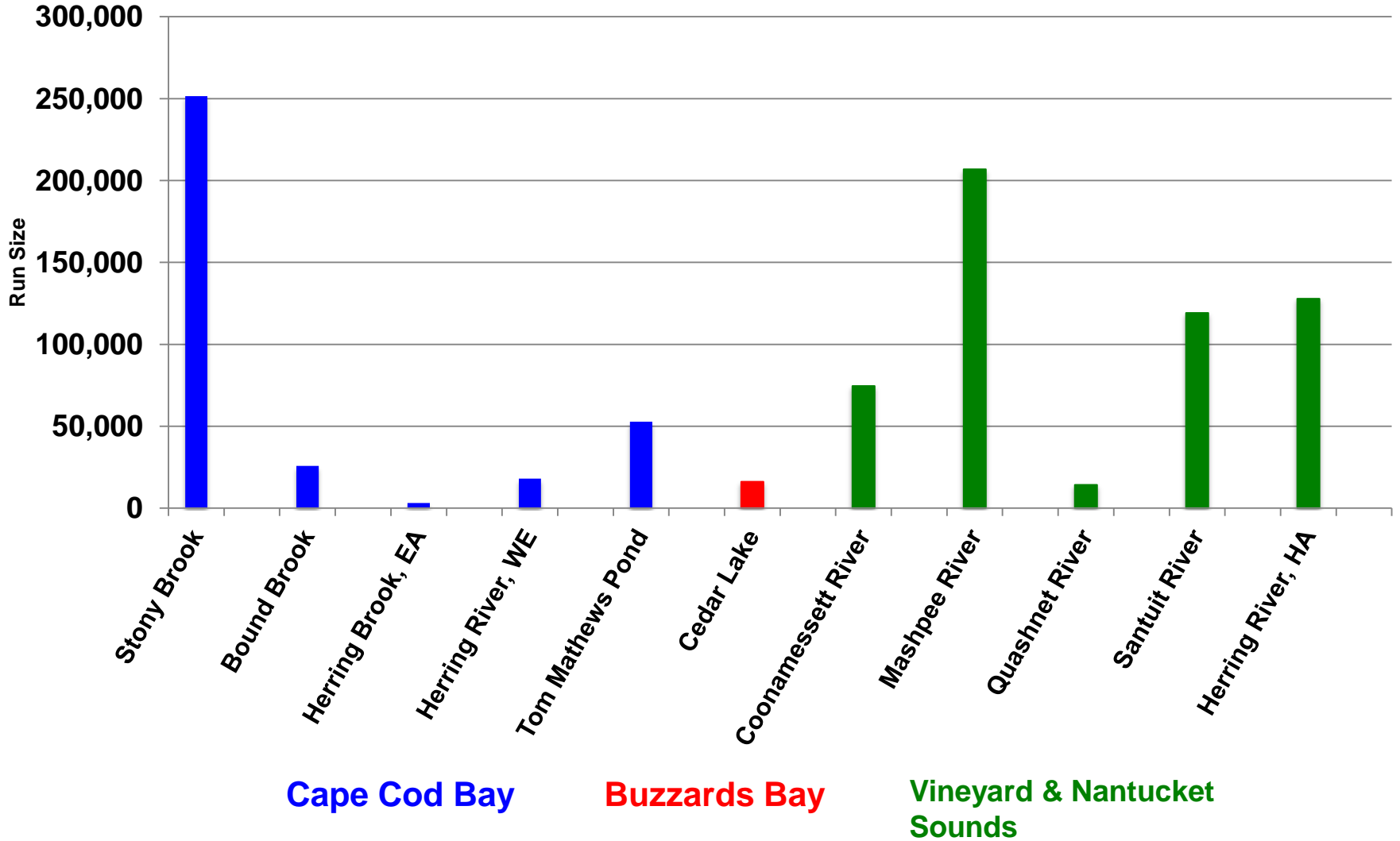
Run Name	Marin/Water Body	Town	Year	#Fish Counted	#Fish Observations	Estimated Run Size*	Plus/Minus	Peak # (Min/Date/)	Peak Count	7-Month Count	First Fish Counted	Run End Date	Water Temperature when First Fish Counted	Water Temp/Temp Peak	Avg # Fish/ Observation	Lead Organization	Partners/Assisting				
RedLilyPond	NantucketSound	Barnstable	2013	1,606	191	911	651	1,564	11	7-May	4/9/13	11-May	11.5	12.0	8	RedLilyPondProject	APCC				
			2014	17	31	NA	NA	NA	22-Apr	4/22/14	NA	NA	NA	26.0	0						
			2015	7	27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			0			
RedBrook	BuzzardsBay	Bourne	2011	50	38	NA	NA	22	6-Apr	4/6/11	2-May	10.0	8.00*	1	APCC	APCC					
			2012	3	20	NA	NA	1	16-May	17-May	14.0	15.00	0								
StonyBrook	CapeCodBay	Brewster	2007	2,588	437	22,368	1,775	157	14-May	4/22/07	1-Jun	15.0	20.00	6	APCC, MassBaysProgram, FownB/Brewster	APCC					
			2008	1,907	255	25,288	2,938	233	25-Apr	4/17/08	29-May	12.0	18.00	7							
			2009	1,002	233	11,062	1,185	95	29-Apr	4/16/09	25-May	9.0	18.00	4							
			2010	8,276	538	46,098	2,172	317	16-May	4/6/10	16-May	14.0	18.00	16							
			2011	3,019	287	37,091	1,185	136	30-Apr	4/7/11	1-Jun	10.0	17.00	11							
			2012	3,090	174	41,028	3,067	225	18-Apr	3/23/12	25-May	15.0	17.00	18							
			2013	9,712	177	35,262	32,008	984	30-Apr	4/14/13	26-May	11.0	15.0	55							
			2014	26,572	301	271,383	16,516	481	13-May	4/23/14	9-Jun	14.0	17.00	88							
			2015	19,463	231	213,570	17,110	519	8-May	4/14/15	20-Jun	11.0	17.00	83							
			RoundBrook	CapeCodBay	Dennis	2012	1,209	84	14,580	9,711	142	23-Apr	5/10/12	12-May			14.0	15.00	14	APCC, MassBaysProgram, FownB/Dennis, DennisConservationTrust	APCC
						2013	1,661	124	33,486	11,534	177	26-Apr	4/19/13	14-May			12.0	13			
						2014	593	82	16,117	2,150	170	22-Apr	4/21/14	1-Jun			15.0	7			
2015	2,088	176				25,617	7,093	157	6-May	4/22/15	20-May	10.0	15.00	12							
SargoLake	CapeCodBay	Eastham	2015	119	17	NA	NA	75	31-May	5/29/15	31-May	18.0	20.00	7	APCC, MassBaysProgram, FownB/Dennis, DennisConservationTrust	APCC					
			2016	749	255	8,188	3,081	61	15-May	4/14/16	15-May	12.0	0								
HerringBrook	CapeCodBay	Eastham	2015	461	368	3,204	1,238	116	9-May	4/19/15	19-May	10.0	10	1	EasthamHerringMonitors, FownB/Eastham, APCC, MassBaysProgram	APCC					
			2016	111	115	9,399	1,485	59	14-Apr	4/9/11	18-May	9.0	12.50*	2							
CedarLake	BuzzardsBay	Falmouth	2012	12	30	NA	NA	11	26-Apr	4/15/12	26-Apr	15.0	14.00	0	APCC, FownB/Falmouth	APCC					
			2013	317	54	13,422	18,478	84	8-May	4/10/13	16-May	9.0	6								
			2014	121	50	NA	NA	66	6-May	4/9/14	9-May	9.0	2								
			2015	883	170	16,151	8,974	182	4-May	4/7/15	19-May	10.0	5								
CoonassetRiver	VineyardSound	Falmouth	2012	1,721	277	74,595	20,323	62	14-Apr	4/19-14	19-May	10.0	11.00*	6	CoonassetRiverTrust, FownB/Falmouth	APCC					
			2015	469	295	39,296	1,935	361	27-Apr	4/11/09	31-May	8.5	15.00	5							
HerringRiver	NantucketSound	Harwich	2010	4,821	487	41,254	4,966	315	3-May	4/2/10	26-May	11.0	16.00	10	HarwichConservationTrust, FownB/Harwich	APCC					
			2011	1,122	486	10,466	3,162	103	26-Apr	4/11/11	27-May	9.0	14.00	2							
			2012	10,944	498	301,624	14,248	506	25-Apr	3/24/12	28-May	12.0	16.00	22							
			2013	9,216	351	91,167	18,735	500	11-May	3/11/13	15-May	8.0	26								
			2014	26,725	482	247,894	23,671	672	23-Apr	4/6/14	31-May	5.0	55								
			2015	49,749	490	377,860	12,803	796	5-May	4/22/15	31-May	5.0	14.00	30							
MashpeeRiver	NantucketSound	Mashpee	2011	7,047	231	114,988	19,626	660	7-May	4/11/11	29-May	5.0	21.00	31	APCC, FownB/Mashpee	APCC					
			2012	13,969	191	226,754	99,520	2,090	13-May	3/21/12	27-May	10.0	17.00	72							
			2013	6,339	60	225,448	22,337	616	21-Apr	4/13/13	7-May	8.0	106								
			2014	11,532	107	341,458	1,544	12-May	4/4/14	23-May	5.0	20.00	108								
			2015	9,989	94	206,883	178,654	1,025	11-May	4/9/15	29-May	5.0	64								
QuashnetRiver	Vineyard NantucketSoundMashpee	Mashpee	2011	482	NA	NA	NA	338	13-May	4/6/11	20-May	9.5	14.00	8	APCC, FownB/Mashpee	APCC					
			2012	2,409	131	NA	NA	412	15-May	3/29/12	22-May	15.0	18.00	18							
			2013	1,233	178	37,153	12,534	176	11-May	4/10/13	28-May	8.0	13								
			2014	1,905	139	40,854	12,447	167	9-May	4/9/14	9-May	9.0	14								
			2015	468	132	14,256	5,147	102	10-May	4/19/15	27-May	9.0	21.00	4							
SantuitRiver	NantucketSound	Mashpee	2012	3,503	24	141,261	13,600	863	17-Apr	3/20/12	5-May	15.0	19.00	103	APCC, FownB/Mashpee	APCC					
			2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	40							
			2014	646	97	20,620	4,333	59	12-May	4/6/14	18-May	9.0	7								
			2015	4,248	107	118,182	30,058	367	8-May	4/14/15	28-May	12.0	20.00	40							
PigrittLake	PleasantBay	Orleans	2008	158	439	1,647	NA	NA	NA	NA	NA	NA	NA	0	OrleansShellfish&WaterwaysCommittee, FownB/Orleans	APCC					
			2009	108	517	1,090	NA	NA	NA	NA	NA	NA	NA	NA			0				
			2010	182	477	1,461	NA	70	29-Apr	4/8/10	4-May	16.0	0	14.00			0				
			2011	104	481	1,970	318	32	5-May	4/6/11	26-May	11.0	16.00	0							
			2012	551	497	5,931	1,371	64	16-Apr	3/26/12	25-May	11.0	20.00	1							
			2013	313	477	1,001	1,175	64	16-Apr	3/26/12	31-May	1.0	1								
			2014	320	449	4,202	2,534	NA	NA	NA	NA	NA	NA	NA			1				
MillEreKid	CapeCodBay	Sandwich	2011	16	111	NA	NA	3	25-May	4/1/11	25-May	9.5	18.00	0	APCC, MassBaysProgram, FownB/Sandwich	APCC					
			2012	445	39	8,756	1,078	81	30-Apr	4/1/12	15-May	8.0	12.00	11							
			2013	37	8	NA	NA	21	20-May	5/7/13	6-Jun	19.0	5								
			2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			0				
			2015	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			0				
UpperShawmutPond	CapeCodBay	Sandwich	2011	0	23	NA	NA	0	NA	NA	NA	NA	NA	0	APCC, MassBaysProgram, FownB/Sandwich	APCC					
			2012	1	25	4,089	NA	1	24-Apr	24-Apr	15.0	15.00	0								
HerringRiver	CapeCodBay	Wellfleet	2009	1,663	235	21,870	3,976	131	18-Apr	4/7/09	25-May	9.5	11.00*	7	FriendsOfHerringRiver, FownB/Wellfleet	MassBaysProgram					
			2010	744	265	12,052	1,595	61	7-Apr	4/4/10	30-May	13.0	14.50	3							
			2011	564	222	9,134	1,490	111	27-Apr	4/8/11	23-May	7.0	16.00	3							
			2012	1,192	466	11,653	4,179	122	9-Apr	3/20/12	24-May	10.0	13.00	3							
			2013	2,036	351	24,085	11,813	220	26-Apr	4/12/13	31-May	12.0	6								
			2014	4,903	321	61,781	7,556	320	14-Apr	4/9/14	26-May	8.5	15								
			2015	1,480	291	18,025	6,207	26	26-Apr	4/12/15	30-May	8.0	5								
			2016	5,235	248	70,169	46,774	178	15-May	4/18/16	22-May	13.0	24								
TomMithewsPond	CapeCodBay	Yarmouth	2015	2,706	141	52,742	9,589	174	7-May	4/4/15	10-May	10.0	20	19	Isosilver&Ice&SunClub	MassBaysProgram					

*Run sizes computed by Massachusetts Division of Marine Fisheries using Visual Count Software. N/A means Not Available TEO means TEO Determined

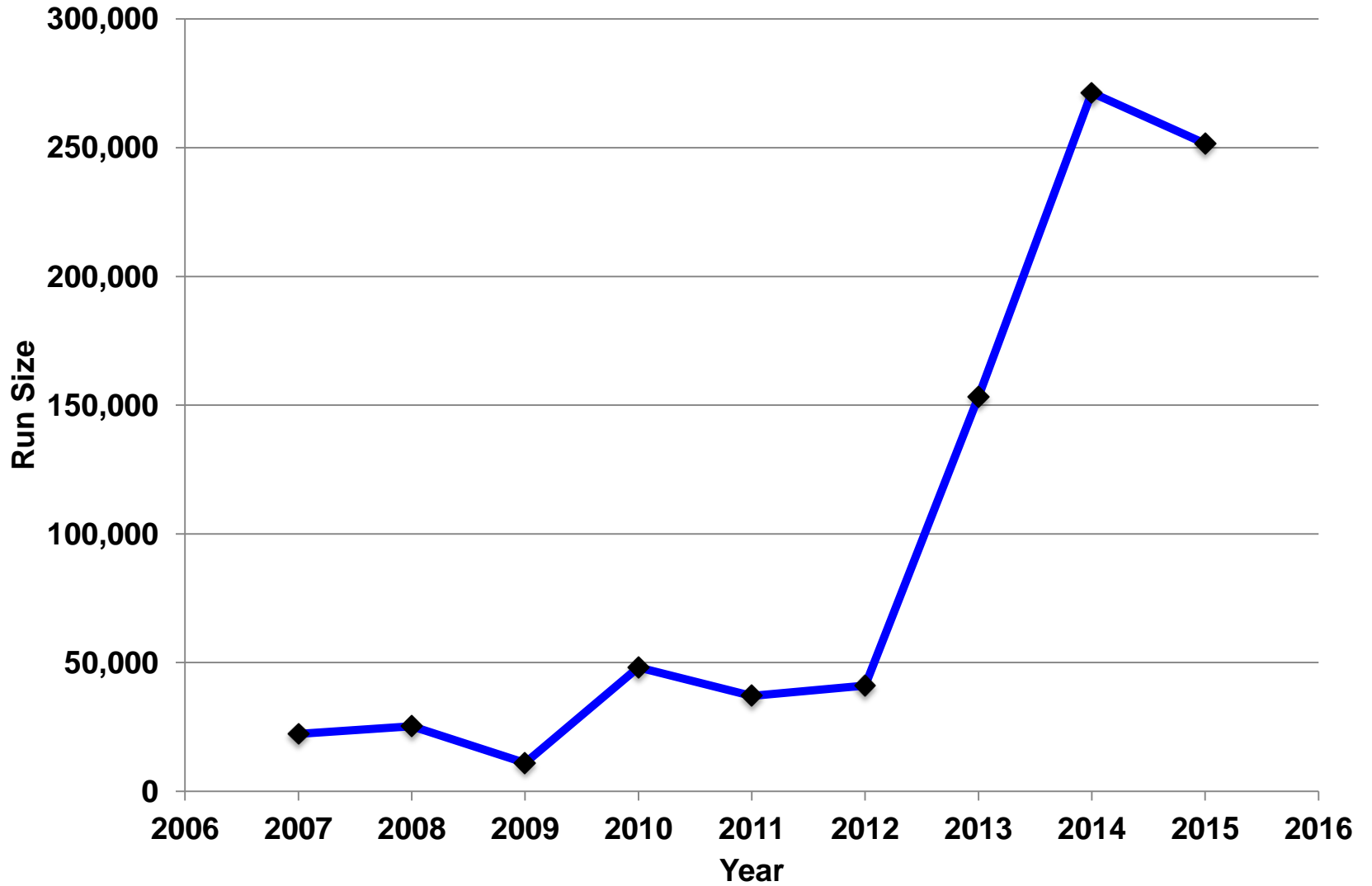
Run Name	Vineyard Sound	Falmouth	NA	Barnstable	141	21-Apr	15-Mar	19-May	NA	NA	64	TrunkRiver/Volunteers	
MarstonMillsRiver	719	378	NA	NA	15-Apr	12-Apr	14-May	NA	NA	2	MarstonMillsRiverWatershedAssociation(MMRWA)	APCC	
	1,741	378	NA	NA	3-May	20-Apr	17-May	NA	NA	5			
	5,232	342	NA	NA	20-Apr	10-Apr	16-May	NA	NA	15			
	1,332	225	NA	NA	27-Apr	19-Apr	10-May	NA	NA	6			
	478	270	NA	NA	5-Apr	4-Apr	3-May	NA	NA	2			
	53	189	NA	NA	17-Apr	17-Apr	19-May	NA	NA	0			
	8,892	460	NA	NA	17-Apr	21-Mar	19-May	NA	NA	16			
													ThreeBaysPreservation

There will be a test after lunch.....

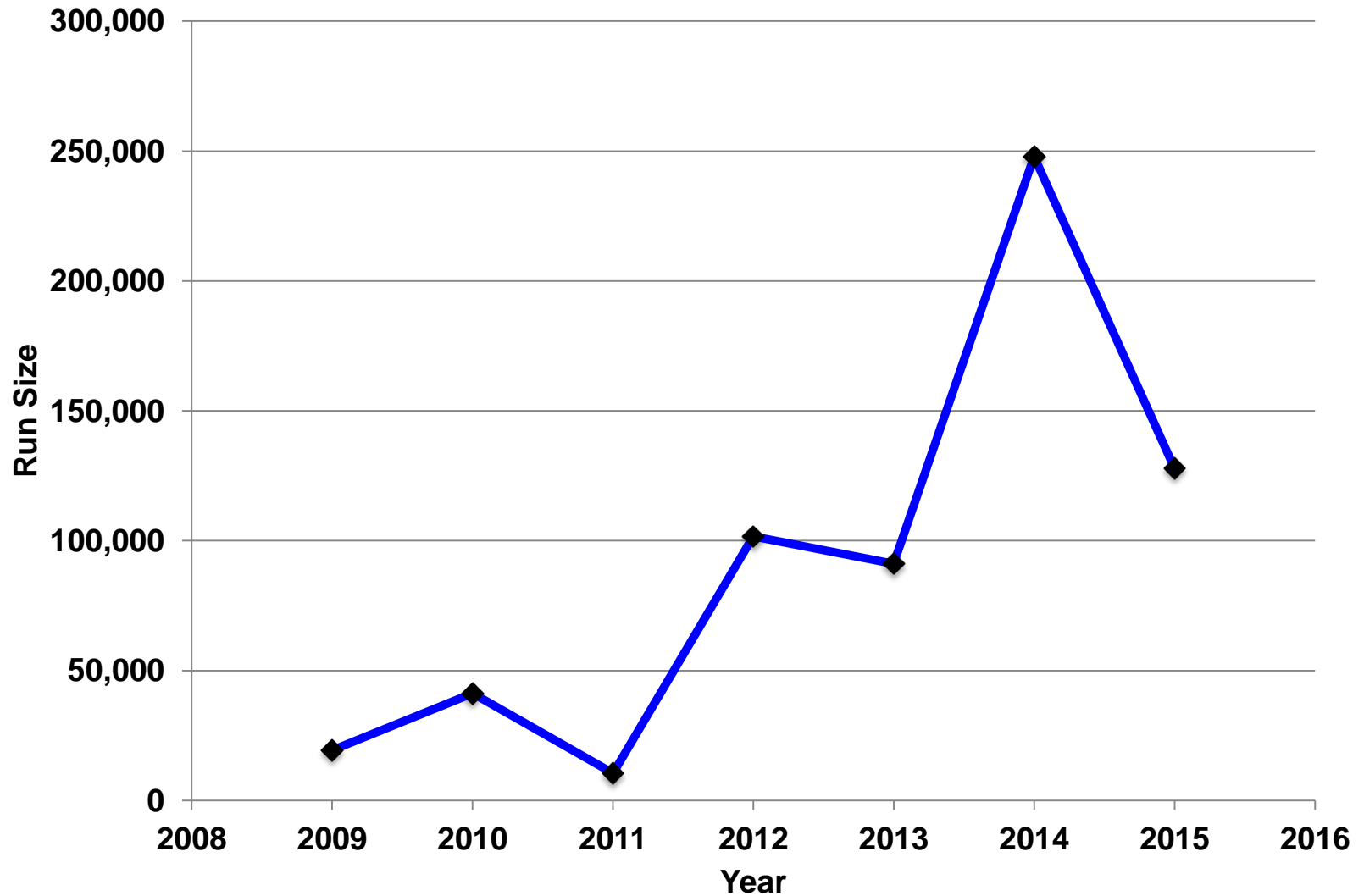
Cape Cod Run Sizes, 2015



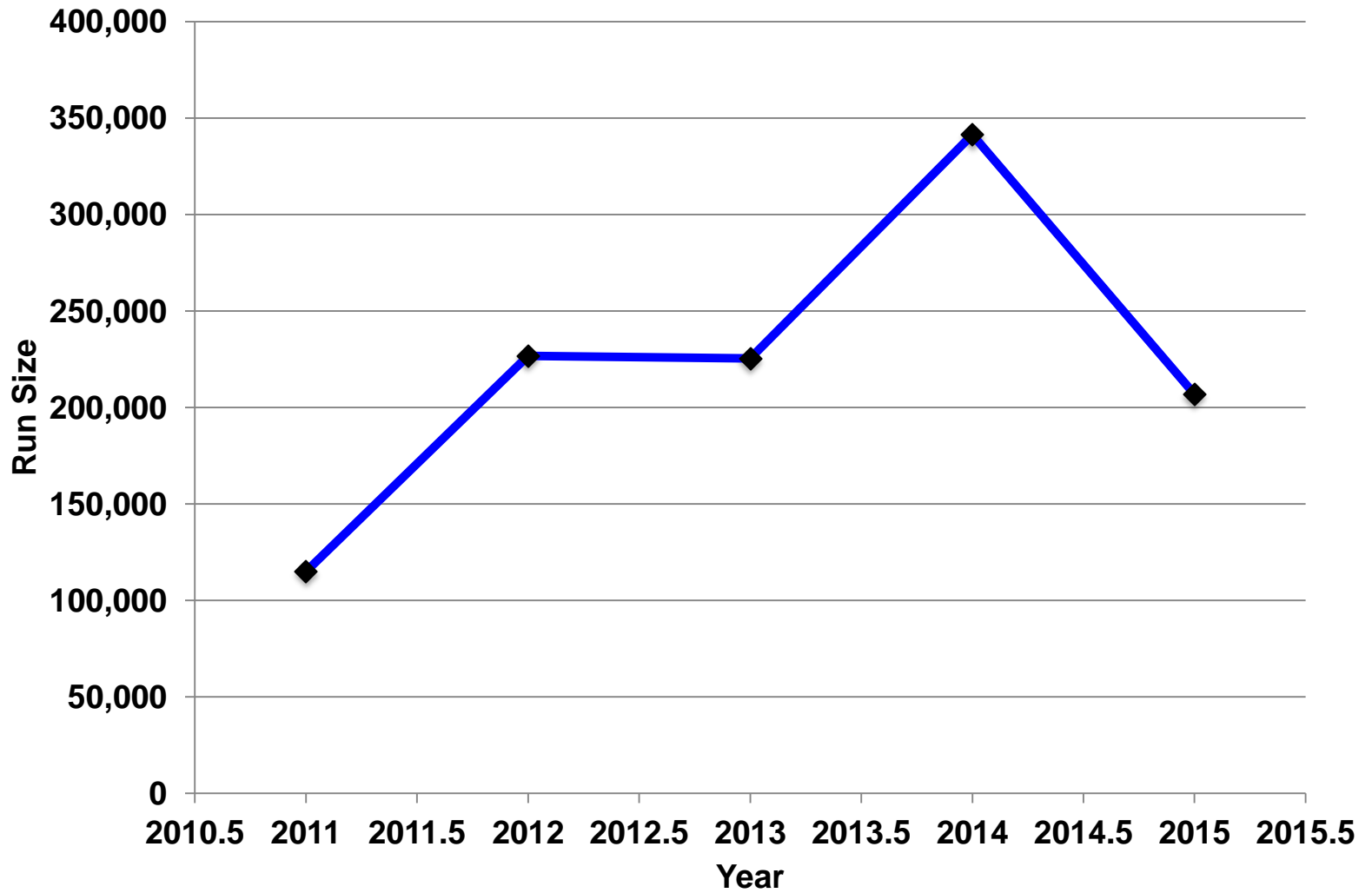
Stony Brook, 2007 - 2015



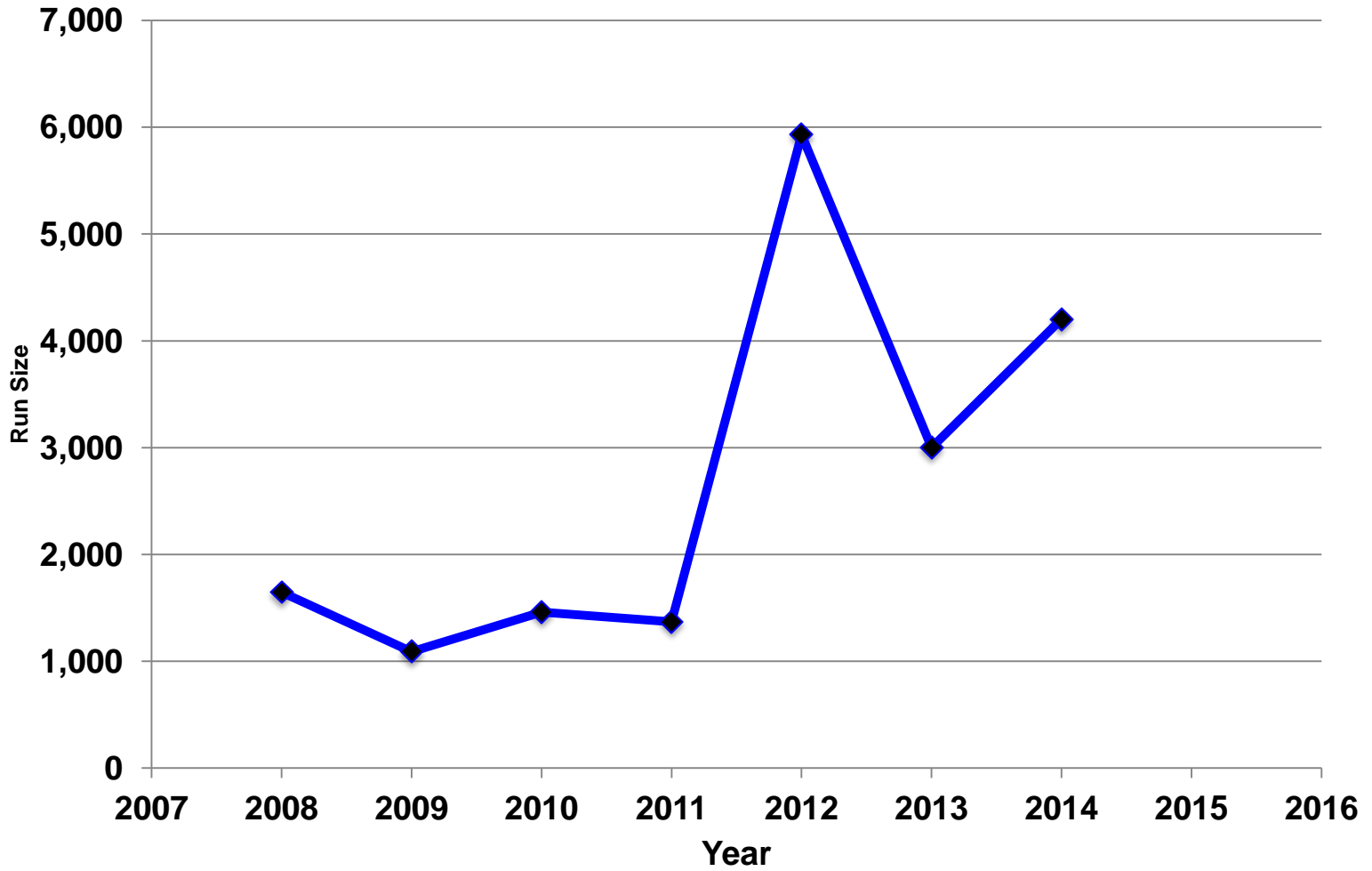
Herring River, Harwich, 2009 - 2015



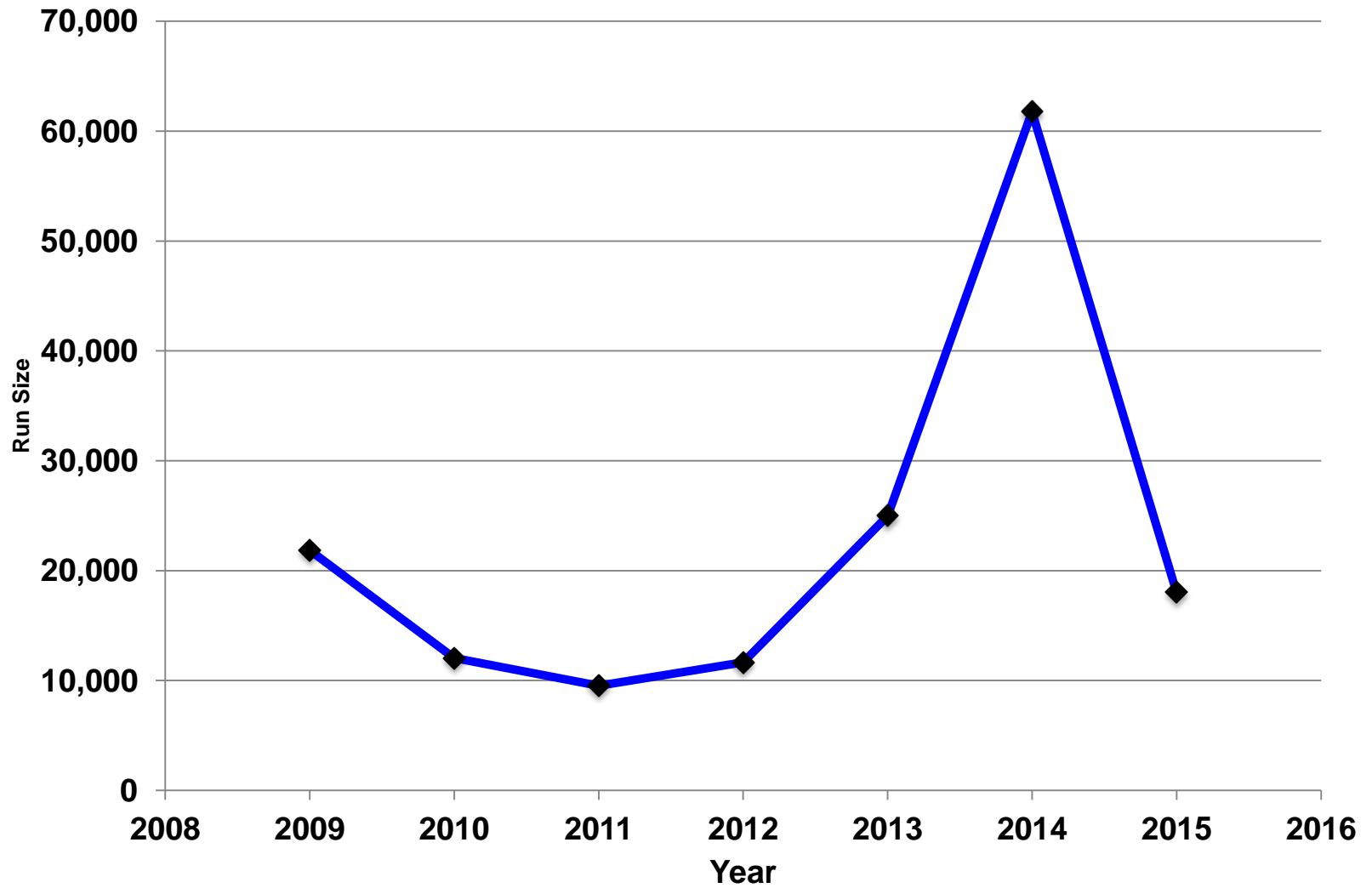
Mashpee River, 2011 - 2015



Pilgrim Lake, Orleans, 2008-2014



Herring River, Wellfleet, 2009 - 2015



Water Temperatures

Water temperature when first fish are counted:

All runs, average temperature: 10.7 ° C

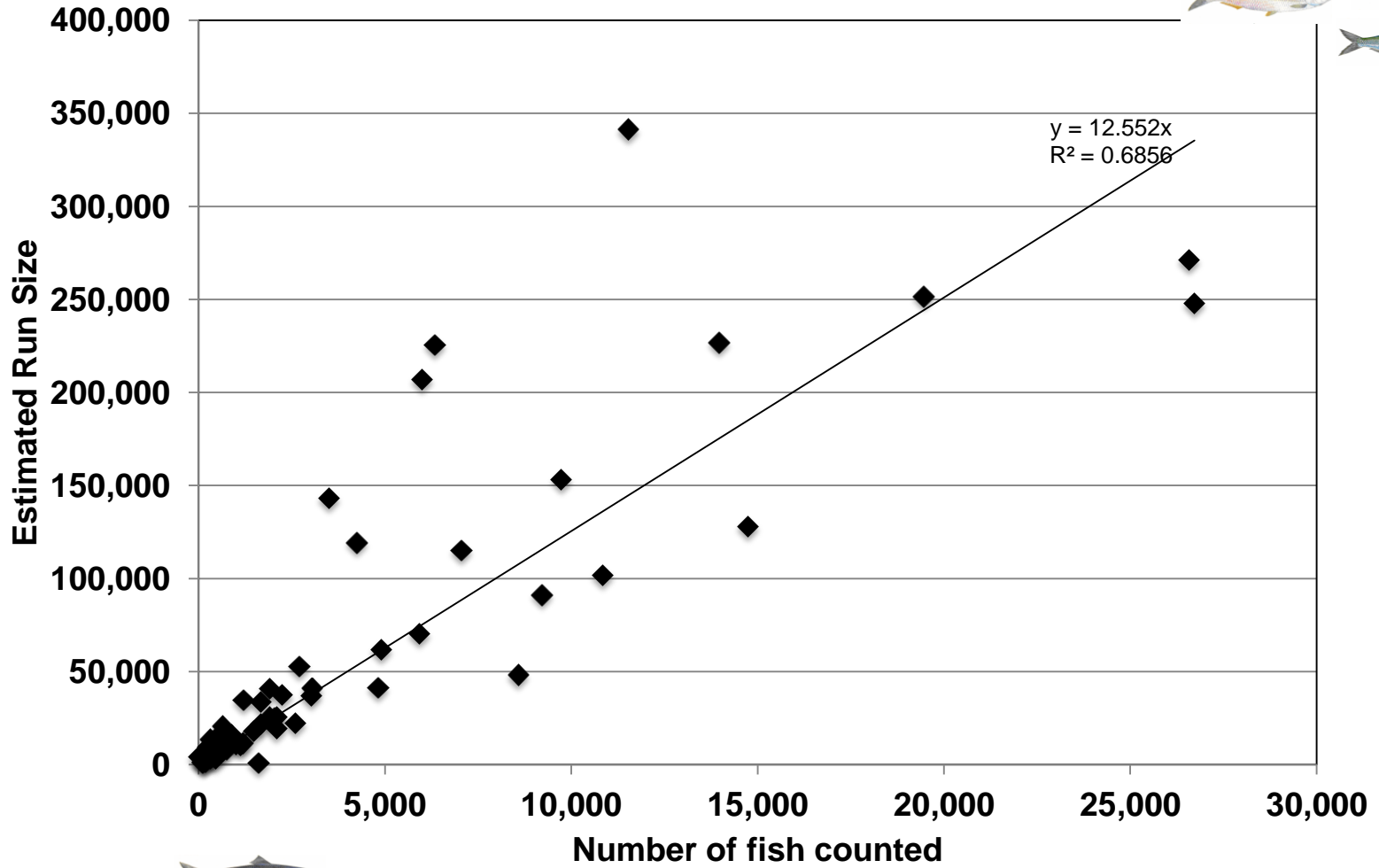
Minimum water temperature: 3.0 ° C

Maximum water temperature: 15 -18 ° C

Median water temperature: 10.0 ° C

How big will the run be?

Estimated Run Size vs. Number of Fish Counted



Acknowledgements

- **Many volunteers!**
- **Herring Wardens & Natural Resource Directors in the Towns of Bourne, Brewster, Dennis, Eastham, Falmouth, Harwich, Mashpee, Orleans, Sandwich, Wellfleet**
- **Abigail Franklin, Cape Cod Cooperative Extension / WHOI Sea Grant**
- **River Herring Warden Network, Cape Cod Commercial Fishermen's Alliance**
- **Stony Brook Herring Count Volunteers**
- **Friends of Herring River, Wellfleet**
- **Harwich Conservation Trust, Harwich**
- **Bass River Rod & Gun Club, Yarmouth**
- **Orleans Waterways and Shellfish Advisory Committee and Herring Monitors**
- **Coonamessett River Trust, Falmouth**
- **NOAA Restoration Center**
- **Massachusetts Bays National Estuary Program**
- **Massachusetts Division of Marine Fisheries**
- **Massachusetts Environmental Trust**
- **North and South Rivers Watershed Association**
- **Gulf of Maine Council**
- **Eddy Foundation of Brewster**
- **Friendship Fund**
- **Dolphin Trust**
- **Prospect Hill Foundation**
- **APCC members and donors**
- **Many others**



Mashpee Herring Volunteers