National Association of State Boating Law Administrators
Engineering, Reporting & Analysis Committee (ERAC)

Vessel Safety Check (VSC) Data Collection Pilot Program:
Analysis of program efforts to capture data on why vessels fail the VSC

Status Update (August 2013)

THE CHARGE 2013 C3
Conduct an analysis of data derived from the United Safe Boating Institute (USBI) and affiliated organizations' efforts to capture Vessel Safety Check (VSC) data to determine what meaningful trends can be identified from the initial data collection.

OVERVIEW
This 2013 charge was formulated as an extension of ERAC's past work on operator compliance with safety equipment requirements (2008-2009) and counsel to USBI's grant-related efforts *to capture the reasons why vessels fail VSCs, not just that they passed or failed.* It is in continuing support of the National Recreational Boating Safety Program Strategic Plan and its Objective 8 on compliance.

In FY 2011, USBI, which is represented on ERAC, was awarded a U.S. Coast Guard grant to pursue the development of a database, along with a web-based entry screen for vessel examiners to capture and input information on the reasons why vessels have failed the VSC. In FY 2012, a second Coast Guard grant was awarded to USBI to train on and pilot the program in selected states, and implement the database.[1] A 2012 charge status report produced by ERAC[2] contains additional information on the background, approach, and data collection mechanism used in this pilot program; a summary of the 2013 ERAC full committee meeting[3] highlights the charge leader's presentation[4] and participants' discussions on VSC program issues and potential applications of data findings beyond the original intent.

STATUS
While the volume of data collected and recorded in the failed VSC database during this committee cycle did not yield an opportunity for ERAC to conduct an independent assessment of their significance or attempt an exploration alongside BARD data, USBI project partners have begun examining the initial program data for trends. The remainder of this status report presents one of those efforts—*USBI Failed VSC Data Collection Program Analysis July 2012-June 2013*.

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[1] See www.usbi.org/vsc.php for the data capture mechanism and access to an Excel file with records input as of June 30, 2013.
[2] "Vessel Safety Check (VSC) Data Collection Pilot Program-Status Update: *Continued monitoring of USBI and affiliated organizations' efforts to capture data and analyze why vessels fail the VSC,"* www.nasbla.org/ERAC, **2012 Documents and Projects**.
[3] March 1, 2013 Full Committee Meeting Summary, pp. 15-16, www.nasbla.org/ERAC, **2013 Documents and Projects**.
[4] Bill Griswold, President, USBI.

USBI Failed VSC Data Collection Program Analysis [1]

July 2012-June 2013

Executive Summary

Since implementation in 2012, the United Safe Boating Institute's (USBI) Failed Vessel Safety Check (VSC) Data Collection Pilot Program has collected data on 6,644 failed VSCs from U.S. Coast Guard Auxiliary (Auxiliary) and U.S. Power Squadrons (USPS) Vessel Examiners. This breaks down into 1,131 reported by the Auxiliary (17% of total) and 5,513 by the USPS (83% of total). Data on the failed VSC's came from 45 states, Washington DC, Guam, and Puerto Rico. [2]

The 6,644 failed VSCs reported to the pilot program indicated a total of 12,399 reasons for failure, with more than half (53%) of the failed VSCs reporting multiple failures per VSC. The average number of failures reported per VSC was approximately two (2), consistent for both organizations and consistent with data reported in 2012 and 2013.

Overview and Analysis

The USBI, with support of the Auxiliary and USPS, developed a pilot test collection program to evaluate operator compliance with equipment carriage requirements. Six states originally had been selected to participate in this pilot—Massachusetts, Michigan, Missouri, North Carolina, Texas, and Washington State.

As part of the pilot program, USBI developed a website to be used to collect data on pleasure boat VSC failures **ONLY** (no paddlecraft) starting July 1, 2012. The website, located at www.usbi.org/vsc.php, offers a simple one-page "point and click" report used for listing reasons the exam failed along with a few identifying bits of information such as the location of exam, type of water the boat is used on, length of boat, date, and parent organization of the examiner.

[1] Analysis prepared by Perry R. Taylor, U.S. Coast Guard Auxiliary Directorate-V, Vessel Exams & RBS Visits. Data was drawn from the USBI VSC Database (Excel format), available at www.usbi.org/vsc.php.

[2] The program originally was to pilot in selected states, but has since been collecting data from as many states as want to participate.

A review of the data reported by the Auxiliary and USPS since pilot program implementation shows the following:

1. A total of 1,131 failed VSCs were reported to the pilot program by Auxiliary vessel examiners during this timeframe, with a total of 2,006 failure reasons identified. This compares to 5,513 failed VSCs reported to the program by the USPS, with a total of 10,393 failure reasons identified.

2. In terms of "Area of Operations," 55% of the failed VSCs reported to the program by the Auxiliary and USPS combined were identified as "Inland," followed by 42% as "Coastal" and only 3% identified as "River."

AREA	USCGA	USPS	TOTAL	% OF TOTAL
Coastal	570	2,194	2,764	42%
Inland	526	3,134	3,660	55%
River	35	185	220	3%
TOTAL	**1,131**	**5,513**	**6,644**	

Of interest is a comparison of these figures to the data on locations of accidents and fatalities as reported in the 2012 Recreational Boating Statistics: 74% of the accidents and 81% of the deaths occurred on bodies of water identified as "Inland," [3] and the remaining accidents and deaths reported were on areas of operations that could be considered "Coastal." [4]

3. With regard to vessel length, over half (54%) of the failed VSCs reported to the pilot program were on vessels identified as less than 26 feet in length. The following is a breakdown of reported failed VSCs by the vessel length recorded:

Length	USCGA	USPS	TOTAL	% OF TOTAL
Unknown	15	20	35	1%
16 Feet	344	757	1,101	17%
25 Feet	132	2,416	2,548	38%
26 Feet	406	1	407	6%
39 Feet	17	1,797	1,814	27%
40 Feet	165	1	166	2%
65 Feet	52	521	573	9%
>65 Feet	0	0	0	0%
TOTAL	**1,131**	**5,513**	**6,644**	

Again, of interest is the comparison to data reported in the 2012 Recreational Boating Statistics: 75% of the vessels involved in an accident and 83% involving death were associated with vessels reported to be less than 26 feet in length.

[3] Lakes, ponds, reservoirs, dams, gravel pits, rivers, streams, creeks, swamp, and bayous.
[4] Ocean/gulf, Great Lakes, bays, inlets, marinas, sounds, harbors, channels, canals, sloughs, and coves.

4. Approximately 47% of the failed VSCs reported by the Auxiliary recorded multiple failures, compared to 54% for the USPS. This resulted in an overall average of two (2) failed items reported per failed VSC, consistent for both Auxiliary and USPS. However, approximately 2% of the reported failed VSCs did not indicate the reason(s) for failure. The following is a breakdown of the number of failures reported per failed VSC:

# Failures per Failed VSC	USCGA	USPS	TOTAL	% OF TOTAL
0	41	91	132	2%
1	562	2,449	3,011	45%
2	307	1,789	2,096	32%
3	139	728	867	13%
4	50	283	333	5%
>4	32	173	205	3%
TOTAL	**1,131**	**5,513**	**6,644**	

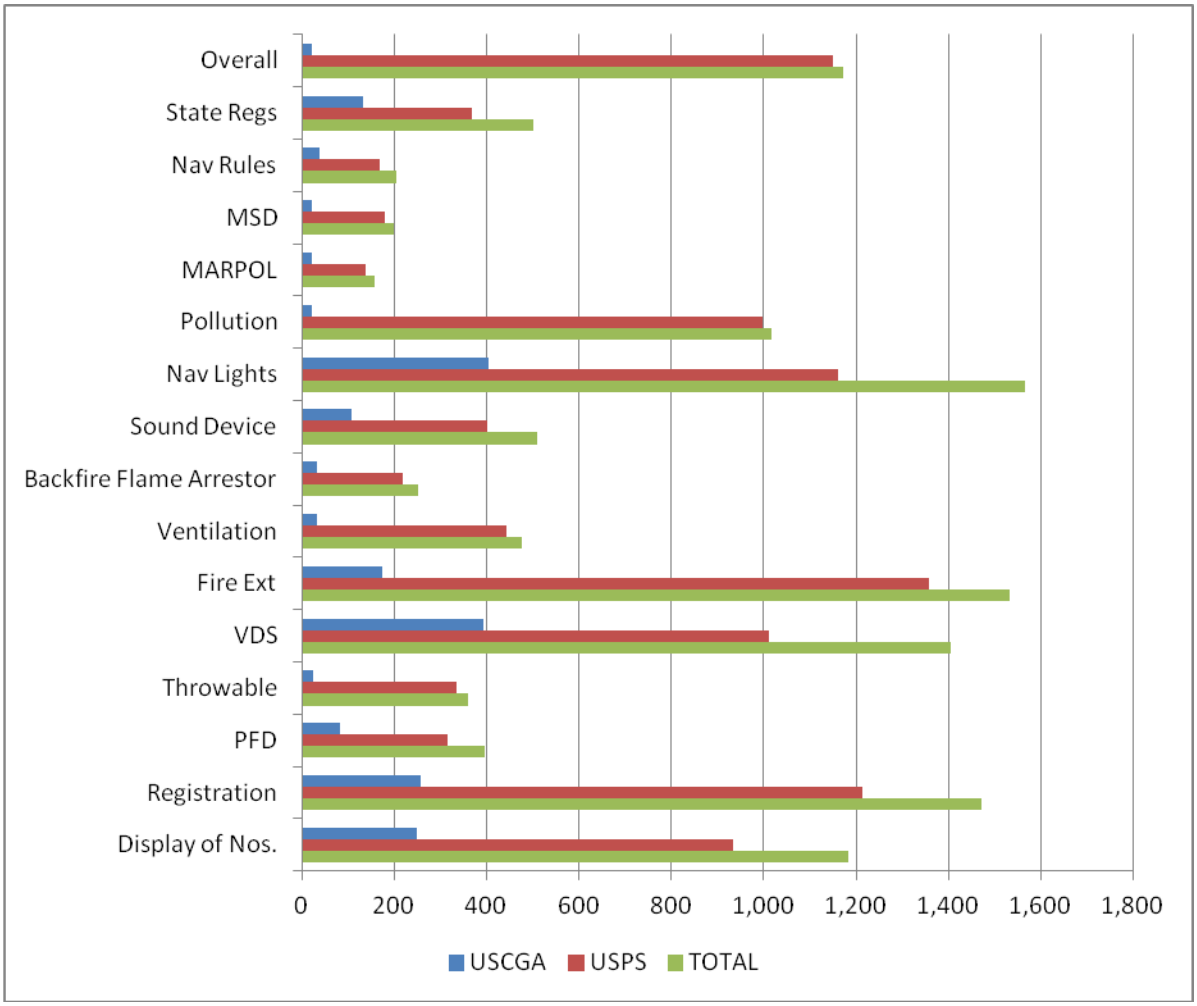
5. The top five contributors to the failed VSCs reported to the program were navigation lights (13%), fire extinguishers (12%), registration (12%), Visual Distress Signals or VDS (11%), and display of numbers (10%). The following table, which continues on the next page, summarizes the number of failures by the reason for failure as reported by the Auxiliary and USPS, and shows the combined total:

Reason for Failure	Auxiliary Reported Failures	% of Total USCGA Failures	USPS Reported Failures	% of Total USPS Reported Failures	Total Reported Failures	% of Total Reported Failures
Display of Nos.	249	12%	933	9%	1,182	10%
Registration	258	13%	1,213	12%	1,471	12%
PFD	81	4%	316	3%	397	3%
Type IV Throwable PFD	24	1%	335	3%	359	3%
VDS	393	20%	1,012	10%	1,405	11%
Fire Extinguisher	173	9%	1,359	13%	1,532	12%
Ventilation	32	2%	443	4%	475	4%
Backfire Flame Arrestor	33	2%	219	2%	252	2%
Sound Device	108	5%	402	4%	510	4%
Navigation Lights	403	20%	1,162	11%	1,565	13%
Pollution Placard	20	1%	997	10%	1,017	8%

MARPOL	20	1%	137	1%	157	1%
MSD	20	1%	179	2%	199	2%
Navigation Rules	38	2%	167	2%	205	2%
State Regulations	133	7%	368	4%	501	4%
Overall Condition	21	1%	1,151	11%	1,172	9%
TOTAL	**2,006**		**10,393**		**12,399**	

Note: In late May 2013, the failure category "Overall Condition" was added to capture failures due to Item #15 on the Vessel Safety Check Form 7012. Failure due to missing "Type IV Throwable PFD" was dropped since it should be included under "PFD", consistent with Form 7012.

The following graph shows failures reported by the Auxiliary and USPS, and the combined totals:



6. The highest percentage of failed VSCs reported to the pilot program were from Florida, which accounted for approximately 14%, followed by Ohio at 10%, and Michigan at 9%.[5]

   The following is a breakdown, by state, of failed VSCs reported to the program:

LOCATION	USCGA	USPS	TOTAL	% OF TOTAL
AK	3	0	3	0.0%
AL	41	16	57	0.9%
AR	0	17	17	0.3%
AZ	0	24	24	0.4%
CA	4	264	268	4.0%
CO	0	1	1	0.0%
CT	8	71	79	1.2%
DE	0	7	7	0.1%
FL	212	712	924	13.9%
GA	53	88	141	2.1%
HI	2	13	15	0.2%
IA	5	5	10	0.2%
ID	0	1	1	0.0%
IL	21	126	147	2.2%
IN	0	54	54	0.8%
KS	0	2	2	0.0%
KY	3	49	52	0.8%
LA	0	49	49	0.7%
MA*	0	95	95	1.4%
MD	26	303	329	5.0%
ME	1	29	30	0.5%
MI*	214	407	621	9.3%
MN	4	113	117	1.8%
MO*	65	38	103	1.6%
MS	1	21	22	0.3%
NC*	82	380	462	7.0%
NH	0	17	17	0.3%
NJ	3	86	89	1.3%
NM	0	1	1	0.0%
NV	0	73	73	1.1%
NY	2	349	351	5.3%
OH	31	662	693	10.4%

[5] All of these states fall within the top 10 for number of registered vessels, Florida being number one according to the 2012 Recreational Boating Statistics.

OK	0	92	92	1.4%
OR	1	34	35	0.5%
PA	1	62	63	0.9%
RI	13	17	30	0.5%
SC	3	127	130	2.0%
TN	0	40	40	0.6%
TX*	128	139	267	4.0%
VA	2	278	280	4.2%
VT	0	15	15	0.2%
WA*	98	366	464	7.0%
WI	3	205	208	3.1%
WV	0	1	1	0.0%
WY	39	0	39	0.6%
DC	0	1	1	0.0%
PR	61	63	124	1.9%
GU	1	0	1	0.0%
TOTAL	**1,131**	**5,513**	**6,644**	

*** Original pilot states selected for project**

Observations about the examiner organizations and failure patterns presented by the data:

1. According to AUXDATA records, the Auxiliary reported approximately 8,700 failed power boat VSCs during 1H2013. However, only 7% were entered in the USBI data base. This percentage is consistent with that observed during 2012 and 1Q2013.

2. With a few exceptions, there is some consistency between the Auxiliary and USPS when looking at the type of failures reported. Navigation Lights, VDS, and Registration rank in the top five reasons for failure as reported by both organizations.

3. There continues to be some confusion with VDS requirements. A review of the 1,405 VDS-reported failures (393 by the Auxiliary; 1,012 by the USPS), shows that 44% of the failures (27% Auxiliary; 50% USPS) were reported on vessels where the area of operation was reported as either "Inland" or "River." Federal VDS requirements apply to vessels operating on U.S. coastal waters or Great Lakes, so the reported failure data raise some concern as to whether the requirement is being properly interpreted. The only other explanations would be if the vessel is operated on Great Lakes, State requirements indicate VDS is required, or the area of examination was incorrectly reported.

4. There were 157 reported failures for MARPOL issues (20 by the Auxiliary; 137 by the USPS). MARPOL placard requirements pertain to vessels 26 feet or more; however, two of the reported failures by the Auxiliary and 32 reported failures for the USPS were for vessels with a length noted as less than 26 feet. Additionally, in December 2012, "Interim Guidance for Completion of Form ANSC 7012" was issued advising all Vessel Examiners to consider Item 11 on Form ANSC 7012 as “N/A” for all vessels for the Calendar Year 2013 or until otherwise directed pending domestic rule making regarding MARPOL requirements.

5. Oil Pollution placard requirements are applicable for vessels 26 feet or greater. Of the 1,017 failures reported (20 by the Auxiliary; 997 by the USPS), one Auxiliary reported failure and 522 USPS reported failures were on vessels less than 26 feet in length.

6. Navigation Rules are required to be carried on board vessels 39.4 feet (12 meters) or greater in length. There were 205 failures reported (38 by the Auxiliary; 167 by the USPS). However, 45 of the reported failures (11 by the Auxiliary; 34 by the USPS) were for vessels reported to be less than 39 feet in length.

Recommendations

1. The reasons for failed Auxiliary VSCs are not reported in AUXDATA. With approximately 30,000 failed VSCs in 2012 and 8,700 during 1Q2013, this Failed VSC Data Collection project would allow information to be collected and analyzed for possible trends and training opportunities. A Communication Plan to roll the project out nationally has been submitted for review and approval.

2. Current reporting is limited to power/sailing vessels only (Form 7012 VSCs). At some point, consideration should be given to expanding data collection to paddlecraft since they represent the fastest growing boating segment. Also, according to the 2012 Recreational Boating Statistics, 24% of the drownings were reported to have occurred on paddlecraft.

3. Provide a copy of this report to all District Staff Offices so they can see the results and share with their Vessel Examiner. This might help in gaining more support.