

Evaluating Electronic Harvest Reporting in the Maryland Blue Crab & Striped Bass Fisheries

**Sustainable Fisheries Goal
Implementation Team Meeting
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**Brenda Davis
Blue Crab Program Manager**





Electric Edge Systems Group

Bryan Stevenson



Maryland Department of Natural Resources, Fisheries Service

Steve Early

Brenda Davis

Lynn Fegley

Carrie Kennedy



Blue Crab Industry Design Team



Oyster Recovery Partnership

Stephan Abel

Ward Slacum

Jennifer Walters



Versar, Inc.

Jodi Dew-Baxter

Ryan Corbin



Council Fire

Kate Culzoni

George Chmael



Maryland Waterman's Association



Environmental Defense Fund

Matt Mullin

Jenn Aiosa

Why Do We Need a New Reporting System?

Why?- Management actions that required the use of harvest history initially provided an indication of problems with the current reporting system.

-Industry and the Maryland DNR identified the inability to verify harvest information as one of the main factors contributing to the lack of confidence and usability of the self-reported blue crab harvest.

“In the wake of global overfishing, negligent reporting can lead to poor policy decisions that jeopardize food security, impair resource conservation, and generate incorrect assumptions that global catch trends are plateauing or even increasing.” *Abdulrazza and Pauly 2013*

Why Do We Need a New Reporting System?

Is the current reporting system really
all that bad?

Example Paper Forms

NOAA Form No. 88-30
RECEIVED
JUN 19 2002
FISHING VESSEL TRIP REPORT
 061407120423
 061413530143
 9781367

☐ DID NOT FISH DURING MONTH/YEAR 1

1. VESSEL NAME G	2. USCG DOC. or STATE REG. NO.	3. VESSEL PERMIT NUMBER
4. DATE/TIME SAILED DATE (mm/dd/yy) 6/19/02 TIME (24 hrs.) 07:00 AM	5. TRIP TYPE (CHECK ONE) <input checked="" type="checkbox"/> COMMERCIAL <input type="checkbox"/> PARTY <input type="checkbox"/> CHARTER	6. NO. of CREW 1 7. NO. of ANGLERS 0

FILL OUT A NEW PAGE FOR EACH CHART AREA OR GEAR OR MESH/RING SIZE FISHED

8. GEAR FISHED LHB 514	9. MESH/RING SIZE 1/4"	10. QUANTITY OF GEAR 1500	11. SIZE OF GEAR 2 1/2 MILE
12. CHART AREA 514	14. LATITUDE/LONGITUDE or LORAN LATITUDE 2960 LONGITUDE 9960 STATION BEARING 135 STATION BEARING 45-1-25	15. NO. of HAULS 2	16. AVERAGE TOW/SOAK TIME 1 hr 1 min
13. AVG. DEPTH 70 fms	17. SPECIES CODE NAME CSD HADDOCK CRAB COUNT (Rec) 100 COUNT (Comm) 8 COUNT (Rec) 0 COUNT (Comm) 0	20. DEALER 2301 SOUTH CAPE SEA FOOD	21. DEALER NAME 6/19/02
18. KEPT COUNT (Rec) 100 COUNT (Comm) 8 COUNT (Rec) 0 COUNT (Comm) 0	19. DROPPED COUNT (Rec) 8 COUNT (Comm) 0	22. DATE SOLD (mm/dd/yy)	23. DATE LANDED (mm/dd/yy)

23. PORT or STATE LANDED
D+TOWN MASS

24. DATE LANDED (mm/dd/yy) 6.19.02
TIME LANDED 1:53PM

I certify that the information provided on this form is true, complete and correct to the best of my knowledge, and made in good faith. Making a false statement on this form is punishable by law (18 U.S.C. 1001).

25. OPERATOR'S NAME (printed) and PERMIT NUMBER (if required):
[Redacted]
DATE 6/14/02

26. OPERATOR'S SIGNATURE
[Redacted]

NMFS COPY

FISHING VESSEL TRIP REPORT

VTR Serial Number: 969

Documentation or State Registration: 2

3. NMFS Vessel Permit No. [Redacted]

5. Date and Time Landed
Date: 11/26/11
Military Time: 14.00

Record the number of crew including the captain. Party/Charter must also include the number of anglers.

☐ RSA/EFF: # of Crew
☐ Party: # of Crew
☐ Charter: # of Anglers

COMPLETE A NEW FORM FOR EACH DIFFERENT CHART AREA, GEAR TYPE OR MESH/RING SIZE USED ON A TRIP.

7. Gear Code PTL	8. Mesh/Ring Size 7"	9. Gear Quantity 10	10. Gear Size 300	11. Fishing Depth (Fathoms) 25	12. Number of Hauls 30
13. Chart Area 514	14. Latitude 13910 DEGREES MINUTES	15. Longitude 44100 DEGREES MINUTES	16. Tow / Soak Time 72 HOURS MINUTES	17. Species Code LOB	18. Kept 419
19. Discarded	20. Dealer Permit Number 3	21. Dealer Name Ocean	22. Date Sold 11/26/11	23. Offloading Port for each species City MA	State

24. Operator's Signature
[Redacted]

25. Date
6/14/02

NMFS COPY

Traditional reporting on paper forms is a very inefficient way to get harvest information

Errors

- Forgotten data – being able to accurately report what was harvested at the beginning of the month
- Fields left blank
- Possible misreporting
- Instruction are unclear or confusing
 - Example – Hours on the water may include transport or gear cleaning

Typographical, transcription

- Manual entry - time consuming, expensive
- Data entry enters incorrect values

Ramifications of Errors

A#1 - Delay in timeliness of data

- Incorrect catch accounting
- Requires additional metrics to calculate effort
- Incorrect catch allocations
- The error is unknown
- Risk adverse management to offset uncertainty

Initial Project Goal – Blue Crabs

GOAL- Evaluate the feasibility of using an electronic reporting system to improve the quality of fishing activity and harvest information in the Maryland blue crab fishery.

OBJECTIVE 1- Determine if the blue crab industry had the capability to use an electronic harvest reporting system to report blue crab harvest **DAILY**;

OBJECTIVE 2- Determine if daily reporting can reduce the uncertainty and improve the quality of the reported harvest.

What were the requirements for a new reporting system?

**Timely, accurate,
& verifiable**

Getting poor quality harvest data faster is not good enough.

Pilot Project Evaluation

- 1- Watermen Participation and System Use
- 2- Harvest Verification Techniques
- 3- Electronic System Performance

Metrics

– Qualitative

- Feedback during project
- Structured feedback meetings

– Quantitative

- Time required to report
- Reported data outliers
- Harvest verification

2012

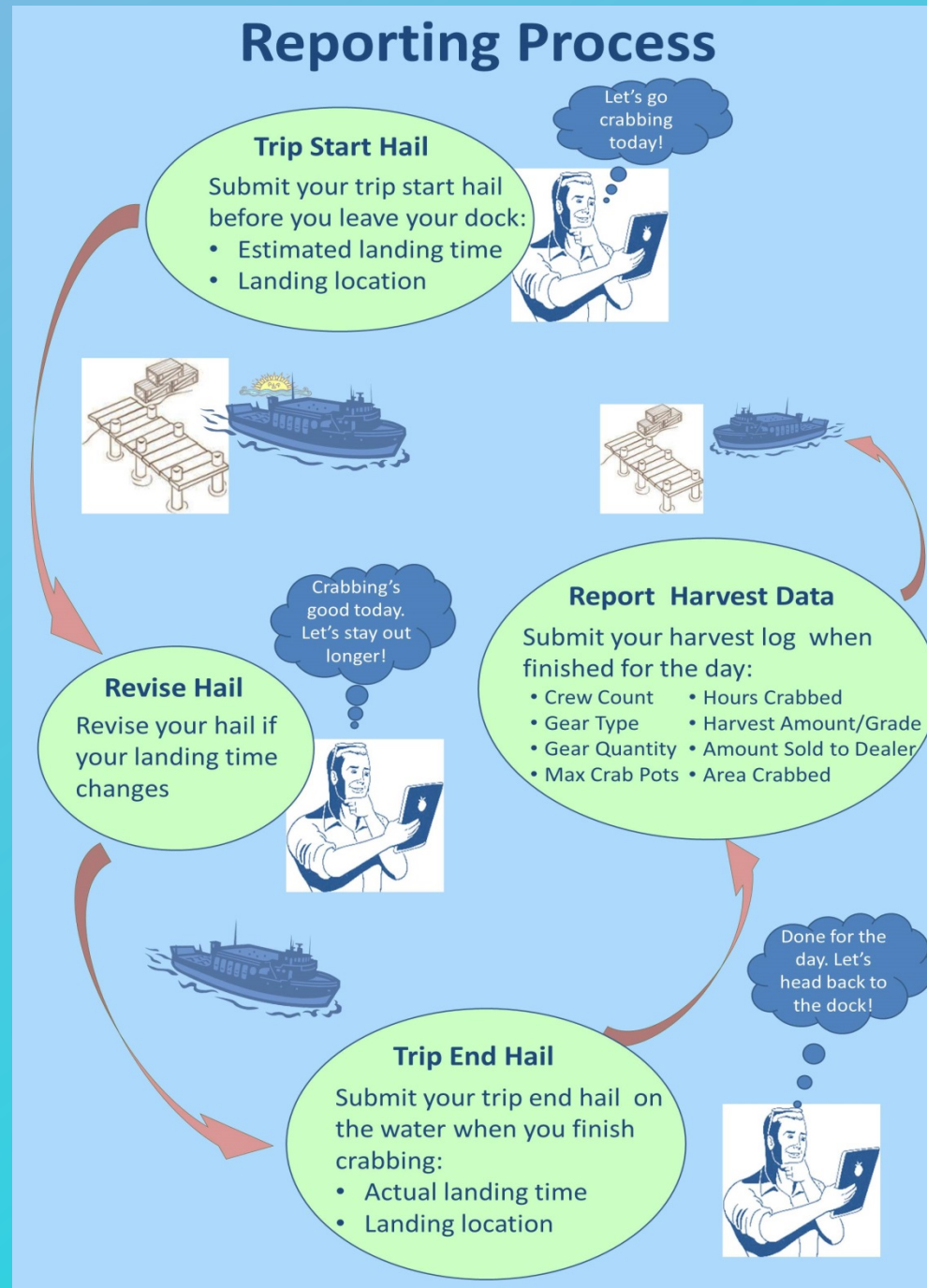
- Evaluated two hail processes

2013

- Start and end hails mandatory

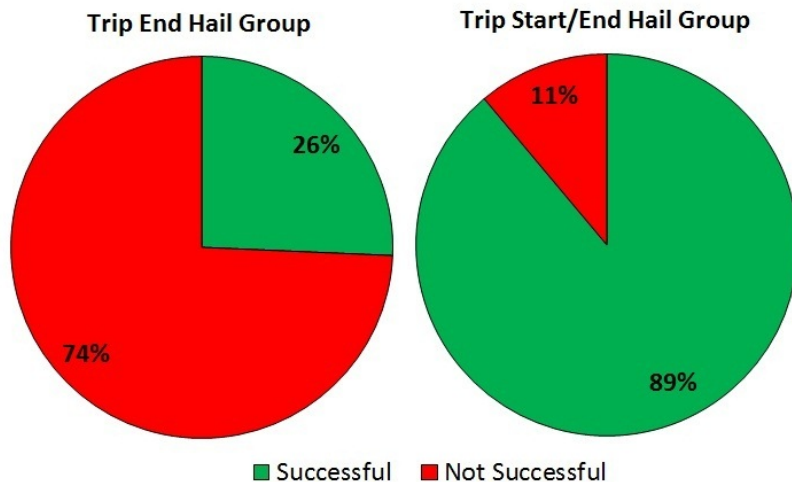
2014

- Start and end hails mandatory



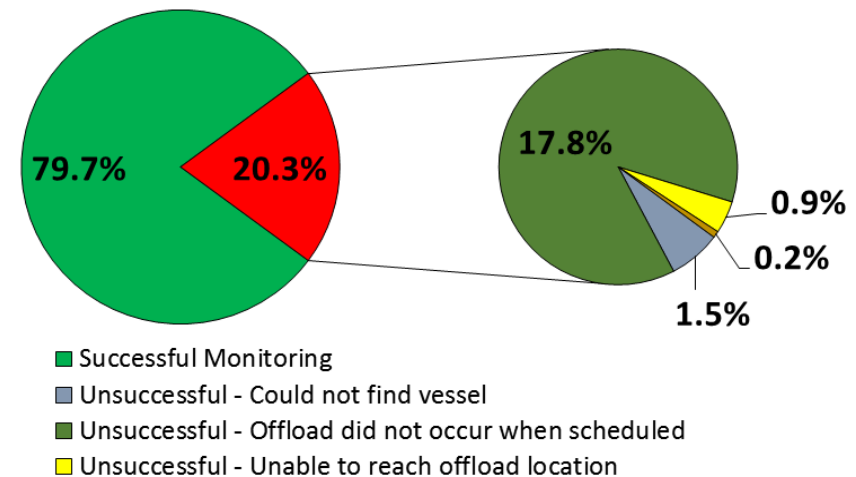
Results (Harvest Verification) Dockside Monitoring

2012



2013

Percent of Successful and Unsuccessful Spot Checks Overall



Electronic Reporting System

Logon

Welcome to Maryland's Blue Crab Accountability Pilot Project
powered by FACTS™

Please logon

License Number:

333333

Password:

.....

Logon

Forgot Password?

Trip Start Details

The following error(s) occurred:

- A complete estimated landing time must be selected (e.g. 09:30)

Instructions:

Please enter the trip start hail details, double-check for accuracy and then press "Send Hail"

Base Trip Start Hail Details

License No.: 333333

VRN (vessel reg. number):

MD99999999

Landing Details

Landing Time Today (Mar 18, 2013):

13

Pick Mins

Landing Location:

MY HOME

Other location (if not in list):

(max 100 chars)

Cancel

Send Hail

Harvest Log Details

Instructions:

Please enter the harvest log details, double-check for accuracy and then press "Send Log"

Base Harvest Log Details

Trip ID: 32244

License No.: 333333

VRN: MD99999999 (vess. reg. no.)

Crew Count:

2

Hrs Crabbing:

7

Area Crabbed:

025-CHESPK. BAY & TRIBS., BAY BRIDGE TO WORTON PT.

Select Area

112-ALL OCEANSIDE BAYS
012-ATLANTIC OCEAN
005-BIG ANNEMESSEX RIVER
014-CHESAPEAKE BAY & TRIBS. NORTH OF WORTON PT.
029-CHESAPEAKE BAY - SOUTH OF COVE POINT
027-CHESPK. BAY & MINOR TRIBS. COVE PT. TO BAY BRIDGE
025-CHESPK. BAY & TRIBS., BAY BRIDGE TO WORTON PT.
031-CHESTER RIVER
037-CHOPTANK RIVER
039-EASTERN BAY
043-FISHING BAY
047-HONGA RIVER
053-LITTLE CHOPTANK RIVER
055-MAGOTHY RIVER
057-MANOKIN RIVER
060-MILES RIVER
062-NANTICOKE RIVER
066-PATAPSCO RIVER
068-PATUXENT RIVER

Hard Crab Units (select to show harvest and market destination sections below):

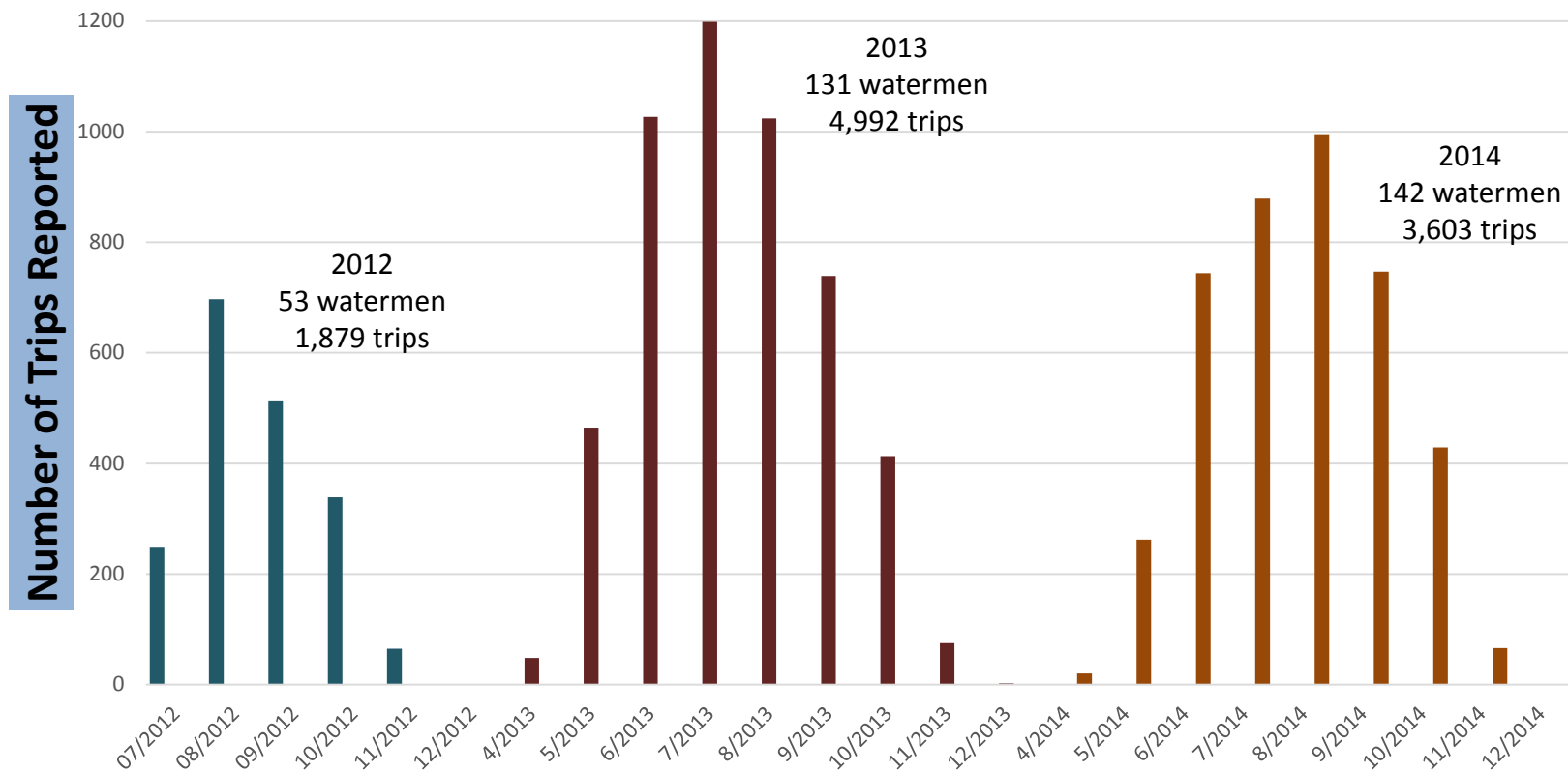
BUSHELS

#1s (qty/units):

BUSHELS

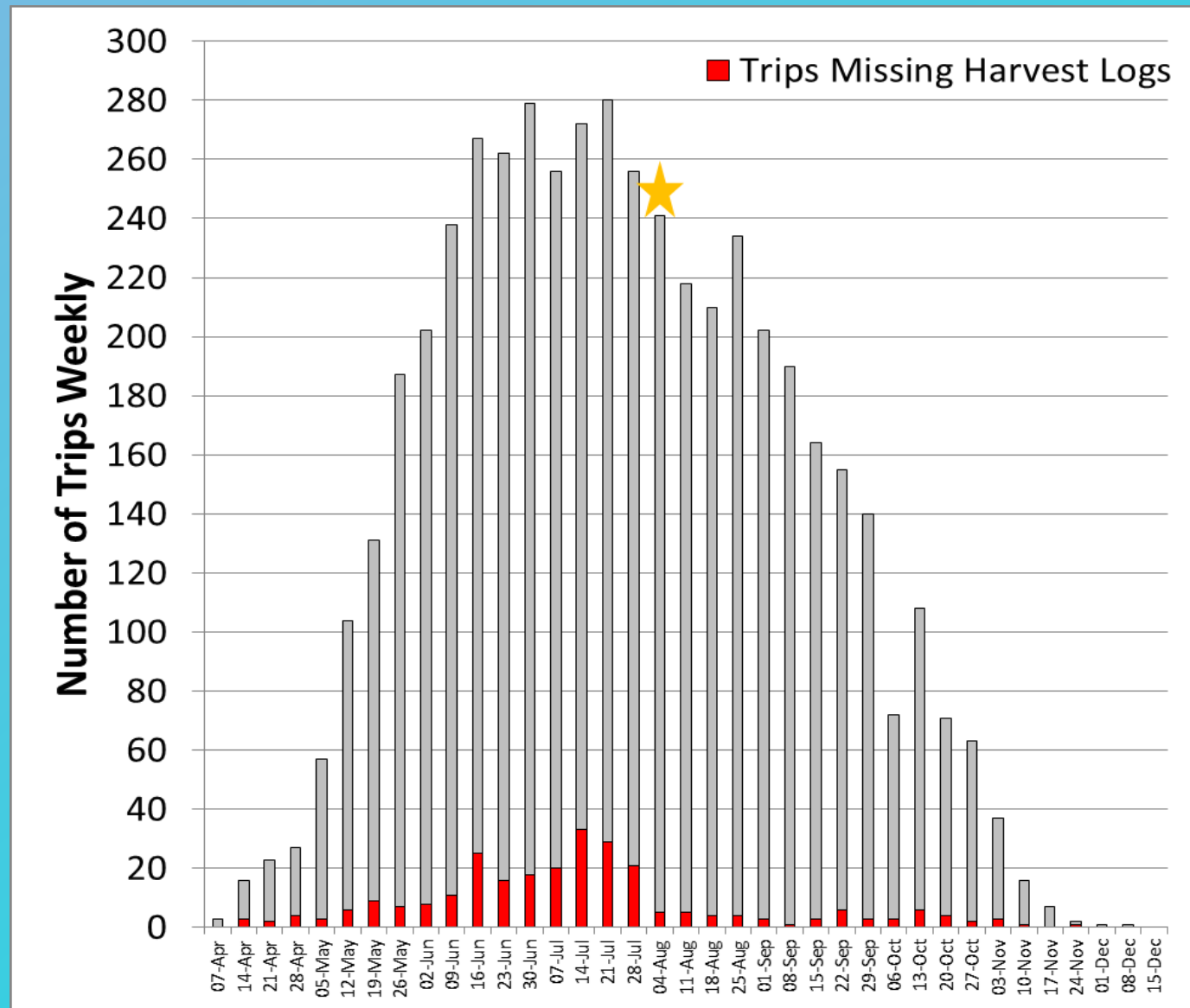
Watermen Participation and System Use

Number of Trips Reported for the Blue Crab Pilot Project by Month from 2012-2014



Electronic System Performance

- System handled higher volumes with no incidence
- Mobile technology supported higher volumes of trips (with exceptions)
- System modifications (text messages) helped



Watermen Participation And Training



What did watermen say (2013 Feedback):

- Watermen provided valuable feedback on system performance and usability
 - Streamlining questions, look and feel of the reporting forms on the mobile website, text messages
- Electronic reporting was more convenient and probably more accurate than the monthly paper form
- Electronic reporting would enhance blue crab management
- 97% indicated they planned to continue to use the system
- 90% indicated they did not want to go back to paper reporting
- 80% agreed that trip start and trip end hailing was required to effectively monitor daily fishing activities

What's New?

Electronic harvest reporting has been expanded to include the striped bass fishery.

- 168 trips were reported using FACTS in the 2014-2015 gill net season, & will continue for the hook and line/gill net season that just opened
- Striped bass reporting includes a check station verification component
- A new, multi-fishery version of electronic harvest reporting went 'live' June 1st.
 - Watermen only need to log in once to report either striped bass or blue crabs. This version can be expanded to accept harvest reports for all fisheries.
- Plans are in place to increase participation for both fisheries.
 - Blue crabs has a list of 120 additional crabbers that want to report their harvest electronically

Conclusions

- The industry has the capability to report fishing activity and harvest using a mobile accessible electronic reporting system. Although there are still a few challenges with signal coverage.
- It's feasible to have dockside monitoring and dealer/check station reporting programs as a component of electronic harvest reporting.
- An electronic reporting system that relies on hails and verifiable harvest reports can provide quality information needed to better manage fisheries. Including (for blue crabs) industry requests to consider in-season regulatory flexibility measures.

Questions?

Thanks!