NDIA Symposium
Targets, UAVs & Range Operations

Range Encroachment Defense

October 26, 2011

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Whitney, Bradley & Brown
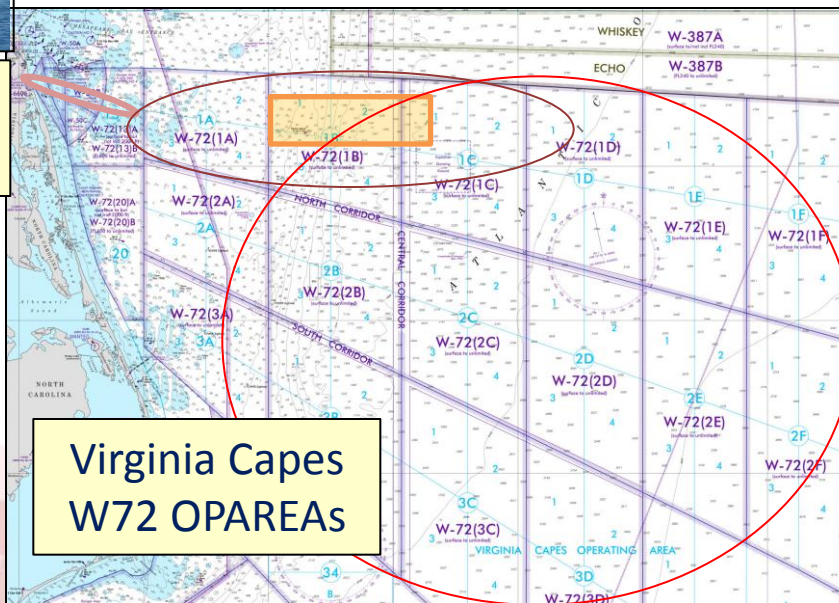*703-448-6081 ext. 263*
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Encroachment Issue

- VA Task Force wants wind farms in close to Norfolk power grid
- USN wants wind farms further out to lessen impact on training

Notional Wind Turbine Placement

OPAREA Usage Example: Ship Missile Exercise

- Drone Launch/Transit
- Drone Tracking Area
- Missile Hazard Pattern

Virginia Capes W72 OPAREAs

What is the full 'impact' on DoD / Services for test and training events?
DOD / DoN need a better range encroachment defense to show the full impact to T&E and Fleet Training if certain OPAREA grids are lost or availability is reduced...

Coastal and Marine Spatial Planning (CMSP)

THE WHITE HOUSE COUNCIL ON ENVIRONMENTAL QUALITY

Final Recommendations
Of The
Interagency Ocean Policy
Task Force
July 19, 2010

- CMSP above all is *ecosystem*-based
- National policy driven; *regional* focus
- NOAA-White House Council on Environmental Quality *culture*
- Navy strategy must ensure strong and convincing analytic representation of Navy's national security equities (e.g., operating sonar in littorals, etc.) and persistently challenge any measures which may restrict valid T&E or Fleet Training, sensor employment or other operational requirements
- Navy-Marine equities *need stronger metrics-based analysis* against this new scientifically-based culture

Identify Hazardous Activity in OPAREAs

– Ship events
– Submarine events
– Low flying aircraft events
– Aerial targets (subsonic, supersonic)
– Seaborne targets
– UW targets
– HM sled-dragging events
– Ordnance (live or inert) expended, dropped, launched
  • Ships & Submarines
  • Aircraft
  • USCG
  • NASA
  • USMC Air
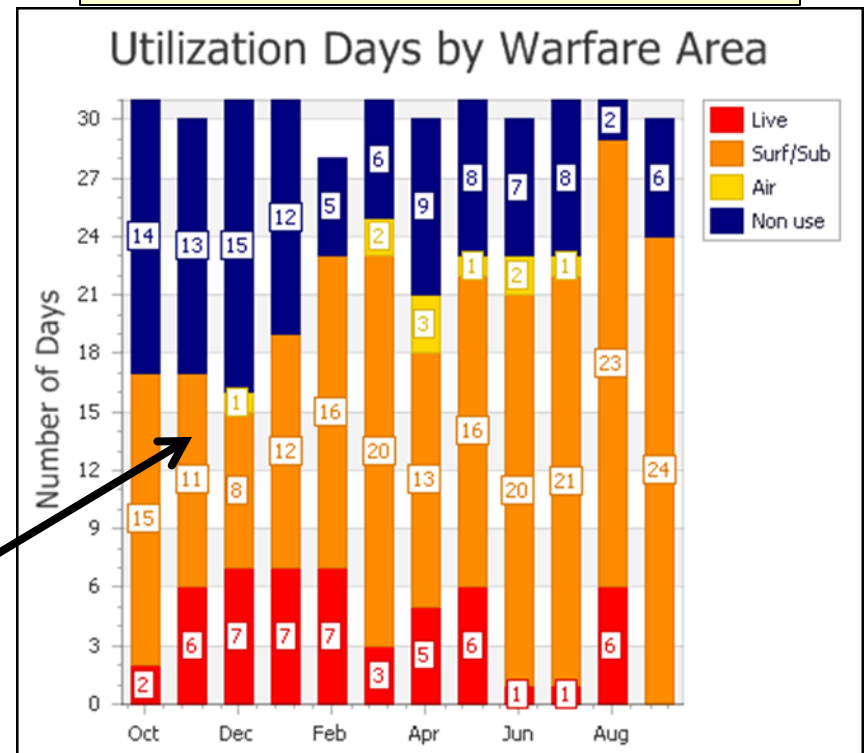 • USAF
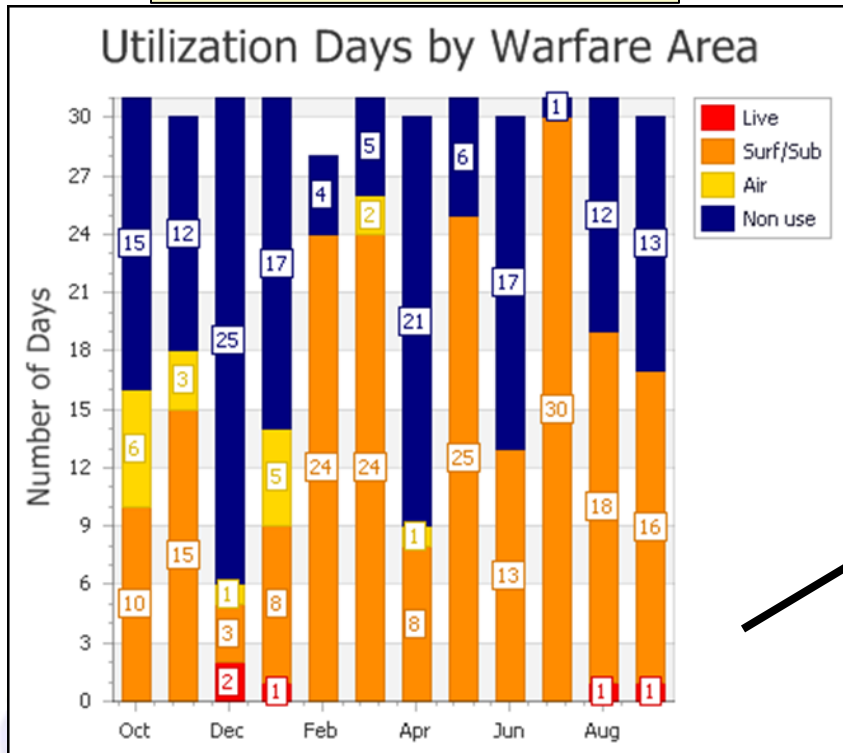 • USA
  • Other / DOD

Link event data with hazardous activity – Display by OPAREA Grid

W122 (5) Utilization
Side-by-Side Comparison

Dashboard Report after partial data integration effort (Sep11)

TARAT with TRIMS & SHARP
Data - FY09 Data

TARAT with TRIMS, SHARP, NAVSKED, TRMS
& TORIS Data – FY10 Data

Usage curve increases from FY09 to FY10 with additional data sources
- Improvements over initial dashboard reports (less 'Blue' or 'No Use' days)
- 'Ship Events' will significantly increase with identified additional data

W122 (5) Ordnance Expended
Side-by-Side Comparison

Dashboard Report after partial data integration effort (Sep11)

TARAT with TRIMS & SHARP
Data - FY09 Data

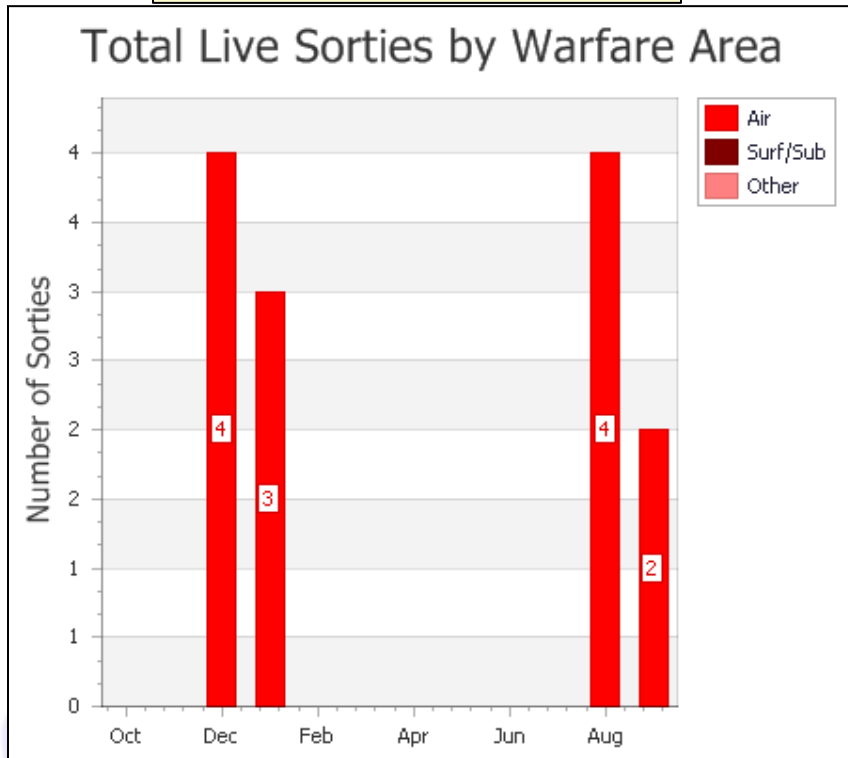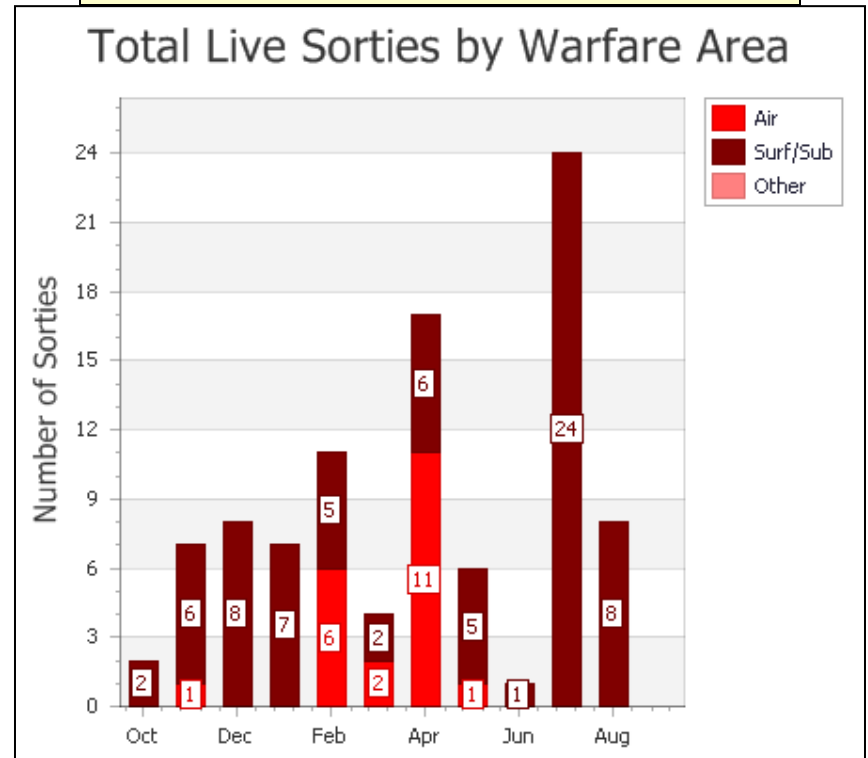TARAT with TRIMS, SHARP, NAVSKED, TRMS
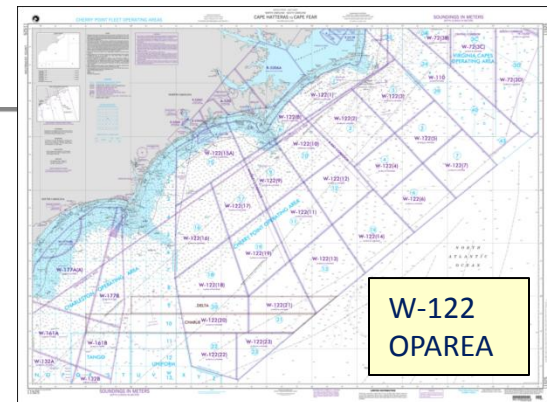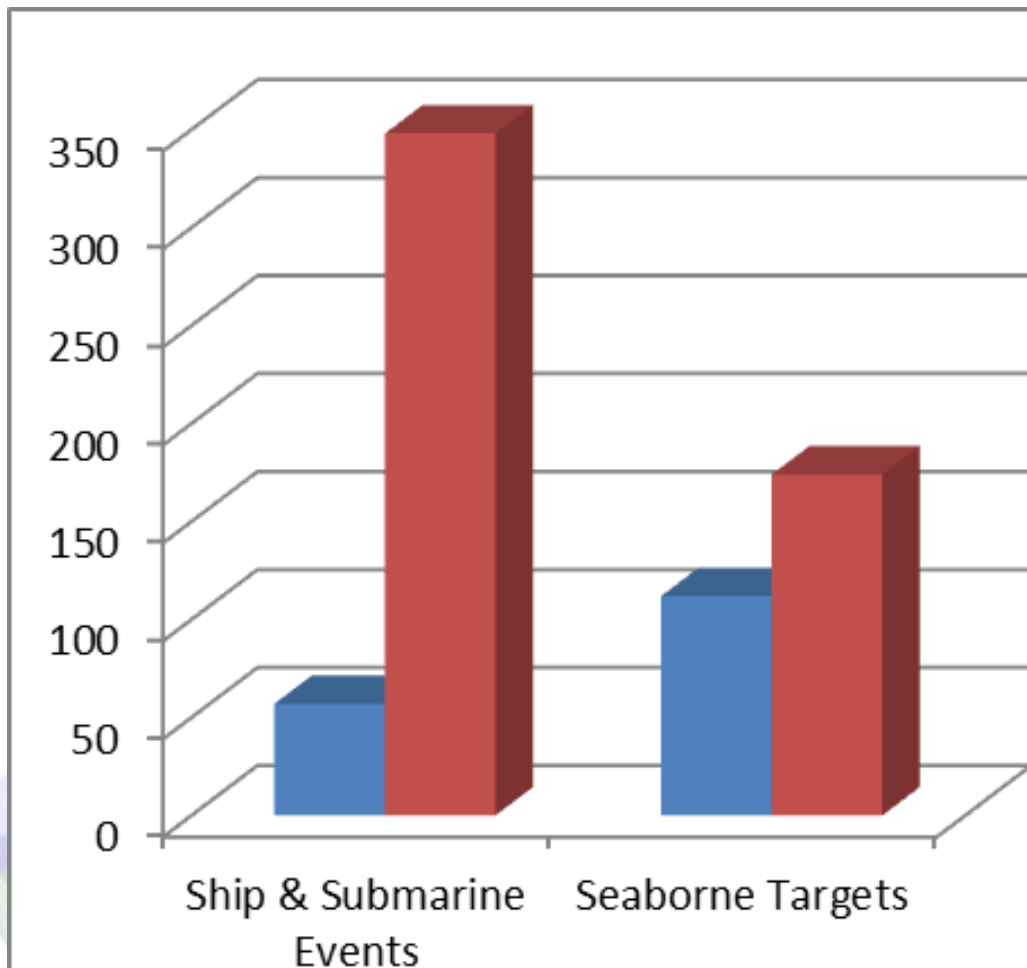& TORIS Data – FY10 Data

- Improvements over initial dashboard reports
- 'Ship Ordnance Expended' will slightly increase in TARAT with integration of USFF ATR data; will significantly increase with NOLSC data

W-122
OPAREA

- Jun07-Sep10 (40 months) USFF TRIMS Data Ship Events W122

- 7Jul10 - 15Jul10 (9 Days) CSFTL Exercise Event Data Ship Events W122

Decision Quality Data Needed & Not Available

W122 OPAREA Grid Use (7Jul10-15Jul10))
USS KEARSARGE Expeditionary Strike Group Exercise

Current Utilization Data by OPAREA Grid
- NAVSKED data linked to TORIS & TRIMS data

Commander Strike Forces Training, Atlantic
- NAVSKED data linked to CSFTL Ship Event data

Legend:
- 07/15/10
- 07/14/10
- 07/13/10
- 07/12/10
- 07/11/10
- 07/10/10
- 07/09/10
- 07/08/10
- 07/07/10
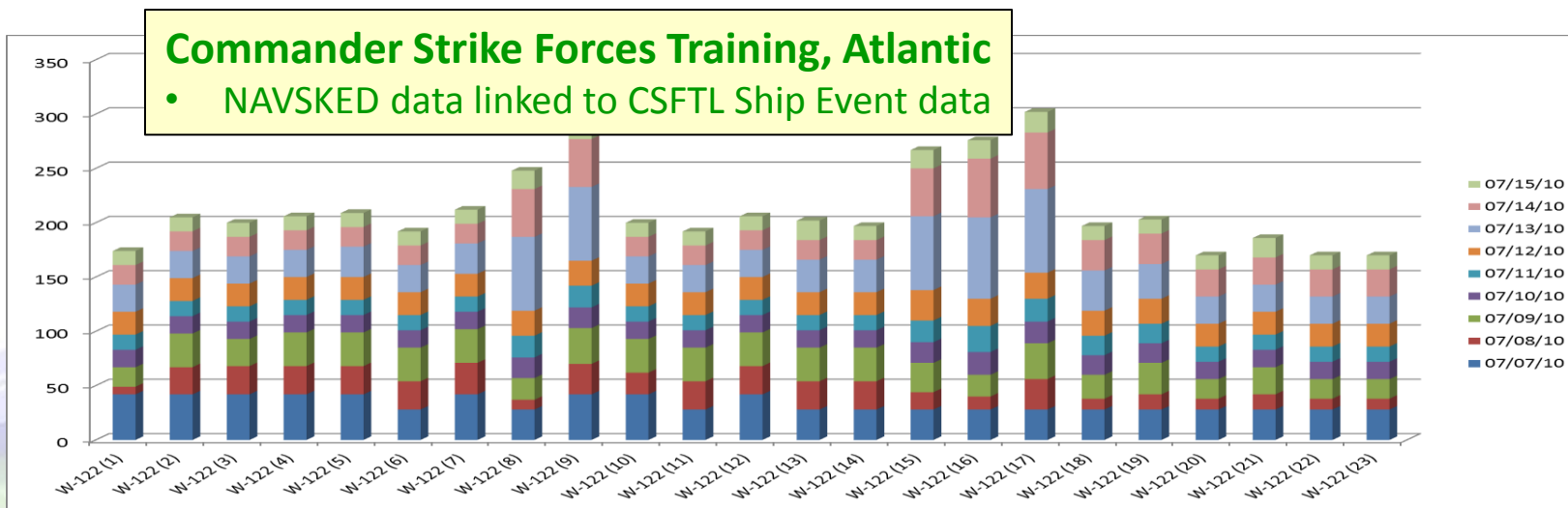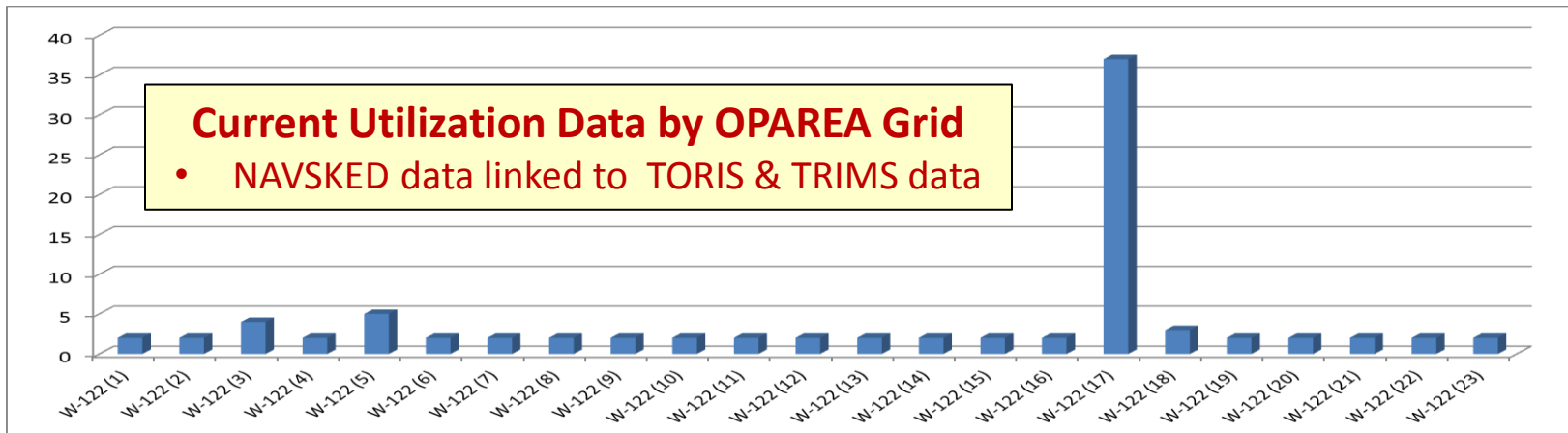
- **USFF TRIMS records average of 4 ship events per grid over 9 days**
- **Exercise records average of 212 ship events per grid over 9 days**

Ship Ordnance Expended Data on LANT OPAREAs
Comparison From Separate Databases

East Coast OPAREAs – July 2009

Legend:
- 12 Gauge
- 5.56MM
- 7.62MM
- .50 CAL
- 20MM - 76MM
- 5" 54
- EMATT
- Surface CM
- Marine Locator Marker

Inset chart legend:
- 5" 54
- EMATT
- Surface CM
- Marine Locator Marker

X-axis categories: USFF TRIMS, USFF ATR, NOLSC Ship
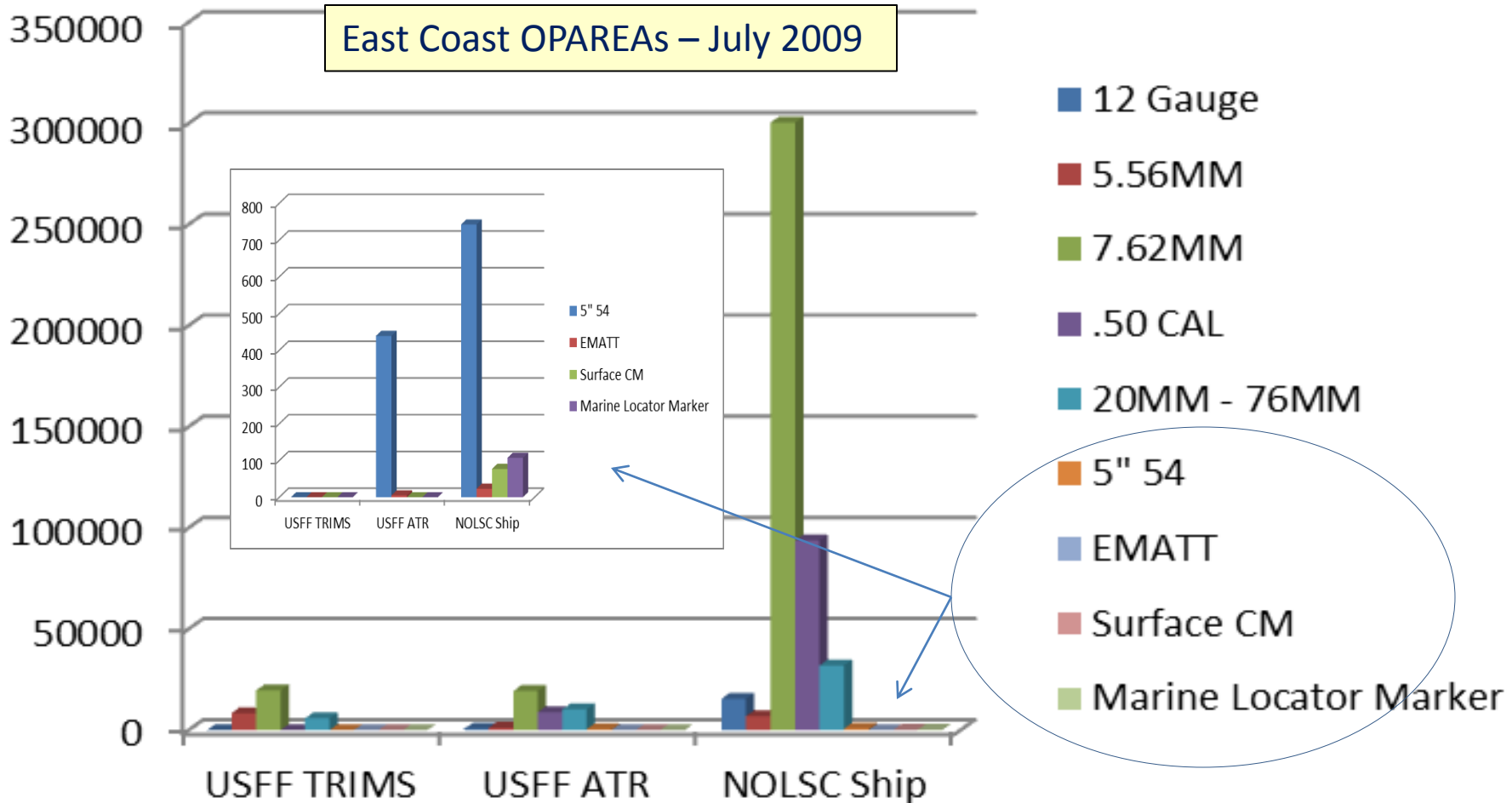
Ship Ordnance Expended Data will improve encroachment defense for DOD/DoN
- TRIMSV & USFF ATR slightly improve ship ordnance expenditure data (only record ~9%)

9

Questions

Project Concept:

– Quantitatively determine Navy <u>range complex</u> contribution to readiness & better understand the linkages between readiness, range use and cost
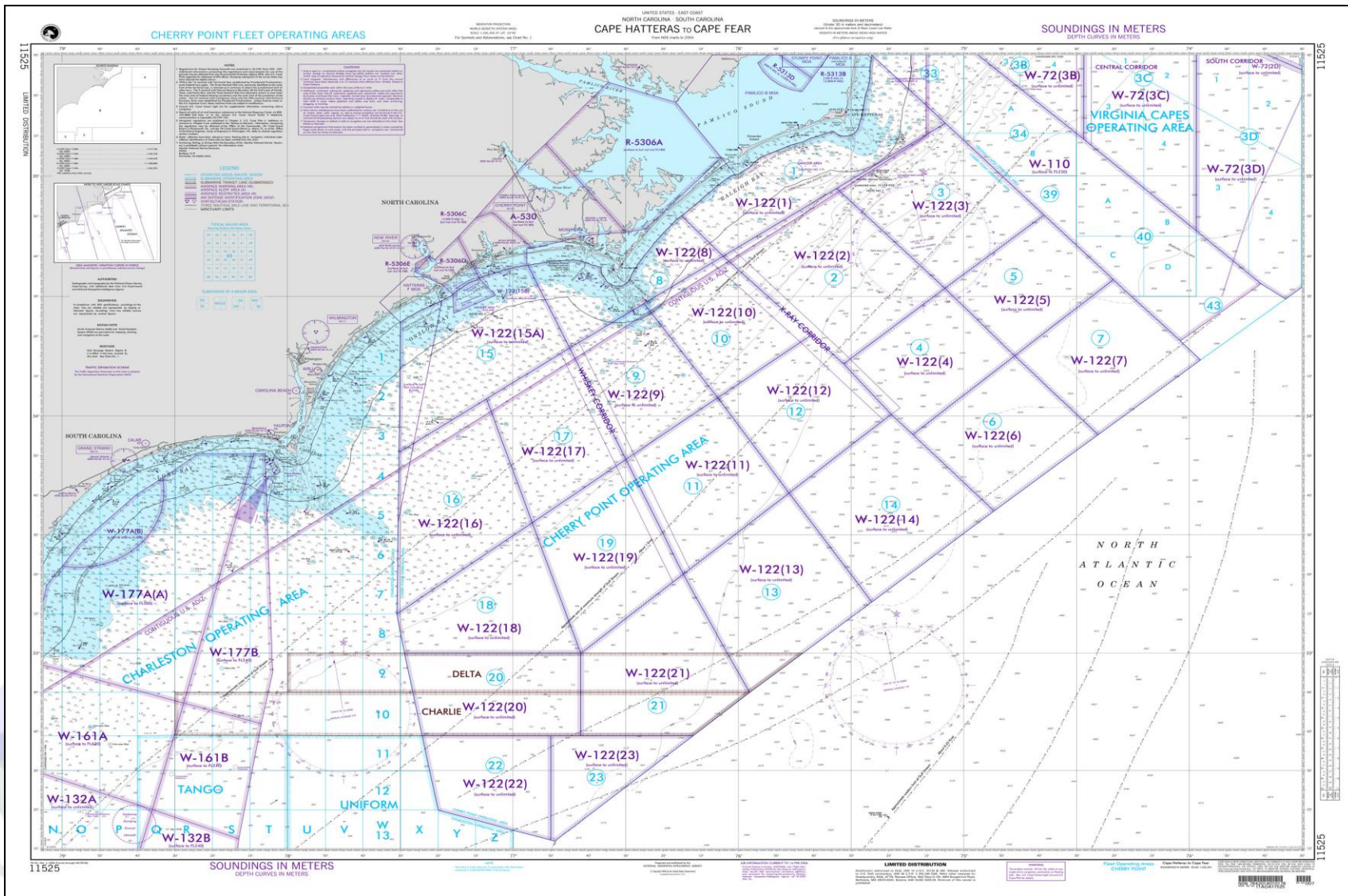
– Link above data in an automated, sustainable & repeatable process

– **Improve DOD / DoN range encroachment defense**

Objectives:

Do the following…

– Align existing cost, readiness & utilization databases

– Create an assessment tool with reports to display range contribution to fleet readiness linked to utilization and cost

…to be able to…

– **Provide impact analysis to defend against encroachment**

– Assess validated range resource requirements

– Show readiness impact of budget decisions

– Provide business case analysis to support POM build
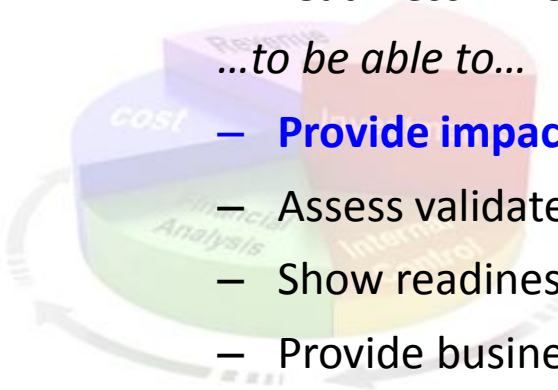
Total Sorties by Warfare Area
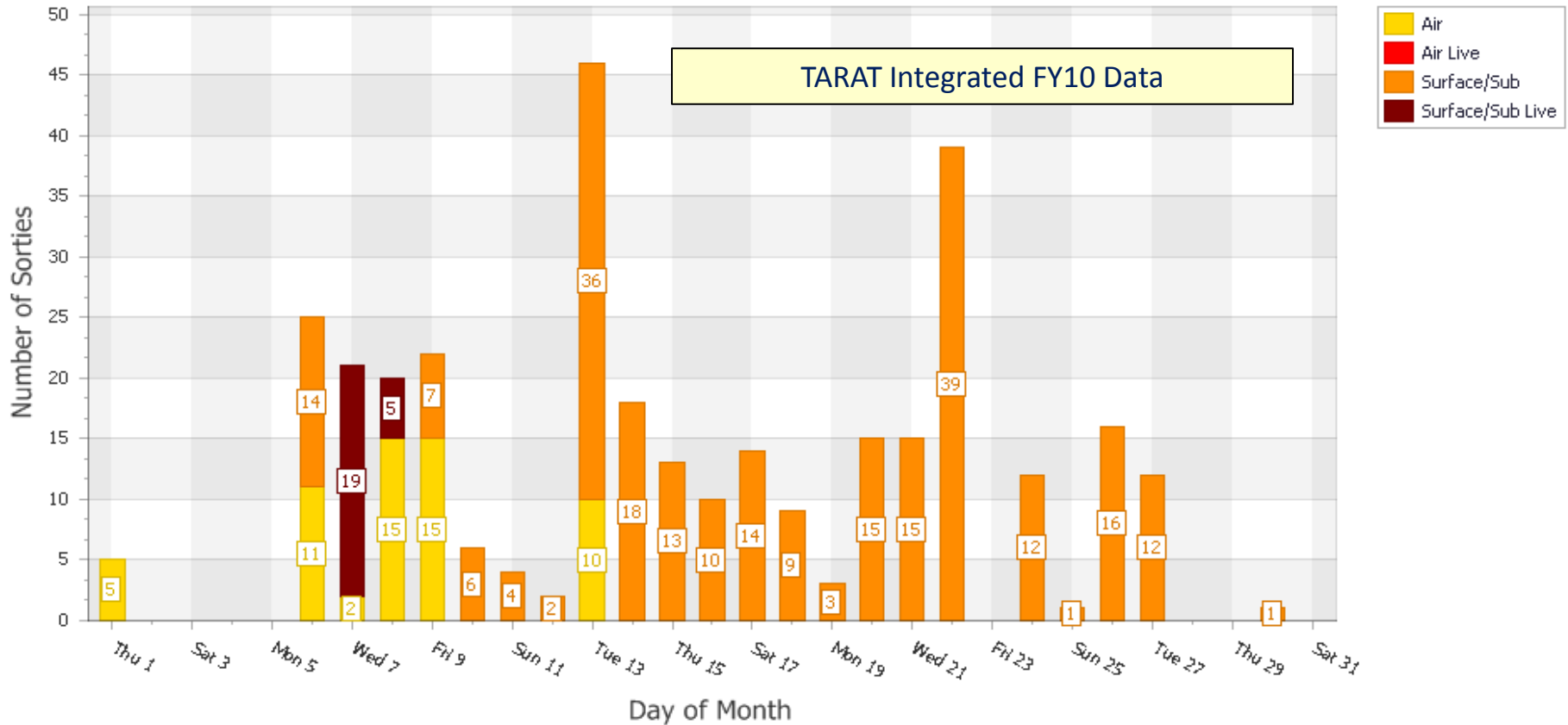
TARAT Integrated FY10 Data

Usage curve increases from FY09 to FY10 with additional data sources
- Improvements over initial dashboard reports (less 'Blue' or 'No Use' days)
- 'Ship Events' will significantly increase with identified additional data

Data Sources in TARAT
Training Area & Range Assessment Tool

WBB CONSULTING
Solutions and Support for a Changing World

Larger Utilization Databases with Data Integrated in TARAT:
– U.S. Fleet Forces (USFF) Range Utilization for Fleet Training
– Navy Air Readiness Reporting
– Navy Ship Readiness Reporting
– Fleet Area Control & Surveillance Facility (FACSFAC) Airspace Scheduling
– NAWC Test Range / MRTFB Utilization
– AUTEC T&E
– SCSC NASA / SCSC Wallops
– USFF ATR (Ordnance Expended)

Data being Integrated in TARAT:
– ATMO Aerial & Seaborne Targets (East Coast only)
– AWIS Aerial Targets
– STAIRS Seaborne Targets
– Ship Electronic Support Evaluation Facility (SESEF)
– USMC RFMSS (only MCAS Cherry Point data at this time)
– NSWC PHD CSSQT data

Future Expansion (FY12):
– Ship Ordnance Expended
– Exercise Event data for Ships

TARAT Level of Data Improving
Exercise Event Data Will Give TARAT Density of Operations

Thru Jun08 – No Ship Event Data Recorded on East Coast

TRIMS Individual Range Utilization from 6/1/2007 through 6/30/2008 (USN/Surface)
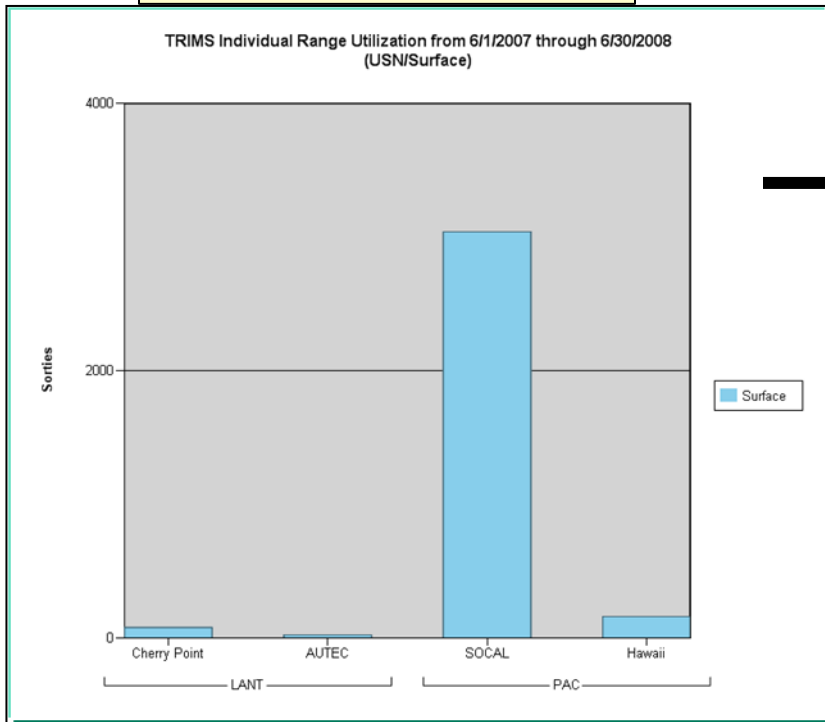
After TORIS / NAVSKED Integration

W122 Ship Events Matched in TARAT (as of 29Sep11)		
Data Source	# Ship Events	# LHD/LPD/LSD Ship Events
TORIS	250	111
TRIMSV	145	75

With Exercise Event Data Integrated in TARAT

W122 Ship Events Matched in TARAT		
Data Source	# Ship Events	# LHD/LPD/LSD Ship Events
CSFTL linked to NAVSKED/TRIMSV/Other Sources	990	420

*CSFTL will also match hundreds of ship events / month for JAX & VACAPES OPAREAs*

Exercise Event Data Will Give TARAT Full Fleet Use of OPAREA Grids

- Ability to Show 'Impact' to Loss of OPAREA Grid
- Will Provide 'Density of Operations' & Help Connect To Ship Ordnance Data

Naval Operations Concept – 2010

- Describes how, when and where U.S. naval forces will contribute to preventing conflict and prevail in war in order to guide maritime strategy implementation

- "Naval" encompasses Navy, Marine Corps and Coast Guard personnel and organizations

- "Implements" the Maritime Strategy – organized around & expounds upon the six expanded core capabilities identified in the maritime strategy
  - Forward Presence
  - Deterrence
  - Sea Control
  - Power Projection
  - Maritime Security
  - HA / DR

Naval Operations Concept
2010
Implementing
The Maritime Strategy

A Cooperative Strategy
for 21st Century Seapower
OCTOBER 2007
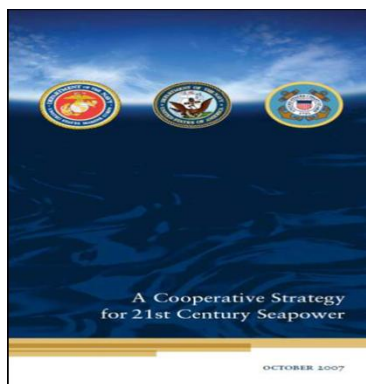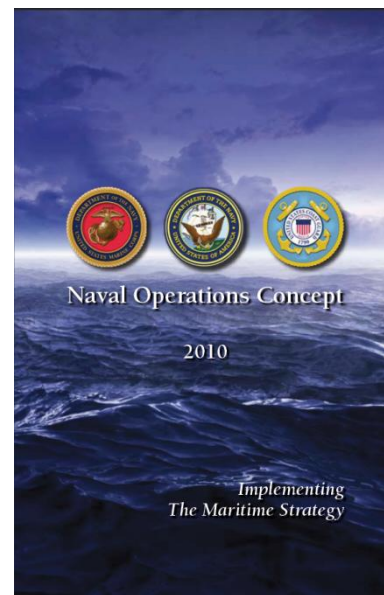
Core Capabilities / Naval Forces	Forward Presence	Maritime Security	HA/DR	Sea Control	Power Projection	Deterrence
Aircraft Carriers	X		X	X	X	X
Aircraft	X	X	X	X	X	X
Amphibious Ships	X	X	X	X	X	X
SSNs	X	X		X	X	X
SSGNs	X	X			X	X
SSBNs					X	X
Large Surface Combatants	X	X		X	X	X
Small Surface Combatants	X	X		X		
Major Cutters	X	X	X	X		X
Patrol Craft	X	X	X	X		X
Combat Logistics Force	X	X	X	X	X	
Hospital Ships	X		X			
Maritime Prepositioning	X		X		X	
JHSV	X	X	X			
Command and Support	X					
Icebreakers[31]	X	X	X	X		X

**Navy ranges critical to platform and integrated readiness**

Fleet Response Training Plan (FRTP)

- FRTP is the training cycle the units of a CSG accomplish to be deployment ready

- FRTP Phases
  - Maintenance, Basic (Unit Level), Integrated, Sustainment
  - CSG "Surge Ready" after completion of Integrated phase

- Major CSG FRTP Events
  - CVW Fallon (Air Wing Det)
  - Composite Training Unit Exercise (COMPUTEX)
  - Joint Task Force Exercise (JTFEX)

COMNAVAIRFORINST 3500.20C

Fleet Response Plan (FRP) and Fleet Readiness Training Plan (FRTP)

FRP sets the framework for providing Combatant Commanders with forward-deployed forces while maintaining additional CONUS-based forces that can surge rapidly to meet emerging demands
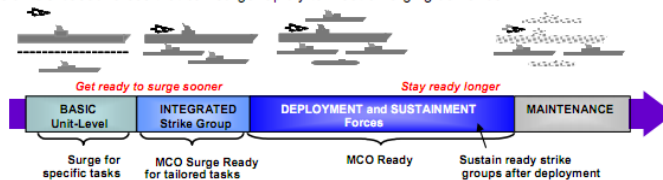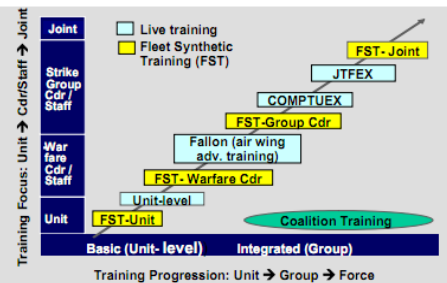
Figure 3-1 FRP - Fleet Response Plan

Ship Ordnance Expended Data on LANT OPAREAs
NOLSC vs. TRIMS vs. USFF ATR Comparison

USFF ATR Data
LANT OPAREAs - Jul09

USFF ATR Ship Ordnance Expenditures for CP, JAX & VC OPAREAs (Jul10)				
Munition Type	Total Rounds By Type	ASW / USW Sonar Use	Hours Used	
12GA	640	SLQ-25	8.42	
20MM CIWS	2840			
20MM DS	5389			
25MM SAPHEI-T	825			
40MM HE-DP	954			
76MM BL-P	108			
C-4 CHARGE (1-1/4 LB)	34			
5.56MM	1180			
5/54 BL-P	221			
5/54 HE-CVT	76			
5/54 ILLUM	159			
7.62MM GRENADE	4			
7.62MM T	14373			
9MM	4923			
BOMB 500LB GEN PURP	10			
CAL.50 T	8900			
EMAT	5			
SIMULATOR FLARE	381			
Total Ordnance Expended (Jul10)	**41,022**	*Source: USFF ATR*		

NOLSC Data
LANT OPAREAs - Jul09

(Initial Look) NOLSC Ship Ordnance Expenditure Data for CP, JAX & VC OPAREAs (Jul10)		
Munition Type	Total Rounds By Type	Description / Added Detail
12GA	15505	
20MM CIWS 20MM DS 25MM SAPHEI-T 40MM HE-DP 76MM BL-P C-4 CHARGE (1-1/4 LB)	31927	*OSG / Pyro / Grenades*
5.56MM	6873	*Small Arms 5.56 - 9MM, 22/30/38/45 Cal, Mines*
5/54 BL-P 5/54 HE-CVT 5/54 ILLUM	742	*Also 751 Charge/Propellant, 458 MK199 Mod1*
7.62MM GRENADE 7.62MM T 9MM	300,349	*Small Arms 5.56 - 9MM, 22/30/38/45 Cal, Mines*
BOMB 500LB GEN PURP	60	
CAL.50 T	93697	*Small Arms 5.56 - 9MM, 22/30/38/45 Cal, Mines*
EMAT	23	
SIMULATOR FLARE	0	*Could Not Associate Entry in NOLSC*
SURFACE CM	77	
CADS/PADS/AEPS	2	
SUS	1	*None of these entries were found in TRIMV or USFF ATR Ordnance Expended Data*
MK46 (5) TORP / EXTORP	1	
5" ROCKETS	5	
LGB	6	
MARINE LOCATION MARKER	107	
Total Ordnance Expended (Jul10)	**449,375**	*Source: NOLSC*

TRIMSV Data
LANT OPAREAs - Jul09

TRIMS Ship Ordnance Expenditures for CP, JAX & VC OPAREAS (Jul10)				
LHD-3	LHD	W-122 (17)	20MM	5780
LHD-3	LHD	W-122 (17)	7.62MM	19600
LHD-3	LHD	W-122 (17)	.50 CAL	8400

NOLSC Data will provide 'full impact' picture for DOD / DoN in encroachment defense
- TRIMSV & USFF ATR have slightly improved ship ordnance expenditure data since 2009
  - Still only record ~9% of actual expenditures

National Priority Objectives

1. **Ecosystem-Based Management:** Adopt ecosystem-based management as a foundational principle for the comprehensive management of the ocean, our coasts, and the Great Lakes.

2. **Coastal and Marine Spatial Planning:** Implement comprehensive, integrated, ecosystem-based coastal and marine spatial planning and management in the United States.

3. **Inform Decisions and Improve Understanding:** Increase knowledge to continually inform and improve management and policy decisions and the capacity to respond to change and challenges. Better educate the public through formal and informal programs about the ocean, our coasts, and the Great Lakes.

4. **Coordinate and Support:** Better coordinate and support Federal, State, tribal, local, and regional management of the ocean, our coasts, and the Great Lakes. Improve coordination and integration across the Federal Government, and as appropriate, engage with the international community.

5. **Resiliency and Adaptation to Climate Change and Ocean Acidification:** Strengthen resiliency of coastal communities and marine and Great Lakes environments and their abilities to adapt to climate change impacts and ocean acidification.

6. **Regional Ecosystem Protection and Restoration:** Establish and implement an integrated ecosystem protection and restoration strategy that is science-based and aligns conservation and restoration goals at the Federal, State, tribal, local, and regional levels.

7. **Water Quality and Sustainable Practices on Land:** Enhance water quality in the ocean, along our coasts, and in the Great Lakes by promoting and implementing sustainable practices on land.

8. **Changing Conditions in the Arctic:** Address environmental stewardship needs in the Arctic Ocean and adjacent coastal areas in the face of climate-induced and other environmental changes.

9. **Ocean, Coastal, and Great Lakes Observations, Mapping, and Infrastructure:** Strengthen and integrate Federal and non-Federal ocean observing systems, sensors, data collection platforms, data management, and mapping capabilities into a national system, and integrate that system into international observation efforts.

- Priority/Objective number two is the most important near term concern

- Priority/Objective nine may have implications for TARAT long term use by the Navy
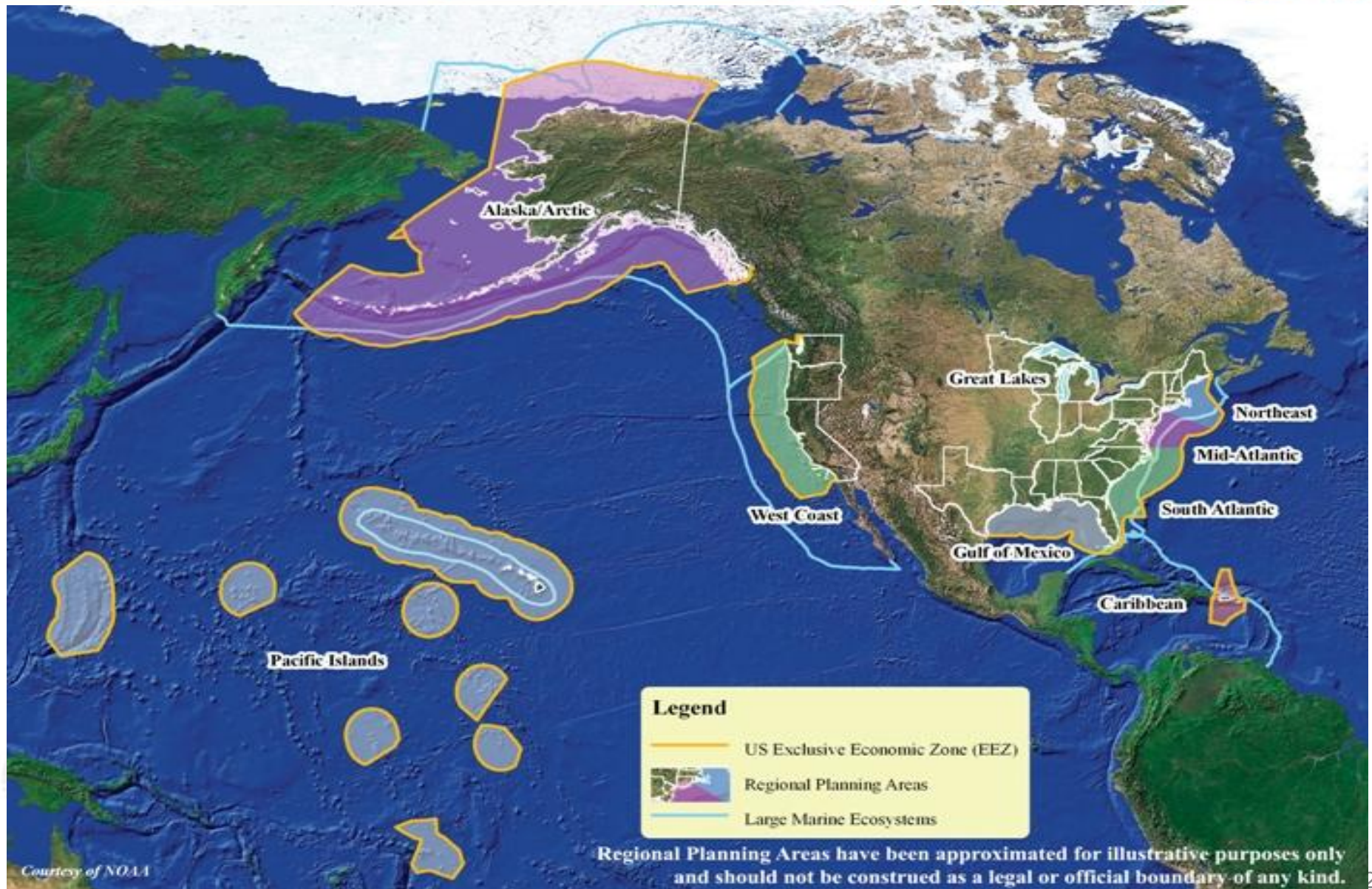
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CMSP Goals

The National Goals of Coastal and Marine Spatial Planning

1. Support sustainable, safe, secure, efficient, and productive uses of the ocean, our coasts, and the Great Lakes, including those that contribute to the economy, commerce, recreation, conservation, homeland and national security, human health, safety, and welfare;

2. Protect, maintain, and restore the Nation's ocean, coastal, and Great Lakes resources and ensure resilient ecosystems and their ability to provide sustained delivery of ecosystem services;

3. Provide for and maintain public access to the ocean, coasts, and Great Lakes;

4. Promote compatibility among uses and reduce user conflicts and environmental impacts;

5. Improve the rigor, coherence, and consistency of decision-making and regulatory processes;

6. Increase certainty and predictability in planning for and implementing new investments for ocean, coastal, and Great Lakes uses; and

7. Enhance interagency, intergovernmental, and international communication and collaboration.
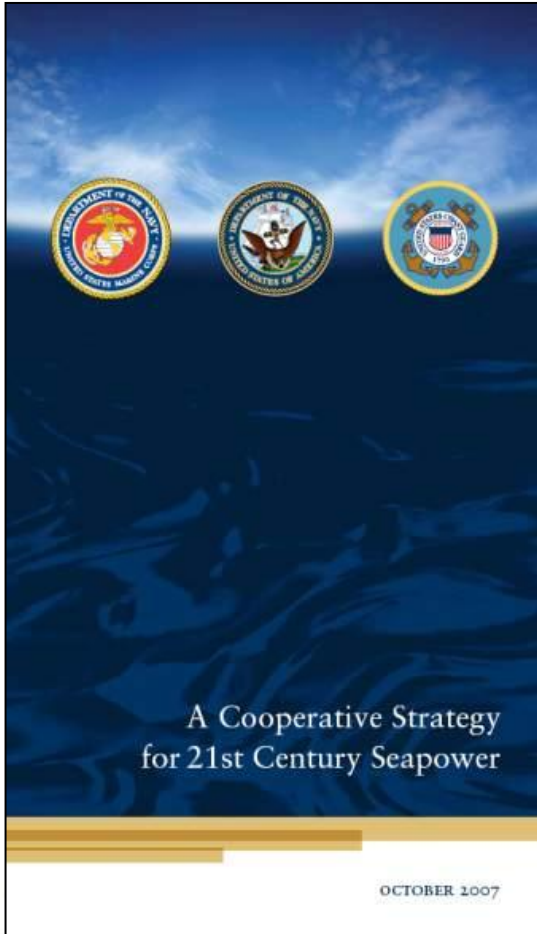
- Goal seven assumes metrics and data (scientific basis) for communication and collaboration

Regional Planning Areas have been approximated for illustrative purposes only and should not be construed as a legal or official boundary of any kind.

The Maritime Strategy

A Cooperative Strategy for 21st Century Seapower

OCTOBER 2007

National Strategic Imperatives:

1. *Limit regional conflict with forward-deployed, decisive maritime power*
2. *Deter major power war*
3. *Win our Nation's wars*
4. *Contribute to homeland defense in depth*
5. *Foster & sustain cooperative relationships with more international partners*
6. *Prevent or contain local disruptions before they impact the global system*

Core Capabilities of the Maritime Strategy:

1. *Forward Presence*
2. *Deterrence*
3. *Sea Control*
4. *Power Projection*
5. *Maritime Security*
6. *Humanitarian Assistance and Disaster Response*

Core Fleet Response Plan training range requirements drive usage and utility of ranges for the Navy and U.S. National Security