



NAVY TEST & EVALUATION RANGES

for
Ship Air Defense System Testing:
An OT&E Perspective

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Tom Blann
OSD/DOT&E/CS
(703) 697-3891



OPERATIONAL TESTING requires

- **End-to-end testing (detection through kill),**
- **With system operated by fleet users,**
- **Against threat-representative targets,**
- **In realistic environments.**



SO WHAT DO WE LOOK FOR WHEN SELECTING A RANGE?



TESTING

End-to-end:

- Enough surface and air space to simulate mission execution
- Infrastructure to support realistic threat representation

Threat representation:

- Capability to represent the spectrum of threats

Realistic environment:

- Distance from commercial corridors and shipping lanes
- Range clearance capability
- Flexibility to relocate operations rapidly

EVALUATION

- Time Space Position Information
- Weapon system data collection
- Target system data collection



US NAVY RANGES FOR OT&E OF NAVY AIR DEFENSE SYSTEMS

East Coast

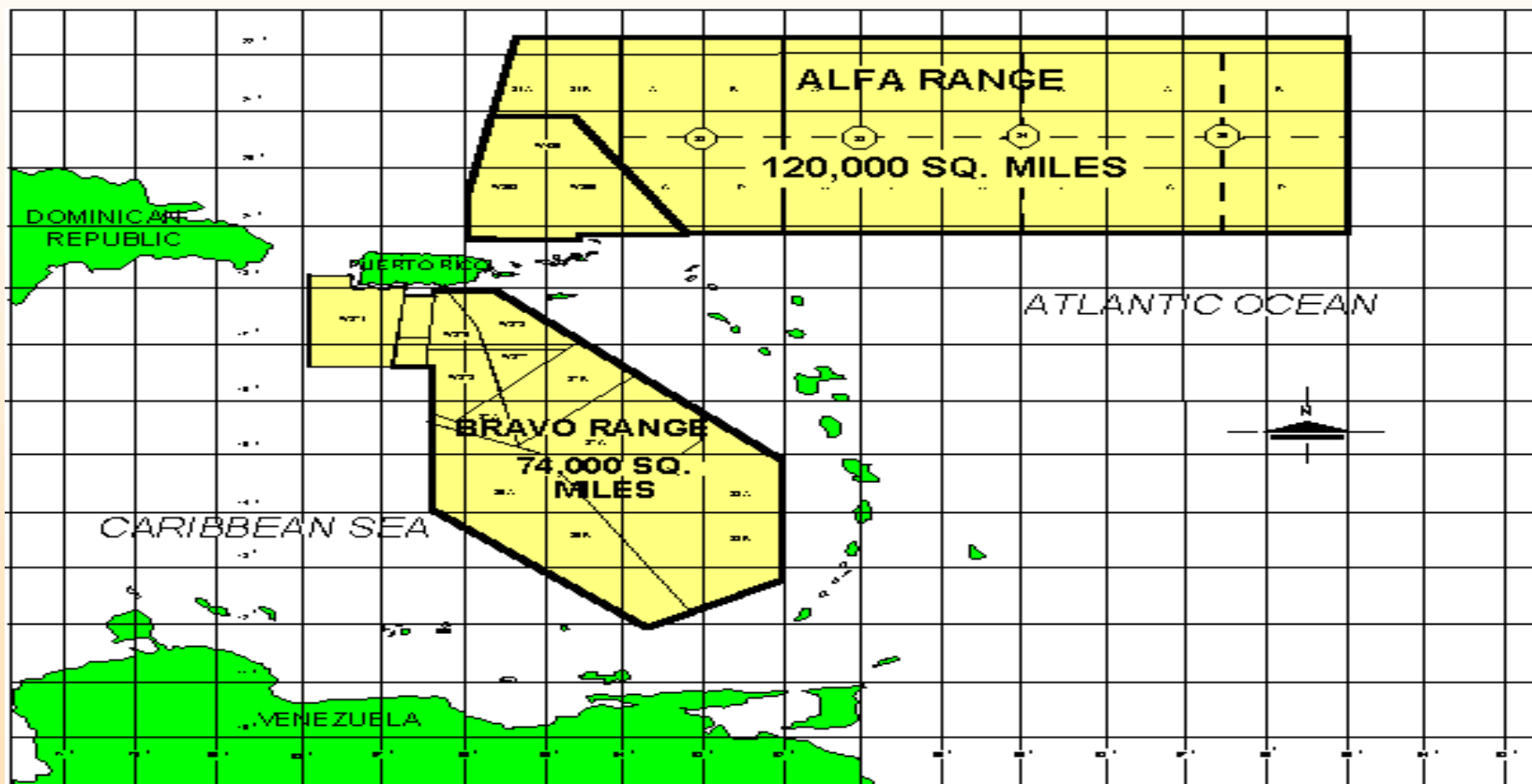
- **Atlantic Fleet Weapons Training Facility (AFWTF),
Roosevelt Roads, Puerto Rico**

West Coast

- **Naval Air Warfare Center/Weapons Division Sea Range
Point Mugu, California**
- **Pacific Missile Range Facility (PMRF),
Barking Sands, Kekaha, Hawaii**



ATLANTIC FLEET WEAPONS TRAINING FACILITY (AFWTF)





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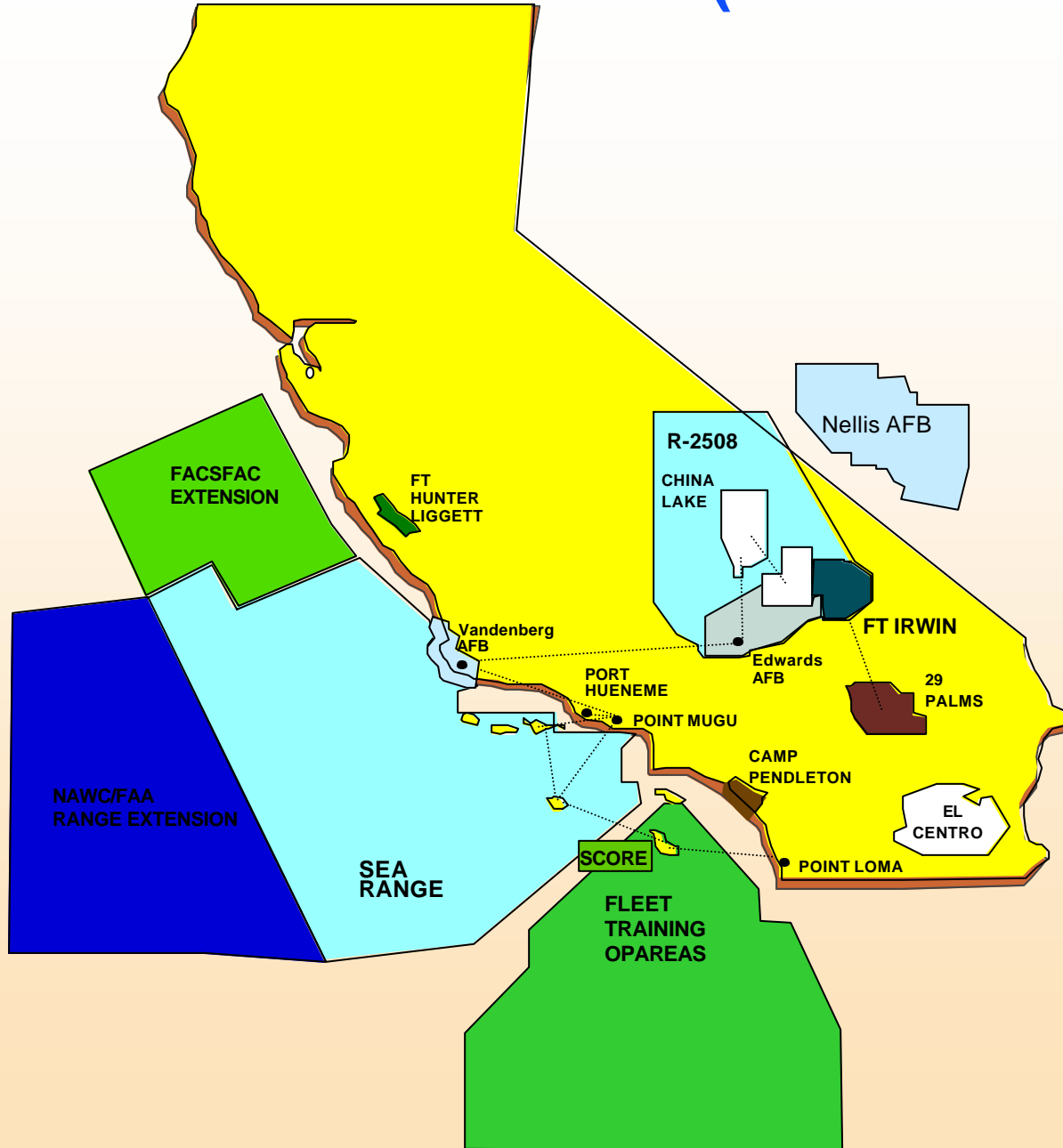
Pro:

- Adequate air and sea space
- Effective range clearance capability
- Adequate target launch/control capability
- Excellent missile and target telemetry data collection
- Flexibility and space to relocate operations

Con:

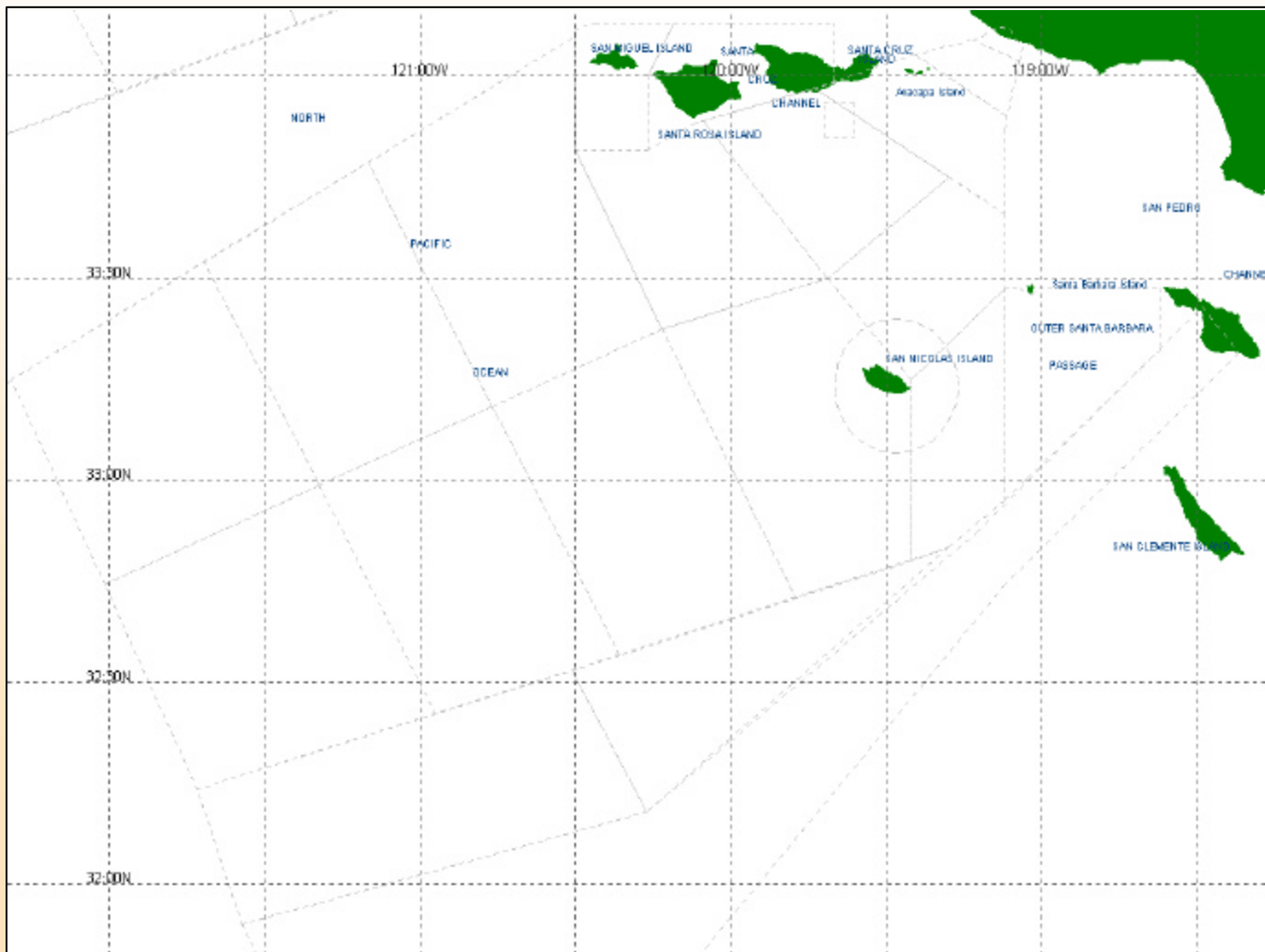
- Can't test short range air defense systems
- Limited fidelity and availability of ASCM surrogates
- No supersonic, sea-skimming target launch capability
- Not close to a home port
- Future uncertain

NAWC/WD SEA RANGE (POINT MUGU)





NAWC/WEAPONS DIVISION SEA RANGE (POINT MUGU)





NAWC/WEAPONS DIVISION SEA RANGE (POINT MUGU)



Pro:

- Adequate air and sea space
- Adequate range clearance capability
- Adequate target launch/control capability
- Missile and target telemetry data collection
- Self Defense Test Ship (SDTS) available for short range air defense T&E
- Proximity to San Diego

Con:

- Projects have to contend with other range users
- Limited fidelity and availability of ASCM surrogates
- Surface craft traffic cause occasional delays
- Occasional weather-induced delays



SELF DEFENSE TEST SHIP (SDTS)






PACIFIC MISSILE RANGE FACILITY BARKING SANDS, HAWAII

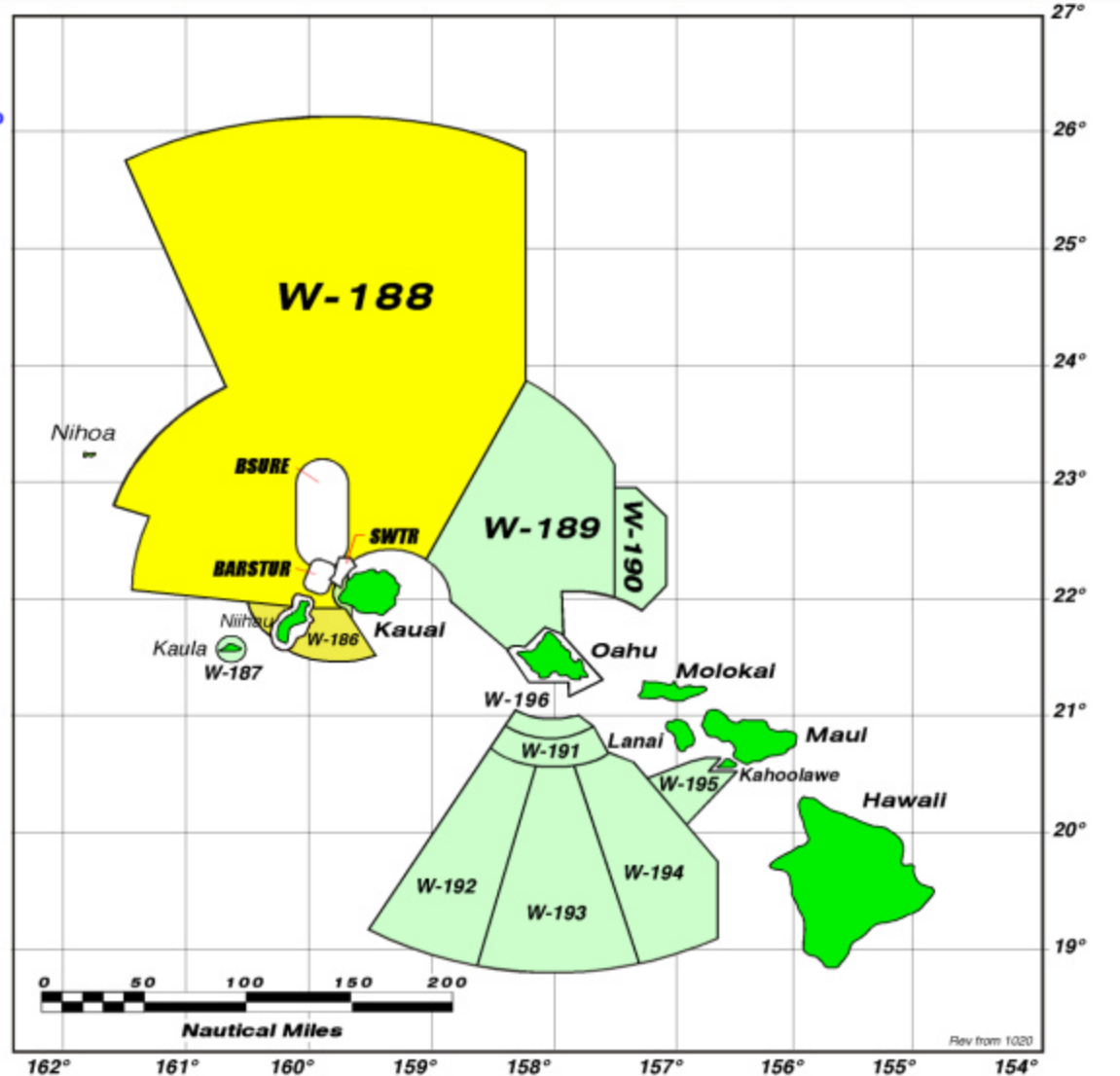


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Hawaiian Operational Areas

W-186/188 are the two
WARNING AREAS 
assigned to PMRF. Total
of 42,000 square nauti-
cal miles.

FACSFAC Controlled 





PACIFIC MISSILE RANGE FACILITY (PMRF) BARKING SANDS, HAWAII

Pro:

- Adequate air and sea space
- Adequate range clearance capability
- Adequate target launch/control capability
- Good missile and target telemetry data collection
- Proximity to Pearl Harbor

Con:

- Projects have to contend with other range users
- Can't test short range air defense systems
- Limited fidelity and availability of ASCM surrogates
- Airfield runway cannot accommodate full-scale QF-4 targets



“Limited Fidelity and Availability of ASCM Surrogates” – Supersonic, Sea-Skimmer Example



■ Critical Shortage of VANDAL Assets

- Inventory: 14 EERs; FY03 depletion projected
- Both fleet training and T&E requirements



■ Critical Shortage of MA-31 Assets

- Inventory: 3
- Availability of additional MA-31s uncertain
- Both fleet training and T&E requirements



■ GQM-163A development program

- FY04 delivery projected
- Threat representation to be demonstrated





SUMMARY



- **Point Mugu, PMRF, and AFWTF can support adequate OT&E of medium/long range air defense systems.**
- **Point Mugu is only Navy range capable of supporting adequate OT&E of short range air defense systems.**
- **If AFWTF becomes unavailable, the only ranges capable of supporting OT&E of ship air defense systems will be west coast ranges: Point Mugu and PMRF.**
- **Aerial target representation of threat-ASCMs, especially supersonic sea-skimmers, needs improvement.**
 - **More targets**
 - **Higher fidelity targets**