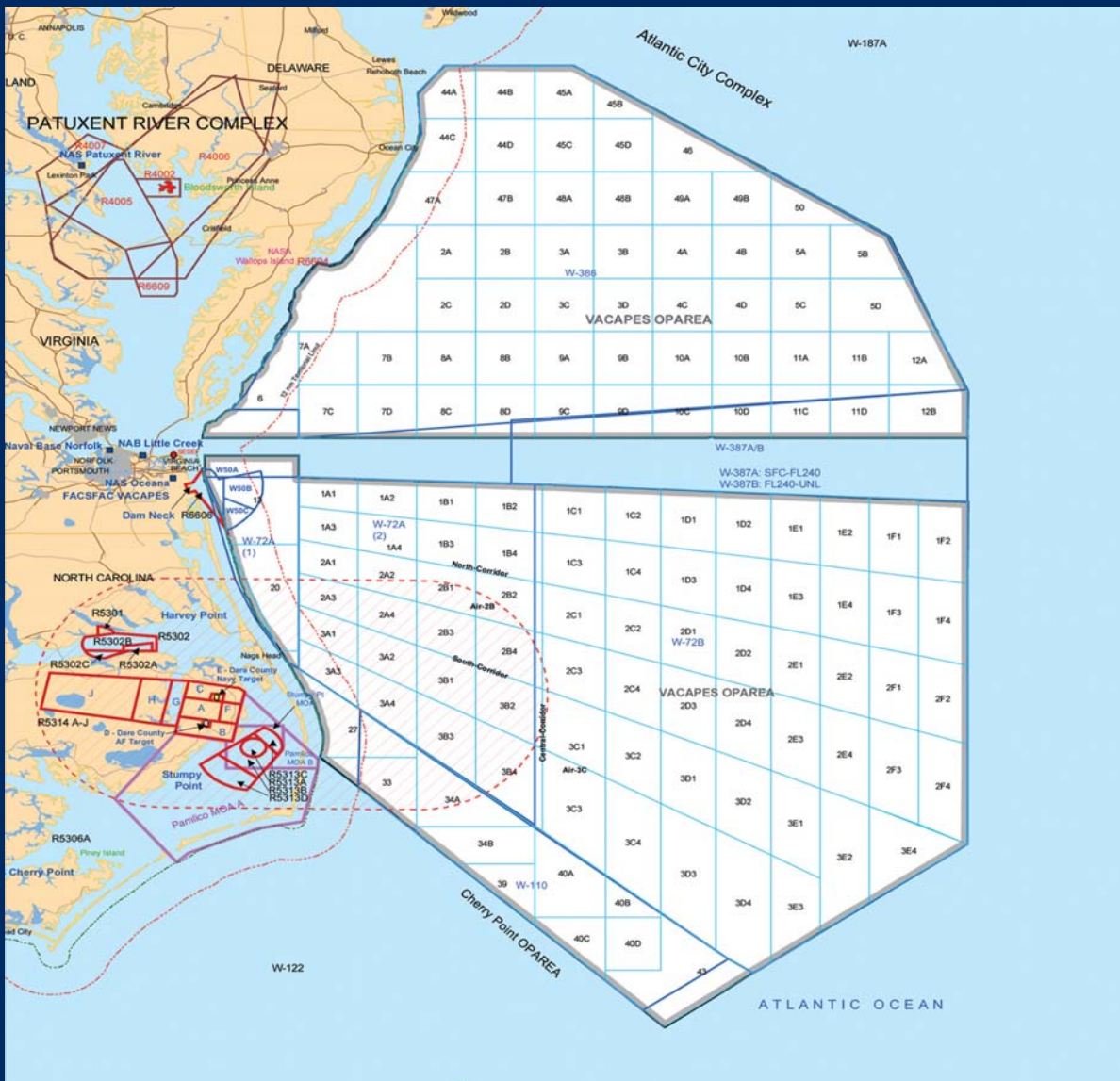


Virginia Capes Range Complex Final Environmental Impact Statement/ Overseas Environmental Impact Statement (EIS/OEIS) Volume 1



Prepared by:
United States Fleet Forces
March 2009



VACAPES RANGE COMPLEX FINAL ENVIRONMENTAL IMPACT STATEMENT/ OVERSEAS ENVIRONMENTAL IMPACT STATEMENT

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Abstract:

The Department of the Navy has prepared this Final Environmental Impact Statement (EIS)/Overseas Environmental Impact Statement (OEIS) to assess the potential environmental impacts over a 10-year planning horizon associated with Navy Atlantic Fleet training, research, development, testing, and evaluation activities, and associated range capabilities enhancements (including infrastructure improvements) in the Virginia Capes (VACAPES) Range Complex. The EIS/OEIS Study Area includes the VACAPES Operating Area and Warning Areas as well as portions of the lower Chesapeake Bay. The potential effects to physical, biological, and man-made environments from the testing and training alternatives were studied to determine how the proposed action could affect these resources. The National Marine Fisheries Service is a Cooperating Agency for this EIS/OEIS.

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LIST OF ACRONYMS AND ABBREVIATIONS

A-A	Air-to-Air	CAA	Clean Air Act
AAMEX	Air-to-Air Missile Exercise	CAMA	Coastal Area Management Act
AAW	Anti-Air Warfare	CAS	Commercial Air Services OR Chemical Abstract System
ACM	Air Combat Maneuver	CATEX	Categorical Exclusion
ADC	Acoustic Device Countermeasure	CBFEAP	Chesapeake Bay Fisheries Ecosystem Advisory Panel
AIC	Air Intercept Control	CBP	Chesapeake Bay Program
ACHP	Advisory Council on Historic Preservation	CEQ	Council on Environmental Quality
ACM	Air Combat Maneuvering	CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
AFAST	Atlantic Fleet Active Sonar Training	CFFC	Commander, United States Navy Fleet Forces Command
AFECC	Atlantic Fleet Exercise Coordination Center	CFR	<i>Code of Federal Regulations</i>
AGL	Above Ground Level	CG	Cruiser
AIC	Air Intercept Control	CH ₄	Methane
ALMDS	Airborne Laser Mine Detection System	CHAFFEX	Chaff Exercise
Al ₂ O ₃	Aluminum Oxide	CFMETR	Canadian Forces Maritime Experimental and Test Ranges
AMCM	Airborne Mine Countermeasure	CHRIMP	Consolidated Hazardous Materials Reutilization and Inventory Management Program
AMNS	Airborne Mine Neutralization System	CINCLANTFLT	Commander, in Chief, U.S. Atlantic Fleet
AMRAAM	Advanced Medium-Range Air- to-Air Missile	CIWS	Close-In Weapon System
AMW	Amphibious Warfare	CNA	Center for Naval Analysis
APNEP	Albemarle-Pamlico National Estuary Program	CNIC	Commander Naval Installations Command
APPS	Act to Prevent Pollution from Ships	CNO	Chief of Naval Operations
AQCR	Air Quality Control Region	CO	Commanding Officer or Carbon Monoxide
AQM	Air-Launched Drone Missile Target	CO ₂	Carbon Dioxide
APE	Area of Potential Effect	COMAR	Code of Maryland Regulations
AR	Atlantic Route	COMNAVREG SE	Commander, Navy Region Southeast
ARPA	Archaeological Resources Protection Act	COMPTUEX	Composite Training Unit Exercise
ARTCC	Air Route Traffic Control Center	CAN	Center for Naval Analysis
A-SEL	A-weighted SEL	CNO	Chief of Naval Operations
ASMFC	Atlantic States Marine Fisheries Commission	CRC	Coastal Resources Commission
ASROC	Rocket-Assisted Anti-Submarine Torpedo	CSAR	Combat Search and Rescue
ASTAC	Anti-Submarine Tactical Air Controller	CSG	Carrier Strike Group
ASTM	American Society for Testing and Materials	CTR	Chesapeake Test Range
ASUW	Anti-Surface Warfare	CVN	Nuclear Aircraft Carrier
ASW	Anti-Submarine Warfare	CVW	Carrier Airwing
ATC	Air Traffic Control	CWA	Clean Water Act
AUE	Association of Underwater Explorers	CZMA	Coastal Zone Management Act
AW	Air Warfare	DAWM	Division of Air and Waste Management
BA	Biological Assessment	dba	Decibel(s) (A-weighted)
BAMS	Broad Area Maritime Surveillance	dd	Distance Doubled
BDA	Battle Damage Assessment	DDG	Guided Missile Destroyer
BDU	Bomb Dummy Unit	DE	Delaware
BE	Biological Evaluation	DENR	Department of Environment and Natural Resources (NC)
BFM	Basic Fighter Maneuvers	DEIS	Draft Environmental Impact Statement
BMP	Best Management Practice	DEQ	Department of Environmental Quality
BO	Biological Opinion	DIN	Dissolved Inorganic Nitrogen
BOMBEX	Bombing Exercise	DIP	Dissolved Inorganic Phosphorus
BQM	Air- or Surface-Launched Drone Missile Target		
BRAC	Base Realignment and Closure		
BUD	Basic Underwater Demolition		
C2W	Command and Control Warfare		

DLQ	Deck Landing Qualifications	H ₂	Hydrogen
DNB	Dinitrotoluene	H ₂ O	Water
DNL	Day-Night Average Sound Level	HAB	Harmful Algal Bloom
DNREC	Delaware Department of Natural Resources and Environmental Control	HAPC	Habitat Areas of Particular Concern
DNT	Dinitrobenzene	HARM	High-Speed Anti-Radiation Missile
DO	Dissolved Oxygen	HARMEX	High-Speed Anti-Radiation Missile Exercise
DoD	Department of Defense	HAZMINCEN	Hazardous Material Minimization Center
DoN	Department of the Navy	HCN	Hydrogen Cyanide
DTE	Detect-to-Engage	HE	High Explosive
DVD	Digital Versatile Disk	HFAS	High Frequency Active Sonar
DWQ	Division of Water Quality (North Carolina)	HITS	Historical Temporal Shipping
EA	Environmental Assessment	HMX	High-Melting Explosive or Octogen
EC	Electronic Combat	HQW	High-Quality Waters
EEZ	Exclusive Economic Zone	HSO ₃	Hydrogen Sulfite (Bisulfite)
EFD	Energy Flux Density	Hz	Hertz
EFH	Essential Fish Habitat	IBA	Important Bird Area
EFHA	Essential Fish Habitat Assessment	ICAO	International Civil Aviation Authority
EGMTTA	Eastern Gulf of Mexico Testing and Training Areas	IEER	Improved Extended Echo Ranging
EIS	Environmental Impact Statement	IEF	In Ex Fish
EMATT	Expendable Mobile ASW Training Target	IFH	Improved Flex Hose
EO	Executive Order	IFHA	Essential Fish Habitat Assessment
EOD	Explosive Ordnance Disposal	IFR	Instrument Flight Rules
EPCRA	Emergency Planning and Community Right-to-Know Act	IMPASS	Integrated Maritime Portable Acoustic Scoring and Simulator System
ESA	Endangered Species Act	IOC	Initial Operational Capability
ESG	Expeditionary Strike Group	IRIS	Integrated Risk Information System
ESGEX	Expeditionary Strike Group Exercise	ISE	Independent Steaming Exercise
ESM	Electronic Support Measure	ISR	Intelligence, Surveillance, and Reconnaissance
EW	Electronic Warfare	ISTT	Improved Surface Tow Target
EXTORP	Exercise Torpedo	ITA	Incidental Take Authorization
FAA	Federal Aviation Administration	ITS	Incidental Take Statement
FACSFAC	Fleet Area Control and Surveillance Facility	IUSS	Integrated Undersea Surveillance System
FCLP	Field Carrier Landing Practice	IWC	International Whaling Commission
FCTC	Fleet Combat Training Center	JFCOM	Joint Forces Command
FERC	Federal Energy Regulatory Commission	JNTC	Joint National Training Capability
FFG	Guided Missile Frigate	JSF	Joint Strike Fighter
FIP	Federal Implementation Plan	JTFEX	Joint Task Force Exercise
FIREX	Firing Exercise	kg	Kilogram(s)
FL	Flight Level	kHz	KiloHertz
FMP	Fishery Management Plan	LATR	Large Area Tracking Range
FONSI	Finding of No Significant Impact	lb. and lbs.	pound and pounds
Fps	Foot (Feet) per Second	LCAC	Landing Craft Air Cushion
FRP	Fleet Response Plan	LCM	Landing Craft Mechanized
FRS	Fleet Replacement Squadron	LCS	Littoral Combat Ship
FRTP	Fleet Readiness Training Plan	L _{dn}	Day-Night Average Sound Level (formula version)
F-SEL	Flat-Weighted Sound Exposure Level	L _{dnmr}	Onset-Rate Adjusted Monthly Day-Night Average Sound Level
Ft	Foot (Feet)	L _{eq}	1-Second Averaged Equivalent Sound Level
FWPCA	Federal Water Pollution Control Act	LiBr	Lithium Bromide
FWS	Future Water Supply	LIDAR	Light Detection and Ranging
FY	Fiscal Year	LiSO ₂	Lithium Sulfur Dioxide
GMFMC	Gulf of Mexico Fishery Management Council	LMRS	Long-Term Mine Reconnaissance System
GPS	Global Positioning System	LNG	Liquid Natural Gas
GUNEX	Gun Exercise	LOA	Letter of Authorization

m ³	Cubic Meter(s)	Navy	U.S. Department of the Navy
M&S	Modeling and Simulation	NAWCAD	Naval Air Warfare Center, Aircraft Division
MAB	Mid-Atlantic Bight	NAWQC	National Ambient Water Quality Criteria
MAFMC	Mid-Atlantic Fishery Management Council	NC	North Carolina
MAGTF	Marine Air Ground Task Force	NCA	National Coastal Assessment
MARPOL	International Convention for the Prevention of Pollution from Ships	NCAC	North Carolina Administrative Code
MATS	Mid-Atlantic Tursiops Surveys	NCBC	Naval Construction Battalion Center
MBTA	Migratory Bird Treaty Act	NC DENR	North Carolina Department of Environment and Natural Resources
MCM	Mine Countermeasures	NCGS	North Carolina General Statute
MD	Maryland	NDAA	National Defense Authorization Act
MDE	Maryland Department of the Environment	NDCBR	Navy Dare County Bombing Range
MEM	Military Expended Material	NDZ	No Discharge Zone
MEMC	Military Expended Material Constituent	NECC	Navy Expeditionary Combat Command
MEU	Marine Expeditionary Unit	NEFMC	New England Fishery Management Council
MFAS	Multi-Function Active Sensor	NEP	National Estuary Program
µg/L	Microgram(s) per Liter	NEPA	National Environmental Policy Act
µg/m ³	Micrograms per Cubic Meter	NEPM	Non-explosive Practice Munitions
µPa	MicroPascal(s)	NERR	National Estuarine Research Reserve
mg	Milligram	NEW	Net Explosive Weight
mg/kg	Milligram(s) per Kilogram	NGFS	Naval Gun Fire Support
mg/L	Milligram(s) per Liter	NH ₃	Ammonia
MINEX	Mining Exercise	NHPA	National Historic Preservation Act
MIO	Maritime Intercept Operation	NIOSH	National Institute for Occupational Safety and Health
MISSILEX	Missile Exercise	nm	Nautical Mile(s)
MIW	Mine Warfare	nm ²	Square Nautical Mile(s)
mm	Millimeter(s)	NMFS	National Marine Fisheries Service
MMO	Marine Mammal Observer	NMMA	National Marine Manufacturers Association
MMPA	Marine Mammal Protection Act	NO _x	Nitrogen Oxides
MMS	Minerals Management Service	NOA	Notice of Availability
MOA	Military Operating Area	NOAA	National Oceanic and Atmospheric Agency
MOUT	Military Operations on Urban Terrain	NODE	Navy Operating Area Density Estimate
MPCD	Marine Pollution Control Device	NOI	Notice of Intent
mph	Mile(s) per Hour	NOTAM	Notice-to-Airmen
MRA	Marine Resource Assessment	NOTMAR	Notice-to-Mariners
MS	Maritime Security Surge	NPDES	National Pollutant Discharge Elimination System
MSAT	Marine Species Awareness Training	NPS	National Park Service
MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act	NRC	National Research Council
MSL	Mean Sea Level	NRHP	National Register of Historic Places
MSR	Mobile Sea Range	NS	Naval Station
MTE	Major Training Exercise	NSFS	Naval Surface Fire Support
MU	Management Unit	NSW	Naval Special Warfare
N ₂	Nitrogen		OR Nutrient Sensitive Waters
NAAQS	National Ambient Air Quality Standards	NSWC	Naval Surface Warfare Center
NAB	Naval Amphibious Base	NTTL	Navy Tactical Task List
NALF	Naval Auxiliary Landing Field	NWS	Naval Weapons Station
NAMS	National Air Monitoring Site	O ₃	Ozone
NARWC	North Atlantic Right Whale Consortium	OASIS	Organic and Surface Influence Sweep
NAS	Naval Air Station	OB/OD	Open Burn/Open Detonation
NASA	National Aeronautics and Space Administration	OCE	Officer Conducting the Exercise
NASOCEANAINST	NAS Oceana Instruction	OCM	Oil Content Monitor
NAVFAC	Naval Facilities Engineering Command	OEA	Overseas Environmental Assessment
		OEIS	Overseas Environmental Impact Statement

OLF	Outlying Landing Field	RMS	Remote Mine-hunting System
OMCM	Organic Mine Countermeasures	ROD	Record of Decision
OOD	Officer of the Deck	RONA	Record of Non-Applicability
OPA	Oil and Pollution Act	RSG	Range Sustainability Group
OPAREA	Operating Area	S-A	Surface-to-Air
OPFOR	Opposition Force	SAB	South Atlantic Bight
OPNAVINST	Chief of Naval Operations Instruction	SAFMC	South Atlantic Fishery Management Council
ORW	Outstanding Resource Waters	SAR	Search and Rescue OR Stock Assessment Report
OTC	Officer in Tactical Command	SARA	Superfund Amendments and Reauthorization Act
P2	Pollution Prevention	SAV	Submerged Aquatic Vegetation
Pa	Pascal(s)	SCP	Spill Contingency Plan
PACFIRE	Pre-Action Calibration Firing	SDWA	Safe Drinking Water Act
PAH	Polycyclic Aromatic Hydrocarbon	SDZ	Surface Danger Zone
Pb	Lead	SEAC	Submarine Exercise Area Coordinator
PbCl ₂	Lead Chloride	SEAD	Suppression of Enemy Air Defenses
PbCO ₃	Lead Carbonate	SEAL	Sea, Air, Land
PBI	Primary Blast Injury	SEL	Sound Exposure Level
PbOH ₂	Lead Hydroxide	SEPTAR	Seaborne Powered Target
PCB	Polychlorinated Biphenyl	SESEF	Shipboard Electronic Systems Evaluation Facility
PEL	Permissible Exposure Limit	SFH	Strong Flex Hose
PERSTEMPO	Personnel Tempo of Operations	SHPO	State Historic Preservation Office
PL	Public Law	SiO ₂	Silicon Dioxide
pm	Particulate Matter	SIP	State Implementation Plan
PM _{2.5}	Particulate Matter, Diameter of 2.5 Microns or Less	SINKEX	Sinking Exercise
PM ₁₀	Particulate Matter, Diameter of 10 Microns or Less	SLA	Submerged Lands Act
PMAR	Primary Mission Area	SLAMS	State and Local Air Monitoring Site
pna	Primary Nursery Area	SMCA	Sunken Military Craft Act
POC	Point of Contact	SME	Subject Matter Expert
POL	Petroleum, Oils, and Lubricants	SO ₂	Sulfur Dioxide
ppb	Part(s) per Billion	SOP	Standard Operating Procedure
ppm	Part(s) per Million	S-S	Surface-to-Surface
ppt	Part(s) per Thousand	SSG	Surface Strike Group
PRMARs	Navy Primary Mission Areas	SSN	Nuclear Submarine
psf	Pound(s) per Square Foot	SST	Sea Surface Temperature
psi	Pound(s) per Square Inch	STW	Strike Warfare
psu	Practical Salinity Units	SUA	Special Use Airspace
PVC	Polyvinyl Chloride	SUBOA	Submarine Operating Area
PWC	Personal Watercraft	SUBOPAETH	Submarine Operating Authority
R&D	Research and Development	SUW	Surface Warfare
RAMICS	Rapid Airborne Mine Clearance System	SW	Swamp Waters
RCD	Required Capabilities Document	SWAP	Severe Weather Avoidance Plan
RCMP	Range Complex Management Plan	T&E	Testing and Evaluation
RCRA	Resource Conservation and Recovery Act	T&R	Training and Readiness
RDT&E	Research, Development, Test, and Evaluation	TACAN	Tactical Air Navigation
R	Restricted	TACTS	Tactical Air Combat Training System
RDX	Rapid-Detonating Explosive or Cyclonite	TALD	Tactical Air-Launched Decoy
REC	Regional Environmental Coordinator	TAMU	Texas A&M University
REXTORP	Recoverable Exercise Torpedo	TAP	Tactical Training Theater Assessment and Planning
RF	Radio Frequency	TBD	To Be Determined
RFF	Request for Forces	TCTS	Tactical Combat Training System
RHIB	Rigid Hull Inflatable Boat	TDS	Total Dissolved Solids
rms	Root Mean Squared	Tetryl	trinitrophenylnitramine

TL	Transmission Loss	UNDS	Uniform National Discharge Standards
TMDL	Total Maximum Daily Load	U.S.	United States
TNB	Trinitrobenzene	USAF	United States Air Force
TNT	Trinitrotoluene	USACOE	United States Army Corps of Engineers
tpy	Ton(s) per Year	U.S.C.	<i>United States Code</i>
TR	Trout Waters	USCG	United States Coast Guard
TRACKEX	Tracking Exercise	USCOP	U.S. Commission on Ocean Policy
TSP	Total Suspended Particulates	USE	Uncommon Stranding Event
TSPI	Time, Space, and Position Information	USEPA	U.S. Environmental Protection Agency
TTS	Temporary Threshold Shift	USFWS	U.S. Fish and Wildlife Service
TWA	Time-weighted Average	VACAPES	Virginia Capes
UAV	Unmanned Aerial Vehicle	VDH	Virginia Department of Health
UCAV	Unmanned Combat Air Vehicle	VEM	Versatile Exercise Mine
UJTL	Universal Joint Task List	WRSEPA	Water Range Sustainability Environmental Program Assessment
ULT	Unit-Level Training		
UNDET	Underwater Detonation		