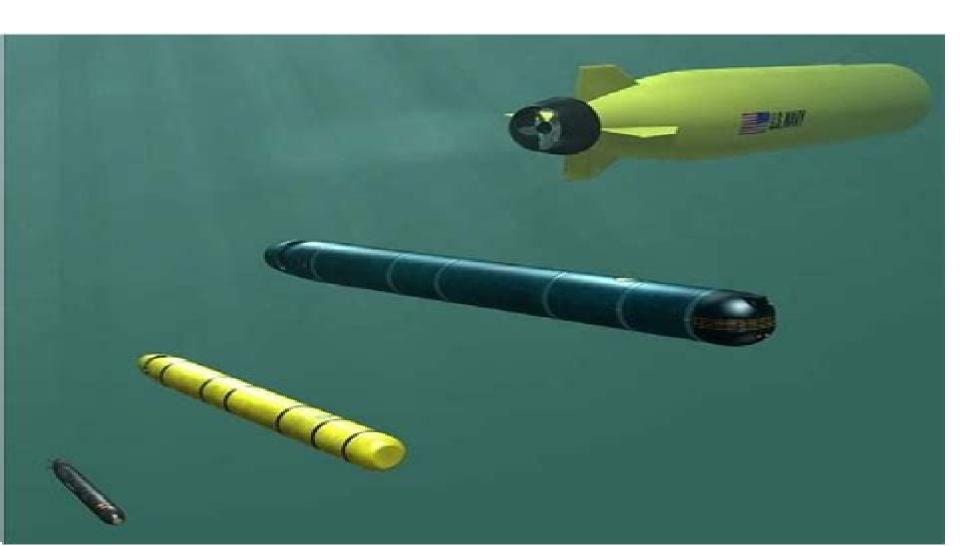
The Navy Unmanned Undersea Vehicle (UUV) Master Plan



The Navy Unmanned Undersea Vehicle Uuv Master Plan

Neville Stanton

The Navy Unmanned Undersea Vehicle Uuv Master Plan:

The Navy Unmanned Undersea Vehicle (UUV) Master Plan, 2004 The Unmanned Undersea Vehicle UUV Master Plan Update chartered in December 2003 by the Deputy Assistant Secretary of the Navy and OPNAV N77 Submarine Warfare Division expands on the missions and technologies recommended in the Navy UUV Master Plan of April 2000 Using Sea Power 21 for guidance nine Sub Pillar capabilities were identified and prioritized 1 Intelligence Surveillance and Reconnaissance 2 Mine Countermeasures 3 Anti Submarine Warfare 4 Inspection Identification 5 Oceanography 6 Communication Navigation Network Node 7 Payload Delivery 8 Information Operations 9 Time Critical Strike To realize these capabilities a number of programmatic recommendations were made 1 Develop four UUV classes Man Portable The Navy Unmanned Undersea Vehicle (Uuv) Master Plan U.S. Navy, 2014-12-09 Today our naval forces enjoy maritime superiority around the world and find themselves at a strategic inflection point during which future capabilities must be pondered with creativity and innovation Change must be embraced and made an ally in order to take advantage of emerging technologies concepts and doctrine thereby preserving the nation's global leadership Sea Power 21 has additionally specified unmanned vehicles as force multipliers and risk reduction agents for the Navy of the future Transformation applies to what we buy as well as how we buy and operate it all while competing with other shifting national investment priorities The long term UUV vision is to have the capability to 1 deploy or retrieve devices 2 gather transmit or act on all types of information and 3 engage bottom volume surface air or land targets See Figure 1 1 The growing use of unmanned systems air surface ground and underwater is continually demonstrating new possibilities. One can conceive of scenarios where UUVs sense track identify target and destroy an enemy all autonomously and tie in with the full net centric battlespace UUV systems will provide a key undersea component for FORCEnet contributing to an integrated picture of the battlespace Admittedly this vision is futuristic Even though today s planners operators and technologists cannot accurately forecast the key applications for UUVs in the year 2050 this plan provides a roadmap to move toward that vision Pursuit of this plan s updated recommendations beginning in the year 2004 will place increasingly large numbers of UUVs in the hands of warfighters Thus UUVs can begin addressing near term needs while improving understanding of mid to far term possibilities Even the most futuristic applications can evolve in a confident cost effective manner This confidence is based on several factors the Sea Power 21 Sub Pillar capabilities identified here address a broad range of user needs critical technologies are identified that will enable tomorrow s more complex applications and key principles and best practices are recommended that provide for a logical flexible and affordable development effort
The Navy Unmanned Undersea Vehicle United States Navy, 2013-07-10 The Unmanned Undersea Vehicle UUV Master Plan Update chartered in December 2003 by the Deputy Assistant Secretary of the Navy and OPNAV N77 Submarine Warfare Division expands on the missions and technologies recommended in the Navy UUV Master Plan of April 2000 Using Sea Power 21 for guidance nine Sub Pillar capabilities were

identified and prioritized 1 Intelligence Surveillance and Reconnaissance 2 Mine Countermeasures 3 Anti Submarine Warfare 4 Inspection Identification 5 Oceanography 6 Communication Navigation Network Node 7 Payload Delivery 8 Information Operations 9 Time Critical Strike To realize these capabilities a number of programmatic recommendations were made 1 **UUV Master Plan: A Vision for Navy UUV Development** ,2000 At the request Develop four UUV classes Man Portable of the Assistance Secretary of the Navy for Research Development and Acquisition ASN RDA The Navy Unmanned Undersea Vehicle UUV Master Plan was prepared outlining recommended development pathways for UUV systems and technologies for the next decade and beyond An overall vision of UUVs as integral parts of the battle force is portrayed with four signature capabilities seen as critical to both near term and long term goals The technologies required to accomplish these missions were surveyed and a programmatic roadmap was prepared to develop those capabilities determined to be on the critical paths for implementation Autonomous Vehicles in Support of Naval Operations National Research Council, Division on Engineering and Physical Sciences, Naval Studies Board, Committee on Autonomous Vehicles in Support of Naval Operations, 2005-08-05 Autonomous vehicles AVs have been used in military operations for more than 60 years with torpedoes cruise missiles satellites and target drones being early examples 1 They have also been widely used in the civilian sector for example in the disposal of explosives for work and measurement in radioactive environments by various offshore industries for both creating and maintaining undersea facilities for atmospheric and undersea research and by industry in automated and robotic manufacturing Recent military experiences with AVs have consistently demonstrated their value in a wide range of missions and anticipated developments of AVs hold promise for increasingly significant roles in future naval operations Advances in AV capabilities are enabled and limited by progress in the technologies of computing and robotics navigation communications and networking power sources and propulsion and materials Autonomous Vehicles in Support of Naval Operations is a forward looking discussion of the naval operational environment and vision for the Navy and Marine Corps and of naval mission needs and potential applications and limitations of AVs This report considers the potential of AVs for naval operations operational needs and technology issues and opportunities for improved operations A Survey of Missions for Unmanned Undersea Vehicles Robert Button, 2009 Which military missions for unmanned undersea vehicles UUVs appear most promising to pursue in terms of military need operational and technical risks alternatives and cost To answer this question the authors assess risks associated with using UUVs for advocated missions identify non UUV alternatives that may be more appropriate for such missions and analyze potential costs associated with UUV development and use They conclude that seven missions mine countermeasures deployment of leave behind surveillance sensors or sensor arrays near land and harbor monitoring oceanography monitoring undersea infrastructure anti submarine warfare tracking and inspection identification appear most promising Among other recommendations the authors suggest that the U S Navy consolidate its unmanned system master plans and establish relevant priorities in coordination with the Office of the

Secretary of Defense Increased emphasis on the use of surface platforms rather than submarines as host platforms is recommended P 4 of cover Uncrewed Vessels and International Law Haiwen Zhang, Yao Huang, Lijuan Xing, 2024-07-01 This policy oriented jurisprudence presents the latest research findings on legal challenges faced by the international regulatory framework as posed by the increasing deployment of uncrewed vessels at sea It is the first publication that offers discussions and opinions reflecting a combined international and comparative especially eastern perspective The contributors from multiple jurisdictions elaborate on legal implications of the use of uncrewed vessels for military commercial scientific research and law enforcement purposes from such diverse angles as the law of the sea international humanitarian law the law of war global shipping regulation marine environment protection cybersecurity and artificial intelligence and law Unmanned Undersea Vehicles and Guided Missile Submarines Edward A. Johnson, 2002 During the Cold War the United States developed the Trident class ballistic missile submarine SSBN to replace the aging fleet of forty one Poseidon ballistic missile submarines Each of the eighteen Trident class submarines built to carry the mantle of strategic nuclear deterrence was extremely large and quiet with tubes for twenty four ballistic missiles Following the breakup of the Soviet Union and the end of the Cold War the United States conducted a review of its nuclear posture which determined that only fourteen of these submarines were necessary to meet the needs of U S national security Since these submarines are due for nuclear core refueling and overhaul and thus are no longer required to support U S nuclear policy these submarines will be deactivated or refueled and converted to other purposes These submarines are only halfway through their design life of forty two years and once refueled could be used for other missions Furthermore their large size makes these ships a prime candidate for conversion to a large variety of missions that require space stealth and endurance This excess capability has convinced the U S Navy that it should develop a concept for converting the first four Trident class ballistic missile submarines into guided missile submarines SSGN This program would equip these submarines both for cruise missile operations and as special operations force insertion platforms Each submarine could carry more than 100 Tomahawk cruise missiles and up to sixty six special operations personnel with dual Dry Deck Shelter or two Advanced SEAL Delivery System mini submarines for SEAL deployment **Maritime Autonomous Vehicles and International Law** Natalie Klein, Douglas Guilfoyle, Md Saiful Karim, Rob McLaughlin, 2024-12-31 Maritime autonomous vehicles MAVs have the potential to radically alter all uses of maritime space with technology progressing faster than the law This book explores the current international legal framework and the options available to regulate maritime security in the face of emerging technologies MAVs are starting to play a role not only in policing and military security but also for the perpetration of maritime crimes Through discussing the existing international legal framework for combating maritime security threats the book will consider the use of MAVs by states for various security purposes and the potential dangers of MAVs in the hands of non state actors As the intersection of maritime technology with international maritime security law is crucial to a safe future for all this timely book makes essential suggestions to adapt existing legal frameworks to match emerging technologies Addressing critical questions such as who exercises jurisdiction when ships are remotely controlled how jamming technology may be lawfully deployed and what force may be permissible during maritime law enforcement this book identifies a diversity of current legal gaps and problems and makes suggestions as to how to rectify them This book will be of interest to students and scholars in the field of the law of the sea maritime security and emerging technologies

Naval Law Review ,2006

Autonomous Vessels in Maritime Affairs Tafsir Matin Johansson, Jonatan Echebarria Fernández, Dimitrios Dalaklis, Aspasia Pastra, Jon A. Skinner, 2023-03-04 This book examines law and governance implications in relation to maritime autonomous surface ships MASS Adopting a multi disciplinary approach it focuses on a wide array of timely topical and thorny issues including naval warfare and security seaworthiness and techno regulatory assessments global environmental change autonomous passenger transportation as well as liability and insurance It also considers selected national and regional developments. The book provides an insight into the role of innovation diplomacy as the driving force that could expedite the transition from automation to autonomy After navigating through the complex law and governance landscape it concludes by assessing critical findings for further consideration. The book will appeal to scholars and students of maritime technology law and governance Chapter 11 and Chapter 18 are available open access under a Creative Commons Attribution 4 0 International License via link springer com Disruptive Technology and the Law of Naval Warfare James Kraska, Raul A. Pedrozo, 2022 Introduction Merchant ships Unmanned maritime systems Lethal autonomous weapons Submarine warfare Seabed warfare Missile warfare and nuclear weapons Naval operations in outer space Advances in Human Aspects of <u>Transportation</u> Neville Stanton, 2018-06-27 This book discusses the latest advances in research and development design operation and analysis of transportation systems and their complementary infrastructures It reports on both theories and case studies on road and rail aviation and maritime transportation Further it covers a wealth of topics from accident analysis vehicle intelligent control and human error and safety issues to next generation transportation systems model based design methods simulation and training techniques and many more A special emphasis is placed on smart technologies and automation in transport and on the user centered ergonomic and sustainable design of transport systems. The book which is based on the AHFE 2018 International Conference on Human Factors in Transportation held in Orlando Florida USA on July 21 25 2018 mainly addresses the needs of transportation system designers industrial designers human computer interaction researchers civil and control engineers as well as vehicle system engineers Moreover it represents a timely source of information for transportation policy makers and social scientists whose work involves traffic safety management and sustainability issues in transport 2007 Program Guide to the U.S. Navy, Sea Power for a New Era United States. Navy Department, 2007 Emerging Technology and the Law of the Sea James Kraska, Young-Kil Park, 2022-07-21 Autonomous vessels and robotics artificial Intelligence and cybersecurity are transforming international shipping and naval

operations Likewise blockchain offers new efficiencies for compliance with international shipping records while renewable energy from currents and waves and offshore nuclear power stations open opportunities for new sources of power within and from the sea These and other emerging technologies pose a challenge for the governance framework of the law of the sea which is adapting to accommodate the accelerating rates of global change This volume examines how the latest technological advances and marine sciences are reshaping the interpretation and application of the law of the sea The authors explore the legality of new concepts for military operations on the continental shelf suggest remote sensing methodologies for delimitation of maritime boundaries and offer a legal roadmap for ensuring maritime cyber security Department of <u>Defense Appropriations for 2005</u> United States. Congress. House. Committee on Appropriations. Subcommittee on Department of Defense, 2004 **Sea Power for a New Era** United States. Navy Department, 2007 The Regulation of Automated and Autonomous Transport Kyriaki Noussia, Matthew Channon, 2023-08-12 This book discusses various legal aspects of automated and autonomous transport The regulation of automated and autonomous transport encompasses legislation on automated cars ships vessels and drones Questions surrounding this novel area of the law which has attracted major worldwide interest and publicity are likely to dominate our societies and everyday life in the years ahead One major challenge addressed in this book is remedying the regulatory fragmentation that can be observed around the globe concerning legislation on automated and autonomous transportation systems Written and edited by respected experts in the field including academics and practitioners alike this book seeks to fill an important gap in the literature Given its focus and scope the book will be of considerable interest to practitioners academics and policymakers judges students and secondary audiences including engineers sociologists naval architects all those involved in the automated industry and people working Blue Legalities Irus Braverman, Elizabeth R. Johnson, 2020-01-17 The ocean and its inhabitants sketch and stretch in AI our understandings of law in unexpected ways Inspired by the blue turn in the social sciences and humanities Blue Legalities explores how regulatory frameworks and governmental infrastructures are made reworked and contested in the oceans Its interdisciplinary contributors analyze topics that range from militarization and Maori cosmologies to island building in the South China Sea and underwater robotics Throughout Blue Legalities illuminates the vast and unusual challenges associated with regulating the turbulent materialities and lives of the sea Offering much more than an analysis of legal frameworks the chapters in this volume show how the more than human ocean is central to the construction of terrestrial institutions and modes of governance By thinking with the more than human ocean Blue Legalities questions what we think we know and what we don't know about oceans our earthly planet and ourselves Contributors Stacy Alaimo Amy Braun Irus Braverman Holly Jean Buck Jennifer L Gaynor Stefan Helmreich Elizabeth R Johnson Stephanie Jones Zsofia Korosy Berit Kristoffersen Jessica Lehman Astrida Neimanis Susan Reid Alison Rieser Katherine G Sammler Astrid Schrader Kristen L Shake Phil Steinberg Autonomous and Intelligent Systems Mohamed Kamel, Fakhri Karray, Wail Gueaieb, Alaa Khamis, 2011-06-16 This book constitutes the refereed proceedings of the Second International Conference on Autonomous and Intelligent Systems AIS 2011 held in Burnaby BC Canada in June 2011 colocated with the International Conference on Image Analysis and Recognition IACIAR 2011 The 40 revised full papers presented were carefully reviewed and selected from 62 submissions The papers are organized in topical sections on autonomous and intelligent systems intelligent and advanced control systems intelligent sensing and data analysis human machine interaction and intelligent circuit analysis and signal processing

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web 7 at the end of meiosis i two cells have been produced how many replicated chromosomes are in each of these cells 8 cells with a full set of chromosomes are referred to as diploid or 2n whereas cells with half the chromosomes are haploid or n at which stage s of meiosis 1 are the cells diploid and at which stage s are they haploid 9

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