

**45th Annual
Conference on Oceans Law & Policy
UNCLOS at 40
Zoom Webinar**

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U.S. NAVAL WAR COLLEGE
Stockton Center
for International Law



Unmanned Ships and Maritime Security: Challenges and Opportunities for the Law of the Sea

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Recent Developments



25 May 2021

**Autonomous ships:
regulatory scoping
exercise
completed**

MAS technology moving fast but regulatory and assurance concerns remain.

01 Feb 2022

INDUSTRY 4.0

MARINE & SHIPPING

MASWRG conference told that UK could take a lead role in development of regulatory frameworks for autonomous vessel operations.



Source: YARA/CFC



Source: Naval Ne

From his command post in the Paris region, the Commander of the VN Rebel Ludovic Gin pilots his ship based in Toulon harbour.

- RSEs: Counterpart work by MSC, LEG and FAL
 - Equivalences/interpretations
 - Amendment
 - New instrument
 - None of the above
- Four Degrees of Autonomy
 1. Ship with **automated processes** and decision support
 2. Remotely controlled ship **with seafarers** on board
 3. Remotely controlled ship **without seafarers** on board
 4. Fully **autonomous** ship
- MSC.1/Circ.1604 (2019): Interim Guidelines for MASS Trials; MSC.1/Circ. 1638 (2021): Outcome of the RSE for the Use of MASS
- Next Steps: joint work among MSC-LEG-FAL; proposals for goal-based and holistic MASS Code

Recent Developments

INTERNATIONAL

China Returns U.S. Navy Drone Seized In South China Sea

December 20, 2016 - 2:16 AM ET

MARK KATKOV



The unmanned underwater vehicle, or UUV, was deployed by the oceanographic survey ship USNS Bowditch (seen here in a U.S. Navy file photo). It was seized by a Chinese warship last week and returned to a U.S. warship Tuesday. U.S. Navy

China / Military

China's underwater drones seized in Indonesia expose tech, routes and potential submarine plans

- Glider picked up in key maritime strait off Indonesia may have been mapping the sea floor to chart a course for submarines to go undetected: defence analyst
- Chinese UUV technology is closing in on American underwater drone advancements

Kristin Huang



In Jakarta, Indonesia, on Monday, Indonesian Navy chief Yudo Margono explained how a "sea glider" was found by fishermen near Setepur Island, South Sulawesi. Photo: Antara Foto/Reuters



NEWS

Underwater Drone Would Have Secretly Delivered Cocaine to Europe

COCAINE / 13 APR 2021 BY KATYA BLESZYNSKA

EN

IDF says it thwarted underwater drone attack by Hamas from northern Gaza

Military destroys autonomous submarine before it leaves the coast and strikes car used by Hamas operatives who launched it; no details on target of attempted attack

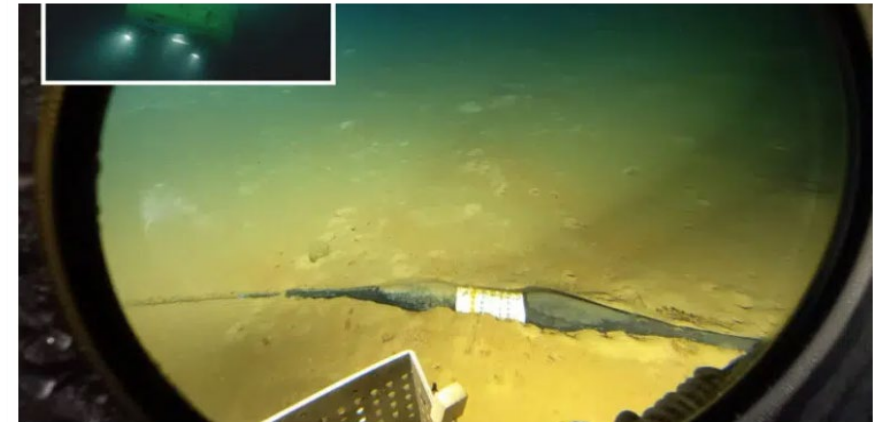
By JUDAH ARI GROSS

18 May 2021, 5:01 am



An aerial view of the Israeli 'Tamar' gas processing rig 24 kilometers off the Israeli southern coast of Ashkelon. Noble Energy and Delek are the main partners in the oil field, October 11, 2013. (Moshe Shal/FLASH90)

The Hamas terror group attempted to attack Israeli naval assets with an autonomous submarine from northern Gaza on Monday, the Israeli military said, adding that it destroyed the device shortly after launch and struck the team that operated it.



An underwater cable viewed from the Nautile deep submergence vehicle at 2,152m depth. The inhabited submersible is operated by Ifremer. Marine Nationale picture.

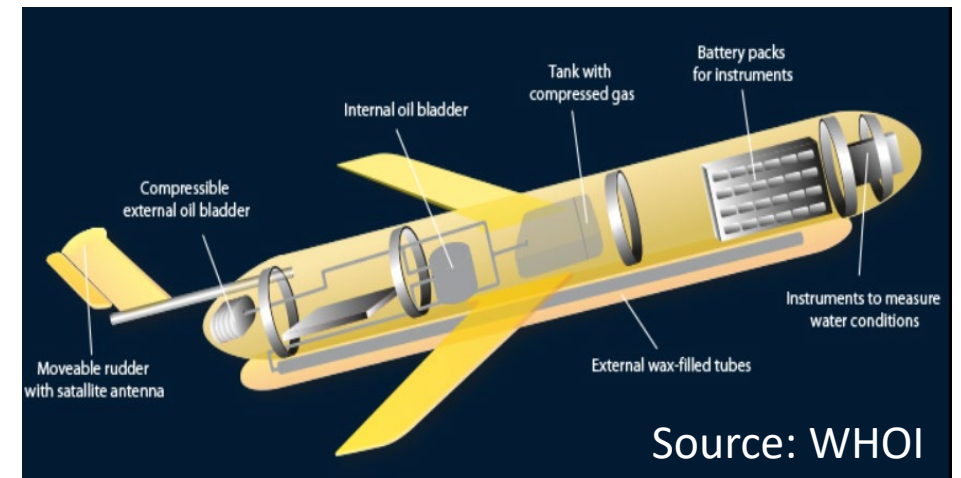
France Unveils New Seabed Warfare Strategy

A new "Seabed Warfare Strategy" was unveiled by French Minister of Armed Forces, Florence Parly and Joint Chief of Staff, General Thierry Burkhard on 14 February. The strategy aims at broadening the capabilities of anticipation and action of the French Navy (Marine Nationale) up to 6,000 m depth.

Xavier Vavasour 16 Feb 2022

Is it a “ship” or “vessel”?

- “Vessel” or “ship” under the Law of the Sea? “Device” or “complement”?
 - Size, Propulsion, Transportation, etc.?
 - Master, Crew, Command?
 - Ability to comply with rules?
 - Commercial use? Government ownership?
- Unmanned Maritime Systems (UMS): UUVs, USV, AUV, ASV, ROV, MASS, ship drones/drone boats
- Interaction between UNCLOS and IMO regime
- Multiple applications
 - Scientific Research, Hydrographic Surveys, Ship/submarine cable repair
 - Fisheries
 - Maritime Law Enforcement, Maritime Crime
 - Force projection, surveillance, naval warfare



Challenges to Maritime Security

- Diversity of interests between Coastal States and Flag States
- Maritime Law Enforcement
 - Coastal State authority to restrict passage
 - Coastal/Port State authority to impose other requirements
 - Communication with the unmanned ship and/or its operational controller
 - MASS/USV/UAV Offender <--> Law Enforcer
 - Intelligence and surveillance functions
 - Permissible use of force
 - Accountability, attribution
 - Conduct of hot pursuit
 - Offenses in EEZ and high seas areas
- Intelligent systems and cybersecurity



Warships and other Government Vessels

- Sovereign Immunity
 - Warships, vessels on non-commercial government service, auxiliaries
 - “Ship”, Command, Crew under Armed Forces discipline, external marks of nationality
 - Platform-based determination or independent status?
 - Treatment of unidentified/unmarked UMS/UUV
- Passage/Navigational Rights
 - Innocent Passage (Question of prejudice to security interests; capability to surface in the TS)
 - Transit and ASL Passage (Extent of navigation in normal mode; CS authority to regulate passage)
 - Freedom of Navigation (Military activities in EEZ; Content of due regard?)
- Implications on Use of Force
 - Analogous to UAVs? Weaponization?
 - Maritime Law Enforcement vs. Military Activities
 - Gray Zone warfare, Cyber
 - UN Charter Prohibition on Use of Force, Triggers for “armed attack”

US tests drone boats in Arabian Gulf that can sail for 12 months

► Saildrones were initially developed for scientific research



The US Navy's Saildrone Explorer unmanned surface vessel in the waters of the Arabian Gulf on January 27, 2022. All photos: US Army and Navy

Robert Tollast
Jan 31, 2022



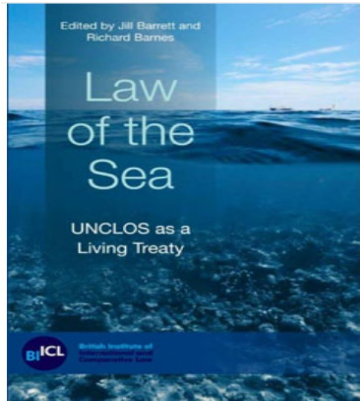
Click to enlarge. Initial analysis of the image suggests that it may be a trimaran, with hints of outriggers just visible.

China's New Naval Mystery: Mini Zumwalt Stealth Vessel

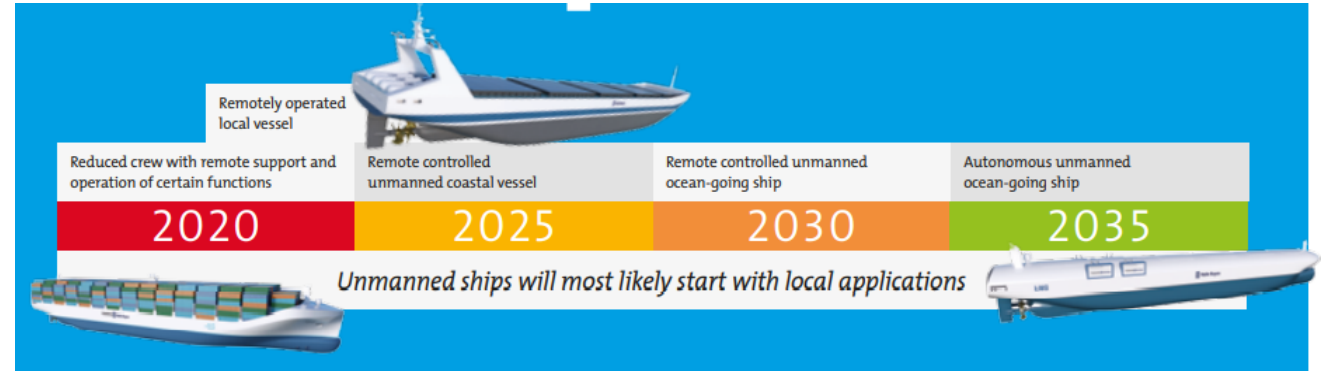
What appears at first sight to be a U.S. Navy Zumwalt Class destroyer, is actually something quite different. A new and mysterious boat has been observed in China.

H I Sutton 16 Feb 2022

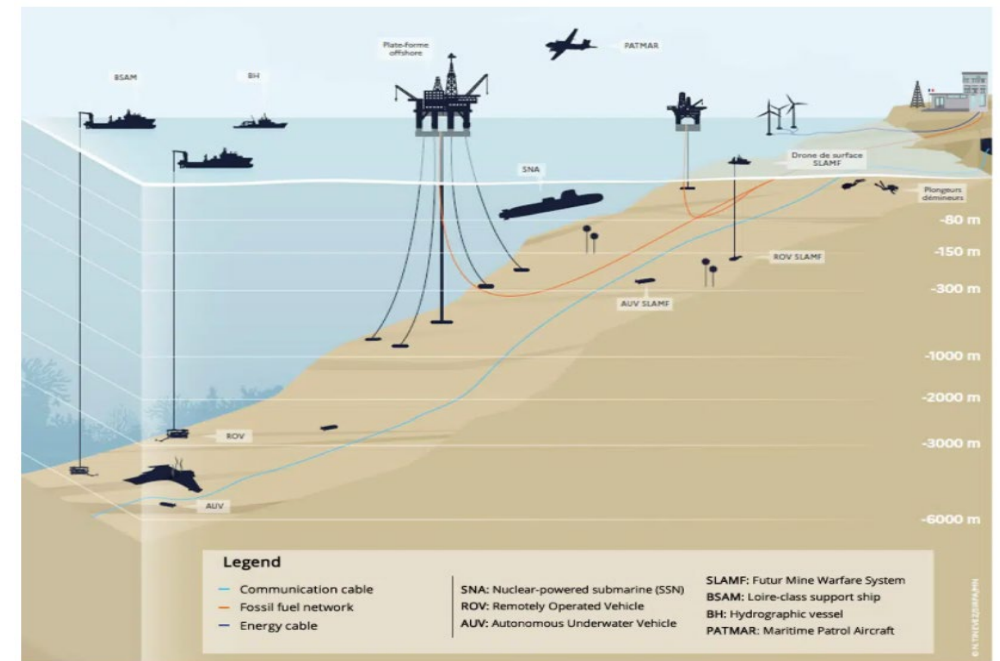
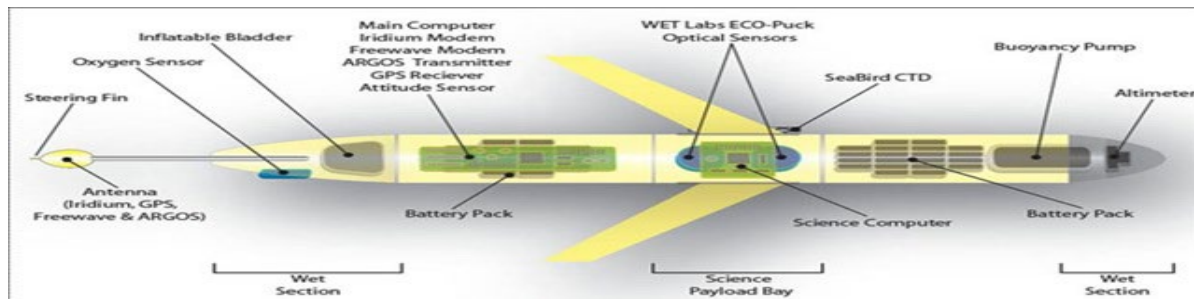
Outlook and Opportunities



PHOTOGRAPH BY MANU SAN FELIX



A team of ocean scientists from 14 nations has won the \$7M Shell Ocean Discovery XPRIZE. The group, known as GEBCO-Nippon Foundation Alumni, created the SeaKIT (above), a low-cost uncrewed surface vessel that works with a cloud-based data processing system to r... [Read More](#)
PHOTOGRAPH COURTESY, XPRIZE



Marine Nationale illustration (translation by Naval News). Click to enlarge.

A wide-angle photograph of a tropical seascape. The foreground is dominated by clear, turquoise water with gentle ripples. In the middle ground, several small, rocky islands with sparse green vegetation are scattered across the horizon. The sky is a vibrant blue, filled with soft, white, wispy clouds. The overall scene is bright and serene.

Thank you very much!