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Keeping an eye on the high seas

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A new high seas agreement, currently being negotiated under the auspices of the UN, will only be effective if backed up with credible enforcement mechanisms. This is a huge challenge in the vast areas outside of national jurisdiction. Yet while the monitoring, control and surveillance (MCS) toolkit is growing rapidly, it remains unclear how an efficient and effective global MCS system could be developed and implemented.

Abundant opportunities

A little over 70% of the world's surface is covered by water, two-thirds of which is located in areas beyond national jurisdiction (ABNJ). As new rules and regulations are being developed, the international community need tools and methods to better understand what is happening on the water in this seemingly endless area. MCS enables fisheries management and supports the fight against illegal activities, but can also help to keep track of pollution and ecological indicators, as well as support search and rescue operations.

The capacities of the traditional MCS arsenal (such as onboard observers, log books, or surveillance vessels and planes) are limited, especially on the high seas. Over the last decade, however, a range of new tools have been developed using previously unavailable, inaccessible or prohibitively expensive data sources and technologies.

We may soon be spoiled for choice when it comes to technological options, but creating a holistic and effective MCS system will require more than simply picking a technology and using it to keep an eye on the seven seas. No single technology can provide complete and reliable coverage, so integration of different technologies and data sources is indispensable.

Such technologies include:

- Vessel tracking systems, such as Automatic Identification Systems (AIS) or Vessel Monitoring Systems (VMS);
- Onboard closed-circuit television (CCTV) systems;
- Satellite imaging technologies that can provide high-resolution images, even at night or through clouds (e.g. Synthetic-aperture radar (SAR) and the Visible Infrared Imaging Radiometer Suite (VIIRS)); and
- Surveillance and monitoring drones.

Ocean-HighSea-MCS-Vessel-Monitoring-System-highlander.jpg

[Vessel monitoring system \(VMS\)](#)

We may soon be spoiled for choice when it comes to technological options, but creating a holistic and effective MCS system will require more than simply picking a technology and using it to keep an eye on the seven seas. No single technology can provide complete and reliable coverage, so integration of different technologies and data sources is indispensable. At the same time, the sheer quantity of available data may soon overwhelm our capacity to interpret and apply it, making it essential to carefully target observations and develop new analytical capacities.

For example, following the tracks of a vessel cannot conclusively show whether fishing occurred (though a reduction in speed or other movement patterns may suggest that it did); any claim must therefore be bolstered by other information, such as log book entries or video footage from onboard cameras. Meanwhile, the gathering of this data

and processing required to make it useful are time- and resource-intensive tasks that may necessitate cooperation between a range of actors and organisations.

Diverse interests

A range of factors have to be considered when evaluating the suitability of an MCS technology, including: cost, access, reliability, coverage, ease of manipulation, and privacy. Whether or not a technology is considered suitable may also depend on who is making the assessment. This is well-illustrated by a comparison of VMS and AIS, two data sources that have received considerable attention in recent years.

AIS is an automatic vessel tracking system, originally devised to prevent collisions and ensure safety of life at sea. As the range of land-based AIS receivers is around 40 nautical miles, it was not until a receiver was first placed on a low-orbit satellite in 2008 that it became possible to [oversee activities in ABNJ](#). While mandatory for cargo and passenger vessels over a certain size, there are currently no global AIS requirements for fisheries vessels (many vessels nonetheless use it voluntarily). VMS, on the other hand, is specifically [designed for fisheries management](#) and is mandated by several flag and coastal States, and regional fisheries management organisations (RFMOs).

The advantage of AIS data is that it is unencrypted and openly accessible at no cost. This has allowed the likes of [Global Fishing Watch](#) and [Fish-i Africa](#) to use AIS signals to infer and map global fishing activity. However, data may be inaccurate or subject to manipulation, or vessels may simply turn off their AIS transmitter.

'Going dark' is often cited as an example of the hostility of the fishing industry towards any kind of surveillance, though this may be an unfair simplification of a more complex set of circumstances. While there have undoubtedly been cases of fishing vessels attempting to hide illicit activities, they may also do so to protect themselves from pirates or prevent publicizing commercially sensitive information about their fishing grounds.

Where fishers are reluctant to disclose their position for legitimate reasons, they may prefer MCS to be conducted via VMS data or CCTV footage, because the data is not publicly available and is generally shared only under strict confidentiality agreements. Some fisheries operators might even welcome this, as it gives them control over their operations and allows them to prove their sustainable practices to certifiers. Researchers, NGOs, and interested non-fishing States, on the other hand, might be concerned: they have little to no opportunity to access this data or be involved in MCS efforts.

It is therefore imperative to consider the interests of all stakeholders in order to build an MCS system that works, especially given the complexity of these issues and the absence of a competent authority with a comprehensive mandate.

Towards a global monitoring, control and surveillance (MCS) system

We cannot expect the upcoming negotiations to create a global MCS system. This would include taking steps that are beyond the mandate of the intergovernmental conference, such as requiring vessel tracking systems for all boats, creating a complete register of IMO numbers, addressing the flags of convenience issues and increasing data analysis capacities around the globe.

MCS is nonetheless expected to feature at some point in the discussion, especially when considering the following two components of the Package Deal:

- Capacity building and transfer of marine technology, because it is crucial to ensure that all regions have the technology and resources for effective MCS and enforcement;
- Area-based management tools, including marine protected areas, because provisions will only be meaningful if we keep an eye on human activities at sea.

Thus there is a two-way relationship between MCS and the high seas agreement: MCS is not only necessary to implement the future treaty, but the negotiations themselves could be used to lessen the sectoral and regional fragmentation of the high seas governance framework. The negotiations for a new treaty therefore provide a unique opportunity to facilitate the development of a more efficient and harmonised system of monitoring, control and surveillance on the high seas.

This post has been elaborated following a workshop organised by IDDRI in the framework of the STRONG High Seas project.

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