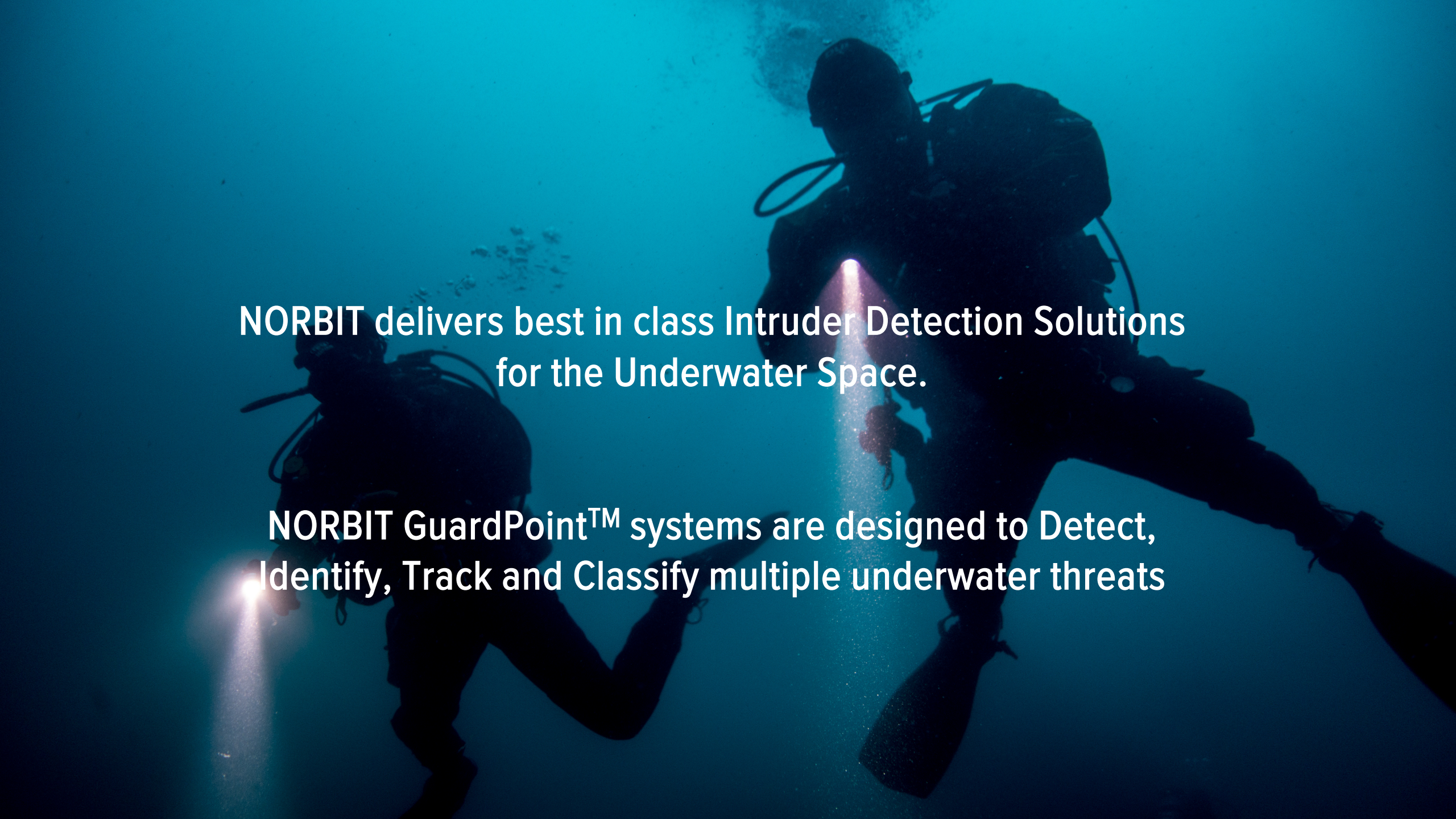
NORBIT Security

The use of GuardPoint™ Intruder Detection Systems (IDS)
for the prevention of Shipborne Parasite Drug Smuggling Activity


NORBIT delivers best in class Intruder Detection Solutions
for the Underwater Space.
NORBIT GuardPoint™ systems are designed to Detect,
Identify, Track and Classify multiple underwater threats

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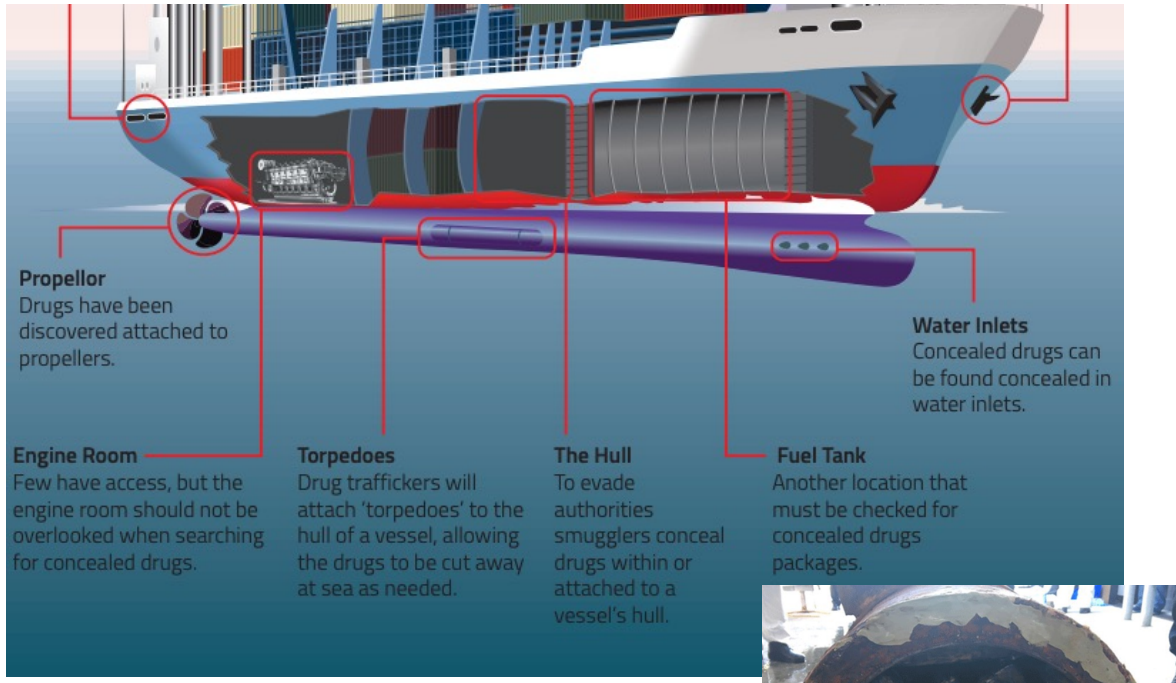
Introduction

- Smugglers of illegal narcotics are known for using transient vessels as ‘free rides’ around the globe.

- In recent years, this activity has increased significantly due to advancements and easier access to:
  - underwater navigation technology
  - personal mobility
  - underwater communications.



Source - Dryad Global- Counter Narcotics Report 2021

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Targets of opportunity

Vessels of opportunity are predominantly bulk carriers and crude tankers transporting natural resources (iron ore, coal, zinc, grain, oil) to known destinations.

These are often loaded in remote facilities and the loading/unloading operations typically require many days allowing plenty time for divers to approach a vessel and work to attach a parasite container underwater.

Larger ships offer many attachment points and, the loading process is generally noisy, giving divers the ability to use tools underwater without being detected.

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Ship inspection

Several methodologies are currently used to inspect vessel hulls:

- Visual search with divers;
- ROV inspections;
- Sonar scanning (e.g. when the ship enters the destination port) with multibeam sonar more successful than sidescan

Inspections carried out by law enforcement or Navy divers, can take up to 20 or more hours. Often these diver searches are not conducted in parallel with the normal loading and unloading operations as divers require that all ship activities be halted. Inspections consume valuable berth time.

Hull inspections often occur in poor visibility, limited light, and around complex structures, increasing costs. ROV's, crawlers, and imaging technology also have limitations, similar to diver searches. Divers are still necessary if something is found, even if it's a false alarm.

In general, this type of hull inspection have a low proven effectiveness

Detecting diver activity around the ship is believed to be the safest, most efficient, and cost-effective method to prevent parasite loads on ship hulls.

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Intruder Detection Sonars

- Intruder Detection Sonars (IDS) can be used as a drug smuggling prevention and detection tool.
- IDS's are acoustic sonar systems, which when coupled with specialized software, are used for:
  - Detection
  - Tracking and classification of enemy divers
  - Submerged diver/swimmer delivery vehicles (DDVs / SDVs) and AUV's.
- IDS's are commonly used to perform underwater surveillance of sensitive installations and critical infrastructure such as
  - Nuclear facilities
  - LNG terminals
  - Offshore energy platforms
  - Superyachts
  - Cruise ships
  - Naval vessels, etc.

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Range of Sonars

NORBIT GuardPoint

GuardPoint™ 70

Long range, low frequency, 360-degree protection, open water portable Intruder Detector Sonar.

Maximum range in ideal conditions:
- Unmanned vehicles: 1km+
- Open Circuit divers: 800m
- Close Circuit divers: 400m

Horizontal Coverage up to 360°

Vertical Coverage 20° scanning

Deployment Depth <30m

Frequency 70kHz

Weight (in air 42kg)

GuardPoint™ 100

Based on NORBIT electronic scanning technology, adapts to different environmental situations including shallow waters (2-3meters)

Maximum range in ideal conditions:
- Unmanned vehicles: 800+ m
- Open Circuit divers: 600m
- Close Circuit divers: 300m

Horizontal Coverage up to 180°

Vertical Coverage 20° scanning

Deployment Depth <100m

Frequency 100kHz

Weight (in air 20kg)

GuardPoint™ 200

Based on NORBIT electronic scanning technology, adapts to different environmental situations including shallow waters (2-3meters)

Maximum range in ideal conditions:
- Unmanned vehicles: 600+ m
- Open Circuit divers: 400m
- Close Circuit divers: 200m

Horizontal Coverage up to 180°

Vertical Coverage 20° scanning

Deployment Depth <100m

Frequency 200kHz

Weight (in air 12kg)

GuardPoint™ 400

Ideal for local protection (nuclear plants and other critical infrastructures, border surveillance, rivers) and ultra shallow waters (as low as 1.5m)

Maximum range in ideal conditions:
- Unmanned vehicles: 200+ m
- Open Circuit divers: 150m
- Close Circuit divers: 80m

Horizontal Coverage up to 190°

Vertical Coverage 20°

Deployment Depth <100m

Frequency 400kHz

Weight (in air 2.9kg)

Deployment Scenarios

Open Water
Windfarms, Naval Ships, Naval Bases, Superyachts

Coastal Targets
Power Stations, Harbors, Palaces

Special Coastal environments
Shallow water harbours

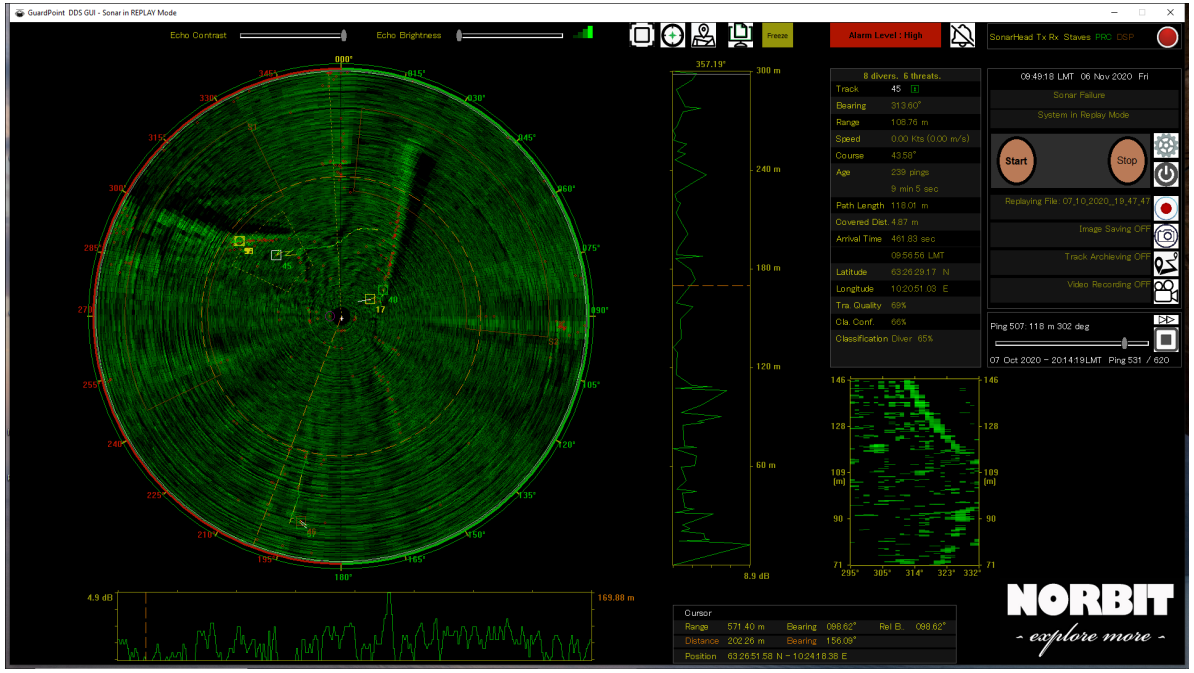
Rivers & Water inlets
Power Stations; Border Crossings

GuardPoint™ Intruder Detection System

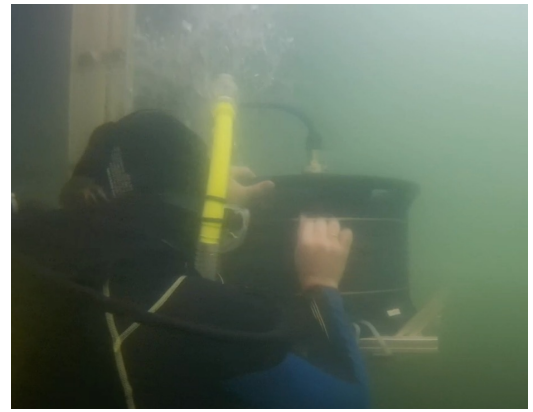
NORBIT GuardPoint™ Intruder Detection Systems are delivered with NORBIT Tracking Software which uses sophisticated computer processing and algorithms.

Operators with little or no prior sonar experience can be trained to navigate on the intuitive and user-friendly interface.

The system can automatically detect and classify threats, providing an operator with actionable threat information (position and time to target) while minimizing false alarms.



GuardPoint™ 70 offers 360 deg coverage

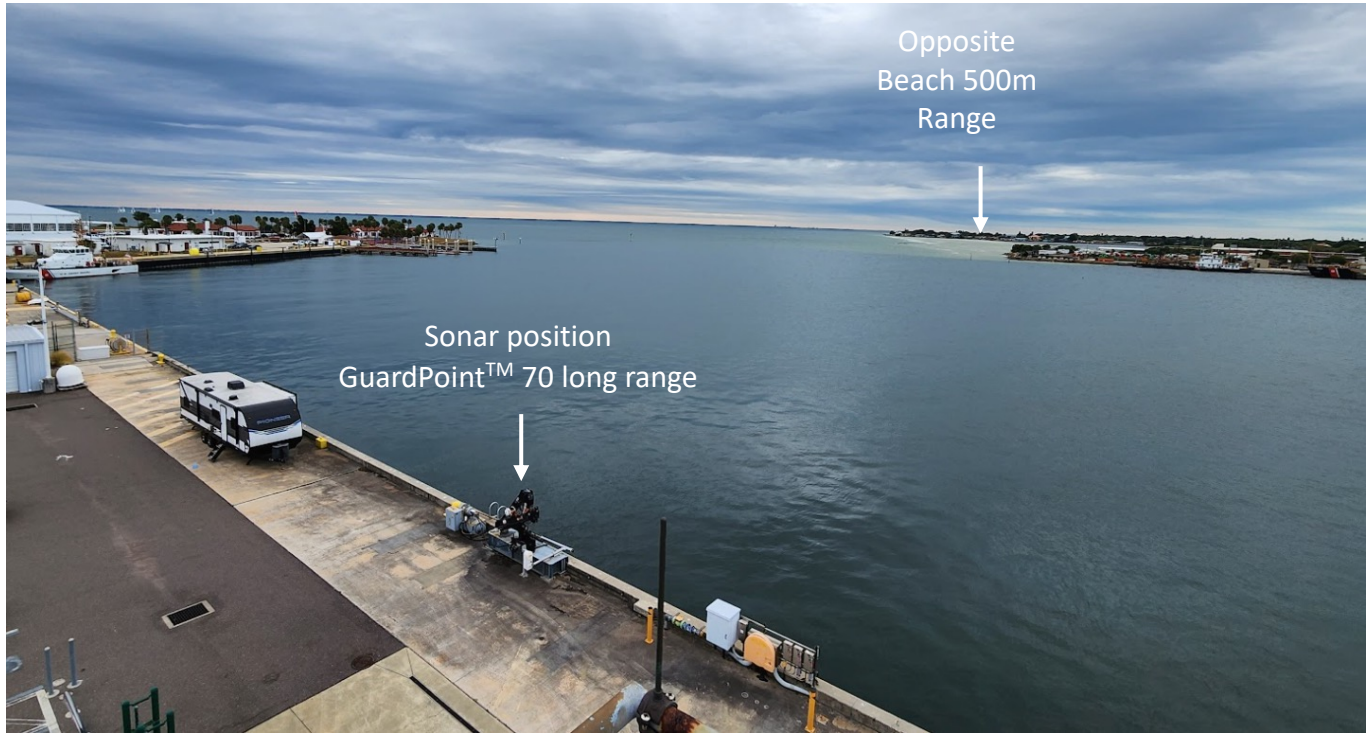


Installation and Maintenance Solutions tailored to any deployment.
On-site training available along with 24/7 worldwide support

Intruder Detection Examples – GuardPoint™ 70

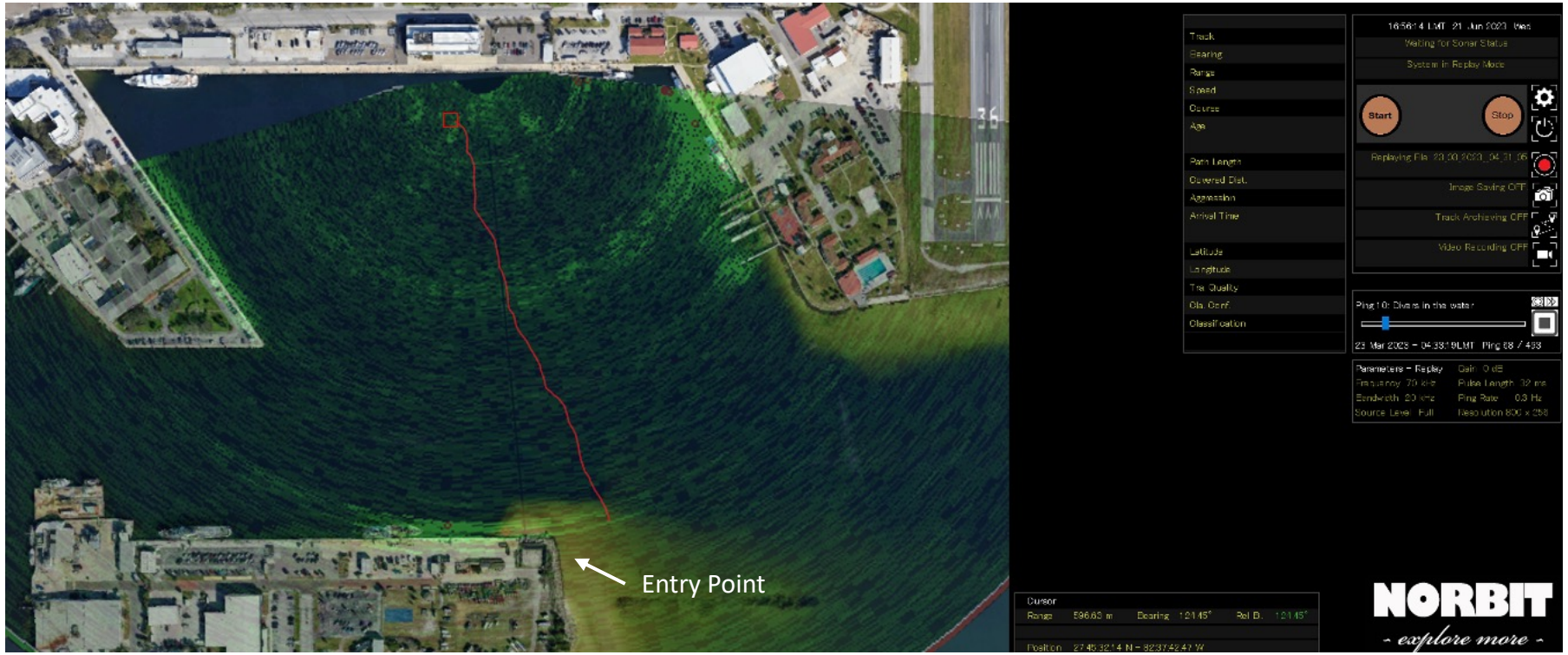
Simulated long range attack, diver swimming towards a ‘target’ bulk carrier.

- Location: Maritime Defense and Technology Hub in St. Petersburg, Florida, USA
- Water depth 7-10m
- Typical challenges incl: hourly changes to temperature, tidal variations, vessel traffic



Intruder Detection Examples – GuardPoint™ 70

The Guardpoint™ Tracking software generated alarms and tracks within two minutes after the diver entered the water, tracking the diver threat uninterrupted up to the 'bulk carrier', a distance of approximately 500m.

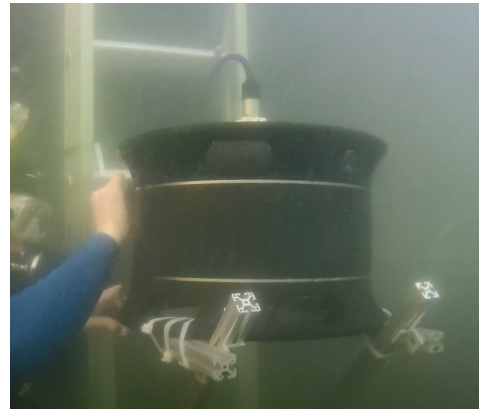


Screen shot from Tracking Software with sonar tracking image overlayed on Google maps

Intruder Detection Examples – GuardPoint™ 70

Second long-distance exercise: A scuba diver is entering in open ocean and swimming to the target vessel, while remaining submerged for about 40min.

Continuous detection and tracking began at about 600m. Very shallow waters transiting a deeper channel, created many reverberations (noise). These conditions along with a water temperature of 23C°, made for an excellent analogue to typical parasite drug attachment locations.

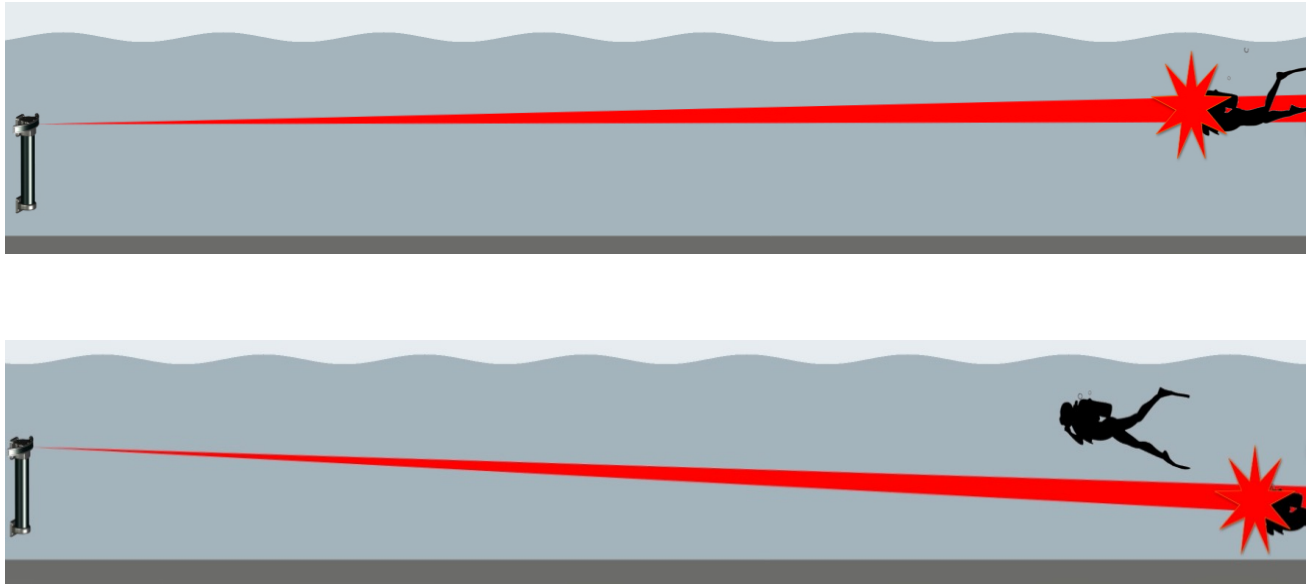


GuardPoint™ 70 Shown attached to test ladder fixture

Intruder Detection Examples – GuardPoint™ 100

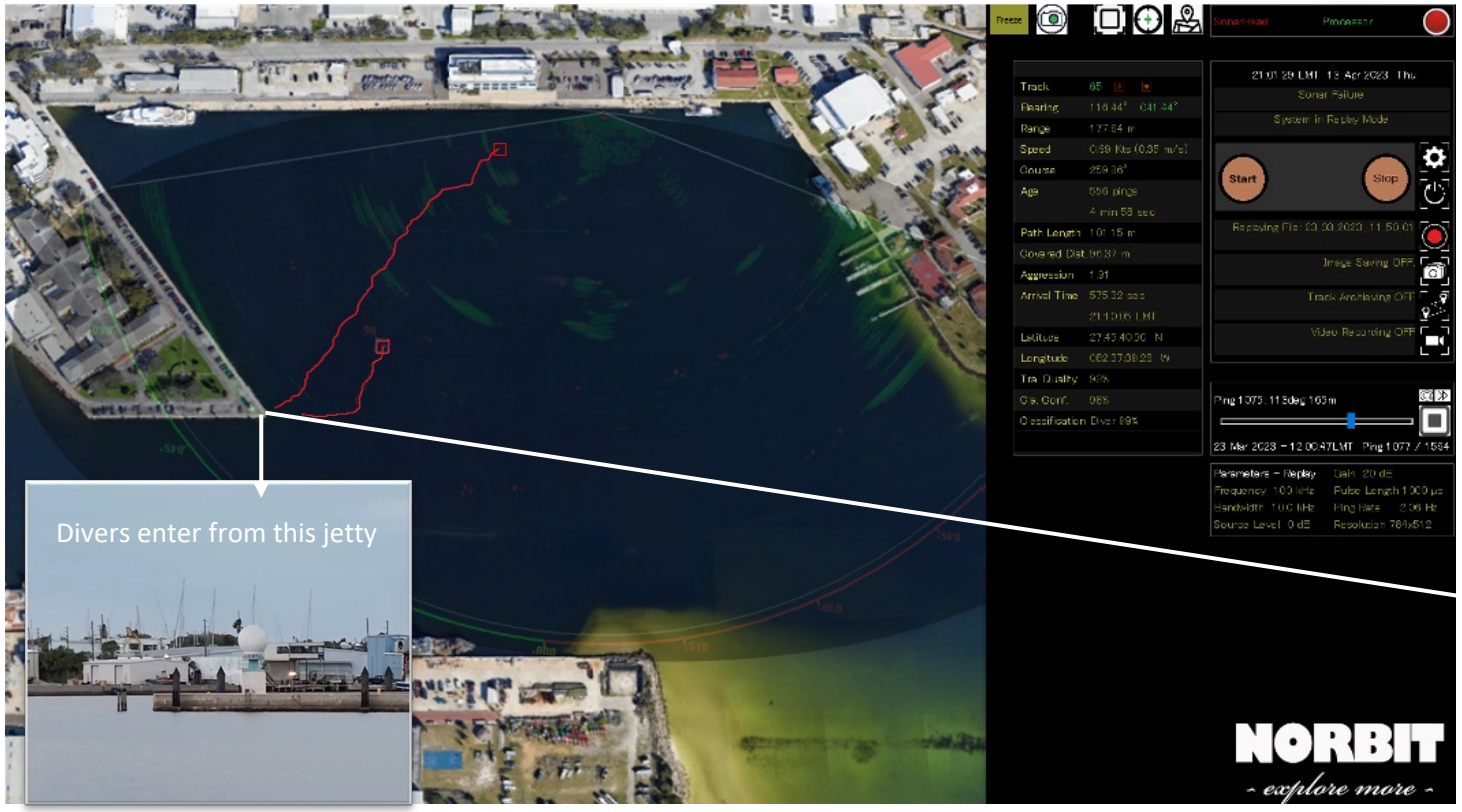
- Third exercise: Detecting divers in shallow area, utilizing GuardPoint™ 100.
- GuardPoint™ 100 features *electronically* steerable narrow transmit beam technology, this feature offers long range detection and tracking in shallow waters

GuardPoint™ 100 Shown attached to test ladder fixture



Intruder Detection Examples – GuardPoint™ 100

Divers approaching from around a masking jetty wall in a very shallow part of the harbour.



Screen shot of diver tracking software tracking both divers

NORBIT Intruder Detection Systems

Contact NORBIT security@norbit.com
for more information about detection of underwater activity around ships, terminals and anchorages.