



**EXPERIENCE THE BEST
IN POWER, RELIABILITY
& VERSATILITY.**

COME SEE THE DEEP

ABOUT SEAMOR Marine

At SEAMOR Marine, we are passionate about what we do. Our expertise lies in researching, developing, building, and selling remarkable remotely operated vehicles (ROVs) designed for diverse underwater applications. As one of Canada's leading ROV designers and manufacturers of light to mid-sized underwater systems, SEAMOR ROVs have made their way to every continent and major body of water. We take great pride in being a global leader, providing powerful, reliable, versatile, and high-quality technology. To learn more about our offerings, please visit our website at <http://seamor.com>

SEAMOR Marine stands at the forefront of the global inspection-class underwater ROV market. Our roots trace back to the first prototype we developed in 1989. Since then, our hyper-modular ROV systems have consistently demonstrated their capabilities in the harshest environments worldwide, effectively serving the commercial, government, and science sectors. Our ROV systems are designed to be expandable, reliable, adaptable, and easy to use and maintain. We are committed to delivering exceptional value by offering durability and portability, along with world-class support that our customers can trust.

ABOUT OUR ROVs

SEAMOR ROVs have been designed with an engineering philosophy of modularity. This allows customers to select from a wide range of accessories and upgrades that can be added on to any of SEAMOR's three flagship vehicles:

- > the **Steelhead** (a compact vehicle able to dive to 300 meters);
- > the **Chinook** (a powerful mid-weight vehicle with HD capability, able dive to 600 metres);
- > the **Mako** (a large, open-bay ROV with heavy payload).

SEAMOR also offers a wide range of in-house designed and built accessories such as auxiliary cameras, lights, handheld control pendant and grippers. A cutting-edge seven-function hydraulic arm is also being developed for complex manipulation/sample retrieval.



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Our dedicated team strives to create cutting-edge underwater ROV technology that greatly improves and enhances human lives through innovative and dependable solutions.

Inja Ma, CEO
SEAMOR Marine

MAKO 2023 ROV



SEAMOR Marine's MAKO ROV is the system that grows with your requirements as your company and instrumentation load expand. This vehicle is designed to have a large payload capacity and allow the easy integration of future instruments as new uses are developed for the ROV.

The MAKO ROV's large payload (18 kg standard, upgradable to 23 kg) allows the user to either install large and heavy instrumentation or to install a suite of smaller instruments. The MAKO has built-in mounting points for DVL/INS, USBL, beacons and scanning sonar systems. Purpose-designed multi-beam sonar mounts are also available as are mounts for CP and UT systems, electric multi-function arms and grippers. The vehicle is designed with regular grid hole patterns and 30 mm tee-rails to allow the simple repositioning of accessories with off-the-shelf components.

The MAKO can be fitted for tethers run through the topside lift point or through the stern for pipeline operations and the standard lifting point can be inverted to attach a commercial bullet-type lifting system. Mass-limited through-hull lifts are possible without a centerline DVL/INS mounted. In addition to its variable payload, the MAKO is equipped with modular flotation, allowing the user to adjust the ballast and trim by removing flotation instead of adding weights. This reduces the operational mass during deployment and the inertia the thrusters need to operate against, improving responsiveness. Four runners are used to reduce soft-bottom penetration, where reduced weight can also be beneficial.

The MAKO uses four thrusters in counter-rotating pairs for primary thrust and four thrusters in a vertical/lateral configuration. The thrusters are mounted to minimize visual disturbance in turbulent flow. All thrusters are designed to be easily mounted and swapped and are intended to

be upgradable as technology and thrusters develop. Equipped with arms and a full sensor suite, the MAKO approaches a miniature Work Class vehicle in design while remaining deployable from small craft.

FEATURES

- > Heavy payload capacity of 18 kg (40 lb) standard, upgradable to 23 kg (50 lb)
- > Designed for easy integration of numerous instruments & accessories.
- > Auto heading & depth
- > Dedicated instrument communications wires with optional Ethernet functionality
- > Universal controller with standard or high-wattage power supply



The Mako is going to add a new dimension to our line of ROVs, while maintaining the core design elements that make our vehicles so sought after.

Robin Li, President
SEAMOR Marine



DIMENSIONS & ATTRIBUTES

Depth Rating	300 meters (1000 ft) - or - 600 meters (2000 ft)
Size (L x W x H)	1000 mm x 655 mm x 555 mm 39.4" x 25.8" x 21.9"
Diagonal	840 mm (33.0")
Weight in Air	220 lb (100 kg)
Construction	Anodized aluminum, stainless steel, syntactic foam & marine grade polymers
Payload	18 kg (40 lb) Standard upgrade to: 23 kg (50 lb)

THRUSTERS & PERFORMANCE

Configuration	4 x Horizontal 4 x Vertical/Lateral
Features	Built-in short circuit protection
Thrust	Approx. 5.5 kgf @ 150 W each
Vehicle Speed	Up to 2 knots dependent on direction and conditions

TETHER

Length	335 meters (1100 ft) std
(Twisted Pair)	500 meters (1640 ft) max
Length	625 meters (2050 ft) max
(Fiber Optic)	On standard reels
Custom Length	Longer length of fiber optic tether is possible, mounted on custom winches for pipeline applications
(Fiber Optic)	
Diameter	10 mm (0.4")
Working Load	125 kg
Breaking Strength	500 kg
Weight in Water	Neutrally buoyant (freshwater)
Minimum Bending	50 mm (2") static
Radius	100 mm (4") dynamic

MAINTENANCE CRADLE

Bolt-down maintenance cradle	Allows the vehicle to be securely fastened to a vessel for safe maintenance and storage
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CAMERAS & LIGHTS

Main Camera:
NTSC or PAL 700 TVL
Optional:
1080P HD-SDI over fiber
Manual or automatic focus
3X optical zoom
32X digital zoom
Tilt range +/- 90°

Main Lights:
2X 1500 Lumens each
Dimmable 5500K LED

Lasers:
Optional green lasers on a 150 mm (6") parallel baseline

Auxiliary Camera:
Color or B&W
NTSC/PAL 480 TVL
Built in LED Ring Lighting

CONTROL SYSTEM

Controller mounted in a durable travel case
Handheld pendant controller available
Built-in 15" LCD monitor with video pass-through
Video overlay with:
Depth / auto-depth
Heading / auto-heading
Pitch / roll
Tether turns counter
Date & time

SENSORS

Pressure/Depth
Compass heading
Pitch & Roll
Dedicated leak detection and internal temperature sensors in both main housings with topside alarms

OPTIONS

- > SEAMOR Aux Lights
- > Daylight readable high brightness monitor
- > Extra monitor in power supply case
- > Upgraded payload (22.7 kg / 50 lb)
- > Hand held controller
- > Parallel green lasers
- > HD-SDI video over fiber
- > Ethernet over VDSL2
- > Ethernet over fiber
- > SEAMOR Dual Function Gripper (open/close/rotate)
- > Field interchangeable tooling skids (trimmed to neutral buoyancy) for rapid tooling changes
- > Altimeter integration with auto-altitude
- > Sonar Integration:
 - Scanning sonars*
 - Forward-looking sonars*
 - 3D multibeam sonars*
 - Acoustic cameras*
 - Pipe profiling sonars*
- > Additional Integrations:
 - 5F or 7F Electric Arm*
 - Rotary brushes*
 - Scoop systems*
 - CT & UT Sensors*
 - Magnetometers*
 - Science sensors*
 - Sample carousels*

CHINOOK ROV



The Chinook is an industrial grade inspection ROV with a wide range of capabilities. Explore depths up to 300 m (1,000') with the standard vehicle or 600 m (2,000') with the deep water version.

A true workhorse, the Chinook offers a stable platform yet remains compact. With its small profile, the Chinook can operate in tight places and is easily stowed when not in use. Multiple handles and frame cross members allow two people to handle this ROV with ease.

For greater versatility, customize your Chinook by adding accessories such as extra thrusters, navigational searching aids, manipulators, tool skids and more.

COMPACT YET POWERFUL.

FEATURES

- > Intuitive controller
- > High-resolution colour, zoom camera
- > Variable speed & directional ROV control
- > Integrated controller with LCD monitor
- > Digital Video Recorder (DVR)
- > Manual & automatic camera focus control
- > Depth-rated to 300 m (1000') or 600 m (2,000') with deep-water model
- > Up to six (6) powerful thrusters
- > Auto depth, auto heading functions
- > Leak detection warning system
- > Tether-launchable

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Success!! 'Fab' accomplished all tasks required and worked like a champ above the Arctic Circle. The Chinook ROV worked perfectly the whole time.

Jay White, NURTC
National Underwater Recovery Training Centre



DIMENSIONS & ATTRIBUTES

Depth Rating	300 m (1,000') or 600 m (2,000') with deep water model
Size (L x W x H)	686 mm x 384 mm x 406 mm (27" x 15.1" x 16")
Diagonal	533 mm (21")
Weight in Air	33 Kg (72 lbs) (6-thruster vehicle trimmed for fresh water)
Construction	Anodized aluminum, stainless steel, syntactic foam & marine-grade polymers

THRUSTERS

Configuration	2 or 4 horizontal & 2 vertical/lateral thrusters, built-in short-circuit protection on each channel
Speed	2 knots (dependent on environment & configuration)

AUXILIARY CAMERA & LIGHTS

Type	Colour or black & white, low light
Format	NTSC or PAL
Focus	Fixed
Light	2 x 1,500 lumens (3,000 lumens total) on/off control
TETHER	Available in twisted pair or fibre optic configurations
Length	335 m (1,100') standard starting length; max. std. length 500 m (1,640') for twisted pair; 625 m (2,050') for fibre optic, on manual reel
Diameter	10 mm / 0.4" (nominal)
Breaking Strength	700 kg f, Kevlar reinforced
Weight in Water	Neutrally buoyant in fresh water

FORWARD CAMERA & LIGHTS

Format	NTSC or PAL (full broadcast-quality)
Focus	Manual & Automatic
Zoom	3x optical, up to 32x total zoom
Tilt Range	+/- 90 degree rotation
Lights	2 x 1,500 lumens (3,000 lumens) dimmable high-intensity LED
Lasers	Optional parallel green lasers on 150 mm (6") baseline for scale reference

CONTROL SYSTEM

- > Pelican Case mounted controller
- > Built-in 15" LCD monitor
- > Digital video recorder included
- > Video overlay: depth, heading, auto-depth, auto-heading, pitch/roll, tether turns counter, date & time

SENSORS

- > Pressure/depth
- > Compass heading
- > Pitch & roll
- > Dedicated leak & temperature sensors in both the electronics & camera canisters

OPTIONS

- > Aux Camera
- > High brightness monitor
- > Extra monitor in power supply case
- > Aux float that adds extra payload (1.5lbs/0.7kg)
- > Hand-held controller
- > Laser
- > HD video
- > Sonar integration
 - Imagenex 852 Sonar
 - Imagenex 881A Sonar
 - Imagenex 965A Sonar
 - Blueview M900
 - Soundmetrics Aris 3000
 - Tritech Gemini 720is
 - Tritech Gemini 720im
 - Tritech Gemini 720ik
 - Tritech Micron DST sonar
 - Tritech MicronNav USBL
 - MicroNav USBL GPS antenna option
 - Tritech Micron Echosounder
- > USBL integration
 - LinkQuest Tracklink 1500LC
 - USBL
 - Tritech MicronNav USBL
 - MicroNav USBL GPS antenna option
- > SEAMOR Auxiliary LED lights
- > Dual-function gripper (open/close & jaw rotation) &/or cutter
- > Rotating Brush
- > Interchangeable skid-mounted instrumentation or tooling platforms
- > CT & UT probe integration
- > Altimeter with auto altitude control

STEELHEAD ROV



The Steelhead inspection-class ROV is a portable, lightweight and stable underwater system that is easily operated through intuitive flight controls. Its small profile allows this vehicle to inspect confined spaces and be easily stowed.

The compact Steelhead is easily deployed and recovered from small vessels and docks - no need for hoists or cranes. A standard definition NTSC/PAL camera, optimized for lowlight conditions provides the ROV operator with

quality video. "Out of the box" features include an integrated controller and LCD monitor module with auto depth, auto heading, a digital video recorder and much more.

PERFECT FOR INSPECTING CONFINED SPACES. GET THE IMAGES YOU NEED, & GET THE JOB DONE.

FEATURES

- > Intuitive controller
- > Broadcast-quality colour, zoom camera
- > Variable speed & directional ROV control
- > Integrated controller with LCD monitor
- > Digital Video Recorder (DVR)
- > Manual & automatic camera focus control
- > Depth-rated to 300 m (1000 ft)
- > Auto depth, auto heading functions
- > Four (4) powerful thrusters
- > Leak detection warning system
- > Tether-launchable

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The SEAMOR Steelhead ROV has performed beyond our expectations. The power and stability of the vehicle allows for a very precise and fluid inspection.

Richard L. Glenn, CEO/Chairman
Glenn Industrial Group, LLC



DIMENSIONS & ATTRIBUTES

Depth Rating	300 m (1,000 ft)
Size (L x W x H)	502 mm x 384 mm x 373 mm (19.8" x 15.1" x 14.7")
Diagonal	515 mm (20.3")
Weight in Air	21 Kg (47 lbs) (standard vehicle trimmed for fresh water)
Construction	Anodized aluminum, stainless steel, syntactic foam & marinegrade polymers

THRUSTERS

Configuration	2 horizontal & 2 vertical/lateral thrusters, built-in short-circuit protection on each channel
Speed	1.75 knots (dependent on environment & configuration)

AUXILIARY CAMERA & LIGHTS

Type	Colour or Black & White, low light
Format	NTSC or PAL
Focus	Fixed
Lights	2 X 1,500 lumens (3,000 lumens total) on/off control

TETHER

Length	165 m (540 ft) standard starting length; 335 m (1,100 ft) standard long length; on manual reel. Other lengths available upon request.
Diameter	10 mm / 0.4" (nominal)
Breaking Strength	700 kg f, Kevlar reinforced
Weight in Water	Neutrally buoyant in fresh water

FORWARD CAMERA & LIGHTS

Format	NTSC or PAL (full broadcast-quality)
Focus	Manual & Automatic
Zoom	3x optical, up to 32x total zoom
Tilt Range	+/- 90 degree rotation
Lights	2 x 1,500 lumens (3,000 lumens) dimmable high- intensity LED
Lasers	Optional parallel green lasers on 150 mm (6") baseline for scale reference

CONTROL SYSTEM

- > Pelican Case mounted controller
- > Built-in 15" LCD monitor
- > Digital video recorder included
- > Video overlay: depth, heading, auto-depth, auto-heading, pitch/roll, tether turns counter, date & time

SENSORS

- > Pressure / Depth
- > Compass heading
- > Pitch & roll
- > Dedicated leak & temperature sensors in both the electronics & camera canisters

OPTIONS

- > Aux Camera
- > High brightness monitor
- > Extra monitor in power supply case
- > Aux float that will add extra payload (1.5lbs/0.7kg)
- > Hand-held controller
- > Laser
- > Sonar integration
Imagenex 852
Sonar
Tritech Micron
DST sonar
Tritech Micron
Echosounder
Tritech Gemini
720im
- > USBL integration
- > Tritech MicronNav
USBL
MicroNav USBL
GPS antenna option
- > SEAMOR Auxiliary
LED lights
- > Dual-function gripper (open/close & jaw rotation) &/or cutter
- > Altimeter with auto altitude control



APPLICATIONS

AQUACULTURE

SEAMOR's compact ROVs are perfect for close-quarters net and tank inspections.

Accessories such as our gripper/cutter can be used on cables or nets, or to retrieve samples for analysis.

Super clear video helps to see exactly what is happening in, around and under pens.

HYDRO DAMS

Proven to excel, SEAMOR ROVs are used to inspect dams, culverts, pipelines and other underwater spaces to ensure hydro dam systems integrity.

Underwater inspections by divers are often impossible. Our ROVs can be counted on to examine these critical structures.

PORT SECURITY

Ensuring security is paramount to our cities and residents. The versatility of SEAMOR ROVs can help port authorities, border security, and other agents inspect ship hulls, docks, and more.

Easy to deploy, SEAMOR ROVs are quick to get the job done and get accurate observations.

PIPE INSPECTION

SEAMOR ROVs can be launched vertically, suspending the entire vehicle by its tether.

This unique feature of our vehicles allows for incomparable access when inspecting pipes, tanks and other structures from the inside. Our long tethers also allow for extended examination of pipelines on the sea floor.

MARINE RESEARCH

Biologists, geologists, archaeologists, and even astronauts have used SEAMOR ROVs for their research.

Quick deployment allows more time investigating in the field. Key accessories to help with research include a digital video recorder, sample collector and more.

NUCLEAR

Cooling towers, water recirculation pipes, and storage tanks can all be inspected with the same SEAMOR ROV.

Our system is versatile, compact, and can navigate in close quarters. Our tuneable controls allow for precise flying even for novice ROV pilots.

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Our approach to design involves considering the ROV system as a set of interchangeable building blocks. Through extensive customizations options and a diverse selection of accessories, our ROVs can easily be tailored to meet a wide range of requirements.

Mike Fioretti
Director of Engineering
& Product Development
SEAMOR Marine



POTABLE WATER

Tank inspection and maintenance are easy with SEAMOR ROVs. Our tether-launchable systems allow for quick deployment (no hoists or cranes needed). Clear, real-time video helps to identify possible issues, and bright lights help provide illumination in fully enclosed tanks.

SEARCH & RECOVERY

Quick deployments can be counted on with SEAMOR ROVs. Our lightweight systems can be launched by one or two people from any size boat making it possible to respond quickly when needed. High quality cameras and powerful lights help provide a crystal clear image.

FILM & DOCUMENTARY

SEAMOR ROVs can be upgraded to provide HD quality images. This upgrade provides for beautiful 1080p video. Our standard light system provides 3,000 lumens of dimmable light. Additional auxiliary lights can be added on as an option.

ACCESSORIES & UPGRADES

SEAMOR Marine ROVs are designed with modularity at their core. Your Chinook or Steelhead ROV can be combined with a large variety of SEAMOR accessories and upgrades, as well as industry-leading third-party products and custom integrations.

Not only do you have a wide range of options to add to your base vehicle, our easy to use connectors, and interchangeable frame pieces allow you to modify your vehicle to meet the needs of the specific job. All of this can be done with minimal tools, on site.

Auxiliary Lights

Add a pair of auxiliary on/off LED lights at 1,500 lumens each for 3,000 additional lumens. Auxiliary lights can be aimed manually to provide the best light for your job.

Steelhead/Chinook

Auxiliary Camera

Add on a full-colour NTSC/PAL underwater camera with LED lights to get a second point of view. This camera can be mounted on the rear of the frame, or with an additional bracket elsewhere on the frame of your ROV.

Steelhead/Chinook

Mechanical Scanning Sonar

Add an Imagenex sonar with dedicated RS485 communications line to the operator controller. *Steelhead/Chinook*

Dual-Function Gripper Tool

With open/close jaws and wrist rotations, this tool can be used for grabbing lines, cutting nets or ropes, and other light-duty jobs.

Steelhead/Chinook

Skid-Mount Frame

Custom-designed frames can be added to carry peripherals and accessories (such as imaging sonar) to meet your ROV needs.

Fiber Optic Tether

Get higher quality video over longer tethers with this upgrade. A fiber optic tether is a requirement for ethernet and HD video.

Ethernet

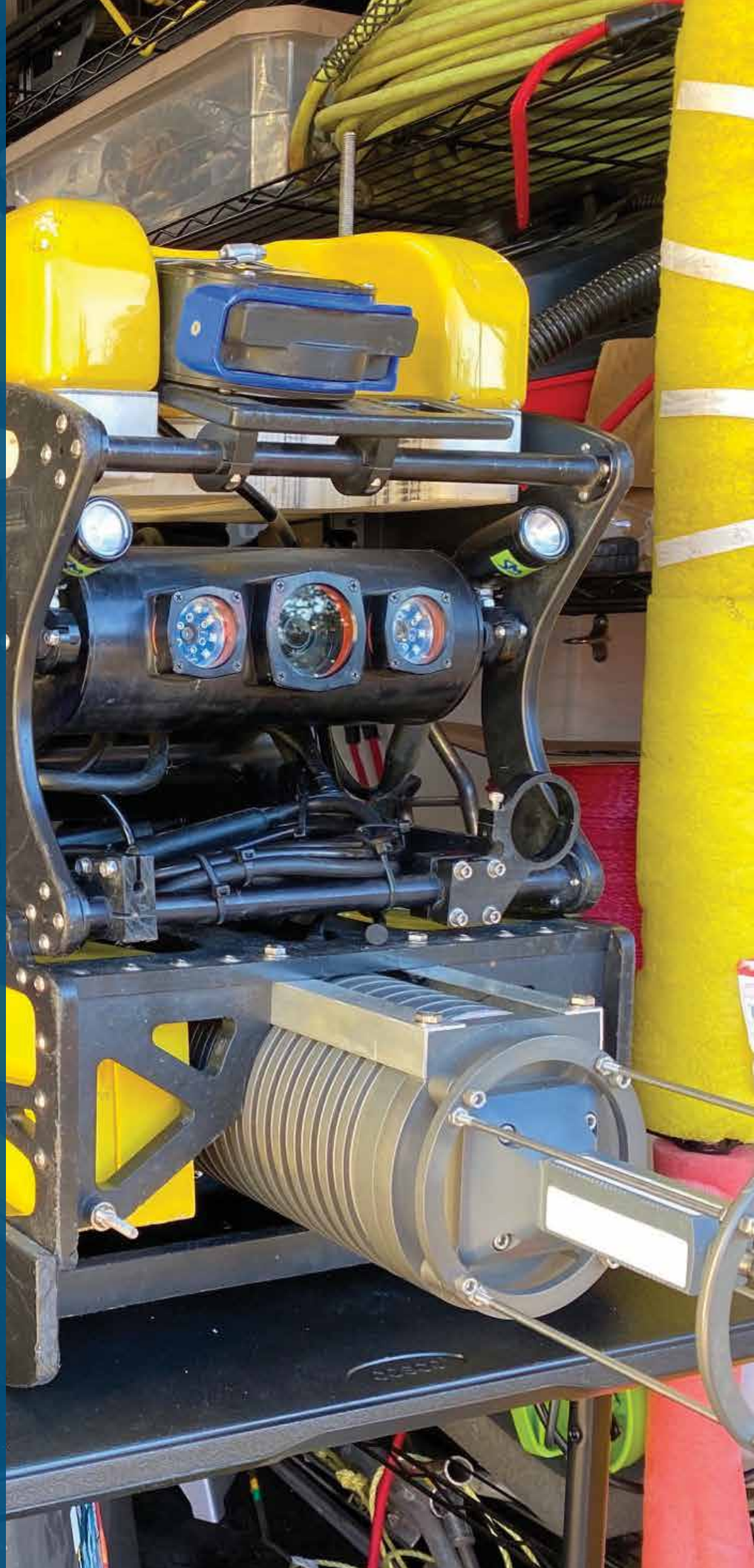
An ethernet bridge (100-BaseT) over our fiber optic tether allows for the addition of ethernet enabled peripherals such as imaging sonars.

HD Video

Get crystal-clear, high quality, uncompressed digital HD video in HDSDI format up to 1080p30. At the top end, an included receiver converts the HD signal to provide HDMI output, as well as standard definition (NTSC/PAL) video signal while preserving the HDSDI signal for high-end recording equipment.

Extra Tether Reel

Get an extra tether and reel delivered in a Pelican case that is fully compatible with your vehicle. This flexibility allows the customer to have a shorter or longer tether to meet the requirements of the job.

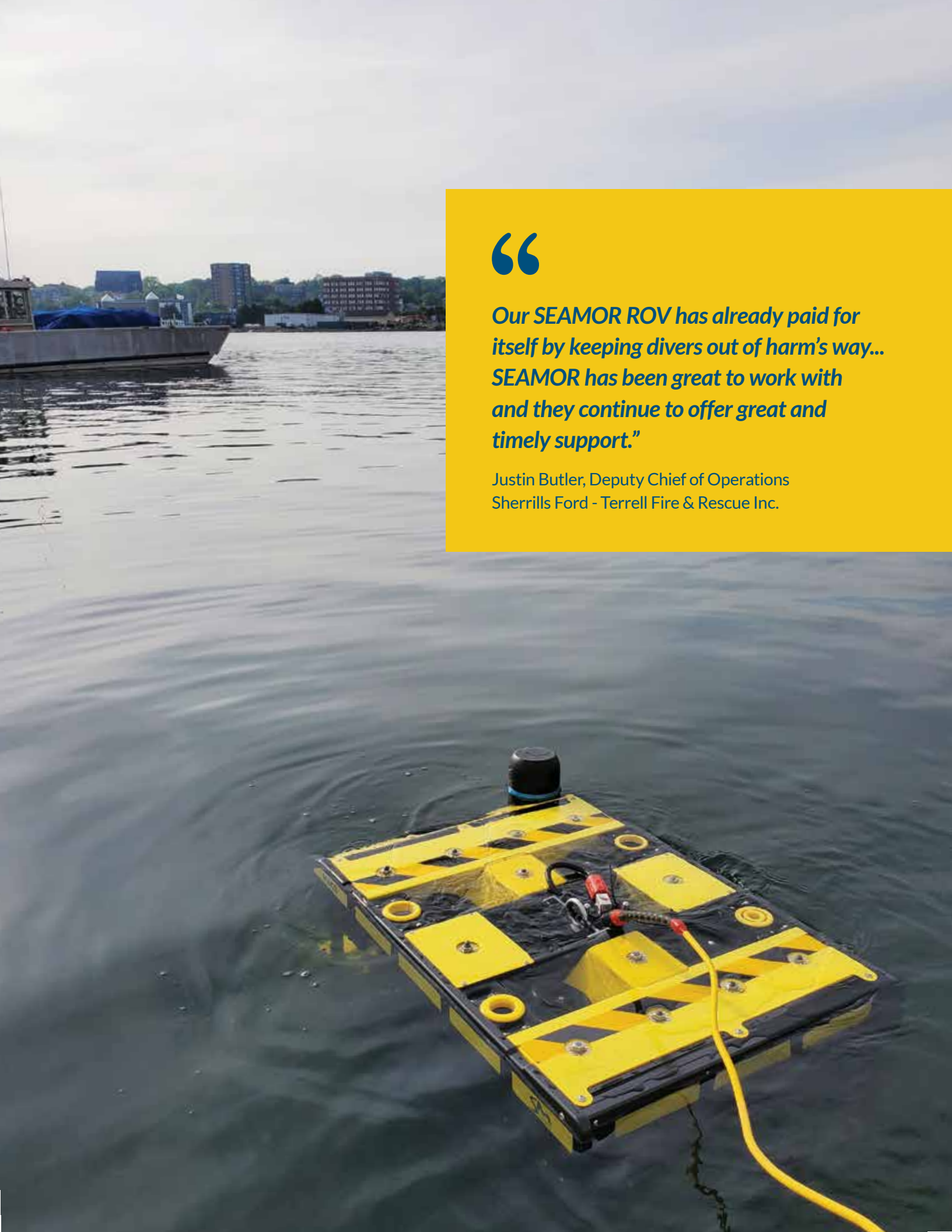


CUSTOMER EXPERIENCE

SEAMOR Marine has always placed our customer service as our most important priority. We work with each interested buyer to design the right ROV system for their needs, ensuring that the equipment they are purchasing meets, or even exceeds, the demands required for their work.

Our attention to customer experience extends to our Dealer Network. Global sales agents for SEAMOR Marine are trained and ready to support customer inquiries, provide demonstrations, and assist with training. Service centres across the world are on hand to help with maintenance and repairs.

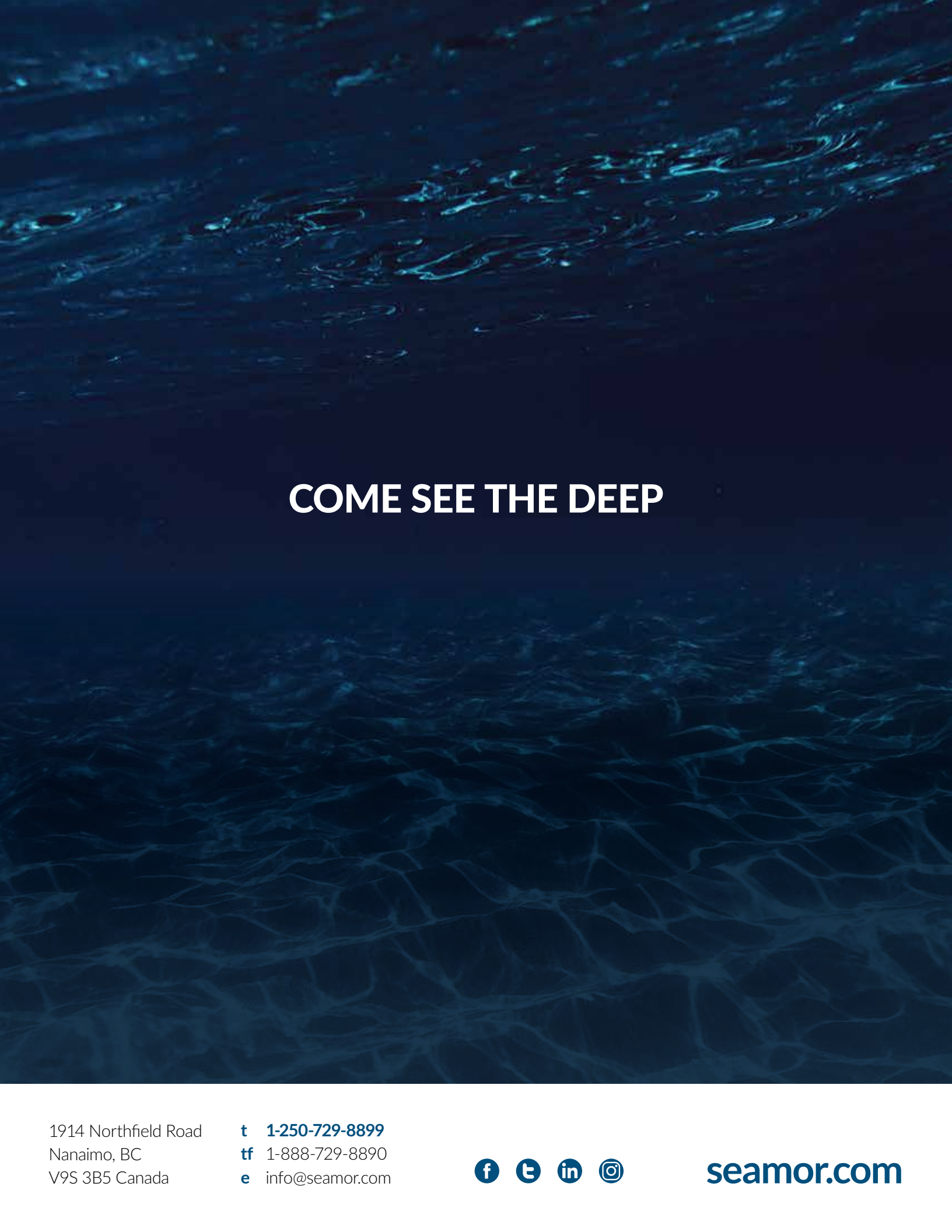
Your SEAMOR system is fully covered by a comprehensive warranty against defects in materials or workmanship for a period of 24 months from the date of shipment. This warranty is extended to your SEAMOR system and is fully transferable. We are happy to answer all questions regarding warranty issues, and offer 24-hour emergency support by phone.



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Our SEAMOR ROV has already paid for itself by keeping divers out of harm's way... SEAMOR has been great to work with and they continue to offer great and timely support.”

Justin Butler, Deputy Chief of Operations
Sherrills Ford - Terrell Fire & Rescue Inc.



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