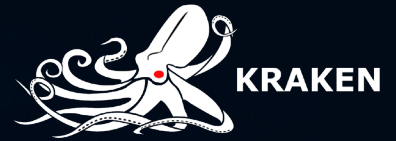


KATFISH™

Survey Smarter



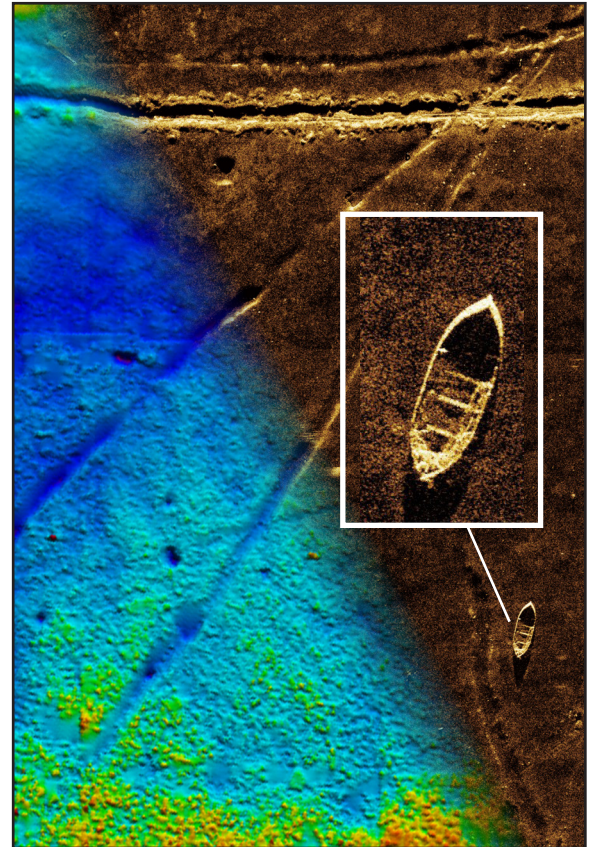
Kraken's KATFISH Active Towfish is an actively stabilized, towed SAS Side Scan Sonar sensor, equipped with Kraken's proven next-generation Miniature Interferometric Synthetic Aperture Sonar (MINSAS). The KATFISH System delivers the industry's best area coverage rates combined with ultra-high-resolution seabed imagery and 3D bathymetry.

The KATFISH Platform is a fully engineered survey solution that includes an actively controlled intelligent towfish, SAS imaging, bathymetry, gap-filler sonar, launch and recovery system, operator console, and visualization/image processing software for the sonar operator. The entire system is designed for quick installation and removal from crewed or uncrewed surface vessels of opportunity.

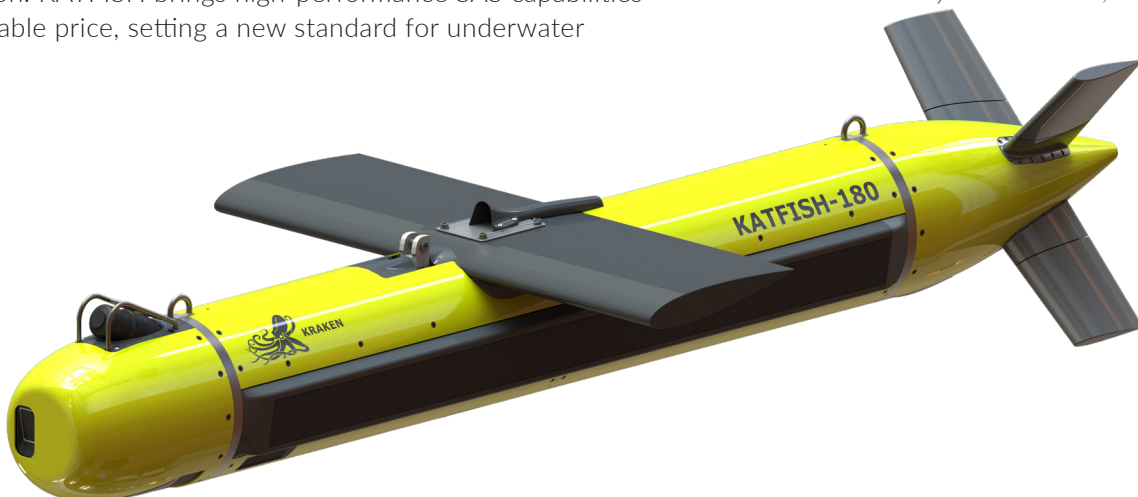
What makes the KATFISH system exceptional are the 180 cm MINSAS sensor arrays (3 x 60 cm arrays make up the 180 cm) which supply remarkably sharp 3.3 cm x 3.0 cm constant resolution across ranges up to 200 meters per side. With tow speeds up to 10 knots and a built-in gap-filler, KATFISH supplies best-in-class high-resolution Area Coverage Rates (ACR) of 4 km²/hr and full-swath high resolution unobtainable from a standard towed array side scan.

Additionally, Katfish uses Kraken's Real-Time SAS processor, RTSAS GPU (Graphical Processing Units), for real-time processing of SAS Imagery and bathymetry. This allows sonar operators to use the Kraken suite of post-processing tools incorporated in our new SASView 3D Visualization and control software.

Whether your survey requirements are for MCM, windfarm survey, or pipeline or infrastructure survey, the KATFISH will deliver unmatched seafloor resolution and best in class coverage rates to simplify sonar interpretation. KATFISH brings high-performance SAS capabilities at an affordable price, setting a new standard for underwater exploration.



Anchor scours and dory in Bedford Basin, Halifax, Nova Scotia



KATFISH 180 - Performance Characteristics

Ground Speed	4 - 10 kn
Dual Sided Max Swath	>270 m at 8 kn (>400 m at 4 kn)
Single Sided Max Range	>135 m at 8 kn (>200 m at 4 kn)
Survey Altitude	min 5 m, max 30 m
Along Track SAS Image Resolution	3.3 cm
Across Track SAS Image Resolution	3.0 cm
Real-Time SAS Bathy Resolution	25 cm x 25 cm
Post Proc. SAS Bathy Resolution	6 cm x 6 cm
SAS Bathy Vertical Accuracy	10 cm @ 100 m
Nadir Gap Coverage	SAS/MBES
Pulse Length	configurable 1 ms -> 10 ms
Pulse Bandwidth	40 kHz
Pulse Type	Linear FM (CHIRP)
Pulse Center Frequency	337 kHz
SAS Robustness Against Yaw	±10° over 50 m track length
SAS Robustness Against Sway	±0.2 m/s
Max Crab Angle	20°

KATFISH 180 - Physical Characteristics

Towfish Dimensions	2.9 m Length x 0.3 m Diameter
Towfish Wingspan	1.20 m
Towfish Weight in Air	195 kg
Array Dimensions	180 cm x 7 cm
Operational Depth Rating	300 m
Obstacle Avoidance Sonar	Standard
Nadir-Gap Filling SAS/MBES	Standard
Emergency Locator Beacon	Standard
DVL aided INS	Standard
High Accuracy USBL	Standard
Kraken Tentacle Winch™	Optional

KATFISH 180 - System Topside Components

Rackmount Case Size	4 x 6U standard
HDD Capacity	36 TB Standard, enough for 100 hours of RAW and Beamformed SAS data
Data Format	Kraken .TIL, .XTF, GeoTIFF, XYZ
Dual Sided Data Rate, 192 Channels Total	72 MB/s
Towfish Data Connection	Dual Fully-Redundant Fiber. Single Mode
Topside Data Connection	Gigabit Ethernet
SAS Processing	Real-Time on GPU
Power Supply	120/240 VAC, 50-60 Hz, 2500 W Peak (not including winch) Typical Power Draw 1540 W

KATFISH 180 - Area Coverage

Knots	m/s	Range m (per side)	ACR w/o Gap-Filler km²/hr	ACR w/ Gap-Filler km²/hr
4.00	2.06	200	2.07	2.96
5.00	2.57	200	2.59	3.70
6.00	3.09	183	2.84	4.06
7.00	3.60	156	2.82	4.04
8.00	4.12	135	2.81	4.01
9.00	4.63	119	2.79	3.98
10.00	5.14	107	2.77	3.95

