

Electronic Monitoring System Vendors & Service Providers

EMS Vendor	Overview	Tuna experience	Website
Anchor Labs	Electronic Monitoring Systems used mainly in EU fisheries (demersal mixed fisheries) related to the Landing Obligation. Can be customized and adapted to meet specific requirements from catch handling to gear activities and discard estimation. Hardware-software-development-data archival-data analysis and reporting.	No	http://anchorlab.net http://anchorlab.net/Documents/Eng%20-%20AnchorLab%20-%20BlackBox%20-%20System%20workflow.pdf
Archipelago Marine Research	One of the first and most important EM systems vendors Using Marine Instruments hardware, Archipelago plan, design and manage the EM System and review/analyse the collected data. Hardware/software (Marine Instruments)-development-data archival-data analysis and reporting.	Yes	https://www.archipelago.ca https://www.archipelago.ca/fisheries-monitoring/electronic-monitoring/
Digital Observer Services	Digital Observer Services is an EM service provider and partners with Satlink to provide EMS systems but also EM video data archive and review and data processing. Hardware-software-development-data archival-data analysis and reporting.	Yes	http://digitalobserver.org/en/
Ecotrust Canada	Ecotrust has developed EM projects in different fisheries, particularly in small scale coastal fisheries in Washington State's Quinault crab fishery and New England Groundfish fishery. However, they have not their own hardware/equipment. Development-data archival-data analysis and reporting.	No	http://www.ecotrust.ca http://ecotrust.ca/project/electronic-monitoring/
Electricedge	They launched FACTS - Fishing activity and catch tracking system – customed tailored project of Electronic Reporting and catch tracking systems. They are not EMS vendors but can develop project to install EMS systems in vessels.	No	http://www.electricedgesystems.com
Finnz	More focused on e-logbook and e-reporting and not on electronic monitoring systems.	No	http://www.finnz.com/sectors/fisheries/
Fish Trax	More focused on e-logbook and e-reporting but not on electronic monitoring systems.	No	http://fishtrax.org
Flywire	Flywire is focused on low-cost miniature systems more focused for small-scale fisheries. Hardware-software-development-data archival-data analysis and reporting.	No	https://www.flywirecameras.com https://www.flywirecameras.com

Integrated Monitoring	Integrated Monitoring expanded its expertise on telecom and satellite communication to Fishery monitoring systems, providing VMS, e-logbooks, e-reporting and EMS to vessels including the possibility for real-time data transfer. Hardware-software-development-data archival-data analysis and reporting.	No	http://www.integratedmonitoring.net https://integratedmonitoring.net/wp-content/uploads/2018/02/IM-Company-Profile-Web-Version-2-1.pdf
Marine Instruments	Marine Instruments designs and manufactures electronic equipment for EMS. Since 2017, the company produces the EMS hardware for Archipelago. However, they could also install EMS equipment, storage data and provide a software, called Beluga, to analyse/review EMS data. Hardware-software-development-data archival-data analysis software.	Yes	https://www.marineinstruments.es
SatLink	SatLink works primarily with tuna vessels providing EMS solutions from installing the cameras to analyse the data. Hardware-software-development-data archival-data analysis and reporting.	Yes	https://satlink.es/en/tracking-monitoring/satlink-seatube/
Saltwater, Inc.	Saltwater has EM systems in a variety of fisheries and is the vendor for the US Atlantic HMS fishery. Hardware-software-development-data archival-data analysis and reporting.	Yes	http://www.saltwaterinc.com/index.html
Shellcatch	Shellcatch produces low-cost cellular-based video systems for small-scale and artisanal fisheries. Hardware-software-development-data archival.	No	https://www.shellcatch.com/welcome/emonitoring/
SnapIT	SnapIT provides satellite communications, VMS, e-reporting and EMS systems. End to end solutions from camera deployment to data storage, transmission and analysis. Hardware-software-development-data archival-data analysis and reporting.	Yes, Pacific tuna trials	https://www.snapit.group
Thalos	OceanLive, Electronic Monitoring System (EMS), is an embedded video system dedicated to ship operations supervision and control. Hardware-software-development-data archival-data analysis and reporting.	Yes, Indian Ocean	https://www.thalos.fr/en/solutions-en/superviser-en/oceanlive-en.html
Trident System	Working in collaboration with SnapIT cameras and hardware to provide EMS Services.	No	http://www.tridentsystems.co.nz/our-work/collecting-data/video-observation/

More information could be found in: <https://eminformation.com/vendor-resources>

Voluntary FAD tracking and echosounder biomass data to tunaRFMOs and Scientific Institutions¹

Ocean	Institution	Contact Person	E-mail
East Pacific	IATTC	Jon Lopez	jlopez@iattc.org
		Marlon Roman	mroman@iattc.org
West Pacific	SPC	Graham Pilling	grahamp@spc.int
		Laurianne Escalle	laurianee@spc.int
Atlantic	ICCAT	Mauricio Ortiz	mauricio.ortiz@iccat.int
	AZTI	Josu Santiago	jsantiago@azti.es
	IRD	Laurent Dagorn	laurent.dagorn@ird.fr
Pascal Bach		pascal.bach@ird.fr	
Indian	IOTC	Fabio Fioratello	Fabio.Fiorellato@fao.org
	AZTI	Josu Santiago	jsantiago@azti.es
	IRD	Laurent Dagorn	laurent.dagorn@ird.fr
		Pascal Bach	pascal.bach@ird.fr
SFA	Vincent Lucas	vlucas@sfa.sc	
All	ISSF	Victor Restrepo	vrestrepo@iss-foundation.org
		Hilario Murua	hmurua@iss-foundation.org
	IEO	Francisco Abascal	francisco.abascal@ieo.es

¹ See Annex 1 for guidance

Voluntary LL Bycatch raw Data to tunaRFMOs and Scientific Institutions

Ocean	Institution	Contact Person	E-mail
East Pacific	IATTC	Jon Lopez	jlopez@iattc.org
		Marlon Roman	mroman@iattc.org
West Pacific	SPC	Graham Pilling	grahamp@spc.int
		Simon Nicol	simonn@spc.int
Atlantic	ICCAT	Nathan Taylor	nathan.taylor@iccat.int
	IRD	Laurent Dagorn Pascal Bach	laurent.dagorn@ird.fr pascal.bach@ird.fr
Indian	IOTC	Fabio Fioratello	Fabio.Fiorellato@fao.org
	IRD	Laurent Dagorn Pascal Bach	laurent.dagorn@ird.fr pascal.bach@ird.fr
All	ISSF	Victor Restrepo Hilario Murua	vrestrepo@iss-foundation.org hmurua@iss-foundation.org
	IEO	Francisco Abascal	francisco.abascal@ieo.es

FAD tracking and echosounder biomass data submission format guidance

The FAD raw data should be provided by the FAD tracking service providers directly to the designated contacts above. There are four main companies that supply satellite-transmitting buoys to the purse-seine fleet: Marine Instruments, Satlink, Thalos, and Zunibal. Each buoy has a unique alphanumeric identifier code, provided by the manufacturer, which is associated with a vessel.

Data should be received in csv files named “X-YYYY-MM-ZZZZZZ.csv” where X is the code of the buoy manufacturer (M, S, T, Z, for Marine Instruments, Satlink, Thalos, and Zunibal, respectively), YYYY is the year, MM the month, and ZZZZZZ the purse-seine vessel’s name and IMO number. Each file should contain all the records (one position record by line and acoustic record when available – note that not all position records have a biomass record from the echosounder) of FADs managed by each individual vessel from deployment or buoy activation until deactivation. The information included in these csv files should be: buoy identified code [ID Buoy – which contains Brand-model-unique identification code; eg DSL+35408], Vessel name, IMO number, date [YYYY/MM/DD], time [hh:mm], latitude and longitude [expressed in degrees and minutes in decimal values], speed [knots], drift, and biomass estimation by layer [each brand provides different layers for information].

Example of the data that could be received:

Buoy	Vessel	IMO	Date/Time	Lat	Long	Bat	Temp	Speed	Drift	Layer1	Layer2	Layer3	Layer ...	Sum	Max
DSL+35408	X	Y	03/03/2012 10:53	-742.472	468.297	100		0.681	1.420						
DSL+35408	X	Y	13/03/2012 2:50							0	0	1	0	1	1

BUOY ID examples for the different types of buoys

SATLINK			
Model	Code	Digits	Example of Buoy ID
D+ batteries	D+	5-6 digits	D+873984
D+ batteries	DS+	5-6 digits	DS+873984
D+ solar	DL+	5-6 digits	DL+873984
D+ solar	DSL+	5-6 digits	DSL+873984
IDP solar	ISL+	5-6 digits	ISL+873984
IDP solar	ISD+	5-6 digits	ISD+873984
SLX solar	SLX+	5-6 digits	SLX+873984
ECO buoy; less plastic, partly recycled, higher resolution echo-sounder, etc.			

Marine Instruments

Model	Code	Digits	Example of Buoy ID
MDP	MDP	5-6 digits	MDP873984

MDS	MDS	5-6 digits	MDS873984
M2D	M2D	5-6 digits	M2D873984
MSI	MSI	5-6 digits	MSI873984
M3i	M3I	5-6 digits	M3I873984
M3i+	M3+	5-6 digits	M3+873984
M4I	M4I	5-6 digits; Multifrecuencia 50, 120, 200	M4I873984
M4i+	M4+	5-6 digits; Multifrecuencia 50, 120, 200	M4+873984

ZUNIBAL			
Model	Code	Digits	Example of Buoy ID
Tunabal-7	T07	9 digits	T07-874973336
Tunabal-e7	Te7	9 digits	Te7-874973336
Tunabal-e7+	T7+	9 digits	T7+874973336
Tuna8 Explorer	T8E	9 digits	T8E-874973336
Tuna8 Xtreme	T8X	6 digits; ID Buoy with 6 digits instead of 9	T8X-874973336
Tunabal-7 (F series)	F07	9 digits;	F07-874973336
Tunabal-e7 (F series)	Fe7	9 digits;	Fe7-874973336
Tunabal-e7+ (F-series)	F7+	9 digits;	F7+874973336
Tuna8 Explorer (F-series)	F8E	9 digits;	F8E-874973336
Zunibal without sounder	Z07	9 digits; only position, no sounder	Z07-874973336
Zunibal without sounder	Ze7	9 digits; only position, no sounder	Ze7-874973336