

Vessel Monitoring System Report
Pacific Fisheries Management Council
February 20, 2004

Due to the over fished status of several Rockfish species the Pacific Fisheries Management Council (PFMC) developed a "Depth Based Management" strategy that is intended to minimize by catch of the affected species and eventually restore depleted stocks.

To this end, the PFMC established the Rockfish Conservation Area(s) (RCA), a narrow corridor in the Pacific Ocean stretching from Canada to Mexico, which is closed to specific fishing activity. The RCA is closed to both Limited Entry Permit bottom trawlers and Limited Entry Permit fixed gear vessels. Vessels can legally transit the RCA at any time and engage in fishing activities inside that area that are not prohibited by regulation.

To assist enforcement within the RCA the PFMC adopted and implemented the NOAA Fisheries Office for Law Enforcement's (OLE) Vessel Monitoring System (VMS). Given the RCA's immense geographical area, the PFMC believes that VMS will provide an improved enforcement capability over traditional surveillance activities such as vessel patrols or over flights.

The final rule implementing the adoption of a Vessel Monitoring System (VMS) for the Pacific Coast Groundfish Fishery became effective on January 1, 2004.

The rules summary states "NMFS issues a final rule to require vessels registered to Pacific Coast groundfish fishery limited entry permits to carry and use mobile vessel monitoring system (VMS) transceiver units while fishing in state or Federal waters off the coasts of Washington, Oregon and California. This action is necessary to monitor compliance with large-scale depth-based conservation areas that restrict fishing across much of the continental shelf."

As of January 2004, the NOAA Fisheries, Office for Law Enforcement is electronically monitoring Limited Entry Permit vessels fishing in State and Federal waters off the West Coast of the United States. Moreover, OLE has also implemented a call-in telephone declaration system for vessel owners to declare the gear type their vessel will be using while engaged in authorized fishing activity within the RCA.

Electronic monitoring of vessels through the OLE VMS is achieved through a five step process.

- Mobile Transceiver Units (MTU's) installed on fishing vessels derive their Latitude and Longitude position from Global Position Satellites (GPS).
- These GPS positions are then sent to an orbiting communications satellite.
- The communications satellite forwards the position report to a Land Earth Station (LES).
- The Land Earth Station (LES) forwards the position report to the OLE VMS.
- The OLE VMS processes the data received from the LES.

Mobile Transceiver Units (MTU's):

Vessel position reports are generated and delivered to a communications satellite via an MTU purchased by the vessel owner. Currently, there are four MTU's type approved by NOAA Fisheries, Office for Law Enforcement for the Pacific Coast Groundfish Fishery. The MTU Type Approval process ensures that approved units meet minimum technical requirements for accurate operations.

The four type approved units are;

Satellite Network	Manufacturer	Model Number
Inmarsat C	Thrane and Thrane	3022D-NMFS
Inmarsat C	Thrane and Thrane	3026-NMFS
Inmarsat D+	Satamatics	SAT 101 NMFS/PCG
Orbcomm	Stellar	2500G-NMFS

Communications Providers / Land Earth Stations:

Depending on the MTU purchased by the vessel owner, several communications providers are available to provide "air time." The "air time" component of VMS is comparable to the purchase of a cell phone, where the user purchases a cell phone (hardware) and minutes per month (air time). Similarly, the VMS system requires an MTU (hardware) and messages from the MTU (air time) that take the form of position reports or other message traffic such as email. The various communication providers sell "air time" in two ways, by the message, such as by position report, or by a monthly flat fee which provides a set amount of "air time."

The communications providers approved for the Pacific Coast Groundfish Fishery are;

Communication Provider	Satellite Network	MTU's
Telenor	Inmarsat C	TT3022D, TT3026
Xantic	Inmarsat C	TT3022D, TT3026
Satamatics	Inmarsat D+	SAT 101
Skymate Wireless	Orbcomm	Stellar 2500G

OLE VMS:

The final component of the Pacific Coast Groundfish VMS network is located in the OLE NW Division office in Seattle, Washington. The OLE VMS consists of the Smart Trac application software from Absolute Communications and, an Oracle database that stores vessel information and position reports.

The Smart Trac software consists of three components. The first component continuously monitors all communication providers and downloads vessel position reports to the Oracle database. The second component enables automatic alerts to be created that report when pre-set criteria are met. The third component of Smart Trac enables vessel position reports to be viewed in a graphical map format. The graphical map format displays vessel positions in relationship to the Conservation Areas established for the Pacific Coast Groundfish Fishery.

Currently the OLE NW Division VMS has;

- A. Number of activated Units: 203
- B. Number of position reports: 160,000+

Declaration System

Running in tandem with the VMS system is the Pacific Coast Groundfish declaration system. The declaration system was established in conjunction with the VMS regulation to provide vessel owners with a method to declare their intentions to fish in a conservation area consistent with the requirements of the regulations, and to specify the gear type their vessel will be using. The Compliance Guide for the Pacific Coast Groundfish Fishery Vessel Monitoring Program states:

“Limited entry vessels with trawl endorsements, and open access or tribal vessels using trawl gear are required to send a declaration report before the vessel is used to fish in any trawl RCA or the CCAs in a manner that is consistent with the requirements of the conservation areas. Limited entry vessels with longline and pot endorsements, must send a declaration report before the vessel can be used to fish in any non-trawl RCA or the CCA’s”.

The declaration system is a complimentary tool to VMS and assists law enforcement personnel in determining if a fishing vessel is operating gear consistent with the conservation area.

The declaration categories for the Pacific Coast Groundfish Fishery are:

Gear Code	Description
10	Limited entry fixed gear
20	Limited entry midwater trawl gear
30	Limited entry bottom trawl gear
41	Pink shrimp or ridgeback prawn trawl gear
42	California halibut trawl gear
43	Sea cucumber trawl gear
50	Tribal trawl gear
60	Spot and ridgeback prawns non-trawl gear
61	Crab or lobster gear
62	Pacific Halibut gear
63	Salmon troll gear
64	California halibut gear
65	California Sheephead gear
66	Gear used to take species under the Highly Migratory Species FMP
67	Gear used to take species under the Coastal Pelagic Species FMP
68	Gear used to take species in the California gillnet complex
69	A gear that is not listed above

Declarations may also be made that allow vessels to be exempted from the VMS rule. The Exemption declarations are;

Exemption Code	Description
10	Haul out Exemption - When a vessel is continuously out of the water for more than 7 consecutive days.
20	Outside Areas Exemption - When the vessel will be operating outside of the EEZ off Washington, Oregon, or California for more than 7 consecutive days

To date, NW OLE has received 234 declarations reports. The predominant number of declaration reports have fallen into the following categories.

61- Crab or lobster gear

30- Limited entry bottom trawl gear

10- Limited entry fixed gear

Cases:

The NW Division of OLE is currently investigating potential fisheries violations with the assistance of VMS.

Future Projects:

The MTU's type approved for the Pacific Coast Groundfish Fishery are two way messaging capable, that is, the units are able to send and receive messages. Two way messaging capability will enables future fisheries projects to be undertaken in addition to vessel position reporting. Future projects may include;

Catch and Effort Reporting
At Sea Declarations via Email

Conclusion:

The Pacific Coast Groundfish VMS is online and operating as intended. The declaration system is working well in tandem with VMS.