

# ROS Topics

This page is a description of all the topics we are using (or plan to use) on the sub.

## Sensors

### **/orientation**

Message: [geometry\\_msgs/Quaternion](#)

The current orientation of the sub, given as a quaternion. Any code wanting to know the sub's orientation should use this topic, not `/orientation/rpy`.

### **/pretty/orientation**

Message: [robosub/Euler](#)

The current orientation of the sub, given in roll, pitch, yaw. This is meant just for human readability of the sub's orientation, code should use the `/orientation` topic.

### **/depth**

Message: [std\\_msgs/Float32](#)

The current depth of the sub.

## Movement

### **/thruster**

Message: [robosub/thruster](#)

Dynamic array of commands going to the thrusters. Order of the thrusters is dependent on their order in the settings file.

### **/control**

Message: [robosub/control](#)

Send messages to this topic to move the sub around, the control system subscribes to this topic.

### **/joystick\_driver**

Message: [robosub/joystick](#) This is the raw joystick state, published by the joystick driver. Shows the

current state of all axes and buttons on the joystick.

## **/gamepad\_driver**

Message: [robosub/gamepad](#) This is the raw gamepad state, published by the gamepad driver. Shows the current state of all axes and buttons on the gamepad.

## **Vision**

### **/camera/(left|right|bottom)/image**

Message: [wfov\\_camera\\_msgs/WFOVImage](#)  
Images from our cameras.

### **/vision/buoy/(red|green|yellow)**

Message: [robosub/visionPosArray](#)  
Describes where the buoy is in the sub's view.

### **/vision/start\_gate**

Message: [robosub/visionPosArray](#)  
Describes how many posts of the start gate can be seen and where they are located in the sub's view.

### **/vision/navigate\_pass**

Message: [robosub/visionPosArray](#)  
Describes where the yellow channel is in the sub's view.

### **/vision/bins**

Message: [robosub/visionPosArray](#)  
Describes where the marker bins are in the sub's view.

### **/vision/torpedo\_target**

Message: [robosub/visionPosArray](#)  
Describes where the torpedo targets are in the sub's view.

## **/vision/octagon**

Message: [robosub/visionPosArray](#)

Describes where the octagon is in the sub's view.

## **Hydrophones**

### **/hydrophones/[Frequency]/deltas**

Message: Duplicated for all frequencies in the pool. Contains the latest time deltas between the reference and other 3 hydrophones.

```
Header header
duration d1
duration d2
duration d3
```

### **/hydrophones/[Frequency]/timestamps**

Message: Duplicated for all frequencies in the pool. Contains the latest timestamps recorded by the system.

```
Header header
Time ref
Time t1
Time t2
Time t3
```

### **/hydrophones/[Frequency]/debug**

Message: Used for debugging the hydrophone system.

```
Header header
Int64 frequency
Int64 avg_sig_strength
Float64 approx_angle
```

### **/hydrophones/[Frequency]/output/direction**

Message: [robosub/Euler](#)

Used for sending the angle from the forward direction to the pinger. Roll will always be zero while Pitch and Yaw should be filled out.

## **/hydrophones/[Frequency]/output/location**

Message: [geometry\\_msgs/Point](#)

Used for sending the final result of the Trilaterization calculations.

From:

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