


# NOAA Ship *Reuben Lasker*

	<b>Hull Number</b>	R228
	<b>Call Sign</b>	WTEG
	<b>Home Port</b>	San Diego, CA
	<b>Marine Operations Center</b>	Pacific (MOC-P)
	<b>Port Office</b>	San Diego Port Facility
	<b>Regular Area of Operations</b>	Pacific
	<b>General Classification</b>	Fishery Survey Vessel
	<b>Mailing Address</b>	NOAA Ship <i>Reuben Lasker</i> 10th Ave Marine Terminal 1839 Water street San Diego, CA 92101

<b>Contact Information</b>	
<b>IN PORT</b>	<b>AT SEA</b>
Cellular	VoIP
541-272-9098 (Ship)	301-713-7787
240-731-3162 (CO)	Iridium
831-332-9645 (XO)	011-881-622-478-173
541-272-9094 (OOD)	
757-621-6433 (EOW)	
Land Line (Home Port)	
Home Port (619)230-0331	Inmarsat Mini-M:
Home Port Fax TBD	
757-441-6290 (MOC-A office)	Fax or E-Fax
757-441-6291 (MOC-A landline)	
757-441-6292 (MOA-A landline)	Inmarsat B
Ship's Email	011-870-773-135-646 (Voice)
Noaa.Ship.Reuben.Lasker@noaa.gov	011- (Data)
	011- (Telex)
	011- (HSD)

<b>Design</b>		<b>Speed &amp; Endurance</b>		
Designer:	NOAA/NAVY/ Halter Marine/ MRAD	Emergency Speed (KTS):	14	
Builder:	Marinette Marine, Corp., Marinette, Wisconsin	Cruising Speed (KTS):	12	
Launched:	June 16, 2012	Range (nm):	12,000	
Delivered:	November 8, 2013	Endurance (days):	40	
Commissioned:	Scheduled May 2, 2014	Endurance Constraint:	Food & Fuel	
Length (LOA - ft.):	208.7			
Breadth (moulded - ft.):	49.2	<b>Compliment - Maximum</b>		
Draft, Maximum (ft.):	29.7	Commissioned Officers/Mates	5	
Depth to Main Deck (ft.):	38.7	Engineers, Licensed	5	
Hull Description:	Welded steel/ice strengthened	Engineer, Unlicensed	2	
Displacement:	2524 metric tons	Deck	7	
<b>Food Service Seating Capacity</b>		Survey	2	
Mess Room:	25	Stewards	2	
<b>Medical Facilities:</b>		Electronic Technicians	1	
One medical treatment room containing two berths for patients. Emergency and first-aid equipment aboard, administered by designated vessel personnel.	<b>Berthing</b>		USPHS Medical Officer	0
	Single Staterooms:			
	Double Staterooms:			
		<b>Total Crew</b>	<b>24</b>	
		<b>Scientists</b>	<b>15</b>	
		<b>Total Berths:</b>	<b>39</b>	

\* This ship is classed as a Fishery Survey Vessel (FSV). All FSVs are American Bureau of Shipping (ABS) Ice Classed "C0" which approves the vessel for operating independently through first year ice with a thickness of less than 0.3m (1ft) and in concentrations described as:

- Open Ice (*Floating ice in which the ice concentration is 4/10 to 6/10, with many leads and polynyas, and floes that are generally not in contact with one another*) AND
- Fresh Channel (provided the channel is wider than the ship) in Fast Ice. Fast Ice is described as *sea ice which forms and remains fast along the coast, where it is attached to the shore, to an ice wall, to an ice front, between shoals or grounded icebergs. Vertical fluctuations may be observed during changes of sea-level. Fast ice may be formed in situ from sea water or by freezing of floating ice of any age to the shore, and it may extend a few meters or several hundred kilometers from the coast. Fast ice may be more than one year old and may then be prefixed with the appropriate age category (old, second-year, or multi-year). If it is thicker than about 2 m above sea-level it is called an ice shelf.*

NOTE: The ship's speed is usually reduced while traveling through ice and acoustical surveys can be significantly attenuated.

<b><u>Navigational Equipment (Ship's Use)</u></b>	<b><u>Type (Make/Model/Amount/Location)</u></b>
Radars (X and S Band)	Furuno/FAR2107/FAR2807/1 each/Ships Central Console (SCC)
GPS and DGPS	Simrad/ MX512 1 Master on SCC, 2 MX510 slaves SCC
Gyro Compass	Teledyne TSS/Model SG Brown Meridian Gyrocompass/2/ IMU room
Deepwater and Shallow Navigational Echosounders	Furuno FE-700/1/SCC
ECDIS	Transas Ltd./NAVI-Sailor4000 ECDIS/2/SCC and Chart table
Additional Navigational Software	Rosepoint Coastal Explorer 2011/1/SCC, Chart Table, CO room Nobeltec Admiral 11/1/Chart table

<b><u>Navigational Equipment (Access to onboard Scientists)</u></b>	<b><u>Type (Make/Model/Amount/Location)</u></b>
GPS and DGPS	Simrad/ MX512/ 1 Master/Acoustic Lab
Gyro Compass	Meridian Gyrocompass repeaters
Deepwater and Shallow Navigational echosounders	Simrad EK60 Scientific Echo Sounder
ECDIS	Navi-Sailor 4000 displays
Charting Program with Ship's Position	Rosepoint displays

<b>Laboratory Spaces and other Scientific Spaces</b>			
<b>Type</b>	<b>Location</b>	<b>ft.<sup>2</sup></b>	<b>Description: (Available Services and/or Connections, counter space, etc.)</b>
Climate Controlled Space	Main Deck, adjacent to wet lab	57	For temperature control. Services available: Uncontaminated scientific seawater, Uninterrupted Power Supply (UPS), potable water, compressed air, Scientific Computer System (SCS), fiber network, CAT6 network
Dry Lab	Main Deck	300	For work free from saltwater intrusion. Services available: Uncontaminated scientific seawater, UPS power, potable water, compressed air, SCS, fiber network, CAT6 network
Electronics/Computer Lab	Main Deck	445	AKA: Acoustic Lab. Services available: UPS Power, compressed air, SCS, Closed Circuit Television (CCTV), fiber network, CAT6 network. Also houses the majority of the sonar equipment

Hydro Lab	Main Deck, Starboard	85	For work in proximity of overboard operations. Services available: Uncontaminated scientific seawater, compressed air, SCS, fiber network, CAT6 network
Staging Bay	Main Deck, Starboard	360	AKA: Side Sampling Station. For work directly overboard. Services: Uncontaminated scientific seawater, UPS power, seawater, potable water, compressed air, Scientific Computer System (SCS), fiber network, CAT6 network, overhead lifting monorail
Scientific Freezer	Main Deck, adjacent to Wet lab		Flash freezer, -20 Degree Celsius
Scientific Refrigerator	Wet lab	103	Lowest temperature possible: -18 Deg.C
Store Room	Main Deck	30	Scientific Hazmat Locker. For storage of chemicals requiring temperature and environmental monitoring. Space is ventilated and CO2 protected.
Van/Shipping Container (provide in advance a draft van deck placement footprint with approximate weights)	Main Deck and O1 Deck		For additional enclosed laboratory space. Services: Main Deck: space for ISO container 1CC Standard = 20 feet (6m) O1 Deck: Space for ISO container 1D = 10 feet (3m) Uncontaminated scientific seawater, UPS power, seawater, potable water, compressed air, Scientific Computer System (SCS), fiber network, CAT6 network
Wet Lab	Main Deck	630	For work involving direct seawater intrusion Services available: Uncontaminated scientific seawater, UPS power, seawater, potable water, compressed air, SCS, CCTV, fiber network, CAT6 network, overhead lifting monorail, ventilated chem work hood
Bio Lab	Main Deck	287	AKA: Chemical Lab. Uncontaminated scientific seawater, UPS power, potable water, compressed air, SCS, CCTV, fiber network, CAT6 network, ventilated chem work hood
Scientific Ready Room	Main Deck	134	Space for scientists to prepare for external operations. Contains bench, sink, ice machine, boot rack and hard hat rack
Scientific Freezer	Hydro lab		Ultracold, -80 Deg.C

## Scientific Data Collection Systems and Supportable Operations

Type	Brief Description (where equipment is involved, please state what type (i.e. ME70, EK60, ES60, Seabird, etc.))
Acoustic Current Doppler Profiler (ADCP)	Teledyne Ocean Surveyor/Observer 75 kHz
Conductivity, Temp., Depth (CTD) With Water Samples	Seabird Electronics Model SBE9plus CTD/SBE 11plus V2 Deck Unit/SBE 32 Carousel Water Sampler with 24 bottles/Fluorometer/Transmissionometer/Teledyne Benthos 12kHz Pinger/Teledyne Benthos Sonar Altimeter/Photosynthetically Active Radiation (PAR) sensor
Conductivity, Temp., Depth (CTD) Without Water Samples	Self-Contained portable CTD- Seabird SBE 19plus v2 SEACAT Profiler/SBE36 Power Data Interface Module
Dive Team Equipped	Bauer Verticon Compressor, Containment Fill Station and 6000 PSI filling banks
Expendable BathyThermographs (XBT) Capable	Lockheed Martin MK21 USB DAQ Surface Ship Bathythermograph Data Acquisition System
Mooring Deployment/Recovery Capable	Aft Crane has 10,000 lbs. Safe Working Load
Multibeam Equipped for Biological Surveys	Kongsburg Simrad MS70 Scientific Multibeam Sonar
Multibeam Equipped for Biological Surveys	Kongsburg Simrad ME70 Scientific Multibeam Eco Sounder
Scientific Computer System Equipped	SCS Version 4.7
Thermosalinograph	Seabird SBE 21 Thermosalinograph and Seabird SBE 45 Thermosalinograph
Trawl Fishing Capable	PTS Pentagon Trawl System
Trawl Sensor Equipped	Kongsburg Simrad FS70 Trawl Sonar System
Trawl Sensor Equipped	Kongsburg Simrad ITI Trawl Instrumentation System, Acoustic Net Mensuration System
Unmanned Aerial Systems (AUS) Support	Future capability
	K-Sync trigger for scientific echosounders
Acoustic Release Transducer	EdgeTech 8012A Acoustic Release Transducer
CUFES Egg Sampling System	Continuous Underway Fish Egg Sampling System (CUFES 100) – Concentrator and Sample collector
Kudsen Ecosounder	Passive sonar – future capability
Long Range Omnidirectional Sonar	Kongsburg Simrad Fish Finding Sonar SX93
Meteorological System	Belfort Aerovane and R.M. Young system
POS/MV	Applanix model POS/MV320 V4
Sea Surface Temperature System	Airmar Temperature Sensor model B17-2-TEMP
Self-Noise Hydrophone (SNH)	Ultra Electronics SNH Model 5050

**DATA COLLECTED BY THE SHIP'S SCIENTIFIC COMPUTER SYSTEM (SCS) IN THE STANDARD CONFIGURATION**

Description	Units	Data Source
DPT - Depth of Water with transducer offset	m	EK60, ME70, Doppler
GLL - Geographic Position (Lat/Lon)	Deg.	MX512, POSMV
HDT - Heading (True)	Deg.	Gyro, POSMV
HFB - Trawl Headrope to Footrope and Bottom	m	ITI Trawl Eye Sensor
ITS - Trawl Door Spread	m	ITI Door Spread Sensors
MTW - Mean Temp. for Water	Deg.C	Airmar Thru-Hull, SBE38., FS70, ITI
RPM - Engine Shaft Revolutions	RPM	Shaft
TPT - Trawl Position True	Deg.	ITI
VBW - Dual Ground/Water Speed	KTS	ADCP, Doppler, Consilium
VHW - Water speed and heading	KTS/Deg	Doppler
VTG - Track made good and ground speed	KTS	MX512, POSMV
VWR - Relative wind speed and angle	KTS	RMYoung
ZDA - Time and Date (UTC. d. m, yr, TZ)		
VLW - Distance traveled through water	NM	Consilium Speed Log
GGA – GPS Time, Geographic Position (Lat/Long) Sat. quality, Altitude, # Sats	GMT, Deg.,m	MX512 GPS, POSMV
DBS- Depth Below Surface	m, ft. ftm	EK60, ME70, FS70
CTD – Temp. Depth, Salinity, Conductivity, Time, Oxygen, pH, PAR, Fluoro, Descent Rate		SBE9+ and SBE19+ CTDs
XBT – Expendable Bathythermograph		Depth, Sound Velocity
Fluro – Fluorometer Scan, Date, Time Fluorescence		Turner Fluorometer
TSG – Theromosalinograph- SBE38 Temp. Salinity, Conductivity, Internal Temp. Sound Velocity	Deg.C, PSU, s/m, m/s	SBE 45 & SBE21
BARO – Barometric Pressure	hPa	Vaisala Barocap PTB330 Barometer
MWV – Relative Wind Direction, Relative Wind Speed	Deg., KTS.	RM Young 05106 Marine Wind Monitor
MTA- Air Temp. Relative Humidity	Deg.C,%	RM Young
TRUE- True Wind Speed, True Wind Direction	KTS, Deg.	RM Young 05106 Marine Wind Monitor–Derived in SCS
Centerboard position		Ships Centerboard
Shaft RPM	RPM	Shaft
RCWWT – Hydro Winch Tension	Tons	Hydro Winches
RCWWS – Hydro Winch Line Speed & RPM	m/s,RPM	Hydro Winches
RCWWL- Hydro Winch Line out	M	Hydro Winces
TAWWT – Starboard & Port Trawl Winch Tension	Tons	Trawl Winches
TAWWS – Starboard & Port Trawl Winch line speed and RPM	m/s, RPM	Trawl Winches
TAWWL- Starboard and Port line out	m	Trawl Winches

**DECK EQUIPMENT:**

<b>Winch – CTD (A-Frame)</b>		<b>Winch – Traction (Oceanographic)</b>	
Quantity:	2	Quantity:	1
Manufacturer:	RAPP HYDEMA	Manufacturer:	RAPP HYDEMA
Model:	HW-500	Model:	TWR-4000EB
Drive:	Electronically Controlled DC motor and brake	Drive:	Electronically Controlled DC motor and brake
Max. Pull (lbs.):	7700 @ 23m/min	Max. Pull (lbs.):	30000 @ 32m/min
Max. Depth (m)	3500	Max. Depth (m)	3500m
Drum Capacity:	4,000m of 0.375" cable	Drum Capacity:	4000m of 0.681" electromagnetic cable
Type of Cable Installed:	0.375" (9.5mm) electromechanical cable	Type of Cable Installed:	0.681" (17.3mm) electromechanical cable
Length of Cable on the drum (m)	4000 Aft 2000 Forward	Length of Cable on the drum (m)	4000
Location:	O1 Deck, Starboard, Amidships	Location:	2 Deck, Oceanographic Winch Room, Amidships, centerline

<b>Winch – Trawl</b>		<b>Winch – Net Sonde (3<sup>rd</sup> Wire)</b>	
Quantity:	2	Quantity:	1
Manufacturer:	RAPP HYDEMA	Manufacturer:	RAPP HYDEMA
Model:	TWS 7525E	Model:	SOW 500E
Drive:	Electronically Controlled DC motor and brake	Drive:	Electronically Controlled DC motor and brake
Max. Pull (lbs.):	50000 @ 23m/min	Max. Pull (lbs.):	8100 @ 23m/min
Max. Depth (m)	2500	Max. Depth (m)	3500m
Drum Capacity:	3000m	Drum Capacity:	4000m of 0.450" (11.4mm) electromechanical wire
Type of Cable Installed:	1" (26mm) wire	Type of Cable Installed:	0.450" (11.4mm) electromechanical wire
Length of Cable on the drum (m)	3000	Length of Cable on the drum (m)	4000
Location:	2 Deck, Trawl Winch Room, Aft, centerline	Location:	02 external Deck, port side



<b>Crane, Telescopic Boom (Aft Deck)</b>		<b>Crane, Telescopic Boom (Forward stores)</b>	
Quantity:	1	Quantity:	1
Manufacturer:	Appleton Marine	Manufacturer:	Appleton Marine
Model:	KEB120	Model:	SB10-23
Boom Length (ft.):	65	Boom Length (ft.):	23
Lifting Cap. (lbs.):	10000 @ 30 ft., 1000 @ 65 ft.	Lifting Cap. (lbs.):	1000
Location:	01 Deck, Starboard, Amidships	Location:	02 Deck, Starboard, Forward

<b>A Frame</b>		<b>Stern Gantry</b>	
Quantity:	1	Quantity:	1
Type:	Movable	Type:	Movable
Clearance over the side (ft.):	8.5 outboard	Clearance over the side (ft.):	9.5 astern
Horizontal Clearance (ft.):	11.5 outboard	Horizontal Clearance (ft.):	23 astern
Safe Working Load (lbs.)	2000	Safe Working Load (lbs.)	8000
Location:	01 Deck, Starboard, Amidships	Location:	Main Deck, Aft, Amidships

<b>Boat Davit (Rescue Boat Davit)</b>		<b>Boat Davit (Miranda Davit)</b>	
Quantity:	1	Quantity:	1
Manufacturer:	Schat Harding	Manufacturer:	Schat Harding
Model:	SA 3.5 with W50 RS winch	Model:	MRT 3900 with BHY5300 Miranda winch
Hoisting Capacity	10000 lbs.	Hoisting Capacity	8375 lbs.
Location	01 Deck, Starboard, Amidships	Location	01 Deck, port, Amidships
Boat type used	FAST RSQ	Boat type used	RHIB – Work Boat

<b>Anchor - Bow</b>	
Quantity	2
Type	Stockless
Weight (lbs.)	4630
Port Anchor Chain Length (fathoms)	120
Starboard Anchor Chain Length (fathoms)	180

<b>BOATS (Normally Equipped)</b>				
	<b>Type</b>	<b>Horsepower</b>	<b>Length Over All (ft.)</b>	<b>Max. Persons</b>
1	Rescue Boat (SOLAS Approved)	32 HP	15.5	6
		FAST RSQ model 475 A SRL		
2	Rigid Hull Inflatable Boat (RHIB)	270 HP (135/engine)	26.4	18
		Zodiac Hurricane Model H753OB. Gasoline powered, intended for scientific specimen collection		

<b>Additional Capabilities (not previously stated)</b>	
<b>Type</b>	<b>Description</b>
Dynamic Positioning Capable	L3/NMS6000 DPS-2 with Independent Back-up Joystick/Bridge SCC and 3 additional workstations
Compressed Air	
Ability to support additional services	
Gilson Winch	On 01 Deck, RAPP HYDEMA model GW-4500E with 250m of 24mm spectra rope. Deigned to assist bringing in heavy objects on deck (net, etc...). Safe Working Load (SWL) 19.5 metric tons at 34m/min
Outhaul Winch	On stern gantry, RAPP HYDEMA Model M12 with 110M of 13mm spectra rope. Designed to move heavy objects (net, etc...) off deck. SWL 5.45 metric tons @ 46m/min
Net Reel	On Main Deck, single drum, RAPP HYDEMA model NDD-400B. Storage capacity 9M3. SWL 19.9 metric tons @ 58m/min