

JD	Time UTC	targeted site	Seaboss	Odyssey 7 clip #	depth (approx)	grab	Comments
<b>Survey Times:</b> UTC (ZD= -5 hrs) <b>Personnel:</b> R/V Connecticut = Dann Blackwood (USGS); Seth Ackerman (USGS); Ivar Babb (UConn); Peter Auster (UConn); Chris Conroy (UConn); Roman Zajac (UNH); Kay Howard-Strobel (UConn); Olivia Walton (UNH); Courtney Schneeberger (UNH); Tyler Fountain (UMaine) -- <b>UConn crew:</b> Marco (Capt); Frank; Bill; Rick; Erin							
<b>Positions:</b> UTM Zone 18N WGS84							
<p><b>GPS Equipment:</b> Dann's handheld Garmin GPSmap 76C GPS is set up (WGS84; WAAS-enabled GPS) with the antenna running out the wetlab stuffhole; along the port rail to about 2 meters from the stern. Antenna is aft port side as far back as the cable can reach -- ~ 2? meters from the stern/A-frame and ~3-4 meters from the deployment location. Logging the Garmin GPS to DataBridge CF card; and into ArcMap GPS via Belkin usb to serial adapter on SFMG MBP running Windows7 in Parallels9 - saving 1 (really 2) second point shp. The Garmin nav is also being fed to the rocket port hooked up to Dann's Dell Latitude E6400 laptop, running the Horita SCT-50 software (takes the GPS feed in, puts out the video overlay text - time date and lat/long) via serial cable to the Horita SCT-50 which then goes on the video. Ship's nav is Nobeltec getting DGPS from the antenna centered aft on the wheelhouse via feed in DryLab - logging this as a backup in Hyperterminal via Pluggable usb to serial adapter on SFMG MBP running Windows7 in Parallels9. Ship's nav is also being fed to the Horita GPS3 (use Null modem serial cable) getting NMEA nav strings parsing the time only to provide timecode to the Odyssey7. The GeoStamp Audio is taking the Garmin nav in and NMEA strings are being encoded onto the audio-in of the Odyssey7.</p>							
<p><b>SEABOSS Sampling:</b> SEABOSS sampler is a modified Van Veen sediment grab with one GoPro 4. Wired lights for the down video/camera. Keldan light for fwd vid/GoPro. Down video into the GPS3; GPS from the ship's nav (use Null modem serial cable) getting NMEA nav strings parsing the time only to provide timecode to the Odyssey7. Note ship's nav is for the antenna on the wheelhouse; not the A-frame or the deployment point of the SEABOSS. Dann's Garmin GPS is set up (WGS84; WAAS-enabled GPS) with the antenna running out the wetlab stuffhole; along the port rail to about 2 meters from the stern. Antenna is ~3-4 meters from the deployment location. Roman has a point-and-shoot camera used to take topside photos of the VanVeen grab upon recovery of a sample with a sample id tag.</p>							

**Video:** The primary video is a down-looking Simrad (version #????XXXXXX) SD video, fwd is the same camera model SD video, both run up the Falmat electromechanical cable on the Interocean winch. Video feeds come into the RemoteOceanSystems (ROS) control box (beige box). Down video out ROS to the Horita SCT-50 then split to the Odyssey7 (via the Horitia GPS3 -> Etekcitcity upsampler set to 720P60FPS) and the JVC SR-HD1250 BluRay recorder then to the Videonics Video Mixer then to the JVC monitor. Fwd video is out ROS to Horita SCT-50 then to the JVC SR-HD1250 BluRay recorder then to the Videonics Video Mixer and the JVC monitor. GoPro Hero4 is shooting 1080P60FPS video alongside the fwd looking Simrad camera (same orientation). GoPro camera and all the video overlay are set to UTC time and have calibration photos of time.is/utc and/or timecode (on Odyssey7) to determine time offset; if any. The GoPro was time synced regularly to UTC using Camera Studio software on Seth's MBP.

**Photos:** Nikon D300 Still camera w/ Photosea strobe. The Nikon is taking 12 Megapixel photos and is set to UTC time and have calibration photos of time.is/utc and/or timecode (on Odyssey7) to determine time offset; if any. The Nikon was synced regularly to UTC manually. Roman has a point-an-shoot camera used to take topside photos of the VanVeen grab upon recovery of a sample with a sample id tag.

### Tuesday Nov 28 2017 JD 332 (all times are UTC)

332	0000						Start of survey --
332	110000-ish						leaving the dock at UCONN Avery Point
332	125453	sediment grab	SB64_1	clip 414			vob -
332							shell (slipper snails)
332	125820					y	voffb
332	131621	sediment grab	SB64_2	clip415			vob - no lights no lasers (my bad; I blew out the lights)
332							sandy; sm ripples
332	131915					n	vof - grab didnt trp - redeploying for a pic & grab
332	132330					y	just grab & 2 photos and gopro is still running -- muddy vob & voffb

332	134155	sediment grab	SB64_3	clip 416			vob - still no lights/lasers
332							sandy ripples (sandy mud?)
332	134350					y	voffb - muddy again
332			pause				pausing to switch out the lights.
332	142523	transect	SB64	clip 417			vob - lights and lasers fixed
332	142623						starting transect at .2 knots - ~ 20min to go 500m at this speed - from 12 to 7 meters
332	143530						line attached to gear?
332							burrows but otherwise pretty featureless bottom.
332							shell hash
332	144645						surface bioturbation; crab tracks - looks like its going to take a lot longer than 20 min
332	145430						ledge - getting rockier; cobbles; shells -
332	150000						slipper snail shells red algae
332	150120						kelp - islocated blades
332	150350						slippersnails - sponge - halicondria; more kelp
332	152340						fishing line in the video
332	152725					n	voffb
332	155820?		test				test shot with still camera and video (15-seconds)

332	160120	sediment grab	SB60_1	clip 419	~18m		vob
332							shells; shell fragments
332	160403					y	voffb
332	162452	sediment grab	SB60_2	clip 420	20m		vob - vid started 1 min ago
332	162640					y	voffb
332	164306	sediment grab	SB60_3	clip 421			vob
332							sandy-er; ripples; shells and shell hash in the troughs
332	164528					y	voffb
332	170300		pause				pause to change batteries in GoPro; Strobe; Keldan light. Also downloading the GoPro vids
332	170825		test				calibration shot on GoPro - was 3 seconds off. Reset time to UTC; switched GoPro to video + photo every 30 sec
332	180201						vob
332	180259						voffb - no strobe; stopping to change Nikon battery
332	182000-ish		test				test strobe - calibration shot with time.is/utc
332	184110	transect	SB60				vob
332	184235						starting transect at .4-.7 knots

332	184600						fish in the down video; maybe a sea robin
332	184900						sand ripples
332	185100						crab
332	190110						ghost lobster pot
332	190750						log?
332	191020						sponge; big sponge; boulders
332	191100						dropping back down over the ledge.
332	191400					n	voffb
332	190312	transect	SB60_B				vob - back down at SB60 to transect over the ledge boulder area - fwd camera is out.
332							starting transect back ~50m
332							very boulder-y w/ sponges
332	193843						verticle sponges - Haliclona sponge
332	193920						ledge - a lot of it
332	194027						beer can
332	194105						trap line

332	194148						back in to sandy/muddy sediment
332	194220					n	voffb
332	201020	sediment grab	SB61_1		40m		vob
332							shell hash; micro ripples; with shells in the troughs
332	201133						scallop opening its shell
332	201350					y	voffb
332	203351	sediment grab	SB61_2		65m		vob
332							oak leaf floated by. cobble; gravel; sea star; sm boulder
332	203945					n	voffb - too rocky to grab
332	205639	sediment grab	SB61_3		80m		vob
332							ledge; coral; sponge
332	210530					n	voffb - ledge no grab possible
332	212729	transect	SB61	clip 430	70m		vob
332							more oak leaves; shell hash and gravel
332	213030						starting on transect

332	213200						dense shell bed
332	213340						ripples; less shell; some topography
332	213513						lots of shell hash
332	213645						few sand dollars
332	213715						nice bedforms in the fwd video
332	214045						squid a few econds ago; spider crab; neat sand ripple pattern
332	214820						not as defined sand ripples; sand dollars; spider crabs
332	215957						some larger cobbles
332	220233	sediment grab	SB61_4			y	voffb - grab at end of transect. calling the grab SB61_4
332	222251	sediment grab	SB61_5	clip 430			vob
332							some sand ripples; spider crabs; sand dollars
332	222645					y	voffb - grab in the hummocky sediment
332	225557						changed batteries in GoPro; Keldan light and Garmin GPS
332	230310		NB42	clip 431			vob - not quite at the start of the transect so recording on the way over there
332							lots of shells; like a lot a lot

332	230534					n	voffb - there is a wayward tug out there that is having trouble getting around us; recovering to move to the south.
332	231000						scratch that; done for the evening. will need to come back to NB42 another time.
332	233000						dinner - salmon with green beans and potatoes; awesome fudgie browning/cheesecake dessert
	240000						copied all data to the Master HD - Lacie 5TB (and gave Chris a copy too)
<b>Wednesday Nov 29 2017 JD 333 (all times are UTC)</b>							
333	110000						breakfast - spinach; mushroom; tomato; cheese omelet and whole wheat pancakes
333							changed batteries in GoPro; Keldan light; Nikon D300 and Garmin GPS --- formatted microSD in GoPro; Odyssey7 SSD
333	123950	sediment grab	SB62_1		139f		vob
333	124244					y	voffb - grab
333	130555	sediment grab	SB62_2				vob
333							rockier - messed up the BR record; started a few seconds behind the Ody
333							boulders and cobble
333	131028					y	voffb - grab in the pebbly area - only half the van veen - no bio data; just sed analyses
333			pause				hooked up the ships nav to SMFG laptop via hyperterminal
333	133810	sediment grab	SB62_3				vob



333							encrusting astrangia(?); boulders cobbles; gravel
333	134335					n	voffb
333	141500	transect	SB62		230f		vob
							starting transect - rocky; bouldery; skate about 30sec into video
333							we're moving pretty fast but we think well get good still photos
333	142504					n	voffb - no grab too rocky and sampler tripped in rough seas
333	152340		test				calibration photo with Nikon D300
333	154806	sediment grab	SB57_3				hummocky sand
333	155008					y	voffb - grab
333	161550	sediment grab	SB57_2	clip 436			vob
333							micro ripples on mega-ripples
333	161710				155f	y	voffb - grab
333	165406	transect + grab	SB57		122f		vob
333							starting transect with current (no DP) gravelly sediment; shells and shell hash
333							moving along at 1.5-2 knots

333	165850						hit the sand waves; literally. then quickly transitions back to gravelly sediment
333	170045-ish						patch of sand among the gravelly sediment - caught in photo?
333	170100						no strobe - battery?
333	170222					y	voffb - grab
333	182530	sediment grab	SB51_1		134f		vob
333							shell hash
333	182744					y	voffb - grab - late stop on the recording video (got another 20+ seconds)
333	184306	sediment grab	SB51_2		160f		vob
333							shells and shell hash; similar to previous site
333	184515					y	voffb - grab
333	190428	transect	SB51	clip 441			vob
333							cobbles; shells
333	190535						boulder with algae
333	190930						line on the bottom
333							gravel; lots and lots of gravel and some cobble and shells

333	192228						fish; maybe in the photo?
333	193050						end of the transect
333	193122					y	voffb - grab
333	201243	transect + grab	NB30	clip 442	126f		vob - we are way off the line. but we'll record anyway since the sampler is in.
333							gravelly sediment; sand ripples
333							in a low backscatter feature for most of this transect
333	201740						transitioned from sand ripples into shell hash on sand
333							going to try for a grab then continue to drift
333	202322					n	GRAB - didn't trip; trying again
333	202410					y	GRAB - good one (we think)
333	202608						at transition to higher backscatter
333							looks a little shellier (maybe)
333	202744						a bit more gravelly here
333	202822						voffb - grab mid transect back at 202410
333	205830		test	clip 443			board shot under sampler; photo and video clip on odyssey7

333	210408	sediment grab	SB50_2	clip 444			vob (first photo might be before the video started)
333							gravelly sedimetn with shells and shell hash
333	210750					y	grab
333	210810						voffb - grab about 20 seconds ago
333	212428	sediment grab	SB50_3	clip 445			vob - will take grab soon before we drift out of the box
333	212458					y	grab and will continue to drift
333	212710						voffb - grab earlier in drift
333	214740	transect + grab	SB50	clip 446			vob - first photo may have been before video started
333							shell hash; gravelly; scallops
333							spider crab scallop; coming down over the top of ridge (sand dune ~ 5m relief)
333	220418		SB50_1			y	voffb - grab seems like its spewing some though
333	221448	sediment grab	SB50_4				vob
333	221530					y	voffb - grab - again spewing a bit
333	224200	transect	NB32		32m		vob
333							shell hash; gravelly; spider crab;

333	224338						trawl wire
333							heading uphill according to the bathy
333	224600-ish						isolated boulders
333	225102						boulders (as seen on bathy map)
333	225132					n	voffb - no grab -- ended by boulder field
333							
<b>Thursday Nov 30 2017 JD 334 (all times are UTC)</b>							
334	115000						breakfast - waffles w/ strawberry topping & scrambled eggs
334	121500						changed Nikon; GoPro and Garmin GPS batteries; reformatted Odyssey SSD & GoPro microSD card
334	121600						started new logging file on DataBridge; ArcMap and Hyperterminal
334	123629						board under camera. calibration shot too
334	124700	transect	NB38	clip 449	34m		vob - first photo mayhave been before video recording
334							gravel and shells some cobble
334	124840						small boulders in the fwd; no down. astrangia coral - "breadcrumb sponge" razor clams shells
334	125700				25m		transition into finer sediments; hummocky sand ripples with small shell hash in the troughs

334	125905						oak leaf floating by
334	130000						heading laterally across the face of a sand wave; sampler tipped a bit
334							finer sediment hummocky seabed; less shell hash
334	130610				18m		
334	130955					n	voffb - no sample (tripped earlier- will reset and drop again nearby)
334	131504	sediment grab	NB38_1	clip450			vob
334	131535				17m	y	voffb - grab
334	132921?		test	clip 451			board under camera. calibration shot (double check time against Odyssey) + vid on Odyssey
334	134735	sediment grab	SB56_1	clip 452	70m		vob
334							gravel; cobble; shells; slippernails??
334	134949					y	voffb - grab (video went a little longer)
334	140429	sediment grab	SB56_3	clip 453	74m		vob
334							gravel; shell hash
334	140551					y	voffb - grab
							changed out camera and strobe batteries; downloaded GoPro and Nikon data

334	142115	transect + grab	SB56	clip 454	81m		vob
334							gravel and shells some cobble
334	1424000-ish						slippersnails
334	142540-ish						crab sprinter ran across the video
334	142557						boulder giant one with astrangia
334	142715						LOBSTER!!! - far left side of down video
334	142909						coming up the slope fast
334	142946						giant boulders!! - boulder field
334	143053						ledge with boulders on it
334	143258						fishing gear? bricks?
334	143321						line and trap?
334	143353				~60m		pile of bricks
334	143847						hit the ledge; GoPro will have great oblique vid if its hasn't been knocked off the sampler.
334	144055				53m		sponges
334	144127						pile of traps

334	144200						transition into fine sediments
334	144247						then quickly back into cobble and boulders again
334	144401-ish						we're following a trap line
334	144659						bottle
334	144751						old trap
334	144907	sediment grab	SB56_2			y-ish	vob - trying for a grab in an open spot w/o boulders/cobble, hopefully got some gravel -- UPDATE: rock stuck in jaw; got a tiny amount of leftover sediment + a rock in each whirlpak.
334	150005		test				board under camera. calibration shot too -- going to try for another sample nearby at original sed2-sb56 location
334	150753	sediment grab	SB56_2b	clip 455			vob - we're about 150 east of the target site
334							shells cobble around boulders
334	150953					n	voffb no grab
334	192531	sediment grab	B56_2actu	clip 456	54m		vob - trying again at target site sed2-sb56
334							more boulders and cobble.
							lobster; also lobster (maybe more than 1 b/c we saw it in the fwd too)
334	152725					n	voffb no grab
334	160515		test				board under camera. calibration shot too



334							
334	161103	transect	NB34	clip 457	48m		vob
334	161249						starting transect - lots of rocks
334	161500						boulders; welk shell; shells shell hash
334	161651						shark egg case
334	162513				54m		few isolated blouders; lots of gravel and shell hash
334	162559						crab
334							getting a little deeper than we'll be heading up a ridge; then back down again
334	162711						boulders and cobble all covered with astrangia
334	163121						back into gravel and shells
334	163242				58m		scallop
334	163527					y	<del>vob - grab - spewing a bit - only about 1/2 the grab filled so</del> took smaller than usual subsamples for the lab (hopefully enough)
334	170000						lunch - Cheeseburgers with lettuce tomato. waffle fries. baked beans. chicken sausage
334	172557		SB53_1	clip 458			vob
334							gravelly sediment and shell hash; we are on the slop of a giant (10m) sandwave

334	172737					y	voffb - grab
334	173845						board shot
334	174441	sediment grab	SB53_1	clip 459	12m		vob -- deploying with Ivar's 360 camera as a test
334							nice sand with ripples and shell hash in the troughs
334	174643					y	voffb - grab - great one - filled the sampler
334	175351						board shot
334	180153	transect + grab	SB53	clip 460	24m		vob
334							hummocky sand ripples with a little bit of shell hash
334	180639						coming up on the sandwave
334	180815						heading back down the other side of the sandwave
334	181359						a lot of shell hash and coarse sediment/gravel collected in a trough we just passed
334	181811				33m		lots of mussel shells and live mussels (?)
334	182100-ish						transition to clams instead of mussels
334	182435						slippersnails and clams
334	182807		SB53_2			y	voffb - grab

334	190049						board shot
	190545						oops: never shut off the video (Odyssey & DRY) so it was up to an hour of recording time. will have to split those files at 18:28:07 later.
334	190551	transect + grab	NB28	clip 461			vob
334	190621						beginning transect heading northnorthwest
334							spisula? (surf clam); moon snail?
334	191919						gravelly sediment ? shell hash
334	193117					y	voffb - grab
334							change batteries in Nikon; GoPro and Keldan light
334	194500-ish						Outreach -- Google Hangout with Ms Renyolds 4th-grade class at Mullen-Hall (Falmouth; MA)
334	200931						board under camera. calibration shot too
334	201555	transect + grab	SB46	clip 462			vob
334	201630						starting on transect; gravel and shell hash
334							Roman enjoying the leftover chips (aka warm mess) chop on the outside soggy on this inside; its an interesting consistancy" - Roman "They were amazing when they were freshly cooked" -Chris "I like the spice to it... cajun notes." -
334	202750						bulbus shell? what is it -- maybe a moon snail partly out

334	202845						another one - top left corner of down video
334	203327						another - Chris caught a pic of this one.
334	203700-ish						getting close to the end of the transect - transitioned into sand with ripples
334	204001		SB46_1			y	voffb
334	205809	sediment grab	SB46_3	clip 463	40m		vob - too deep to stand
334							gravel shell hash
334	205953					y	voffb
334	211717	sediment grab	SB46_2	clip 464	40m		vob
334							slippersnails bed abutted by gravel/pebbles
334	211821						squid
334	211919					y	voffb - grab
334	214915	sediment grab	SB43_1	clip 465	38m		vob
334							sandy with some ripples and slippersnails in the troughs
334	215049					y	voffb - grab
334	221509	transect + grab	SB43	clip 466	38m		vob - cptn says strong current

334							gravelly byrozoa
334	221651						starting transect with current and motor (no DP)
334	221757						ray (or skate)
334	22227						scallop
334	222755						graveely sediment
334	223250						transition to sandy sediments
334	223421						egg casing (skate or shark?)
334	223829						approaching transition to lower backscatter at end of transect - will take a sample there
334	224007		SB43_3			y	voffb - grab
334	225921	sediment grab	SB43_2	clip 467	43m		vob
334							sand ripples; shell hash
334	225951						sand with lost of shell hash but ripples disappeared
334	230105					y	voffb - grab
334							dinner - pasta with shrimp and scallops

**Friday Dec 1 2017 JD 335 (all times are UTC)**

335	111000		test				reset GoPro time to GPS - calibration photo with GoPro - spot on to GPS time
335	111500						changed Nikon; GoPro and Garmin GPS batteries; reformatted Odyssey SSD & GoPro microSD card
335	112000						started new logging file on DataBridge; ArcMap and Hyperterminal
335	113000						breakfast - veggie omelets; corned beef hash; bagels w/ cream cheese and smoked salmon
335	115503						board shot
335	115511						board under camera. calibration shot too (time on this one is 11:55:11)
335	120421	sediment grab	SB35_1	clip 468			vob - we might not have good nav in the Arcmap log, will need to fill from DataBridge or Ship nav if Garmin GPS was totally out during this deployment.
335							hit the bottom; terrible viz; murky
							something is wrong with the ArcMap GPS. Not updating location.
335	121113					y	voffb - grab
335	121807						board under camera. calibration shot too
							restarting ArcMap and new ArcMap GPS log file (JD335c)
335	122455	sediment grab	SB35_2	clip 469			vob - better viz
335	122620						gps in arcmap freaked out.
335	122751						seaboss up so dann can check out the gps antenna

335	122837					y	voffb - grab
335	123749-ish						board shot
335	124225	transect + grab	SB35	clip 470	38f		vob
335							boulders ledge - astrangia
335	124500-ish						no more rock; looks like muddy sand
335	124611						rocks again
335							boulders
335	124735						graveely sediment
335	124827						boulder
335	124957						cloth of some sort on the seabed
335	125115						looks like muddy sand with some boulders
335	125159						transition in backscatter from high to low backscatter;
335	125651						snail trails in the sediment
335	130143						transition into sand onto a sand dune
335	130315						Marco need to come to a stop and manuner around a pot; chaning course slightly on this transect.

335	130449						skate
335							some shell hash now in the small troughs of the
335	130651						heading towards target SB35_3 off the transect track; will take the sample somewhere between now and then.
335	130741		SB35_3			y	voffb - grab
	133000-sih						I think the bekin usb to serial adapter (logging the nav into ArcMap on Port3) is flaking out and that's why the nav keeps dropping out on there. Borrowing another usb to serial adapter from Kay HS; hooked it up now using port5 to log nav into ArcMap. Logging to same nav file (JD355d - may
335	135408		SB39_1	clip 471	140f		vob
335							looks sand with some shell hash; snails; slippersnail
335	135540					y	voffb - grab - coarse sand
335	141709??	transect + grab	SB39	clip 472			vob - check the start time on this one
335							shells sand
335							something is wrong with the lasers, we're only seeing one and its way up in the video frame. will fix this when the sampler is recovered
335	142545-ish						lone boulder scoured out around it. something was in it; Dann and Tyler said maybe a lobster. Chris got a pic of it.
335	142640						ab
335	142652						sharp transistion to sand with lots of shells



335	142700						strange seabed maybe clay; or something with fine laminate over it ??? -- relook at this spot in video/photos
335	142720						sand ridge
335							back to shells and sand
335							gravelly sand
335	142930						gravel and cobble sized sediment on sand
335	143044						crab city
335	143100						hake?
335	143200						razor clams -- sand stone?? slate looking things
335	143234						back to shell hash and sand
335							hake?
335	143436						more of that flat sandstone(?) covered by fine sediment.
335							boulder with scour
335							more of that layer clay(?)
335	143642						bag of some sort with a weight on it.(?)
335							sand



335	162650					y	voffb - grab
335	163000		pause				heading into the bay near Nianic Bay to exchange Ivar for Peter
335	164500						successful prisoner exchange; also took onboard some eggs and milk.
335	171424	sediment grab	SB54_2	clip 476	10m		vob - first photo before video started - Odyssey started a few seconds ahead of BD
335	171654					y	voffb - grab
335	172944	sediment grab	SB54_3	clip 477	10m		vob (started videos 20 seconds earlier)
335							sandy with shells
335	173148					y	voffb
335	175344	transect + grab	SB54	clip 478	10m		vob
335							sand with some sm ripples
335							kelp
335							lasers are funky; turned them down then cranked them up and they work
335	175648						starting on the transect
335							sponge (cliona)
335	175740						boulder with sponge on it

[illegible]

335	190850						fine sand with some burrows
335	191630						lots of fierce crabs ready to fight the SEABOSS
335	191850						welk egg case
335	192504					y	voffb - grab
335	195640						board under camera. calibration shot too at 19:56:40
335	200100	sediment grab	SB49_3	clip 480	30m		vob
335							gravelly sediment
335							lasers are not working right again. seems like something is messed up with those at depth
335	200356					y	voffb - grab
335	202402	transect + grab	SB49	clip 481			vob - first photo before video started
335							starting on the transect
335	202720						lasers went out as soon as we came to the bottom. tried to cycle off the lights/laser/fwd control box for a second. lost fwd camera for a couple seconds; unfortunately it didn't fix the
335	202740-ish						sea robin
335							sandy with shells
335							coming over the crest of a sandwave

335	203640				28m		boulder; then back in to sand
335							shell has and gravelly sediment
335							boulders
335	204630						sand with interesting ripples; shell hash in the troughs; some sponge
335	204710						giant boulders and a fishing line
335	205300						end of the transect put us at a boulder field; we'll shift over a bit to get a grab in the sand
335							coming up over a sand ridge now
335	205542		SB49_1		17m	y	voffb - grab
335	212000						fixing the lasers. removed the 2 (20cm) lasers (tied them on to a bar); and installed spare green and red battery powered lasers for scale.
335	212936						board shot with calebration photo (at time 21:29:36)
335	213628	transect + grab	NB26	clip 482	34m		vob
335							shells
335	213800						giant crab carrying a surf clam
335							moon snails
335							gravelly sediment with shells and shell hash

335	214620						moving bivalve (current?)
335	214946						clams gone wild
335	215340						some rippled sand
335	215740						fish ??
335	220034					y	voffb - grab
335	223252	transect	SB44	clip 483	22m		vob - were drifting backwards in the current
335							rippled sand
335	223820						rocky ledge and boulders
335	224300						<del>too risky trying backwards going up this ledge, trying a touch</del> and go approach. we'll fly high and drop down periodically to take a peek/photo
335							diadumanea (?) (anenamoos)
335							crashing in to lots of boulders and ledge
335	224600				14m		cresting th top of the feature
335	224616						LOBSTER!!
335	224900						off the big bathy high back into gravelly sediment
335	225110						more boulders

335	225200						back into sand ripples
335	225246						more boulders
335	225300						back to rippled sand
335	225542						flounder
335	230040					n	voffb - no grab - sampler tripped back in the boulder ledge area
<b>Saturday Dec 2 2017 JD 336 (all times are UTC)</b>							
336	111500						changed Nikon, GoPro and Garmin CR-2 batteries; reformatted Odyssey SSD & GoPro microSD card - new CF card in the Nikon
336							GPS issues; ArcMap is not playing nicely with tPS feeds; whenever ArcMap starts up it freezes the other GPS displays (Horita SCT; GPS3 - will check if it does the DataBridge too). Tried a bunch of things; including another usb serial from Kay; rerouting all the serial cables to put the splitter to the ArcMap computer at the end. Eventually we put the original Belkin adapter and black short cable (that I thought was bad) on and it all seems to work again. Not sure why; We will
336	124500						started new logging file on DataBridge; ArcMap and Hyperterminal
336	125640						board
336	130316	sediment grab	SB67_2	clip 484	12m		vob
336							sand ripples; shell hash in the troughs



336	130550					y	voffb - grab
336							
336	131146						board shot; calibration photo
336	131926	sediment grab	SB67_1	clip 485	11m		vob (started videos about 20 sec too early)
336							sandy hummocky bottom
336	132120					y	voffb
336	132809						board shot with calebration photo (at time 13:28:09)
336	133650	transect + grab	SB67	clip 486	30f		vob
336	133922						entering the rocky area; big boulders
336	134056						big big boulder; fish
336	134200						fishing line
336	134300						blackfish
336							headin through this boulder field is going to be great footage on the fwd looking GoPro
336	134710						into trench between the 2 rocky ridges. sand ripples
336	134746						fising line; sand is less rippled.

336	134900						back to the rocks and boulders
336							there have been lots more fish than any other site so far
336	135006						fishing line
336	135256						coming down off the ridge; a few isolated boulders and cobble;
336							into sand ripples with shell hash in the trough
336	135250						back into some more large isolated boulders
336	135930		SB67_3			y	voffb - grab
336	142740						board shot
336	143006	sediment grab	NB47	clip 487	14.5m		vob
336							sand with small ripples
336							flappy thing next to tube in lower right corner of the vid. -- "All kinds of mucousy goodness" - Roman
336	143158					y	voffb - grab
336	150256						board shot with calibration photo (at time 15:02:56)
336	150710	transect + grab	NB54	clip 488	56m		vob
336							sand ripples on sand waves

336	151014						brick;
336							fwd-looking camera shows some neat sand ripples
336							scallop and sanddollars
336	151520						heading up a big sand wave.
336	151842						shark egg case
336							sand ripples in the fwd camera are awesome
336	151940-ish						fish (scup?)
336	152052						patch of gravel in the trough in the sand ripple
336	152204						another pile of gravel in the trough of a small sand wave
336	152254						more gravel scattered about not necessarily in the troughs; + shell hash
336	152630						lost anchor
336	152736		NB54			y	voffb - grab
336							downloaded photos from Nikon & GoPro (took a GoPro test photos - was ~3 sec off; but reset the time to UTC anyway)
336							changed batteries on GoPro; Nikon and Keldan Light
336	160610						board pic with calibration shot

336	160940	transect + grab	NB59	clip 489	7m		vob - this might be the shallowest site of the survey
336							cobble and grave macro algae; kelp
336							small boulders
336	161408						getting into sand or gravelly sand with shell hash
336							some small boulders and cobble
336							third laser (floating one) has come back alive.
336	161830						took a short video clip on my iphone to send to Ezra's class. Chris; Peter and Tyler commenting on the biota.
336	162022				12m		transition to a field of slipper snails (?) although they don't appear to be stacking so may they are periwinkles or another snail.
336	162442						pavement of snails continues.
336	162914						trap in the fwd camera
336	163140						out of the massive shell beds into small rippled sand
336	163444					y	voffb - grab
336							awesome transect -- lots to see. were going to repeat the first 10 min of the line with Ivar's 360 camera
336	165247						board shot; calibration photo
336	165700	transect + grab	NB59_2	clip 490	12m		vob

336							same as before - came down on gravel, cobble and small boulders on sandy with a little shell hash; some cobble have that purple algae that Adirenne calls "Bubblegum Algae" in
336	165900						beginning transect
336	170756						getting to gravel mixed with those shells
336	170834					y	voffb - grab of those shells
336	184500						lunch - Taco - hard and soft tacos with ground beef; pulled chicken or pork & all the toppings + chocolate chip cookies.
336	180950	sediment grab					board pic with calibration shot
336	181328		SB73_1	clip 491	11.5m		vob
336							sand with pockets of gravel; cobble and small boulders with bryozoans; kelp
336	181850					y	voffb - grab - hopefully in the sand
336	183654	sediment grab	SB73_2	clip 492	13m		vob
336							2 fish - looks like they are playing with the green laser
336							another fish seemingly attracted to the green laser
336							sand with some isolated pockets of gravel and pebbles
336	183914					y	voffb - grab - lone boulder can be seen as we raise the sampler.
336	185900						The 360 camera is back on the sampler

336	190000						jelly on the way down - going to be cool in the 360 camera and GoPro (not recording in the other video)
336	190014	transect + grab	SB73	clip 493	16m		vob
336							small sandwaves with rippled sand on the crests (oriented 90 deg to the sandwaves) and cerpidula/slippersnails and shell hash in the troughs
336	190400						boulders with fish and sponges
336							back into sand with some occational large boulders
336	191200						fish in the fwd camera
336	191234						at the next bouldery ridge. shallowing up a bit
336	191310						fishing line in the rocks
336	191500						passing bouy; didn't see a line in the video
336	191544						fish
336	191618				11m		pile of tangled line
336	191716						dropped off the ridge and into small sandwaves with shell hash in the troughs
336	192130						sandwaves now have gravel in the troughs
336	192430						lobster pot and line
336							we're following the line; but then drifted north of it; seems like we past it safely

336							lots of litte fish going after the laser
336	192720						off the last boulder ridge on this track; few isolated boulders still present; otherwise hummocky rippled sand
							we were all set to get a sample then came on a bunch of boulders (not really seen in the NOAA bathy). drifting a little further to get a sample in sand
336	193152		SB73_3		14m	y	voffb - grab in the sand
	201500						downloaded photos from Nikon & GoPro. the last 6 minutes of photos on transect SB73 were very dark (some almost black)
336	202000						changed batteries on GoPro; Nikon and Keldan Light; switched out the strobe
336	203906	transect + grab	NB65	clip 494**	19m		vob
336							**odyssey froze on record. will have to replay the BD and record back onto the odyssey
			***clip 498**				UPDATE: I played it back and generated clip 498 but there's no good LTC timecode nor GeoStamp Audio in this version
336							Back in the office I can fix this properly by playing back the GPS strings from the DataBridge(?) into the GeoStamp Audio and the Horita GPS3 at the same time as playing back the video from the Blu-Ray and recording into the Oddyssey7
336	204022						4-armed astarius (starfish)
336							more starfish; a number of them
336							small bounlders with algae; cobble and gravelly sediment some shell hash
336	204400-ish						we are scooting a little further to the west to get more on top of this bathy high

336	204900						we bumped sideways into a giant boulder
336	204930						large kelp on cobble/gravelly sediment
336	205120						a lot fo fish among the boulders
336	205348						didendum (white encrusting sponge)
336	205538						big kelp
336	505740						out of the boulder area; into gravelly sediments with lots of mussel shells
336	205800						now sand with mussel shells
336	210054					y	grab - mid transect - continuing on for the next 100+ m to the end of the transect
336	210240						sharp transition from sand to gravelly sediment
336	210300						big boulder - scoured around the edges (seen well in the fwd camera)
336	210602						lobster line (fwd and bottom)
336	210628						into another bathy high - bouldery area surrounded by mussel shells and shell hash ; cliona sponge
336	210900						lots of clinoa sponge
336	211000						blood star (henricia) on sponge on boulder
336	211148					y	voffb - grab - coarse sand with mussel shells



336	213044	sediment grab	SB72_3	clip 495	15m		vob
336							gravelly sediment with some shell -- this is going to add to the rock collection
336	213236					y	voffb - grab
336	213900						board pic with calibration shot
336	215106	sediment grab	SB72_1	clip 496	10m		vob
336							rippled sand with cerpidula
336	215356					y	voffb - grab
336							we grabbed a ghost wire on the bottom. ended up not being attached to anything luckily; but it caused quite a stir. sample was good too.
336	221740	transect + grab	SB72	clip 497	10m		vob
336							rippled sand with some shells and sand dollars
336	222100						we are moving along the trough of a small sand wave that is on the margin of this shoal
							flat fish (Dann and I said flounder - Chris says ghost white flounder but not behaivng like a flounder -- the photo will tell
336							another piece of ghost line
336	222400						more rusty cable
336	222440						we are following along this rusty cable.

336	222550						more cable - on Dunn suggestion hooked at the backscatter and there is totally a linear feature between 2 pretty defined features about 25 meters long each
336	223250						approaching a transition to finer sediments (according to the backscatter) the margin of the shoal on the southern side (although on top of the shoal didn't seem much different in the video)
336	223515						floated over an isolated something (?) linear bar?? manmade??
336	224000						transition to higher backscatter but again we see little to no change in the video.
336							kelp
336	224128						squid (maybe 6 or so) in the fwd camera
336							There are a lot of these long grass-like attached strands (10-40 cm long). Tyler says maybe some kind of eelgrass; Peter said earlier that something like those could be worm tubes. Courtney says "I don't know"; I say "I don't know"; " Roman says they are "some sort of weird plant" --UPDATE: some came up in the grab - it is dead sea grass just stuck in the
336	224808		SB72_2			y	voffb - grab - hopefully we got some of the "weird plant" = dead brittle seagrass
336							
336			***clip 498***				this is the replay of the clip that should be 494 at station NB65.
336							dinner - pasta with turkey bolognese and veggies; chocolate cake for dessert
<b>Sunday Dec 3 2017 JD 337 (all times are UTC)</b>							
337	105000						breakfast - eggs; french toast and bacon - blueberry muffins (amazing)

337	111500						changed Nikon, GoPro and Garmin GPS batteries, reformatted Odyssey SSD & GoPro microSD card - new CF card in the Nikon; swapped out strobes; new laser batteries
337	113000						started new logging file on DataBridge (12:23:00); ArcMap and Hyperterminal
337	122230						board shot - calibration photo at 12:22:30
337	123800	sediment grab	SB71_2	clip 499	10m		vob
337							gravelly sediment with few shells and shell hash; mussels
337	123944						live mussels
337	124010					y	voffb - grab
337	125428	sediment grab	SB71_1	clip 500	11m		vob -BluRay started a few second after the Odyssey
337							rippled sand with sharp ridges
337	125612					y	voffb - grab
337	130350						2 board shots; second one is a calibration photo at 13:03:50
337	131332	transect + grab	SB71	clip 501	18m		vob - sandy with slippersnails
337							sand ripples
337							maybe finer sand no more ripples
337	132300						suddenly out of crepidula back into sand ripples

337	132354						line in the video; zastra (seagrass) clump broken off and stuck on the line
337	132446						small boulders in fwd camera
337	132620						boulders with sponges
337	132800						sponge vertical cliona
337	132838						very extensive cliona
337	132950				13m		cliona castle-like structure in the fwd
337							asterius on the rocks
337	133358						ghost lobster trap; blackfish on under the rock just after the pot
337							getting shallower
337	133514						old wire on the bottom (again)
337	133600						another ghost pot pretty damaged
337	133800						transition from sand into shells and gravel
337	133926						crab in the fwd
337	134420						asked the bridge to speed up a bit
337	134716						isolated boulder (its on the bathy and backscatter)

337	134820						another boulder - orange sponge; lots of other biota
337	134850						transition into lost of shells and gravel
337	135000					19m	fewer shells more gravelly sediment with shell hash
337	135240						cliona nodules among lost of crepidula
337	135420						transition into finer sediment as we come up on the shoal 17m up to 11m
337							rippled sand
337	135712					y	voffb
337	142320	sediment grab	SB70_1	clip 502	10m		vob - gravelly sediment
337	142430						jelly
337	142558					y	voffb - grab
337	143740						board pic with calibration shot
337	144318	sediment grab	SB70_3	clip 503	20m		vob - first photo before video started
337							in a low backscatter patch
337	144418					y	voffb - grab
337	145220						board pic with calibration shot

337	145950	transect + grab	SB70	clip504	19m		vob
337							gravelly sediment with few shells and shell hash
337	140320						voffb - no green laser aborting deployment to reset
							changed batteries on green laser
337	141705	transect + grab	SB70	clip 505	19m		vob
337	148000						starting transect
337							gravelly sediment; cobbles; shells - astrangia on some of the cobbles
337	151912						boulders
337	151920						there was something something man-made between the boulders
337	152138						transition into more cobble
337	152148						bottle and a welk
337	152208						sharp tranisitons into fine sediment then gravel and shells
337							this back and forth to fine sediments happened a couple of times
337							no back int o mostly gravelly sediment with cobbles and shells
337	152439						wire

337	152450						another line
337	152504						big fish in fwd camera (blackfish?)
337	152550						boulders covered with anenomes and some sponges
337							footage in the fwd and GoPro will be great
337	152736				10m		up a huge rock ridge
337	152830						up another huge rock ridge
337	153000						boulders with gravelly sediment between
337	153100				7m		bumped into giant boulder
337	153216						kelp
337	153230						black seabass hiding in the rocks
337							coming down over the north side of that rocky ridge area. still some smaller boulders but fewer giant ones.
337	153620						gravelly sediemnt with shell hash
337	153810						clipping the edge of the next ridge back into bouldery area
337	154100						changing course to the west b/c ship doesn't want to get any closer to the Ram Island
337	154240						out of the boulders in to very coarse seidment; lots of cobbles and shell hash

337	154340						fewer cobbles; more gravelly sediment; shell hash
337							moving into an area of slightly higher backscatter - more shell-y??
337	154654		SB70_2			y	voffb - grab
	160308						GoPro test shots (vid+ photos). GoPro time is spot on to the second. Yay!
337	160000						changed Nikon; GoPro; Keldan light; downloading the GoPro
337	162553	transect + grab	NB56	clip 806	15m		vob
337							Chris and Peter were called up to meet with Marco (they're in trouble!!); it's too shallow to follow the planned transect; so we'll parallel it a few 10s of meters to the north.
337	163410						beginning transect
337	163620						tumble-(sea)weed
337							sand with some ripples; shell hash; dead seagrass; - we are going against the current so there's a lot of stuff floating by
337	163830						small boulders with sponges
337							more shells and shell hash; lots of shell collecting by the rock
337							more cobbles and gravelly sediment
337	164030						hit a boulder
337	164110						lobster pot



337							fwd camera is going to have some great footage of the sponge
337	164500						algae (digitata) - palml algae
337	164700						kelp stuck on the fwd camera
337							gravelly sediment with lots of cliona sponge
337	164911						no sponge; gravelly sediment with crepidula
337	165207						spider crabs on pretty dense slippersnail bed
337	165553						lots of spider crabs and slippersnails
337	165813		NB56			y	voffb - grab
337	17347	transect + grab	NB51	clip 507	10m		vob
337							came down on a crepidula bed
337							transiting repeatedly over small - to - extensive dense beds of crepidula
337	174345				8.5m		dense beds of crepidula then a small ribbon of sand then more crepidula
337	174421						spider crab trying to fight the seaboss
337	174543						spider crab close up
337	174701						in the inter-crepidula bed areas there is interesting texture in the finer sediments - mottled and pocky maybe with some sort of burrows; others are more sandy with shell hash

337	180311					y	voffb - grab -- aiming for a grab of half crepidula/half sediment
337	183237	sediment grab	SB65_3	clip 508	14m		vob
337							spider crab having a look at a clam
337	183347					y	voffb - grab
337	184031						board pic with calibration shot
337	184239	transect + grab	SB65	clip 509	13.7m		vob
337							fine rippled sand
337	184451						beginning transect
337							lots and lots of rippled fine sand; a few shells and crepidula here and there too
337	190413		SB65_2		14m	y	GRAB mid transect - staying down to continue transect for a couple hundred meters more.
337							continuing over sand with some ripples and occational pockets of shells; shell hash and crepidula
337							spider crabs
337	191721						voffb
337	192637	sediment grab	SB65_1	clip 510	14m		vob
337							back down in the same spot the transect ended

							"every grab tells a story"- Roman
337	192807					y	voffb - grab
337	200401						board pic with calibration shot
337	200901	transect	SB68	clip 511	14m		vob
337							gravelly sediment and shells with shell hash
337	201201						boulder
337	201221						crepidula
337	201231						blue crab
337							getting shallower, maybe more fine grained sediment
337	201503						lobster trap (big fish swimming around it in the fwd camera)
337							back into gravelly sediment with shells and shell hash
337	201800						in sandy area with some ripples as we approach the shallowing rocky ridge area (as seen on the bathy grid)
337	201811						back into more gravelly sediment with shells and mussel shells
337	201905						big welk
337	202201						boulders

[illegible]