OCEAN DIAGNOSTICS

Master Checklist

Name	Date [YYYY-MM-DD]	
Deployment Name	**Deployment ID**	
Email	**Phone**	
Notes		

No.	Item Description	Checked	Confirmed	Initials
1	Charging Checklist Complete	[ ]	[ ]	
2	Pre-Transport Checklist Complete	[ ]	[ ]	
3	Packing Checklist Complete	[ ]	[ ]	
4	Sample Prep Checklist Complete	[ ]	[ ]	
5	Pre-Deployment Checklist Complete	[ ]	[ ]	
6	Instrument Purge Checklist Complete	[ ]	[ ]	
7	Manual/Automated Deployment Checklist Complete	[ ]	[ ]	
8	Post-Deployment Checklist Complete	[ ]	[ ]	
9	Automated Rinse Checklist Complete	[ ]	[ ]	

Signature	Date [YYYY-MM-DD]	Complete
		[ ]

OCEAN DIAGNOSTICS

Charging Checklist

Name	Date [YYYY-MM-DD]	Complete
		[ ]

No.	Item Description	Checked	Confirmed	Initials
Charging Ascension Instrument				
1	Plug black AC cable into charger	[ ]	[ ]	
2	Plug black AC cable into wall	[ ]	[ ]	
3	Ensure power LED is illuminated red	[ ]	[ ]	
4	Plug yellow end of instrument charging cable into charger	[ ]	[ ]	
5	Plug red end of instrument charging cable into Ascension	[ ]	[ ]	
6	Charge LED red when charging, green when fully charged	[ ]	[ ]	
	****NEVER LEAVE THE ASCENSION INSTRUMENT CHARGING UNATTENDED****			
Charging Tether Spool				
1	Plug USB cable into USB port on side of tether spool	[ ]	[ ]	
2	Plug USB cable into computer or wall charger	[ ]	[ ]	
3	Ensure charge LED illuminated	[ ]	[ ]	
4	Charge LED orange when charging, green when fully charged	[ ]	[ ]	
	****NEVER LEAVE THE TETHER SPOOL CHARGING UNATTENDED****			

Pre-Transport Checklist

Name	Date [YYYY-MM-DD]	Complete
		[ ]

No.	Item Description	Checked	Confirmed	Initials
Before Transport by Air				
1	Deplete instrument battery to ~30% in fresh water rinse tank	[ ]	[ ]	
2	Power off instrument and ensure blue status LED is off	[ ]	[ ]	
3	Unplug fluidic channel fitting from flow meter intake	[ ]	[ ]	
4	Ensure all water drained from instrument by inverting	[ ]	[ ]	
5	**Remove vent plug from bottom of pressure housing**	[ ]	[ ]	
6	Insert Ascension instrument into carry case (Pump side up)	[ ]	[ ]	
7	Power off tether spool and ensure all status LEDs are off	[ ]	[ ]	
8	Insert tether spool into carry case	[ ]	[ ]	
9	Ensure all case latches engaged and locked x6	[ ]	[ ]	
10	Label case with UN Class 9 shipping label	[ ]	[ ]	
Before Transport by Ground				
1	Deplete instrument battery to ~80% in fresh water rinse tank	[ ]	[ ]	
2	Power off instrument and ensure blue status LED is off	[ ]	[ ]	
3	Unplug fluidic channel fitting from flow meter intake	[ ]	[ ]	
4	Ensure all water drained from instrument by inverting	[ ]	[ ]	
5	Remove vent plug from bottom of pressure housing	[ ]	[ ]	
6	Insert Ascension instrument into carry case	[ ]	[ ]	
7	Power off tether spool and ensure all status LEDs are off	[ ]	[ ]	
8	Insert tether spool into carry case	[ ]	[ ]	
9	Ensure all case latches engaged and locked x6	[ ]	[ ]	
10	Label case with UN Class 9 shipping label	[ ]	[ ]	

OCEAN DIAGNOSTICS

Packing Checklist

Name	Date [YYYY-MM-DD]	Complete
		[ ]

No.	Item Description	Checked	Confirmed	Initials
Charging List				
1	Ascension instrument charged > 95%	[ ]	[ ]	
2	Tether spool charged > 95%	[ ]	[ ]	
3	Laptop charged > 95%	[ ]	[ ]	
Instrument Packing List				
1	Ascension instrument	[ ]	[ ]	
2	Tether spool & tether	[ ]	[ ]	
3	Charging kit	[ ]	[ ]	
4	Full set filter housings (QTY:)	[ ]	[ ]	
5	Spare set filter housings (QTY:)	[ ]	[ ]	
6	Full set white valve tubing (QTY:)	[ ]	[ ]	
7	Spare set white valve tubing (QTY:)	[ ]	[ ]	
8	Spare peristaltic pump tubing (QTY:)	[ ]	[ ]	
9	Dummy plug - tether port	[ ]	[ ]	
10	Dummy plug - charging port	[ ]	[ ]	
11	Vent port plug	[ ]	[ ]	
12	Purging tool (syringe and fitting adapter)	[ ]	[ ]	
13	Tether USB cable	[ ]	[ ]	
14	Pump exhaust tubing	[ ]	[ ]	
15	M4 service tool	[ ]	[ ]	
16	Molykote 44 Medium connector grease	[ ]	[ ]	
17	USB flash drive	[ ]	[ ]	
18	Rinse bucket	[ ]	[ ]	
19	Small zip ties	[ ]	[ ]	
Sample Supplies Packing List				
1	47mm Filter A (Type: | Size: µm | QTY:)	[ ]	[ ]	
2	47mm Filter B (Type: | Size: µm | QTY:)	[ ]	[ ]	
3	47mm Filter C (Type: | Size: µm | QTY:)	[ ]	[ ]	
4	Filter storage containers (QTY:)	[ ]	[ ]	
5	Tweezers	[ ]	[ ]	
6	Squirt bottle	[ ]	[ ]	
7	Flush cutters	[ ]	[ ]	
Deployment Documentation				
1	Checklist Package (Pre-deployment, Post-deployment, etc…)	[ ]	[ ]	

Sample Prep Checklist

Name	Date [YYYY-MM-DD]	Complete
		[ ]

No.	Item Description	Checked	Confirmed	Initials
Housing Cleaning				
1	Disassemble filter housing into 3 separate parts	[ ]	[ ]	
2	Wash all parts in dilute bleach solution	[ ]	[ ]	
3	Move to clean area (laminar flow hood if possible)	[ ]	[ ]	
4	Rinse with distilled water using a squirt bottle	[ ]	[ ]	
5	Leave filter housing to sit and dry out fully	[ ]	[ ]	
Filter Installation				
1	Operate inside a clean space (laminar flow hood if possible)	[ ]	[ ]	
2	Put on new pair of clean gloves (latex, vinyl, nitrile, etc...)	[ ]	[ ]	
3	* Ensure white filter supports installed into housing	[ ]	[ ]	
4	* Ensure no moisture inside filter housing or intake tubing	[ ]	[ ]	
5	Using tweezers, retrieve filter and place into filter housing	[ ]	[ ]	
6	Note mesh size and housing label for entry into computer	[ ]	[ ]	
7	Install housing lid and tighten down housing retaining ring	[ ]	[ ]	
8	Ensure tight by wiggling top and bottom parts (no movement)	[ ]	[ ]	
9	Cut new valve tubing (65mm) and install onto housing intake	[ ]	[ ]	
10	Place multiple filter housings into a transport casing	[ ]	[ ]	

** Applies to Ascension eDNA only (excludes Ascension MP)*

Pre-Deployment Checklist

Name	Date [YYYY-MM-DD]	Complete
		[ ]

No.	Item Description	Checked	Confirmed	Initials
Instrument Inspection				
1	No visible damage to instrument frame	[ ]	[ ]	
2	All top & bottom frame pins secured x16	[ ]	[ ]	
3	Fluidic channel fitting fully inserted into flow meter intake	[ ]	[ ]	
4	Load bearing tether lanyards attached and intact x4	[ ]	[ ]	
5	Pump & flow meter cables plugged into core and tight x2	[ ]	[ ]	
6	Gently open each valve by hand. All valves open freely x7	[ ]	[ ]	
7	Inspect the tether for kinks, damage, and areas of general wear	[ ]	[ ]	
Instrument Prep				
1	Grease tether and charging ports with Molykote 44 Medium	[ ]	[ ]	
2	Install dummy plug on charging port and tighten locking sleeve	[ ]	[ ]	
3	Connect tether to tether port and tighten locking sleeve	[ ]	[ ]	
4	**Connect tether thimble to instrument anchor shackle**	[ ]	[ ]	
5	Install small zip tie through anchor shackle to lock in place	[ ]	[ ]	
6	* Replace peristaltic pump tubing	[ ]	[ ]	
7	* Ensure no kinks in tubing between flow meter and pump	[ ]	[ ]	
8	**Ensure vent plug installed and tight on bottom of instrument**	[ ]	[ ]	
Power On Checks				
1	Power on Ascension instrument using bottom switch	[ ]	[ ]	
2	Ensure blue status LED flashing on Ascension instrument	[ ]	[ ]	
3	Power on tether spool by a single press of the side button	[ ]	[ ]	
4	Ensure status LED flashing green on tether spool	[ ]	[ ]	
5	Launch *Ascension Desktop* software	[ ]	[ ]	
6	Connect to instrument "*File -> Connect Profiler (Bluetooth)*"	[ ]	[ ]	
7	Wait for instrument serial number to appear (top right)	[ ]	[ ]	
8	Open instrument controller "*Control -> Real-Time Controller*"	[ ]	[ ]	
9	Open *Home Position* using the *Sample Channel Selector*	[ ]	[ ]	
10	**Complete Instrument Purge Checklist --->**	[ ]	[ ]	
Payload Prep				
1	Ensure all 7 filter channels occupied with filter housings	[ ]	[ ]	
2	Open *Home Position* in preparation for deployment	[ ]	[ ]	

** Applies to Ascension eDNA only (excludes Ascension MP)*

Instrument Purge Checklist

Name	Date [YYYY-MM-DD]	Complete
		[ ]

No.	Item Description	Checked	Confirmed	Initials
Purge Bucket Prep				
1	Fill purge bucket with fresh tap water (NOT SEAWATER)	[ ]	[ ]	
Instrument Prep				
1	Prepare 7x empty filter housings	[ ]	[ ]	
2	Wiggle top and bottom of housings - Ensure no movement	[ ]	[ ]	
3	Install filter housings into valve channels x7	[ ]	[ ]	
4	Ensure valve tubing inserted through pinch mechanism	[ ]	[ ]	
5	Ensure all 7 filter channels occupied with filter housings	[ ]	[ ]	
6	Open valves 1 - 7 to ensure valve tubing springs open properly	[ ]	[ ]	
7	**Ensure vent plug installed and tight on bottom of instrument**	[ ]	[ ]	
8	Lower Ascension into the purge bucket	[ ]	[ ]	
9	Ensure instrument fully submerged inside bucket	[ ]	[ ]	
Under *Settings* -> *Ascension Settings* , set the following:				
1	Rinse Time per Valve: 10s	[ ]	[ ]	
2	Rinse Number of Passes: 2	[ ]	[ ]	
3	Rinse Pump Throttle: (Ascension eDNA: 30%, Ascension MP: 100%)	[ ]	[ ]	
4	Rinse Soak Time: 0s	[ ]	[ ]	
5	Close the *Ascension Settings* window	[ ]	[ ]	
Purge Procedure				
1	Open rinse interface under "*Control* -> *Flush Routine* "	[ ]	[ ]	
2	Click *Start Flush Routine*	[ ]	[ ]	
3	Once complete, lift Ascension out of purge bucket	[ ]	[ ]	
4	Ensure instrument remains upright after purge to retain water	[ ]	[ ]	
5	Remove the 7x empty filter housings from instrument	[ ]	[ ]	
	Complete Filter Housing Purge Checklist --->			

Filter Housing Purge Checklist

Name	Date [YYYY-MM-DD]	Complete
		[ ]

No.	Item Description	Checked	Confirmed	Initials
Filter Purge Procedure				
1	Remove a pre-loaded filter housing from it's transport casing	[ ]	[ ]	
2	Insert pinch tubing into valve onboard instrument	[ ]	[ ]	
3	Depress purging syringe fully and connect to filter housing	[ ]	[ ]	
4	Pull vacuum to 20mL, hold 3 seconds	[ ]	[ ]	
5	Release and check < 3mL displacement, note resting position	[ ]	[ ]	
6	Syringe resting position identical after second pull	[ ]	[ ]	
7	Remove filter housing from instrument	[ ]	[ ]	
8	Dip filter housing intake tubing into DI water	[ ]	[ ]	
9	Backfill upside down until purge fluid floods the syringe	[ ]	[ ]	
	Backfill stroke should move freely with little resistance			
10	Disconnect purge syringe from filter housing while inverted	[ ]	[ ]	
11	Load purged filter housing into instrument	[ ]	[ ]	
12	**Repeat for all 7 filter channels**	[ ]	[ ]	
13	Top up all 7x filter intake tubes with DI water using syringe	[ ]	[ ]	
14	Ensure valve tubing inserted through pinch mechanism x7	[ ]	[ ]	
	Return to *Payload Prep* Section of Pre-Deployment Checklist --->			

Manual Deployment Checklist

Name	Date [YYYY-MM-DD]	Complete
		[ ]

No.	Item Description	Checked	Confirmed	Initials
Deployment Setup				
1	Start new deployment "*File -> New Manual Deployment* "	[ ]	[ ]	
2	Fill out *Deployment Data* and *Filter Information*	[ ]	[ ]	
3	Click *Launch Deployment*	[ ]	[ ]	
4	Lower Ascension instrument down into water column	[ ]	[ ]	
Sample Collection				
1	Lower Ascension instrument to desired sampling depth	[ ]	[ ]	
2	Open desired filter channel using the *Sample Channel Selector*	[ ]	[ ]	
3	Set desired pump throttle using the *Pump Throttle Controller*	[ ]	[ ]	
	Highest efficiency: Ascension eDNA: 30%, Ascension MP: 60%			
4	Once target sample volume collected, set pump throttle to 0%	[ ]	[ ]	
5	Close the filter channel by clicking *Close All Valves*	[ ]	[ ]	
	Repeat steps 1 through 5 until all desired samples collected			
7	Bring Ascension instrument back to surface	[ ]	[ ]	
8	Click *End Deployment* under *Deployment Information*	[ ]	[ ]	

Automated Deployment Checklist

Name	Date [YYYY-MM-DD]	Complete
		[ ]

No.	Item Description	Checked	Confirmed	Initials
Deployment Setup				
1	Start new deployment "File -> New Automated Deployment"	[ ]	[ ]	
2	Fill out *Deployment Data* and *Filter Information*	[ ]	[ ]	
3	Configure mission script using *Task Scheduler* tab	[ ]	[ ]	
4	Write mission script to instrument	[ ]	[ ]	
Deployment Execution				
1	Open instrument controller "Control -> Real-Time Controller"	[ ]	[ ]	
2	Set instrument mode to auto	[ ]	[ ]	
3	Ensure blue status LED blinking 3 rapid bursts	[ ]	[ ]	
4	If untethered deployment, ensure tether dummy plug installed	[ ]	[ ]	
5	Place instrument in desired sampling location	[ ]	[ ]	

Post-Deployment Checklist

Name	Date [YYYY-MM-DD]	Complete
		[ ]

No.	Item Description	Checked	Confirmed	Initials
Instrument Recovery				
1	Lift Ascension out of water and place upright on a flat surface	[ ]	[ ]	
2	Remove all filter housings from instrument	[ ]	[ ]	
3	Open *Home Position* to center valve mechanism	[ ]	[ ]	
4	Disconnect fluidic channel fitting from flowmeter intake	[ ]	[ ]	
5	Invert Ascension to drain all seawater from fluidic system	[ ]	[ ]	
Sample Transfer and Storage				
1	Transport filter housings to protected area (limited traffic & wind)	[ ]	[ ]	
2	Put on new pair of clean gloves (latex, vinyl, nitrile, etc...)	[ ]	[ ]	
3	Gently open filter housing by unscrewing upper ring	[ ]	[ ]	
4	Using tweezers, quickly transfer filter into petri dish	[ ]	[ ]	
5	Label petri dish accordingly and fill out sample sheet	[ ]	[ ]	
6	Process/store according to your sample procedure	[ ]	[ ]	
	Proceed to Automated Rinse Checklist --->			

Automated Rinse Checklist

Name	Date [YYYY-MM-DD]	Complete
		[ ]

No.	Item Description	Checked	Confirmed	Initials
Rinse Bucket Prep				
1	Fill rinse bucket with fresh tap water (NOT SEAWATER)	[ ]	[ ]	
Instrument Prep				
1	Prepare 7x empty filter housings	[ ]	[ ]	
2	Wiggle top and bottom of housings - Ensure no movement	[ ]	[ ]	
3	Install filter housings into valve channels x7	[ ]	[ ]	
4	Ensure valve tubing inserted through pinch mechanism	[ ]	[ ]	
5	Ensure all 7 filter channels occupied with filter housings	[ ]	[ ]	
6	Gently open valves 1 - 7 by hand to ensure proper installation	[ ]	[ ]	
7	Ensure no kinks in tubing between flow meter and pump	[ ]	[ ]	
8	Fluidic channel fitting fully inserted into flowmeter intake	[ ]	[ ]	
9	**Ensure vent plug installed and tight on bottom of instrument**	[ ]	[ ]	
10	Lower Ascension into the purge bucket	[ ]	[ ]	
11	Ensure instrument fully submerged inside bucket	[ ]	[ ]	
Rinse Setup				
1	Launch *Ascension Desktop* software	[ ]	[ ]	
2	Connect to instrument "*File -> Connect Profiler (Bluetooth)*"	[ ]	[ ]	
3	Wait for instrument serial number to appear (top right)	[ ]	[ ]	
	Under *Settings -> Ascension Settings*, set the following:			
4	Rinse Time per Valve: 60s	[ ]	[ ]	
5	Rinse Number of Passes: 3	[ ]	[ ]	
6	Rinse Pump Throttle: (Ascension eDNA: 30%, Ascension MP: 100%)	[ ]	[ ]	
7	Rinse Soak Time: 0s	[ ]	[ ]	
8	Close the *Ascension Settings* window	[ ]	[ ]	
Rinse Procedure		[ ]	[ ]	
1	Open rinse interface under "*Control -> Flush Routine*"	[ ]	[ ]	
2	Click *Start Flush Routine*	[ ]	[ ]	
3	Once complete, lift Ascension out of wash bucket	[ ]	[ ]	
4	Remove all filter housings from instrument	[ ]	[ ]	
5	Power off Ascension instrument using bottom switch	[ ]	[ ]	
6	Disconnect fluidic channel fitting from flowmeter intake	[ ]	[ ]	
7	Invert Ascension to drain all water from fluidic system	[ ]	[ ]	
8	Cut small zip tie through tether anchor shackle	[ ]	[ ]	
9	Disconnect tether thimble from instrument anchor shackle	[ ]	[ ]	
10	Loosen red locking sleeve and disconnect tether from instrument	[ ]	[ ]	
11	Install dummy plug on tether port and tighten locking sleeve	[ ]	[ ]	

OCEAN DIAGNOSTICS

Storage Checklist

Name	Date [YYYY-MM-DD]	Complete
		[ ]

No.	Item Description	Checked	Confirmed	Initials
Before Long-Term Storage				
1	Deplete instrument battery to ~50% in fresh water rinse tank	[ ]	[ ]	
2	Deplete tether spool battery to ~50%	[ ]	[ ]	
3	Power off instrument and ensure blue status LED is off	[ ]	[ ]	
4	Unplug fluidic channel fitting from flow meter intake	[ ]	[ ]	
5	Ensure all water drained from instrument by inverting	[ ]	[ ]	
6	**Remove vent plug from bottom of pressure housing**	[ ]	[ ]	
7	Insert Ascension instrument into carry case (Pump side up)	[ ]	[ ]	
8	Power off tether spool and ensure all status LEDs are off	[ ]	[ ]	
9	Insert tether spool into carry case	[ ]	[ ]	
10	Ensure all case latches engaged and locked x6	[ ]	[ ]	