	A	B	C	D	E
1	**Table 1: Examples of EXPORTS methods and approaches**				
2					
3	**Function**	**Subclass**	**Measurement**	**Platform**	**Selected References**
4	**Water Column Characterization**				
5	Hydrography		CTD	ship/float/glider	Millard and Yang, 1993
6			Sea level, SST & SSS imagery	remote sensing	AVISO SSALT, GHRSST & Aquarius
7	Circulation		Horizontal Velocity (ADCP & Geostrophy)	ship/float/glider	Thurnherr, 2012
8			Vertical velocity (Omega equation from SMS CTD/ADCP surveys)	ship/float/glider	Shearman et al. 2000; Pallas-Sanz et al., 2010
9	Light/Optics		PAR	ship/float/glider	
10			Ocean color - LwN (wave) & light attenuation	ship/float/buoy	Fargion & Mueller 2000
11			LwN - Daily PAR - Kd	remote sensing	Operational Algorithms - http://oceancolor.gsfc.nasa.gov/WIKI/OCProd.html
12			IOP's (phytoplankton absorption, CDOM, etc.)		Roeseler et al. 1989; Mitchell, 1990 Nelson and Siegel, 2013
13	Biogeochemistry	*Nutrient/C Stocks*	Nutrients (NO3, PO4, SiO4)	ship/float/glider	Gordon et al. 2000; Johnson & Colleti 2002
14			DOC	ship	Hansell et al. 2009, Carlson et al 2010
15			DIC	ship	Johnson et al 1985; Bates 2007
16			Iron	ship	Martin and Gordon, 1988
17					
18	**Food Web Structure**				
19	Particle Size and Composition	*Suspended Sample collection (filtration)*	large volume (>1,000L) pumps for size classification	LVP	Lam and Bishop, 2007
20			POC, PON	ship	Sharp 1974, Cetinic et al. 2012
21			Bsi, PIC	ship	Krause et al. 2009; Balch et al. 2001
22			Organic Biomarkers; absorption and fluorescence	ship	Bianchi and Canuel, 2011; Brym et al. 2014
23			Molecular Techiniques	ship	Amacher et al., 2014
24		*Indirect (optics)*	beam attenuation or backscatter spectra	ship/float/glider	Boss et al., 2001, Bishop, 1999, Stramski et al., 1999

	A	B	C	D	E
3	**Function**	**Subclass**	**Measurement**	**Platform**	**Selected References**
25			absorption spectra(ac-s or filter pad)	ship	Moisan et al., 2011, Bricaud et al., 2012
26			LISST (forward light scatter)	ship	Kostadinov et al., 2012
27			back scattering/total scattering ratio (organic/inorganic)	ship	Twardowski et al., 2001
28			polarized beam attenuation (PIC)	ship/float	Guay & Bishop, 2002, Balch et al., 2001
29			POC, PIC & PhytoC concentrations	remote sensing	POC (Stramski et al., 1999, 2008); PIC (Balch et al., 2007); PhytoC (Behrenfeld et al. 2005)
30			PSD parameters	remote sensing	Loisel et al., 2006, Kostadinov et al., 2009
31		*Direct (optics)*	Flow cytometry	ship	Olson et al, 1985, Lomas et al., 2011
32			Coulter Counter	ship	Sheldon et al., 1972;
33			In situ cameras (UVP, etc.)	ship/float	Stemmann et al. 2008
34	Bacterioplankton		Flow cytometry	ship	Robertson et al., 1989, Lomas et al., 2011; Peterson et al., 2012
35			microbial community structure (DNA)	Ship	Delong et al. 2006 , Ganesh et al. 2013
36	Phytoplankton community composition	*Indirect (optics)*	absorption spectra (acs or filter pad)	ship	Moisan et al., 2012, Bricaud et al., 2012
37			Flow cytometry	ship	Legendre and Yentsch, 1989
38			genomics	ship	DeLong et al., 2006; Vaulot et al., 2008
39		*Functional types*	HPLC	ship	Hooker et al., 2012
40			FCM/Microscopy/imaging	ship	Tomas 1997
41			inverted microscopy	ship	Utermohl 1958
42			chlorophyll fluorescence	ship/float/glider/space	Lorenzen, 1966; Cetinic et al., 2012
43			extracted chlorophyll and chlorophyll size fractionation	ship	Malone 1980; Savidge and Gilpen 1999
44			CHN with sorting	ship	Bradley et al., 2010, Lomas et al., 2011

	A	B	C	D	E
3	**Function**	**Subclass**	**Measurement**	**Platform**	**Selected References**
45			cell plasma volume to carbon	ship	Verity et al., 1992; Menden-Deuer et al., 2000
46			PFT's & phyto biovolumes	remote sensing	Alvain et al. 2005; 2008; Kostadinov et al., 2010, Berwin et al., 2011
47	Zooplankton community composition				
48		*Indirect*	in situ camera (for larger microzooplankton)	ship/float	Davis et al. 2005
49			towed & profiling camera systems (VPR, UVP, LOPC)	ship/floats	Davis et al. 2005, Picheral et al. 2010, Checkley et al. 2008
50			acoustics	ship/floats/gliders	Wiebe et al. 2010
51		*Direct*	nets & zooplankton size fractions	ship	Steinberg et al. 2008
52			microscopy (of net contents)	ship	Eden et al. 2009
53			zooscan (of net contents)	ship	Gorsky et al. 2010
54			Trap ID work	ship (traps)	Wilson et al. 2008, Ebersbach and Trull 2008
55					
56	**Carbon flow paths**				
57	Phytoplankton Growth	*Total (indirect)*	Oxygen production	ship/floats/gliders	Riser and Johnson 2008
58			nitrate (drawdown)	ship/floats/gliders	Johnson et al. 2006
59			*p* CO2 and DIC drawdown (NCP)	ship/mooring	Bates et al., 1998
60			diel cp	ship/auto/float	Claustre et al. 2008
61			NPP, phytoplankton growth rates	remote sensing	Behrenfeld & Falkowski, 1992; Behrenfeld et al. 2005; 2013; Westberry et al. 2008
62		*Incubations*	H218O bottle incubation	ship	Juranek et al., 2005; 2010
63			14C (in situ; P vs. E bottle incubation)	ship	Marra, 2009
64			phytop growth rate from microzoopl dilution	ship	Landry and Hassett 1982, Landry et al. 2008
65	*Phytoplankton physiological status*		active fluorescence kinetics (Fv/Fm; PS parameters)	ship/auto	Genty et al. 1989

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66			molecular tools (Fe limitation, etc.)	ship	Palenik and Wood, 1998
67			Si limitation, N limitation	ship	Brzezinski et al. 1997; Nelson et al. 2001
68			32Si uptake - silicification	ship	Krause et al (2011), Brzezinski & Phillips (1997)
69			opal ballasting - cell specific silicification - PDMPO	ship	Durkin et al (2012), LeBlanc & Hutchins (2005)
70			sun stimulated fluorescence	remote sensing	Behrenfeld et al. (2009)
71	*Grazing*		Camera systems (flux vs. raptoral zoopl feeders) UVP5, etc.	ships	Stemmann et al. 2008, Picheral et al. 2010
72			Microzooplankton dilution method (analyze changes in conc. with variety of methods)	ship	Landry and Hassett 1982, Landry et al. 2008
73			zoop. respiration (w/ food and w/o)	ship	Ikeda 1985, Köster et al. 2008
74			Grazing experiments	ship	Båmstedt et al. 2000, Dam et al. 1995
75			incubations/clearance rate	ship	Båmstedt et al. 2000, Dam et al. 1995
76			Size distribution, modeled, types of zooplankton	ship	Landry and Hassett 1982
77			gut fluorescence	ship	Décima et al. 2011, Isla 2004
78			Grazing from upper ocean mass balance	remote sensing	Behrenfeld et al. 2013; Siegel et al. in press
79	*Heterotrophic carbon demand*	Bacterial metabolism	experimental DOM/ suspended POM remineralization	ship	Carlson et al., 2004
80			trap with incubation chamber	Ship, trap & incubation	McDonnell, 2011
81			Microbial decompostion of suspended & sinking POM (radiotracers and O2 measure)	ship	Smith et al. 1995, Ploug and Grossart 1999,
82			hydrolytic enzyme activity	ship	Arnosti et al. 2005; Smith et al. 1992b, Hoppe et al 2002
83			size-fractionated respiration	ship	Williams et al, 2004, Smith 1998
84			bacterial production (3H-Leu incorp)	Ship	Smith and Azam 1992
85			Chemoautotrophy Mesopelagic	Ship	Reinthaler et al. 2010, Herndl et al. 2005
86		Zooplankton metabolism	weight-specific metabolic rates		Köster et al. 2008; Steinberg et al. 2008
87	Aggregation	*Radionuclide*	234Th, 228Th, size class	ship	Cochran et al. 2000
88		*Experimental*	Rolling tank experiments	ship	Passow, 2002
89			TEP	ship	Azetsu-Scott and Passow 2004
90					

	A	B	C	D	E
3	**Function**	**Subclass**	**Measurement**	**Platform**	**Selected References**
91	**Five Paths of Export**				
92	Particle Export	*Bulk (indirect)*	oxygen depletion	ship/floats/gliders	Riser and Johnson 2008
93			nitrate (drawdown)	ship/floats/gliders	Johnson et al. 2006
94			*p* CO2 and DIC drawdown	ship/mooring (St. P)	Signorini et al. 2001; Takahashi et al. 2006
95			triple O2 isotopes with O2/Ar (GPP to NCP ratio)	ship	Juranek et al, 2005; 2010
96			H218O bottle incubation	ship	Juranek et al, 2005; 2010
97		*Indirect (optics)*	backscatter/ fluorescence	glider	Briggs et al., 2009
98			vertical transmissometer on floats	profiling float	Bishop et al 2004; Estapa et al., 2013
99			snow camera profiling (>200 µm)	ship	Checkley et al. 2008
100			e-ratio & food web modeling	remote sensing	Laws et al. 2000; Hensen et al. 2011; Siegel et al.2014
101		*Indirect (model)*	ADCP, model (for particle source regions)	moored	Siegel et al., 2008
102			Particle Camera (underwater vision profiler; > 1 mm)	ship/float	Gorsky et al., 2000; Guidi et al., 2009
103			snatcher/ snatcher with window	ship	
104		*Indirect (radiotracers)*	234Th (Sinking flux days-week)	ship	Buesseler et al., 1992; Benitez-Nelson and Moore, 2006
105			210Po (Sinking flux month)	ship	Masque et al. 2002
106			228Th (Sinking flux year, aggregation/dis-aggregation)	ship	Cochran et al. 2000
107		*Direct*	Moored deep, drifting, neutrally bouyant, incl. time series	mooring/drift/float	Gardner, 2000; Valdes & Price 2000; Buesseler et al., 2007
108			Attenuation with flux at multiple depths	traps/floats	Martin et al, 1987
109		*Sinking rates*	Settling Velocity Traps & other in-situ experiments	SVT trap	Peterson et al., 2005; Trull et al., 2008
110	Aggregate Export	*ID and Size*	Polyacrilimide gel traps for ID and/or sinking rates	trap & gel	Ebersbach and Trull, 2008; McDonnell and Buesseler 2012
111		*ID and Size*	trap with camera/optical imaging	trap & camera	Asper, 1987; Bishop and Wood, 2012
112	Zooplankton Carcass/Fecal Pellet Flux		fecal pellet production (incubations, Assimilation Efficiency)	ship	Butler and Dam 1994
113			sinking rates	ship	Patonai et al. 2011, Lebrato et al. 2013
114			traps (also see Direct particle export and traps above)	trap & gel	Wilson et al. 2013; Frangoulis et al. 2011

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3	**Function**	**Subclass**	**Measurement**	**Platform**	**Selected References**
115	Mixing of DOC and Particles		combines listed measures of circulation, DOC concetrations and Particle distributions		Carlson et al 2010, Hansell and Carlson 2001
116	Zooplankton diel vertical migration	*Zooplankton Migration*	nets & zooplankton size fractions, microscopy, cameras	ship	Steinberg et al. 2008, Stemmann et al. 2008
117			acoustics	ship/floats/gliders	Jiang et al. 2007, Bianchi et al. 2013
118		*Active transport*	weight-specific metabolic rates		Steinberg et al. 2000, Al-Mutairi and Landry 2001, Bianchi et al. 2013
119					