This is a comparison of the RAT fields available in BlueTopo, BAG, and S-102

BAG NOAA-OCS-2022.10 Profile Name	BAG NOAA-OCS-2022.10 Profile Description	BlueTopo Name	BlueTopo Description	S-102 V2.2 Name	S-102 V2.2 Description
	https://bag.readthedocs.io/en/stable/fsd/FSD-Appendices.html		https://www.nauticalcharts.noaa.gov/data/bluetopo_specs.html	See Table 14	https://registry.iho.int/productspec/view.do?idx=199&product_ID=S-102&statusS=5&domainS=ALL&category=product_ID&searchValue=
significant_features	See S-101 significant features detected	significant_features	A binary indication that a systematic method of exploring the seafloor was undertaken to detect significant features. If false, feature_size and feature_least_depth attributes are both not applicable. In the context of bathymetry, a feature is any object, whether manmade or not, projecting above the seafloor, which may be considered a danger to surface navigation.	featuresDetected.significantFeaturesDetected	A statement expressing if significant features have or have not been detected in the course of a survey.
feature_least_depth	See S-101 least depth of detected feature measured.	feature_least_depth	A binary expression of the ability of the survey to detect the least depth of features.	featuresDetected.leastDepthOfDetectedFeaturesMeasured	Expression stating if the least depth of detected features in an area was measured.
feature_size	See S-101 feature size	feature_size	The size of the smallest feature that the survey was capable of detecting with a high probability - unit is cubic meters.	5featuresDetected.sizeOfFeaturesDetected	The size of detected bathymetric features in an area.
feature_size_var	feature_size_var is meant to augment feature_size which corresponds to S-101 size of features detected. As noted in S-101, size of features detected is intended to be described as the smallest size in cubic metres the survey was capable of detecting. Depending on the type of survey this definition might force different depth ranges to have different values. For example, a survey vessel that works at a fixed height off the seafloor could maintain a fixed feature detection size capability over a wide range of depths. A surface vessel working over those same range of depths may have a feature detection capability that varies with depth causing the detection capability to be ambiguous and potentially misrepresented. For this reason feature_size_var is the percentage of depth that a feature of such size could be detected. When both feature_size and feature_size_var are present the greater of the two should be considered valid. The expectation is that feature_size_var will be set to zero if the feature size does not scale with depth. As with feature_size, feature_size_var should be ignored if significant_features is False.	N/A	N/A	featureSizeVar	*This description is in section 7.1.a.1 rather than in table 14:* The attribute, featureSizeVar is meant to augment featureSize which corresponds to S-101 size of features detected. As noted in S-101, size of features detected is intended to be described as the smallest size in cubic metres the survey was capable of detecting. Depending on the type of survey this definition might force different depth ranges to have different values. For example, a survey vessel that works at a fixed height off the seafloor, such as an autonomous underwater survey vessel, could maintain a fixed feature detection size capability over a wide range of depths. A surface vessel working over those same range of depths may have a feature detection capability that varies with depth causing the detection capability to be ambiguous and potentially misrepresented. For this reason, featureSizeVar is the percentage of depth that a feature of such size could be detected. When both featureSize and featureSizeVar are present, the greater of the two should be considered valid. The expectation is that featureSizeVar will be set to zero if the feature size does not scale with depth. As with featureSize, featureSizeVar should be ignored if significantFeatures is False.
coverage	See S-101 full seafloor coverage achieved	coverage	A binary statement expressing if seafloor coverage has been achieved in the area covered by hydrographic surveys. If false, the bathy_coverage attribute must also be false. If true, bathy_coverage may either be true or false. For information, see the FAQ page.	fullSeafloorCoverageAchieved	Expression stating if full seafloor coverage has been achieved in the area by hydrographic surveys.
bathy_coverage	When side scan is used to detect features in flat seafloor areas, surveys have coverage that does not contain direct depth measurements. In these cases the nodes with survey coverage but without bathymetry would be set to False. A condition with coverage = True and bathy_coverage = False is a useful indicator for how to work with these nodes within our workflow. If coverage is False, bathy_coverage must also be False.	bathy_coverage	A binary expression stating if full bathymetric coverage has been achieved in the area covered by hydrographic surveys. If true, this indicates the value is sourced from a measured depth, not an interpolated depth. If false, no depth measurement was achieved.	bathyCoverage	Flag for nodes populated by interpolation.
horizontal_uncert_fixed	See S-101 horizontal position uncertainty fixed	horizontal_uncert_fixed	The best estimate of the fixed accuracy of a position. Reported at a 95% Confidence Interval.	zoneOfConfidence.horizontalPositionUncertainty.uncertaintyFixed	The best estimate of the fixed horizontal or vertical accuracy component for positions, depths, heights, vertical distances, and vertical clearances.
horizontal_uncert_var	See S-101 horizontal position uncertainty variable factor	horizontal_uncert_var	The best estimate of the variable accuracy of a position as a multiplier of depth. Reported at a 95% Confidence Interval.	zoneOfConfidence.horizontalPositionUncertainty.uncertaintyVariableFactor	The factor to be applied to the variable component of an uncertainty equation so as to provide the best estimate of the variable horizontal or vertical accuracy component for positions, depths, heights, vertical distances, and vertical clearances.
survey_date_start	See S-101 Survey date start	survey_date_start	The start date of the survey.	surveyDateRange.dateStart	The start date of the period of the hydrographic survey.
survey_date_end	See S-101 Survey date end	survey_date_end	The end date of the survey.	surveyDateRange.dateEnd	The end date of the period of the hydrographic survey.
source_institution	e.g. “NOAA Office of Coast Survey”	source_institution	The institution responsible for the survey.	surveyAuthority	The authority which was responsible for the survey.
source_survey_id	e.g. “H99999”	source_survey_id	The survey filename.	sourceSurveyID	The survey filename or ID.
source_survey_index	A value of 0 indicates the index is uninitialized or unused.	value		id	Metadata record identifier
license_name	e.g. “CC0 1.0”	license_name	The license information regarding restrictions on data redistribution, usage, and source attribution.	N/A	N/A
license_url	A URL or DOI (ideally in URL form) referencing the license definition, e.g. “https://creativecommons.org/publicdomain/zero/1.0/”	license_url	The URL or DOI where the license is available.	N/A	N/A
N/A	N/A	count	The number of cells in the raster dataset with the cell value in the VALUE column.	N/A	N/A
N/A	N/A	data_assessment	Provides an overall indicative level of assessment of bathymetric data from which further attribution is derived.	dataAssessment	The categorization of the assessment level of bathymetric data for an area.
N/A	N/A	vertical_uncert_fixed	The best estimate of the accuracy of depths, heights, vertical distances and vertical clearances. Reported at a 95% Confidence Interval.	N/A	N/A
N/A	N/A	vertical_uncert_var	The best estimate of the variable accuracy of depths, heights, vertical distances and vertical clearances. Reported at a 95% Confidence Interval.	N/A	N/A
N/A	N/A	N/A		bathymetricUncertaintyType	An estimate of the magnitude of the difference between true and estimated bathymetric depth, after all appropriate corrections are made.