EUROPEAN COMMISSION - DG ENVIRONMENT

TECHNICAL SUPPORT IN RELATION TO THE IMPLEMENTATION OF THE WATER FRAMEWORK DIRECTIVE (2000/60/EC)

A RECORD OF THE CHANGES MADE DURING DEVELOPMENT OF THE WFD REPORTING SCHEMAS

Report Ref: V4.3 September 2009

TECHNICAL SUPPORT IN RELATION TO THE IMPLEMENTATION OF THE WATER FRAMEWORK DIRECTIVE (2000/60/EC)

A RECORD OF THE CHANGES MADE DURING THE DEVELOPMENT OF THE WFD REPORTING SCHEMAS

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Version History

V1	**J Cima**	**26 August 2008**
V1.1	**T Lack**	**27 August 2008**
V1.2	**John Cima based on JRR comments**	**29 August 2008**
V1.3	**Based on review by SN**	**09 September 2008**
V1.4	**To incorporate changes made after Working Group D based on Member State comments and JRR further comments**	**08 December 2008**
V2.0	**Final formatting and QA**	**12 December 2008**
V3.0	**To incorporate changes made as part of the schema testing and to accommodate the Economic Schema**	**06 March 2009**
V4.0	**To incorporate changes required from JRR and MS review**	**10 April 2009**
V4.1	**None produced**	
V4.2	**Incorporates all changes made from after April by WRc and those requested by Commission Jon Maidens, Atkins**	**03 June 2009**
V 4.3	**Incorporates all changes made from second testing period Jon Maidens, Atkins**	**22 October 2009**

A record of the changes made during the development of the WFD Reporting Schemas

Introduction

This document identifies the changes that have been made to the new set of Water Framework Directive Reporting Schemas. This document is a supplement to the Schema User Guide.

The document is broken down to describe the changes that have occurred to create the following set of schemas

- **RBDSUCA** – used to report the River Basin Districts, the Competent Authorities and the Sub-Units.
- **SWB** – used to report Surface Water Bodies
- **GWB** – used to report Groundwater Bodies
- **ProtArea** – used to report Article 7 Protected Areas and the Register of Protected Areas
- **RBMP_POM** – used to report The River Basin Management Plan, the associated programme of Measures and both Surface Water and Groundwater Pressures and Impacts
- **SWMethods** – used to report all of the methodologies used in developing Water Framework reporting for Surface Water bodies
- **GWMethods** – used to report all of the methodologies used in developing Water Framework Directive reporting for Groundwater bodies.

Some minor changes have also occurred to the Article 8 schemas.

- **Monitoring,**
- **SurfaceWaterMonitoringStations**
- **GroundwaterMonitoringStations**.

The document identifies:

- where name changes have occurred
- where elements or structures (complex elements) have been removed
- where new elements or structures (complex elements) have been added
- where changes to mandatory / optional / conditional have occurred.

Where appropriate a change is illustrated by images of the schema structure using screen shots taken from the XML Spy editor and this tool is also used to create the Schema User Documentation.

Although documented it should be noted that some common element names previously used across schemas such as Name, NameNL and MS_CD have been renamed for example as RBDName, RBDNameNL and RBD_MS_CD.

The wfd:Common Schema has also been rationalised. The following changes have been made.

- All enumeration lists now appear in common.
- The names of the common elements have been prefixed (e.g. SW, Numeric, QE, Status, String, etc) so that they appear together in the documentation.
- QE codes have been rationalised to contain the QE/GE code plus a description.

- Some enumeration lists have been concatenated to make the schemas simpler (e.g. Pressures, Chemical substances). These have been prefixed with hierarchy detail (e.g. 1.1, 1.2 etc or heavy metals, pesticides)
- Two enumeration lists have been changed to correct errors (CountryCode and ProtectedAreaType)
- Deprecated elements have been removed from Common.

All these changes to wfd;Common are described within this document.

For more information about the schemas themselves and their rationale refer to the Schema User Documentation.

1. RBDSUCA schema

The RBDSUCA schema is based on the Article 3 RBDCA schema

General

- METADATA and URL elements have been added for this schema

Competent Authorities (CA1)

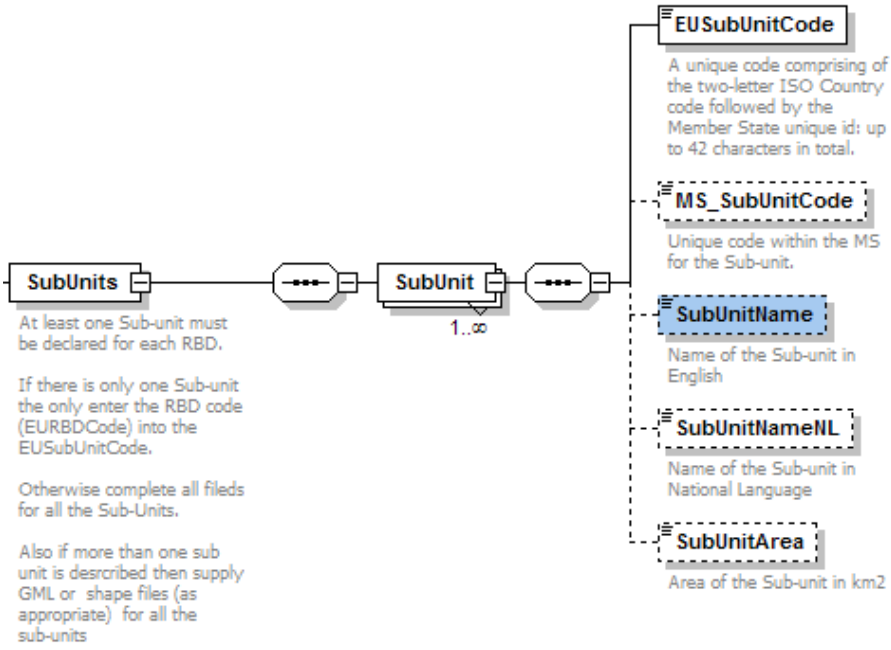
- A new EUCACode element added. Compulsory.
- Name and NameNL changed to CompetentAuthorityName and CompetentAuthorityNameNL.
- All Contact elements have been removed (ContactName, ContactPost, ContactPhone, ContactEmail and Contact Status)
- The WebSite element has been changed to URL and has been made compulsory

River Basin District (RBD1)

- New EURBDCode element added
- Name, NameNL and MS_CD renames to RBDName, RBDNameNL and RBD_MS_CD
- CompetentAuthorities element removed
- PrimeCompetentAuthority element added. Compulsory. One to many
- OtherCompetentAuthorities element added. Zero to many.
- SubUnits element added. Compulsory. See below
- New summary text elements added for NationalRelationships, InternationalRelationships. Both are 5000 character fields and are Conditional
- A new summary text element has been added for OtherRelevantRoles. Conditional 5000 character field.
- Responsibilities, Coordination and SupportingDocs elements removed.

Sub Unit

An RBD must have at least one SubUnit Element.



2. Surface Water, Groundwater and Protected Areas

A single XML structure has been created based on an amalgamation of the Article 5 SWB schema and the Article 13 Article 13SWB schema.

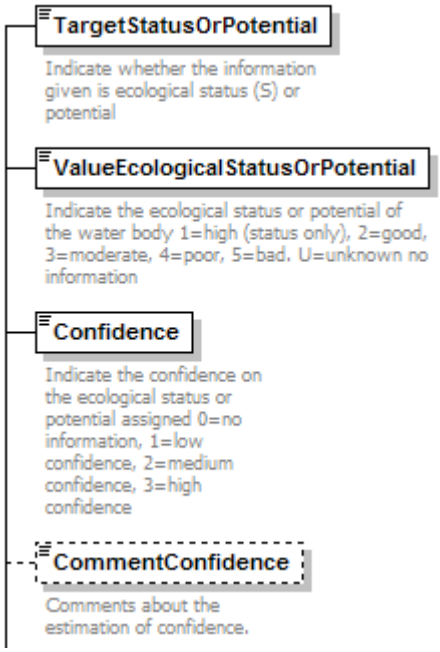
2.1 SWB Schema

- The DIST_CD has been changed to EURBDCode
- An EUSubUnitCode has been added
- MS_CD and NAME changed to SWB_MS_CD and SWB_NAME. MS_NAME element moved to be just below MS_CD.
- The following Article 5 elements have been removed SYSTEM, MODIFIED, ARTIFICIAL, RISK_TOTAL, STATUS_YR, REGION_CD, GWB_ASSOC, RISK_CHEM, RISK_ECO, REASON_POINT, REASON_DIFFUSE, REASON_ABSTRACTION, REASON_FLOW_REG, REASON_MORPH_ALT and REASON_REF
- A new element called Natural has been created to replace MODIFIED and ARTIFICIAL. The settings for the element are natural, heavily modified or artificial.
- Two new elements have been added for Scale and ReferenceDataSet.
- The AREA and LENGTH elements have been made into a choice construct.
- A ScaleExplanation element has been added to be in line with the GWB schema.
- StatusProtectedAreas has been moved to the bottom of the element
- The TypeOfProtectedArea element has been moved to the element WaterBodyStatuses/StatusProtectedArea.
- The ProtectedAreaDetails element name has been changed to SWProtectedAreaDetails
- A new conditional element called TypeOfAssociation together with an enumeration list has been added to define the type of Protected Area association that exists. The element is conditional based on the setting of PROT_AREA_ASSOC.
- PROT_AREA_ASSOC has been made compulsory
- A new element has been added for PressuresAndImpacts to hold the detail defined in the GIS reporting sheet for the various Significant Pressures and Impacts (GIS Reporting sheet). See below for detail
- A new element has been added for WaterBodyStatuses to hold the detail previously defined for Article 13 (SWM3). See below for detail

WaterBodyStatuses element

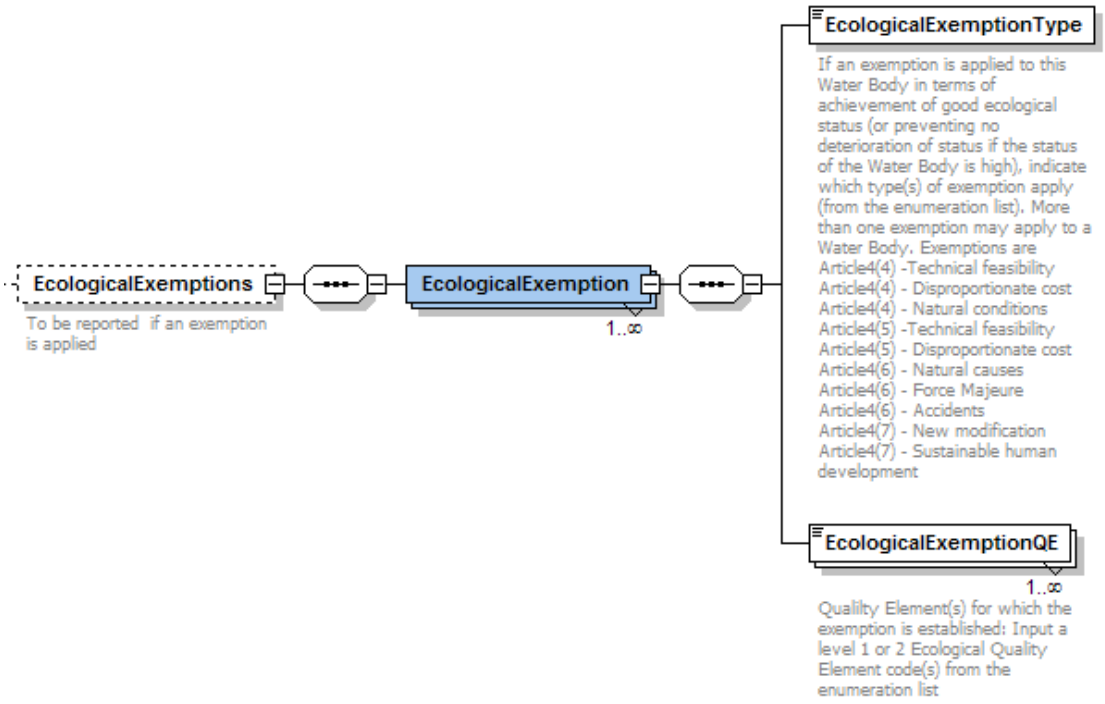
- Note that the order of the elements Water Body Statuses and PressuresAndImpacts have been swapped round.
- The DisaggregatedStatuses element previously in the Article 13 schema has been removed.
- The Protected Area Status has been moved to be combined with the definition of associated protected areas.
- A compulsory sequence of water body status elements is now required for :
  - EcologicalStatusOrPotential,
  - ChemicalStatus
- The structure within each of the EcologicalStatusOrPotential has been constructed as follows.

- **The Ecological Status** together with a confidence element (Compulsory, enumeration list) and an optional confidence comment element.

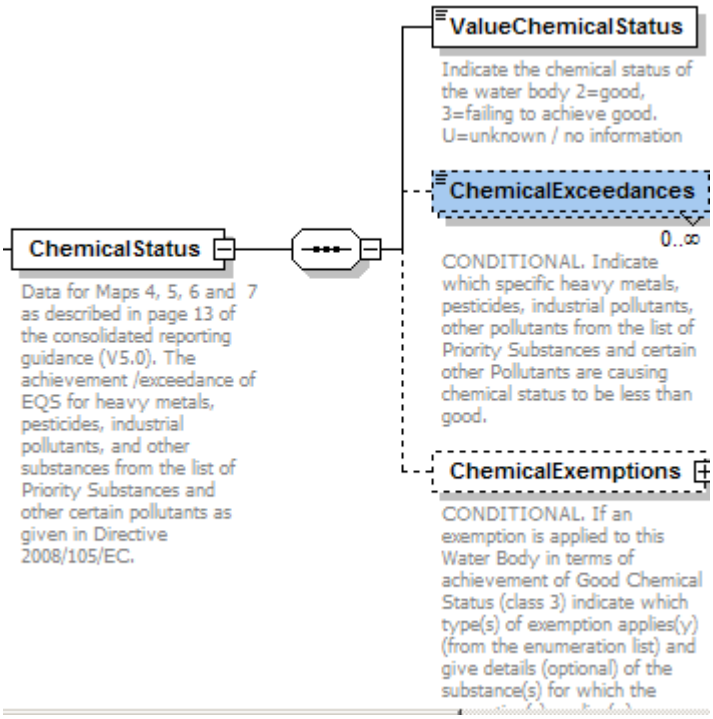


- Detail of the related Ecological Statuses then need to be provided in a sequence of mandatory and optional elements.

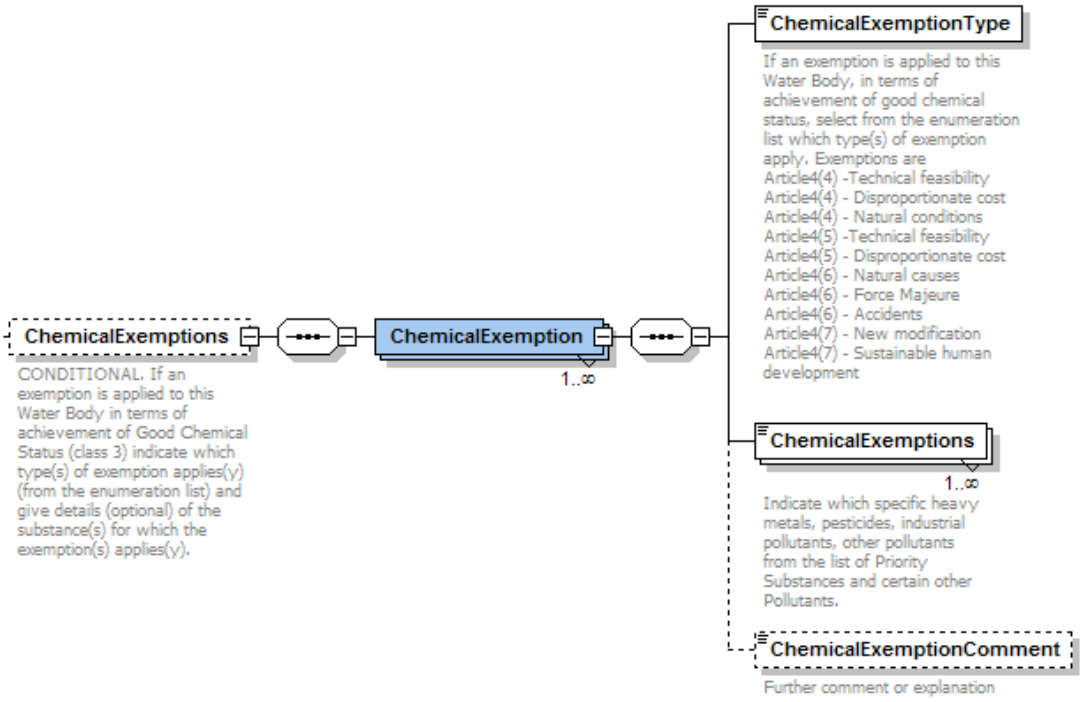
- The Exemption element has been reduced to a simple enumeration list of the various Article 4 options. The Ecological QE that has been exempted needs to be identified and an optional Exemptions Comment has been added. If there is more than one exemption for a specific QE the record has to be repeated.



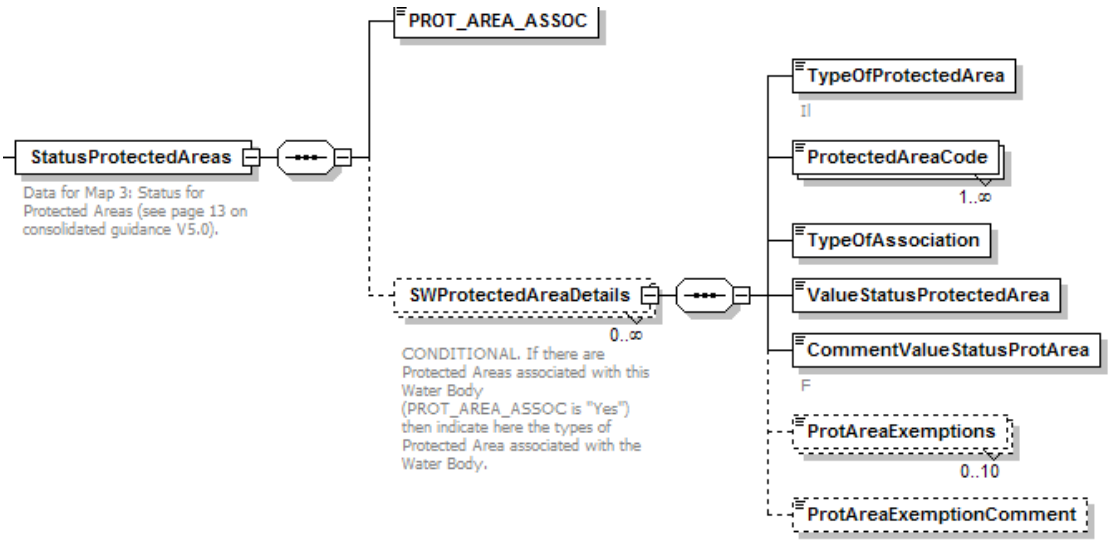
- **The ChemicalStatus** element requires the Status and a definition of any chemicals causing failure and the chemical exemptions.



- Any chemical exemptions then have to be defined together with the pollutant(s) that is associated with the exemption.

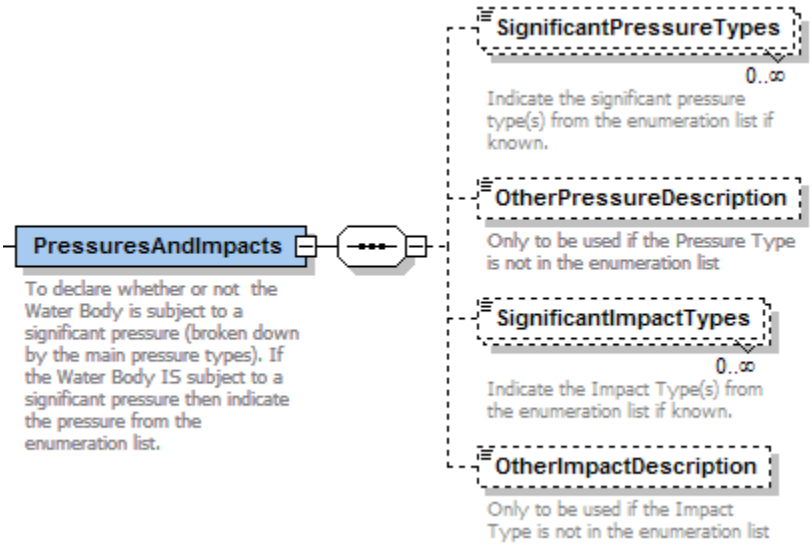


- **The StatusProtectedArea** Element requires detail for each Protected Area Type. A new complex Conditional element called SWProtectedAreas has been added. It contains PROT_AREA_ASSOC a yes no field. If yes then the Conditional SWProtectedAreaDetails element is required. Note that if the protected area has been reported under another directive. If not a new Protected area object and Shape file needs to be reported using the ProtArea schema.
- ValueStatusProtectedArea and CommentValueStatusProtArea made conditional
- See the structure below required for each protected Area Status Type.



PressuresAndImpacts

- A sequence of significant pressure and impact elements is now required.

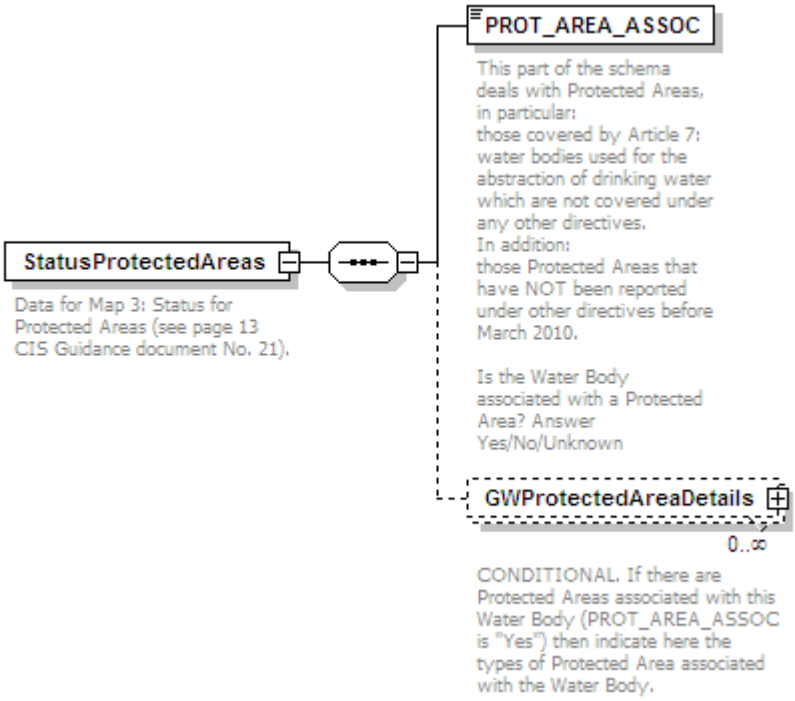


2.2 GWB schema

A single XML structure has been created based on an amalgamation of the Article 5 GWB schema and the Article 13 Article 13GWB schema.

The following changes have been made.

- The DIST_CD has been changed to EURBDCode
- The EU_CD has been changed to EUGroundWaterBodyCode
- MS_CD and NAME changed to GWB_MS_CD and GWB_NAME
- The following Article 5 elements have been removed RISK_TOTAL, STATUS_YR, HORIZON, RISK_CHEM, RISK_QUANT, REASON_POINT, REASON_DIFFUSE, REASON_ABSTRACTION, REASON_RECHARGE, REASON_INTRUSION, REASON_REF, GEO_CHARS, GEO_CHARS_REF, HYDRO_CHARS, HYDRO_CHARS_REF, SUPER_CHARS, SUPER_CHARS_REF, STRAT_CHARS, STRAT_CHARS_REF, ASSOC_SYS, ASSOC_SYS_REF, RATE_EXCH, RATE_EXCH_REF, RCHG_AVE, RCHG_AVE_RE, CHEM_CHARS, CHEM_CHARS_REF.
- All fields under the HydrologicalCharacteristics element have been set to optional.
    - Layered has replaced LAYERED. Layered is a Yes/No field.
    - Two new fields called AverageDepth and VerticleOrientation have been added.
    - A Scale element has been added to make the GWB and SWB schemas consistent. A ScaleExplanation element has also been added.
- Protected Area reportoring has been brought in line with SWB schema. A new intermediate element StatusProtectedAreas added and all the corresponding sub-elements added.
- ValueStatusProtectedArea and CommentValueStatusProtArea made conditional



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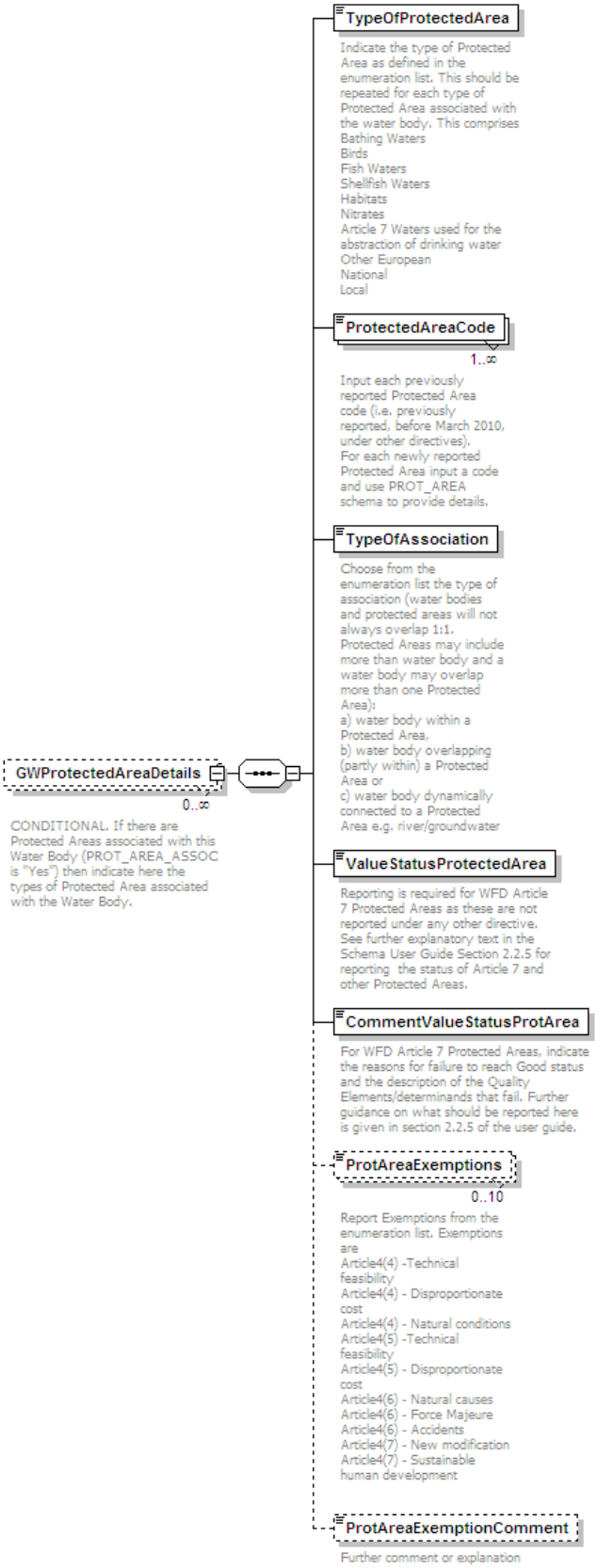
- A new complex Conditional element called GWProtectedAreaDetails has been added. If not a new Protected area object and Shape file needs to be reported using the ProtArea schema).



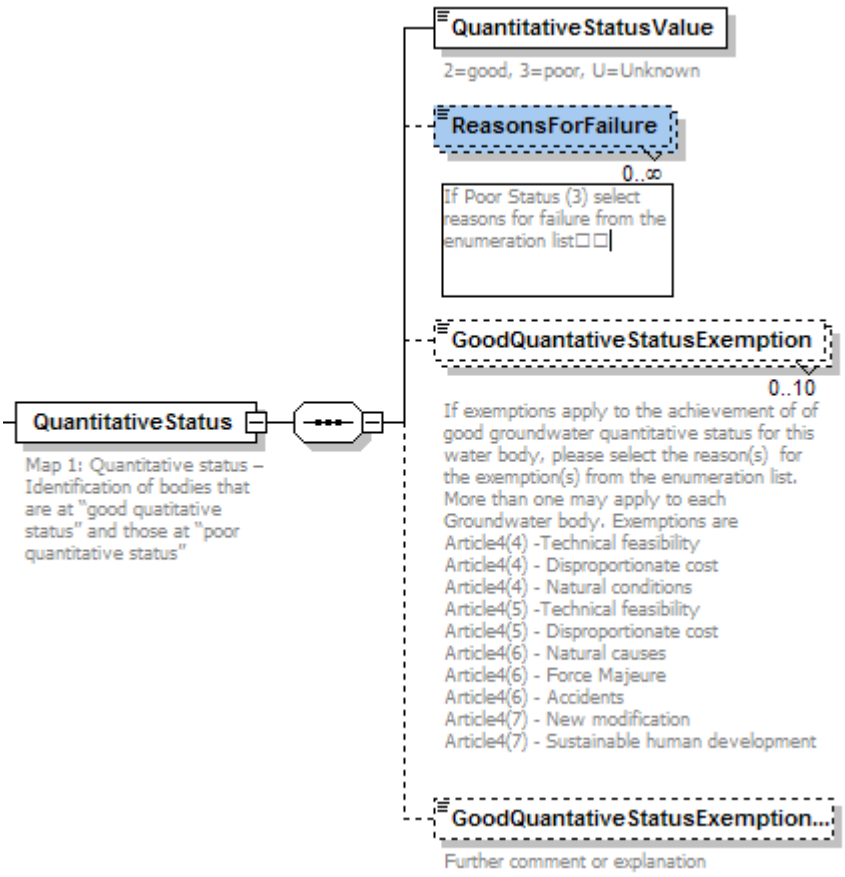
- A new element has been added for GroundwaterBodyStatus to hold the detail previously defined for Article 13 (SWM3). See below for detail

- A new element has been added for PressuresAndImpacts to hold the detail defined in the GIS reporting sheet for the various Significant Pressures and Impacts. See below for detail.

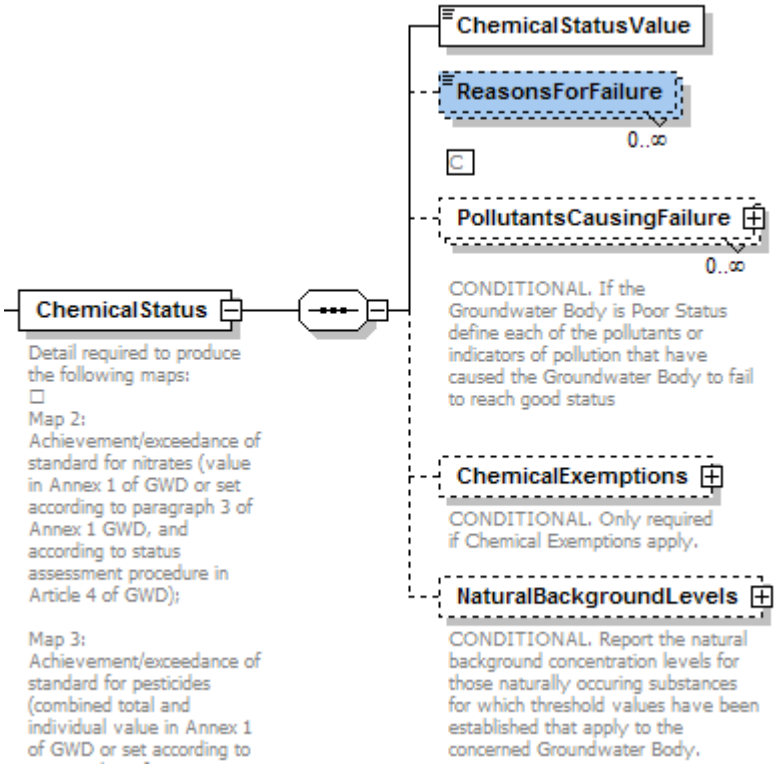
WaterBodyStatuses

- Note that the order of the elements GroundwaterStatus and PressuresAndImpacts have been swapped round.
- The DisaggregatedStatuses element previously in the Article 13 schema has been removed.

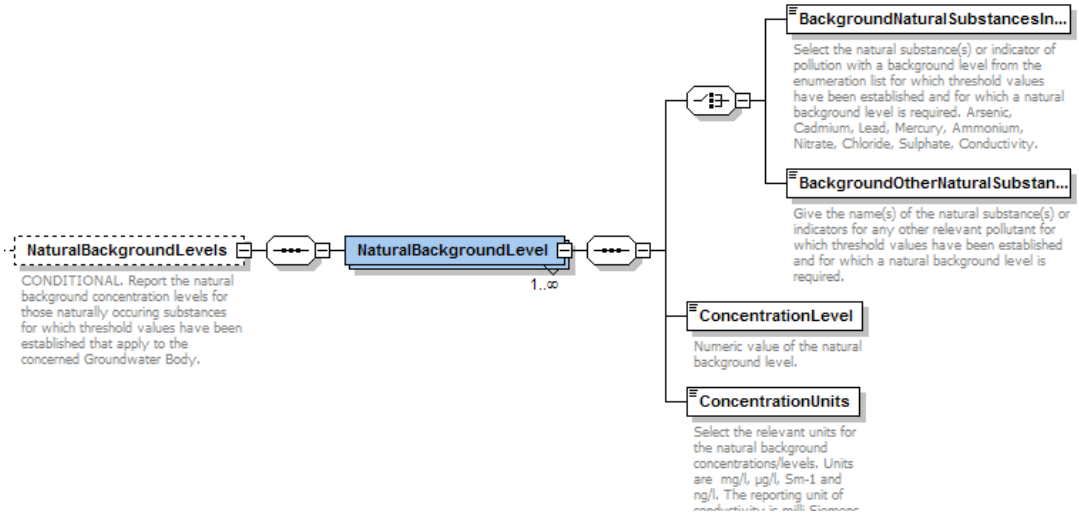
- A compulsory sequence of water body status elements is now required. The elements are as follows:
  - **QuantitativeStatus**



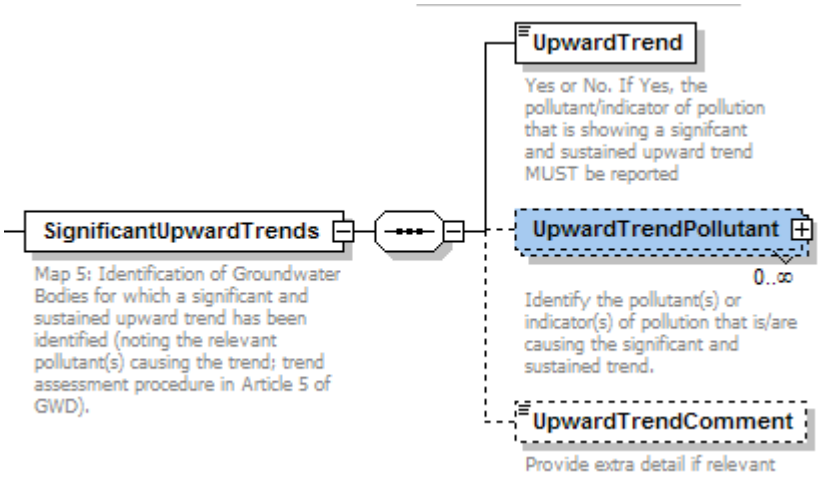
  - **ChemicalStatus**



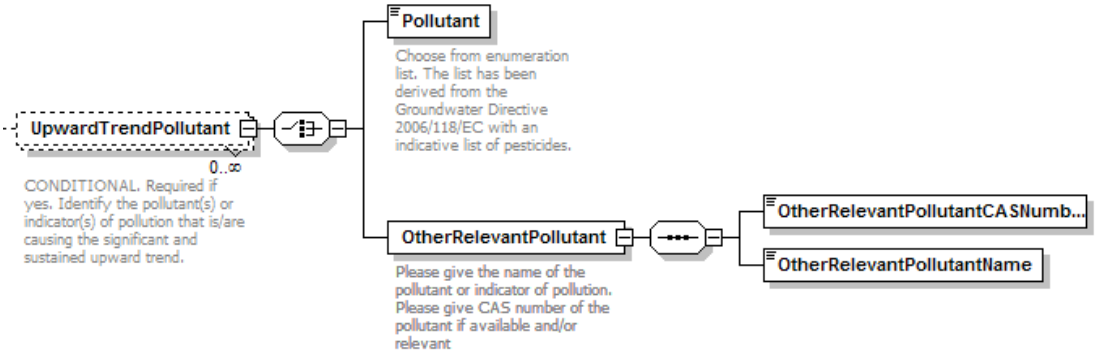
- Added optional comment boxes immediately below both QuantitativeStatusValue and ChemicalStatusValue with names CommentQuantitativeStatusValue CommentChemicalStatusValue
- The NaturalBackgroundLevels element is required as follows.



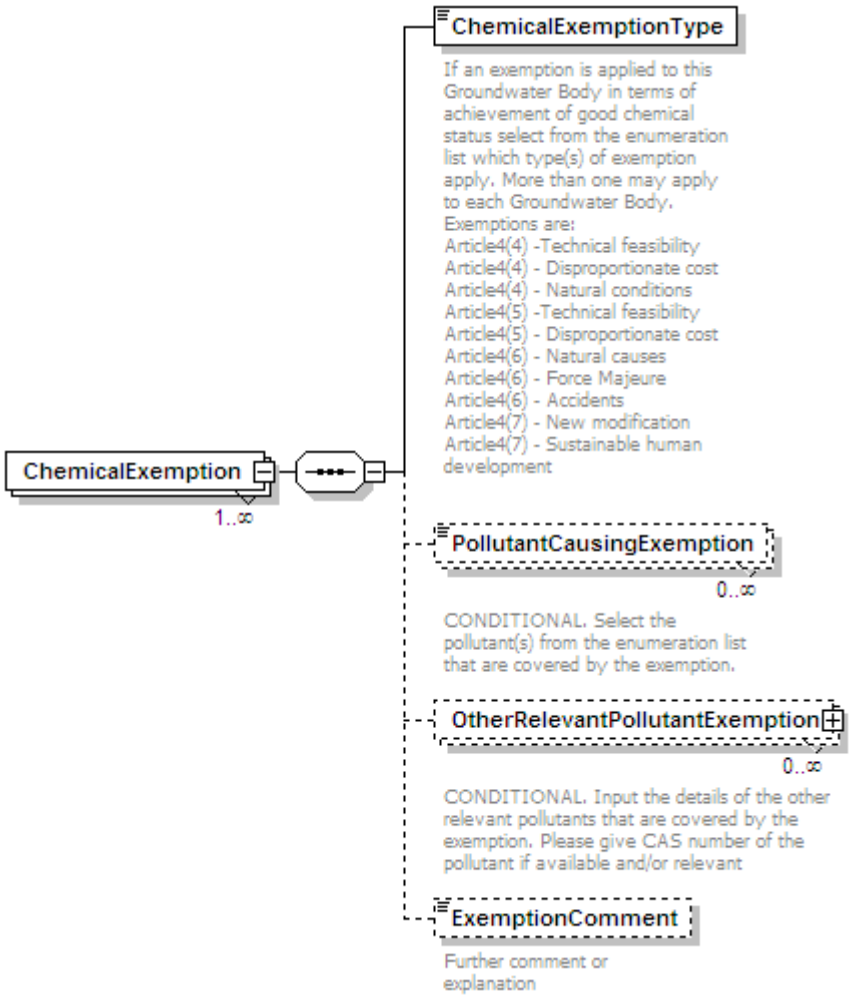
- SignificantUpwardTrends and SignificantTrendReversals



- The structure within each of these sub status elements has been redefined based on the new GWD1 reporting sheet.
- An extra optional comments element has been added to the SignificantUpwardTrends and SignificantTrendReversal information.
- The SignificantUpwardTrend element is now structured as follows. The same structure is repeated for the SignificantTrendReversal element.:



- Chemical Exemption elements renamed



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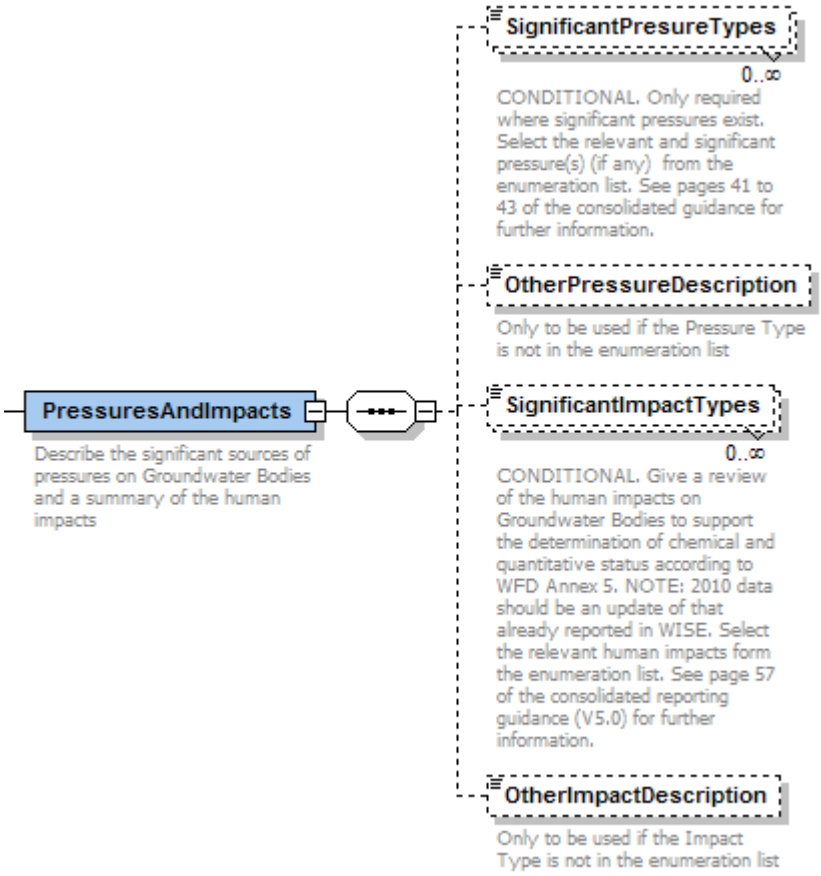
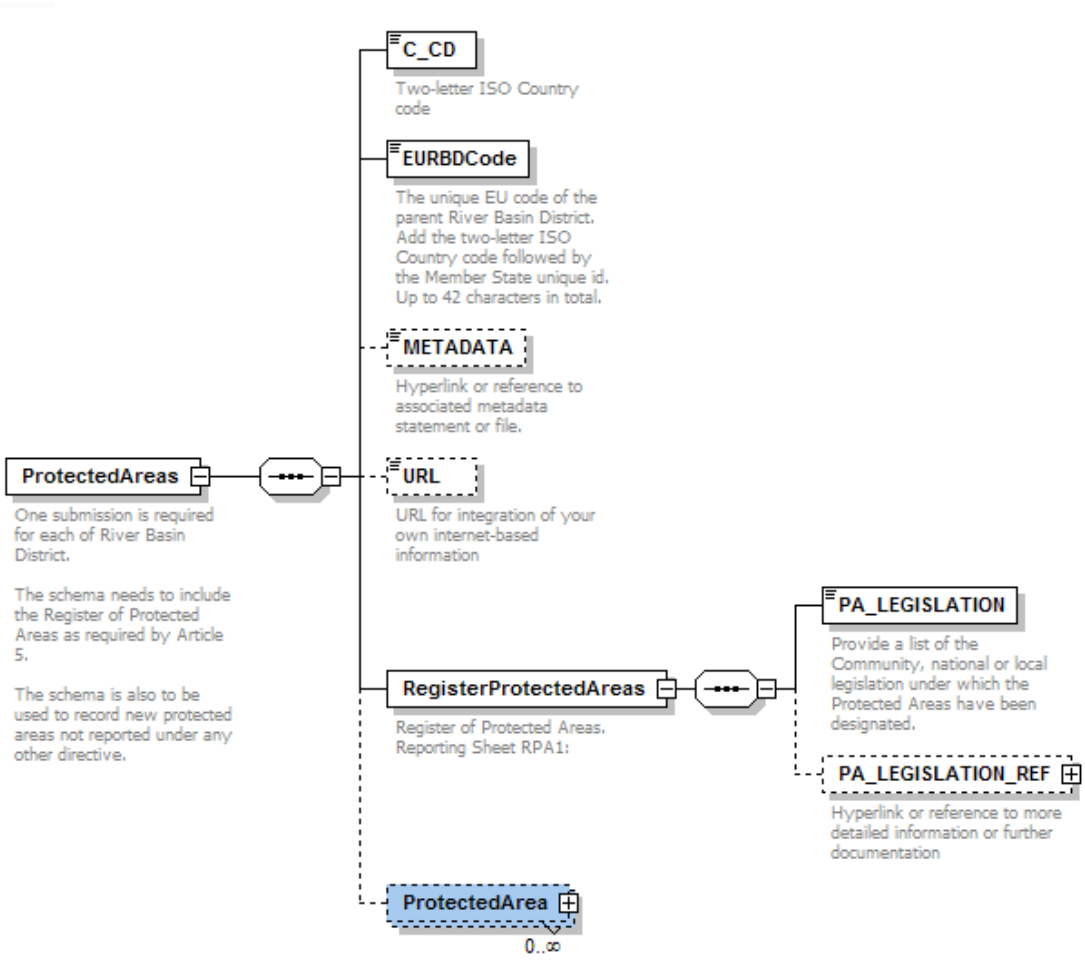
PressuresAndImpacts

- The pressure and impacts information is required as follows:

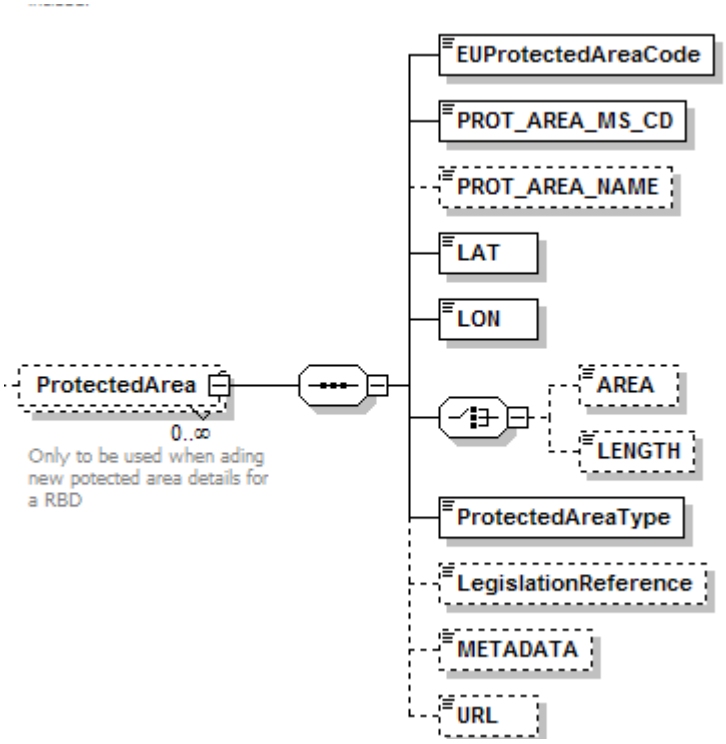


2.3 ProtArea schema

- The schema Article 5 ProtArea schema has been amended to combine the submission of the Register of Protected Areas and the reporting of any new Protected Areas not reported under other directives.
- DIST_CD has been renamed EURBDCode



- The Protected Area element has been changed to “zero to many”. Within the element the following changes have been made:
    - The EU_CD, MS_CD and NAME have been changed to EUProtectedAreaCode, PROT_AREA_MS_CD PROT_AREA_NAME.
    - A single element called ProtectedAreaType has been added to allow the user to choose the type of Protected Area from the predefined pick list. As a result the following elements have been removed BATHING, BIRDS, DRINKING, FISH, SHELLFISH, HABITATS, NITRATES, UWWT, ABSTRACTION, EUROPEAN, NATIONAL and LOCAL. Additionally EUROPEAN_REF, NATIONAL_REF and LOCAL_REF have been removed and replaced by a single conditional element LegislationReference.
    - The WB_ASSOC element has been removed



3. Monitoring

The XML structure developed for Article 8 for Monitoring Programmes and Monitoring Stations has been changed slightly as follows:

- "DIST_CD" changed to "EURBDcode" for SurfaceWaterMonitoringStations, GroundWaterMonitoringStation and Monitoring.
- "ASSOC_DOC_REF" changed to "METADATA" whereappropriate for SurfaceWaterMonitoringStations, GroundWaterMonitoringStation and Monitoring.
- Also note that the GECode and QECode enumeration lists have changed to include the QE/GE code and a description.

4. RBMP_POM schema

A new single schema has been created to record Information reported for the River Basin Management Plan and to hold details of Significant Surface Water Pressures and Relevant Groundwater Pressures. It consists of the information contained in

- the Article 13 schema Article 13RBD and the detail defined for Reporting Sheets RBMP and POM1
- the Article 5 Pressures and Loads detail for Surface Water and Groundwater Pressures as defined in the Reporting Sheets SWPI1/2/3/5 and GWPI1/3/4/5/6/8 and previously defined in the Article 5 RBD schema.

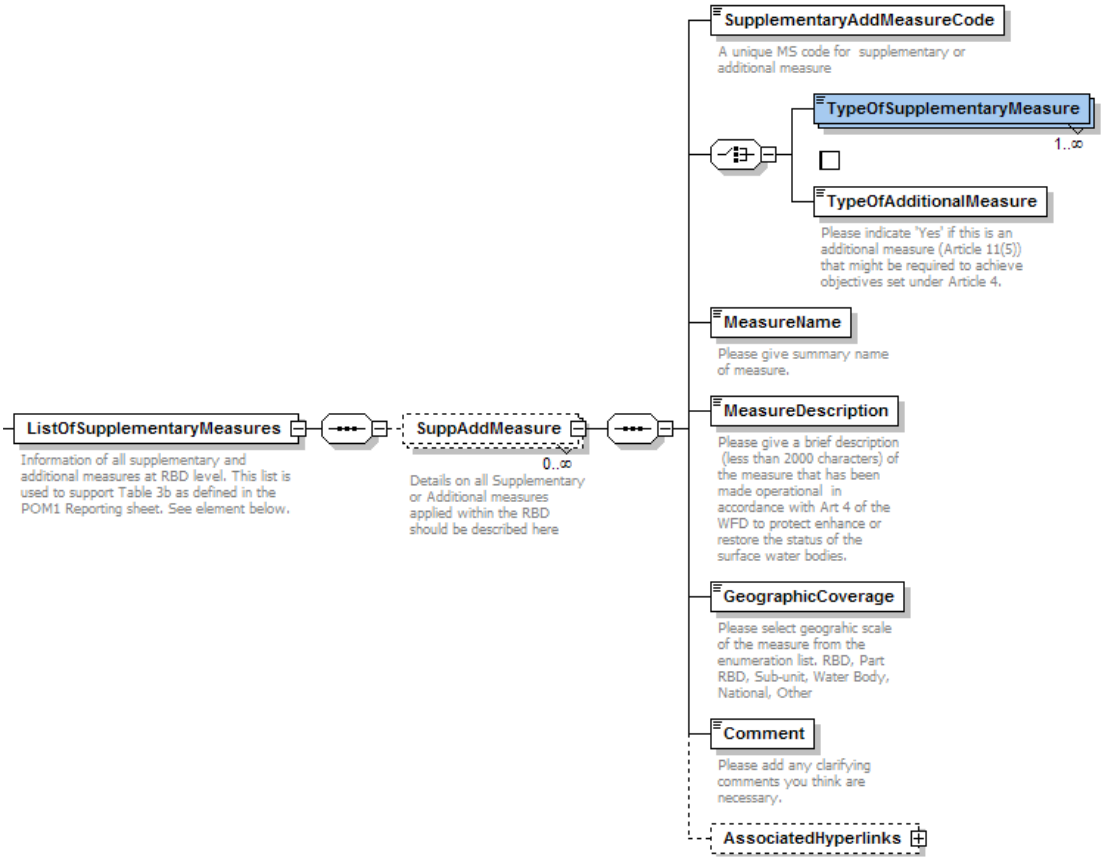
4.1 RBMP element

- The Structure has not changed from the previous RBMP1 element within the Article13RBD schema except that
  - The element has been renamed from RBMP1 to RBMP
  - MS_CD is now RBD_MS_CD
  - SummaryRegisterOfProgrammes is now SummaryOfProgrammes

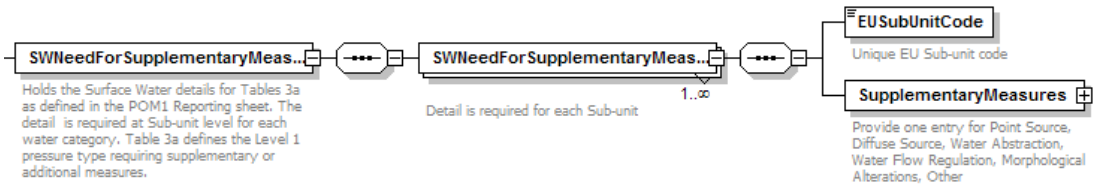
- PublicParticipationExperiences element has been removed as it duplicated the detail held in the PublicParticipationMatrix element

4.2 POM element

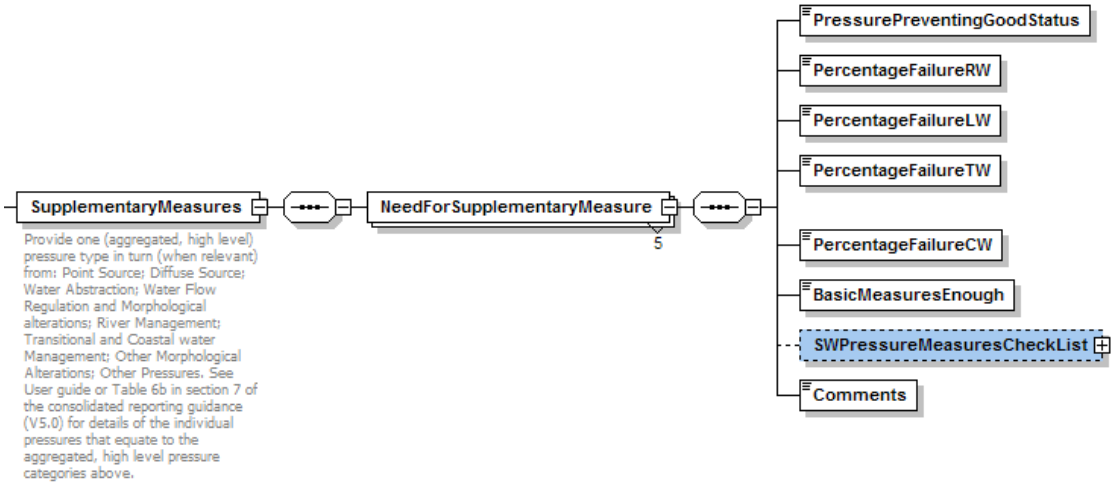
- The following changes have occurred to the POM element within the Article13RBD schema.
- The element has been renamed from POM1 to POM and its order changed.
- The elements BasicMeasuresArticle11-3a and OtherBasicMeasuresArticle11-3b-1 were changed to a pick list structure and then changed back to an explicit list of sub-elements as previously defined. The names of the new explicit sub-elements have altered as a result.
- The elements RiversPressuresAndMeasures, LakesPressuresAndMeasures, TransitionalPressuresAndMeasures, CoastalPressuresAndMeasures and GroundWatersPressuresAndMeasures have been replaced by the following elements
  - ListOfSupplementaryMeasures
  - SWSupplementaryPressuresAndMeasures
  - GWSupplementaryPressuresAndMeasures
- The ListOfSupplementaryMeasures element provides a list structure to define all the Supplementary measures within the RBD. Note that LevelOfMeasure has been renamed as GeographicCoverage and re-positioned.



- The SWNeedForSupplementaryPressures element requires
  - The detail to be broken down by Sub-Unit.

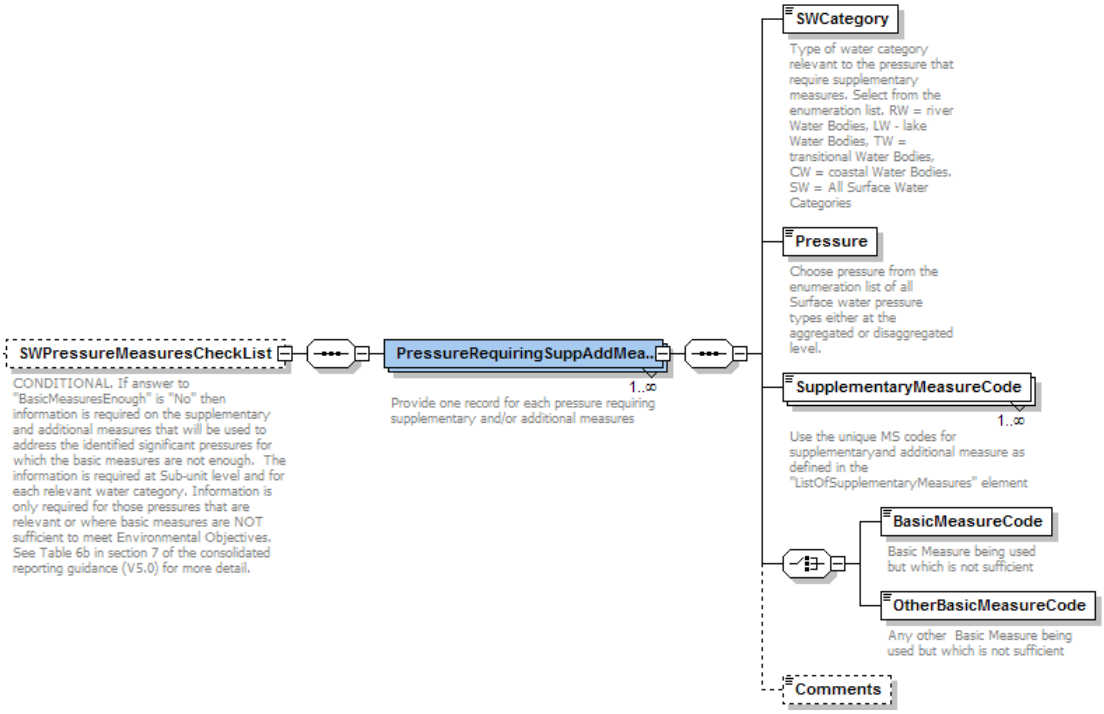


- Within each category is a structure that meets the needs of Table 3A within the POM1 Reporting Sheet as shown below. The structure requires the percentage failures to be defined for all four categories.

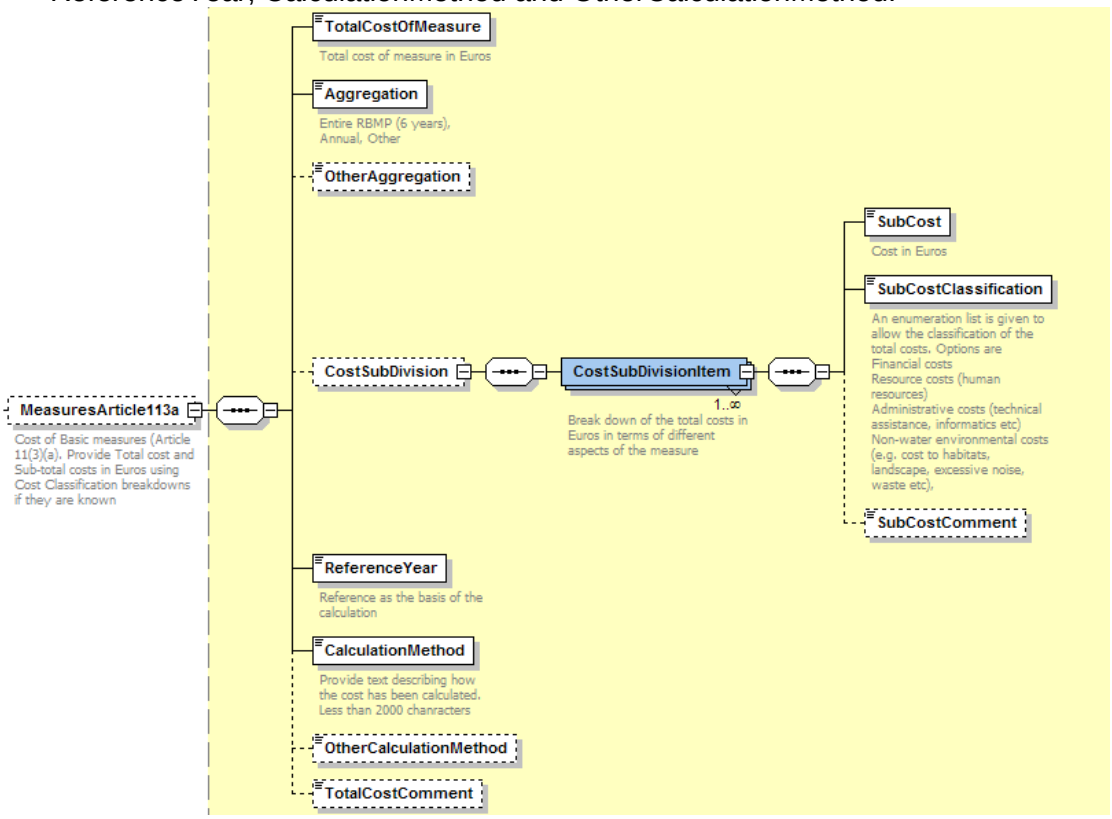


- BasicMethodsEnough element requires a yes no answer. SWPressureMeasuresCheckList is required if YesNo = No

- The SWPressureMeasuresCheckList is only required if supplementary pressures are in place within the RBD. The structure below meets the needs of Table 3b within the POM1 Reporting Sheet.



- The GWSupplementaryPressuresAndMeasures element uses a similar structure as the SWSupplementaryPressuresAndMeasures element except that there is no need to sub-divide the detail by either Sub-Unit or Category.
- The POMTable4Structure within the CostOfMeasures element has changed to include the following elements: Aggregation, OtherAggregation, ReferenceYear, CalculationMethod and OtherCalculationMethod.



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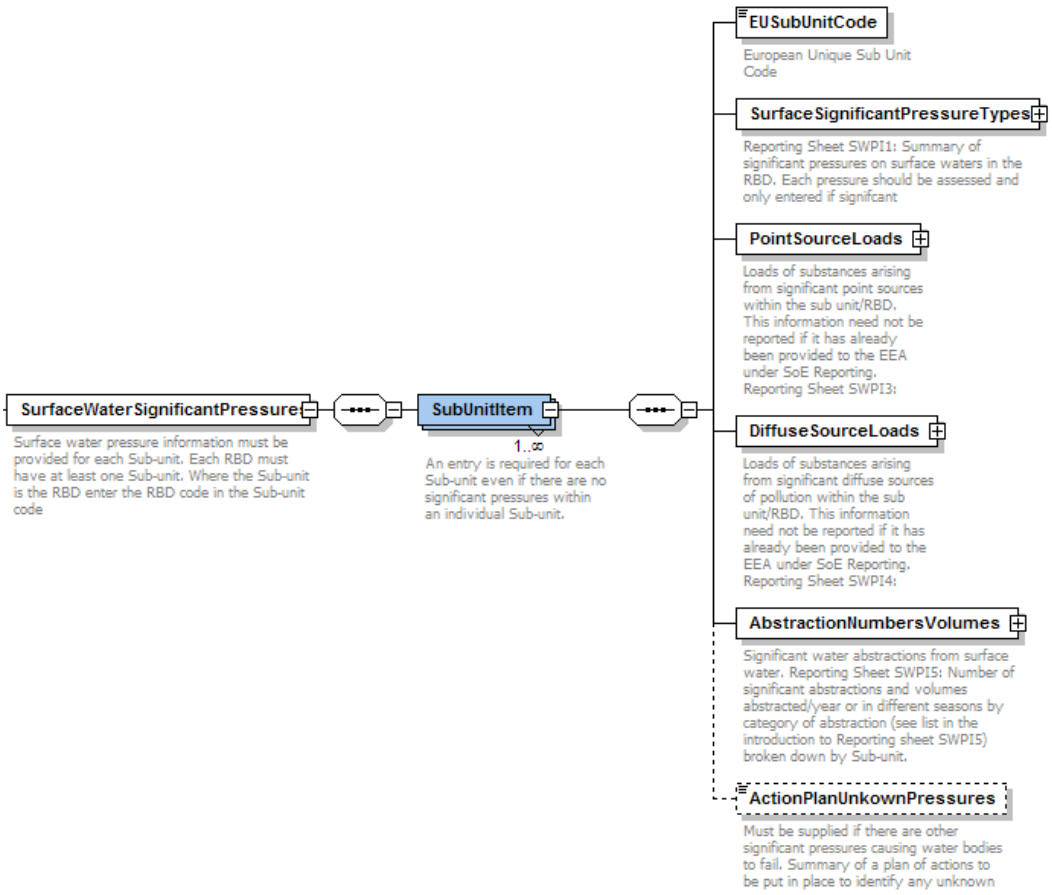
- The rest of the elements in POM have remained unchanged e.g. InternationalRBDCoordination, GeneralAdditionalComments and SupportingHyperlinks .
- Note that the Pressure Type enumeration lists have been slightly altered to bring them into line with the lists now defined by the revision of the Article 5 Reporting Sheets.

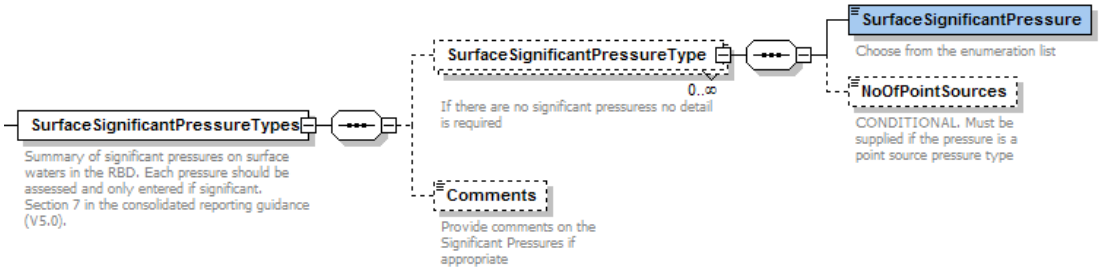
4.3 Surface Water Significant Pressure Sources

- The SurfaceWaterSignificantPressures element provides options to define the Significant pressures, numbers and loads detail now being requested within the revised Article 5 Reporting sheets SWPI1, SWPI3, SWPI4 and SWPI5.
- Only detail that cannot be derived is now being requested. No detail is required here for SWPI6.
- Each element has been given meaningful names rather than the previous Reporting sheet numbers.

  See the structure below.

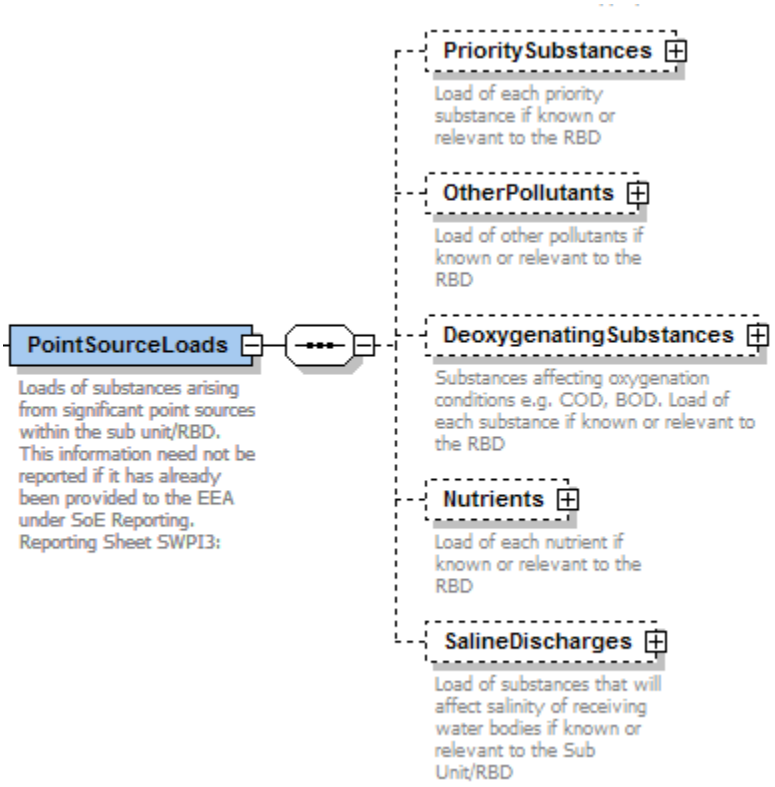


- The SurfaceSignificantPressureTypes element is a list structure to define pressures which are significant. See below.

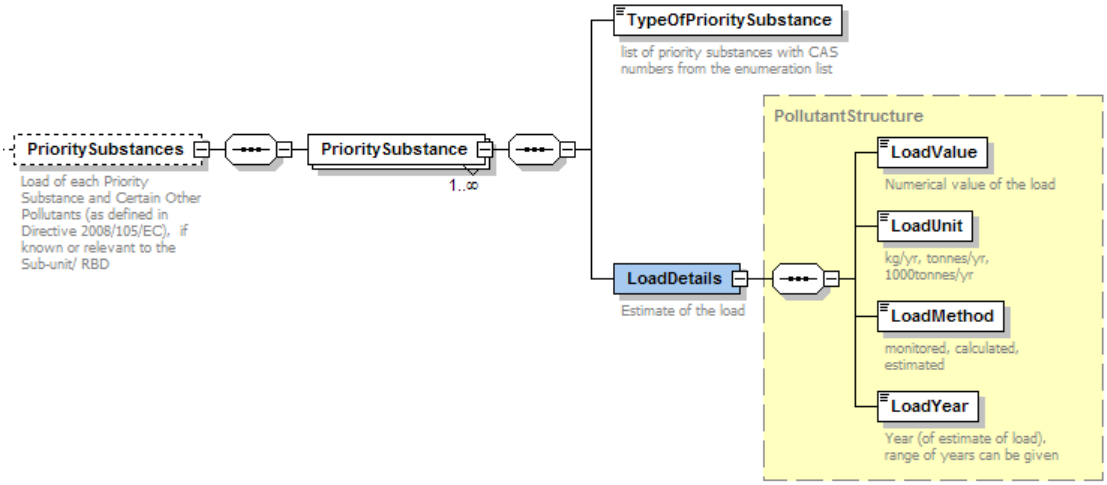


All pressures require the description of the pressure with the exception of point pressures which require the number of point sources.

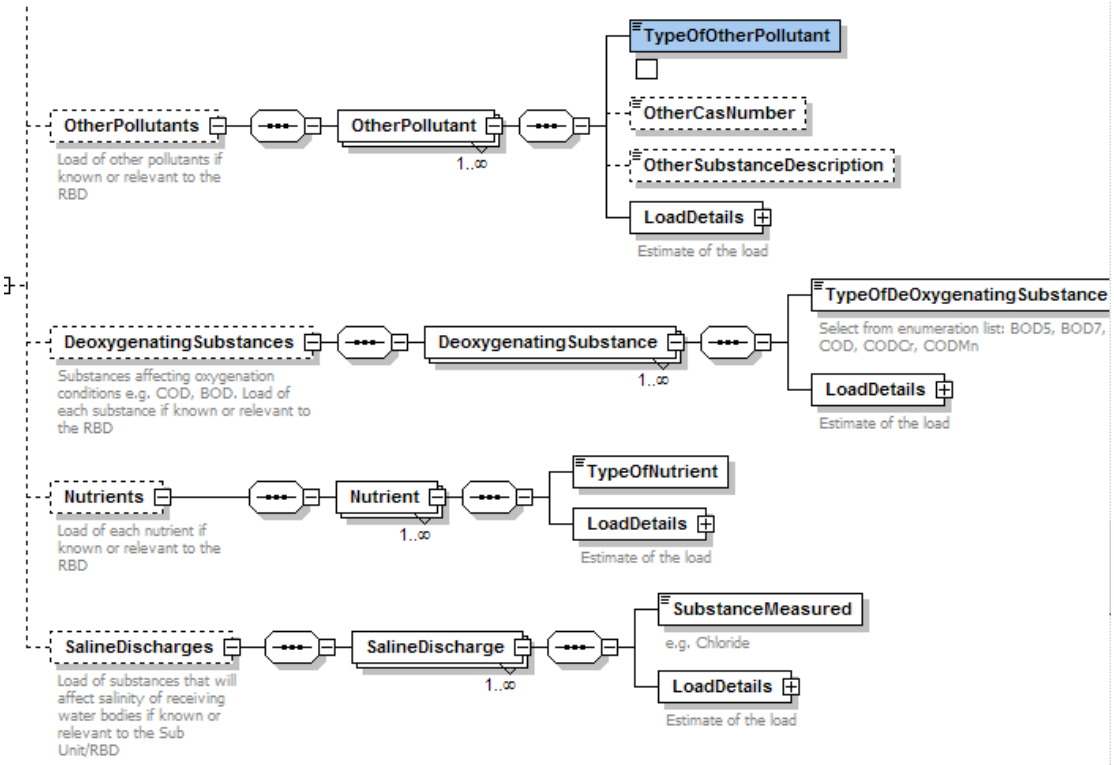
- The PointSourceLoads element is a list structure. They are used to define the load detail of Point Source pressures if they are significant within the RBD. See below.



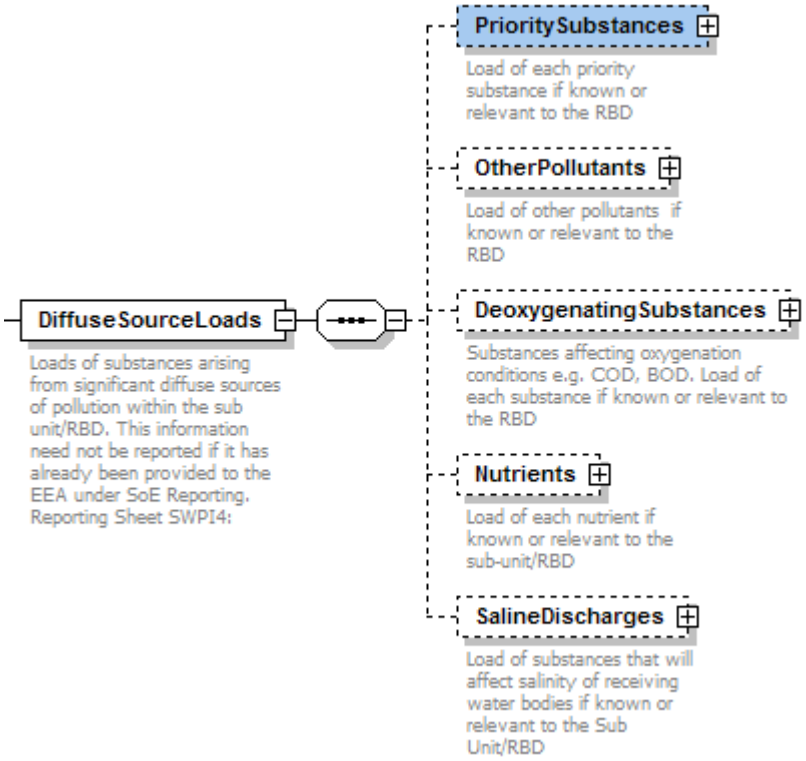
- PrioritySubstances holds data in the following structure.



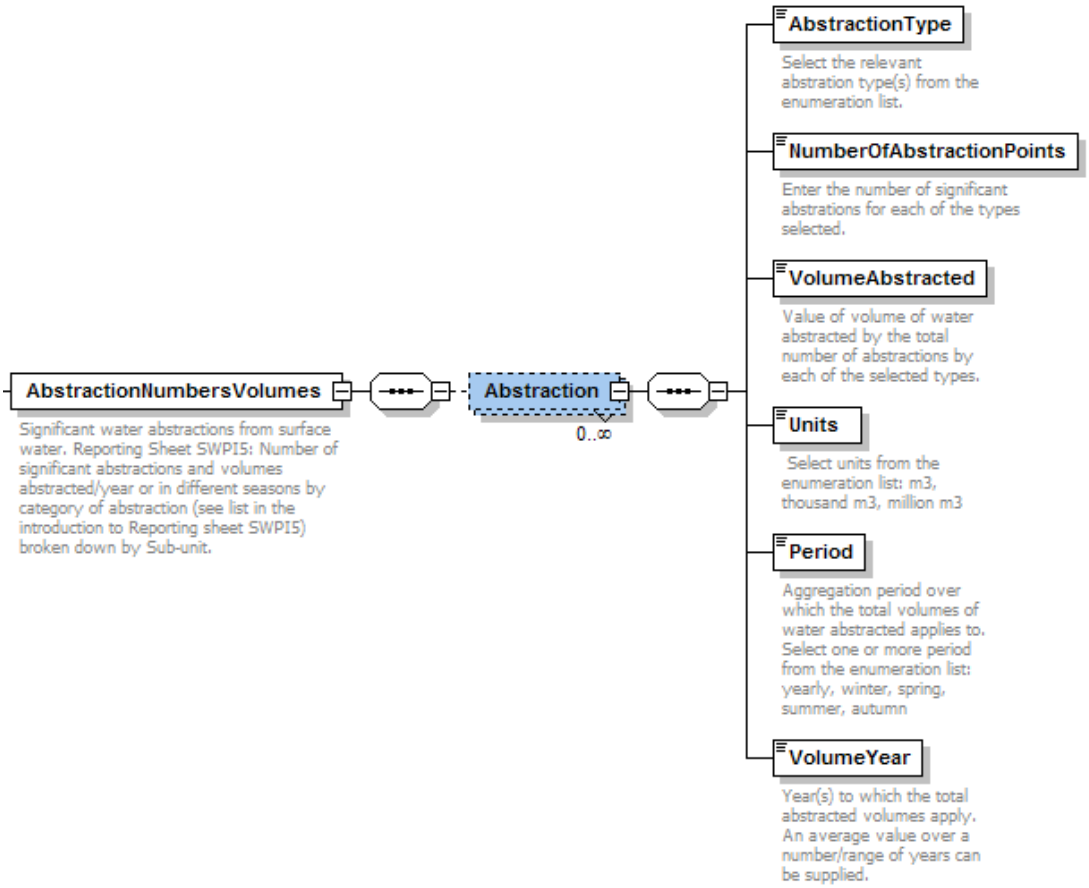
- Similar Structures are used by the other sub-elements see below. Note the LoadDetail element uses the common PollutantStructure complex element.



- The DiffuseSourceLoads element is a list structure to define the detail of Diffuse Source pressures if they are significant within the RBD. See below.



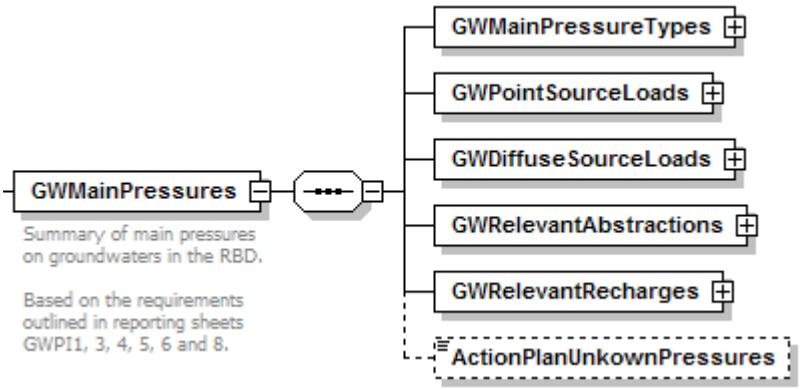
- The same structure used for the Point Source example above has been used to define the elements PrioritySubstances, OtherPollutants, DeOxygenatingSubstances, Nutrients and SalineDischarge elements.
- The AbstractionNumbersVolumes element is a list structure to define the detail of Point Source pressures if they are significant within the RBD. See below.



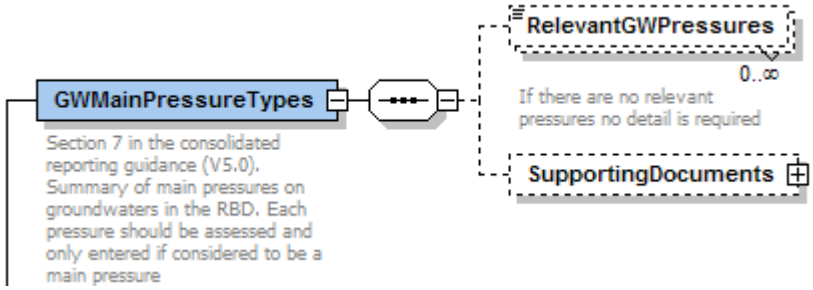
4.4 Groundwater Main Pressure Sources

- The GWMainPressures element provides options to define the Main Pressures numbers and loads detail being requested within the Reporting sheets GWPI1, GWPI3, GWPI4, GWPI5, GWPI6 and GWPI8. Only detail that cannot be derived is now being requested. No detail is required here for GWPI7. The detail requested is now in line with that being defined by the revised Article 5 reporting sheets.

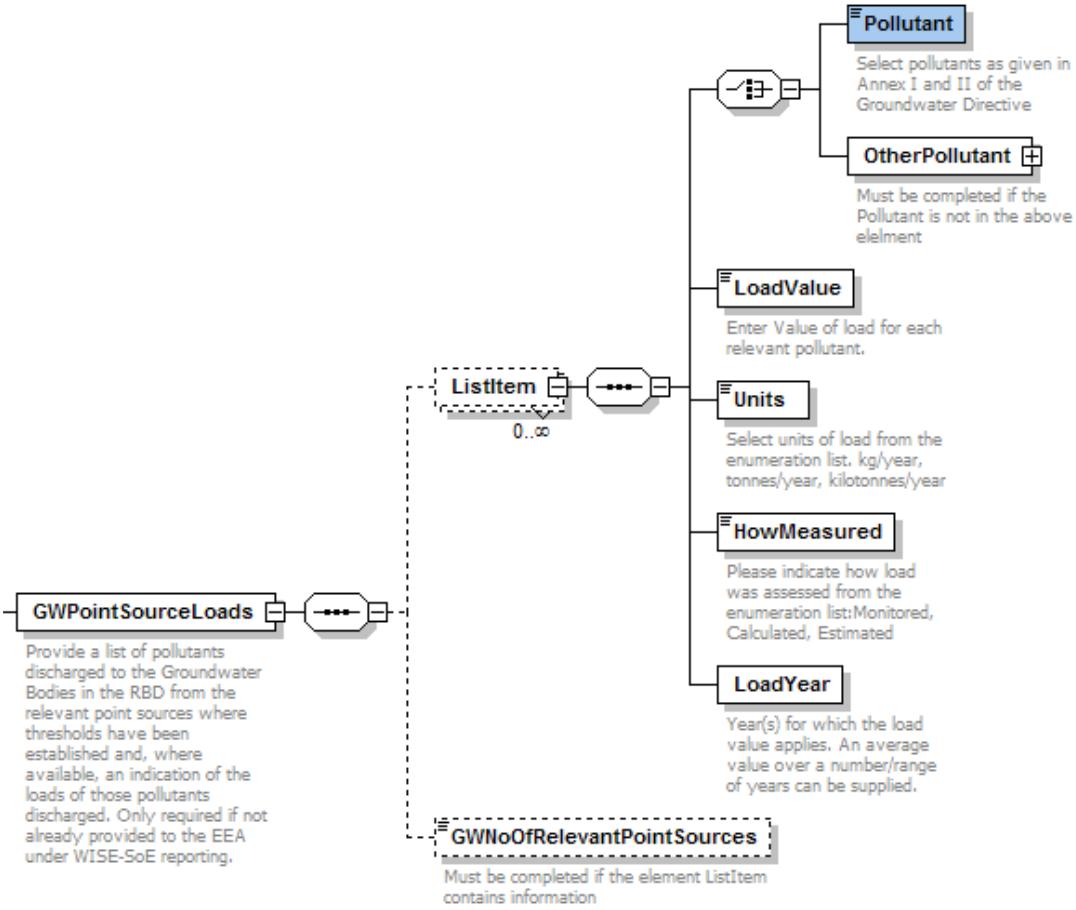
  The overall structure is shown below.



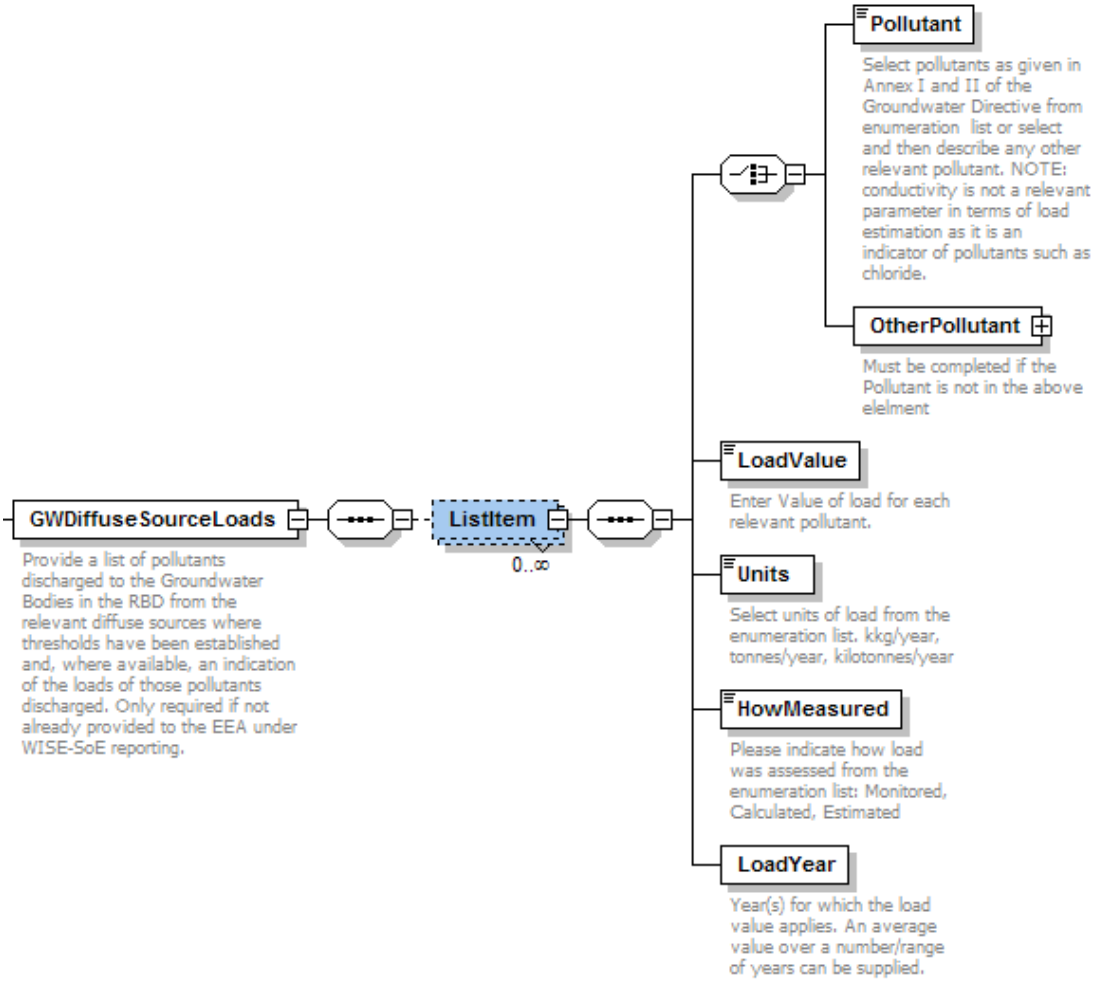
- The GWMainPressureTypes element is a list structure to define the relevant geoundwater pressures. See below.



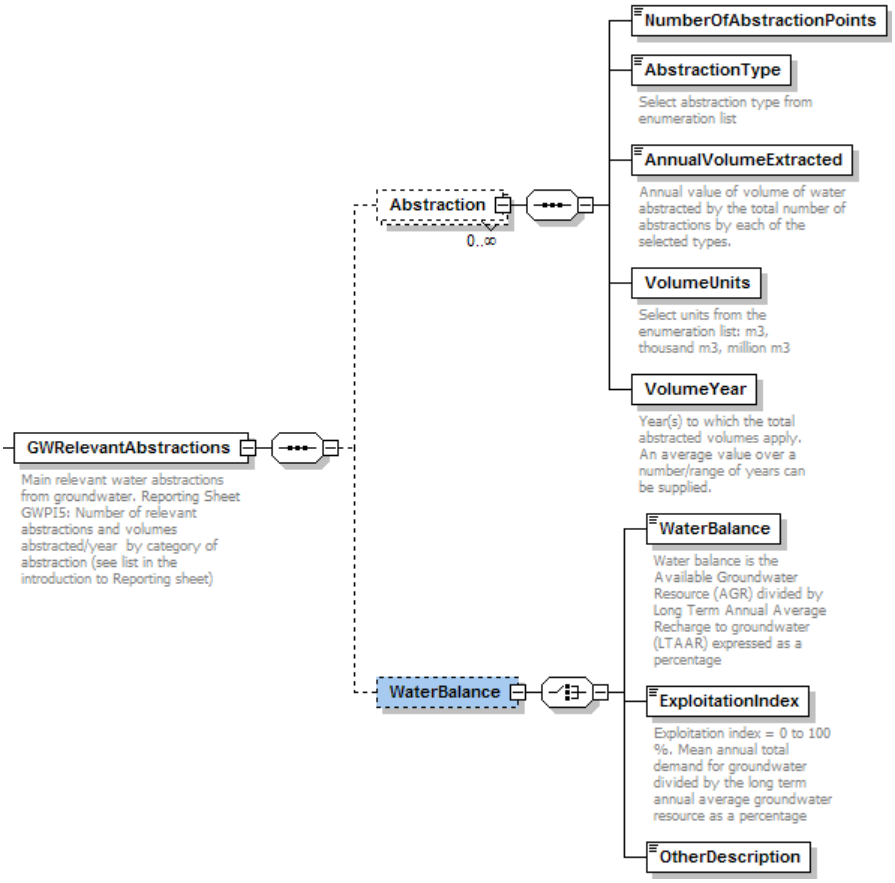
- The GWPointSourceLoads element is a list structure to define the detail of the loads for Point Source pressures if they are relevant within the RBD. See below.



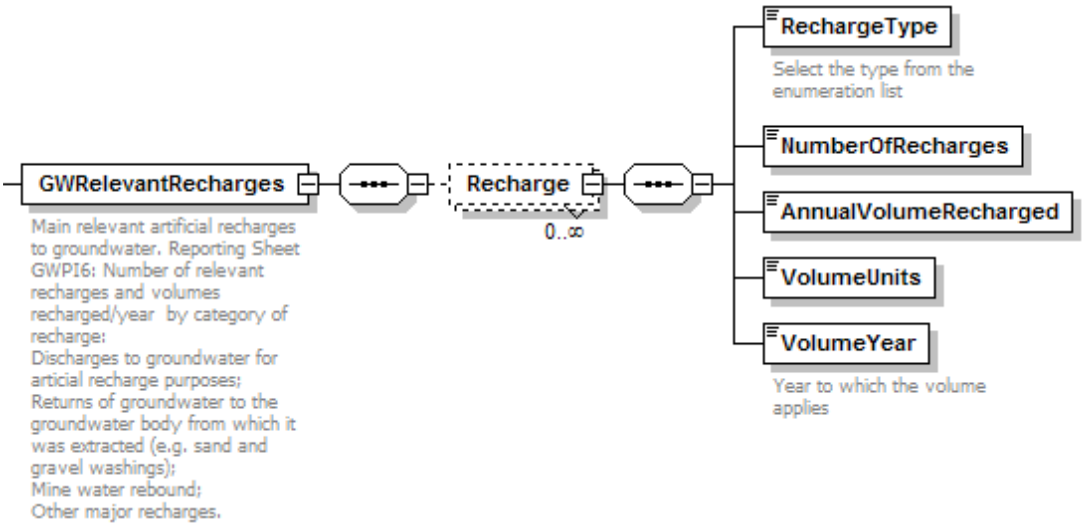
- The GWDiffuseSourceLoads element is a list structure to define the detail of the loads for Diffuse Source pressures if they are relevant within the RBD. See below.



- The GWRelevantAbstractions element is a list structure to define the detail for Abstraction Source pressures if they are relevant within the RBD. See below.



- The GWRelevantRecharges element is a list structure to define the detail of Recharge pressures if they are relevant within the RBD. See below.



4.4 Economic Analysis

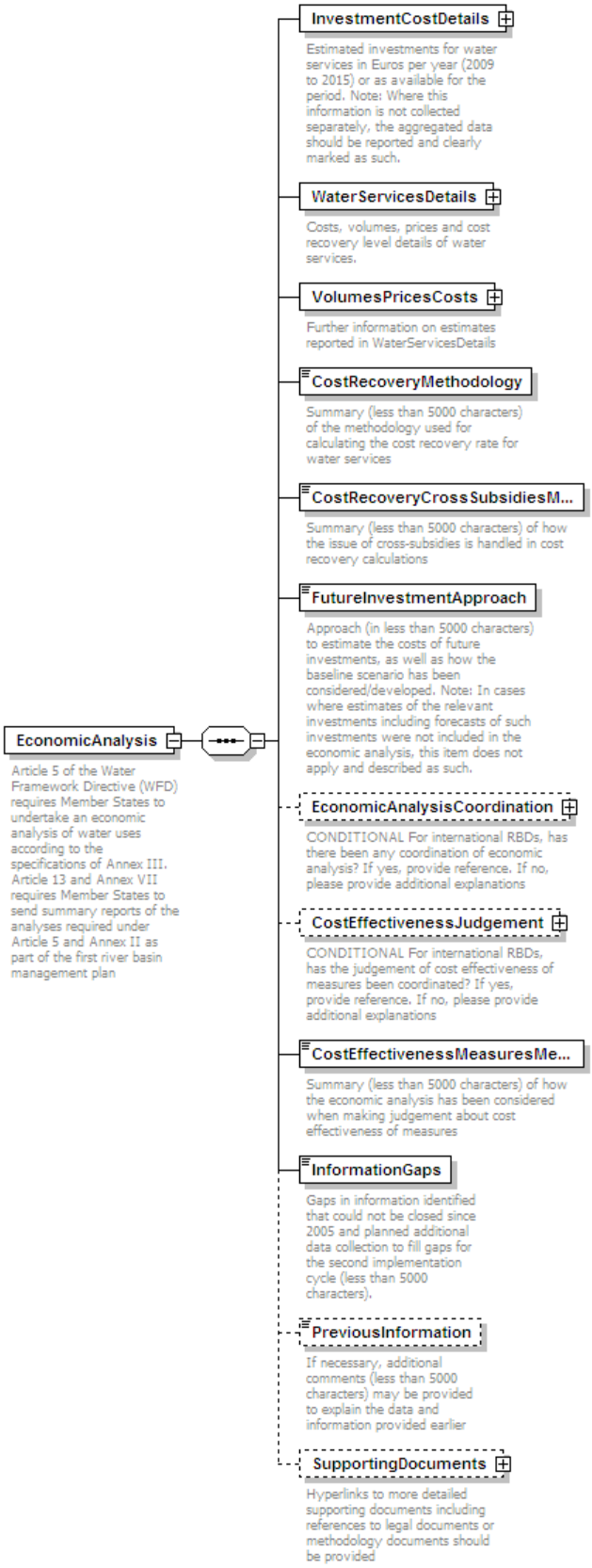
- Economic Information is also now being requested. The Information requirements reflect the detail identified in the reporting sheets ECO1 (Economic analysis of water use and ECO2 (Summary of steps and measures taken to meet the requirements of Article 5).

- The detail required for the EconomicAnalysis (ECO1) element is required as Article 5 of the Water Framework Directive (WFD) requires Member States to

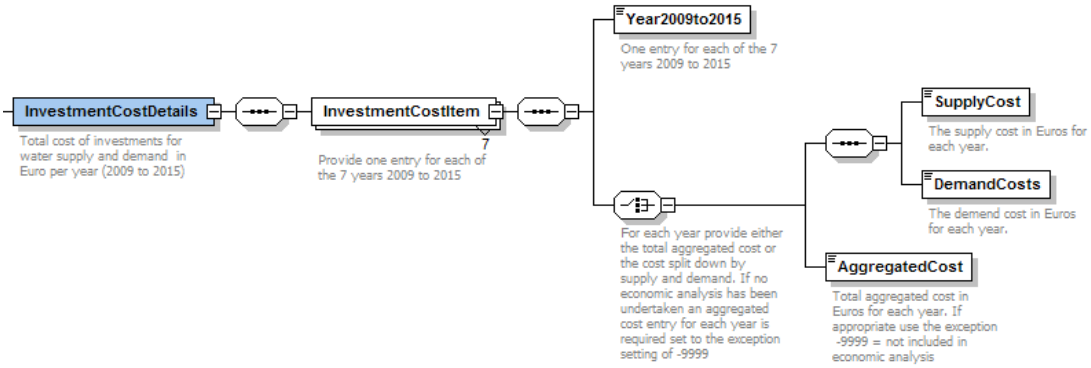
undertake an economic analysis of water uses according to the specifications of Annex III. Article 13 and Annex VII requires Member States to send summary reports of the analyses required under Article 5 and Annex II as part of the first river basin management plan.

- Note that either a Volumes Prices Cost Summary or Investment Cost and Water Service Cost methodologies are required conditional to the answer to element Volumes Prices Not Included.

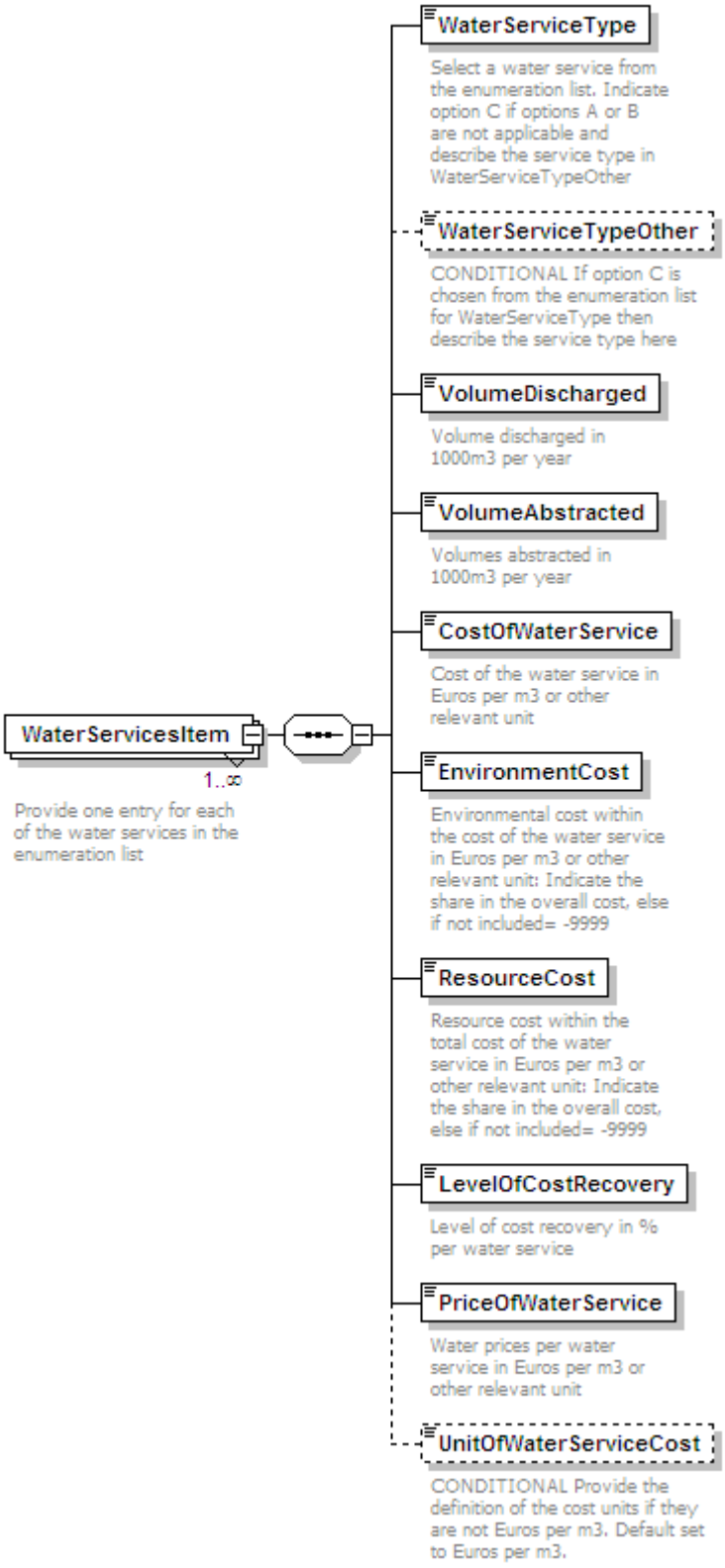
- The elements required for Economic Analysis are as follows:



- Investment cost details are required for the years 2009 to 2015 either as aggregated costs or broken down by supply and demand costs.

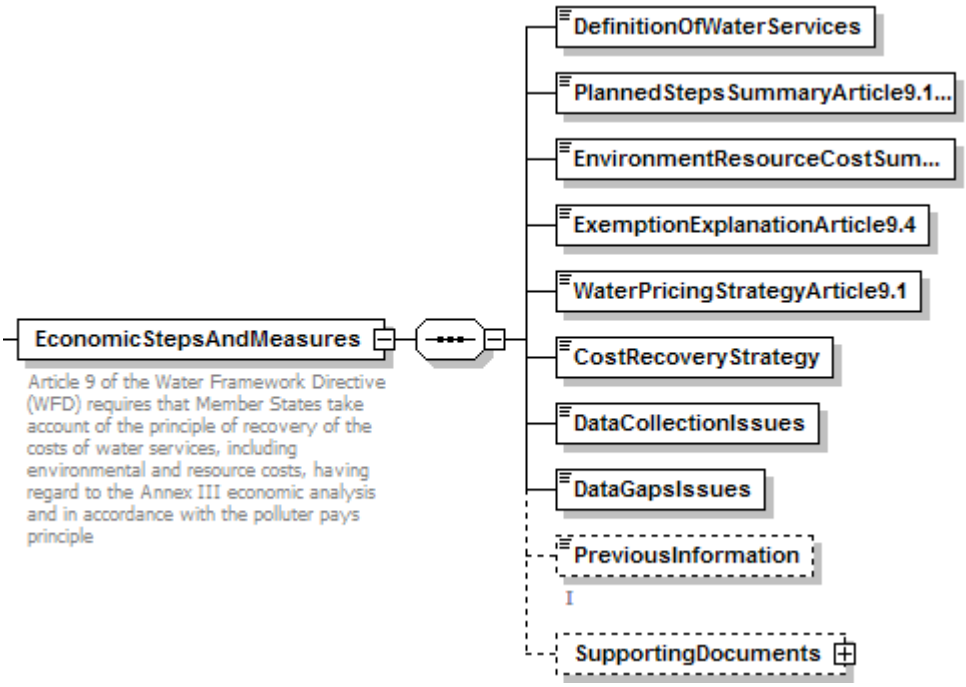


- Details about volumes and costs are also required by Water Service types. The water service types are defined within an enumeration list.



- The detail required for EconomicStepsAndMeasures (ECO2) Element is required Article 9 of the Water Framework Directive (WFD) requires that Member States take account of the principle of recovery of the costs of water services, including environmental and resource costs, having regard to the Annex III economic analysis and in accordance with the polluter pays principle.

- The elements required for Economic Analysis are a series of text fields as follows



5. SWMethods Schema

A single RBD level XML schema has been created to define the Surface Water characterisation methods, typology methods, classification methods, pressure assessment methods, impact measuring methods and exemption measuring methods. The schema also holds detail on Data Gaps and Uncertainties.

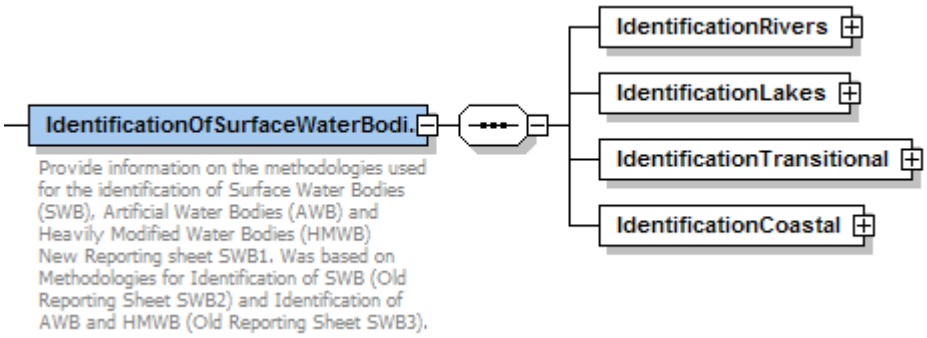
The schema was based on the Article 5 RBD schema but where appropriate structures defined in the Article 13 Article13RBD schema have been used.

Some initial naming changes have been made.

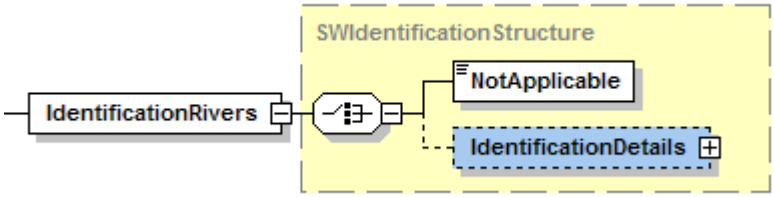
- The RiverBasinDistrictMethodologies element name has been changed to RiverBasinDistrictSWMethodologies
- The EU_CD has been changed to EURBDCode
- MS_CD and Name are renamed as RBD_MS_CD and RBDName

5.1 Characterisation Methods

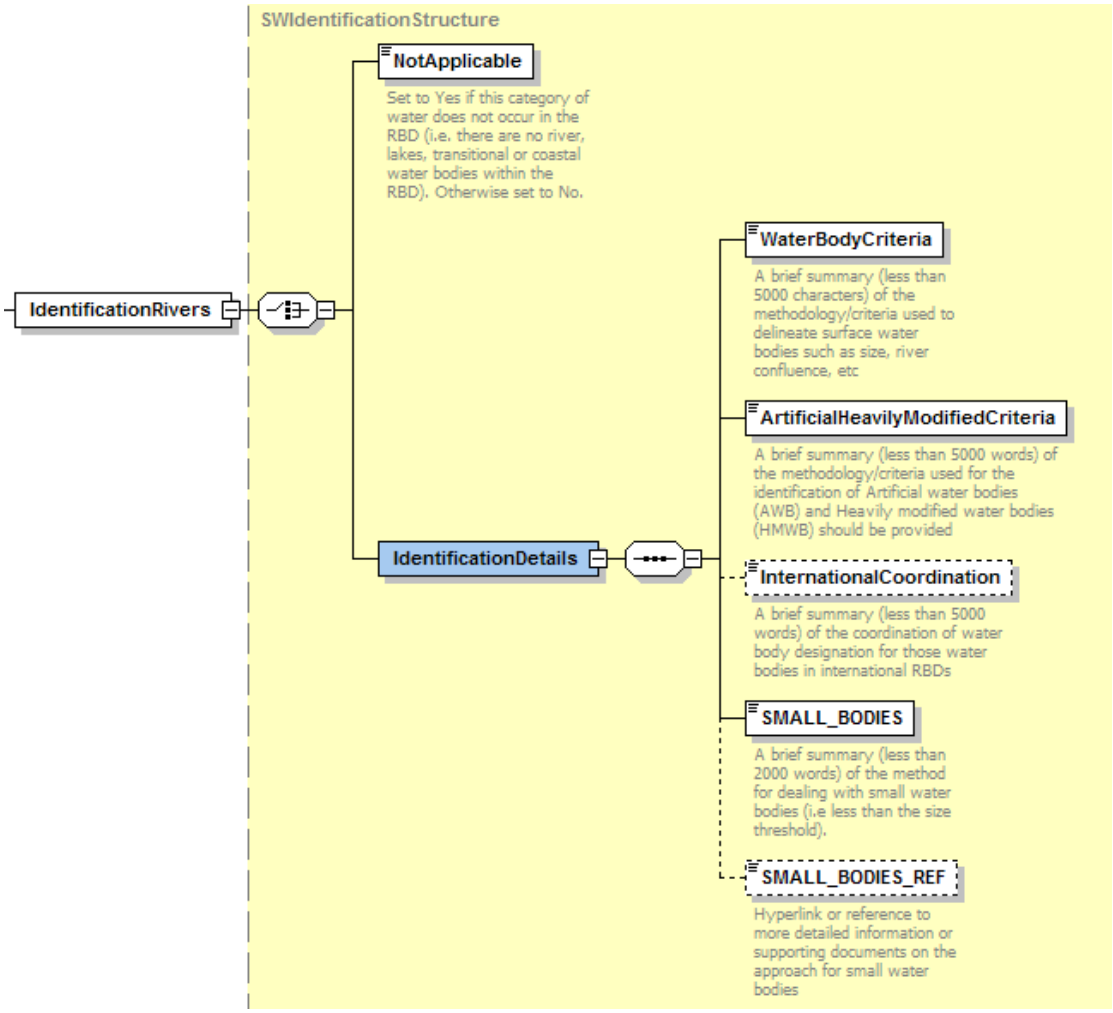
- **Identification of Surface, Artificial and Heavily Modified Water Bodies**
  - Detail contained in the element IdentificationOfSurfaceWaterBodies relates to the Article 5 original Reporting Sheets SWB2 and SWB3 which were renamed to SWB1 in the revised Article 5 Reporting sheets.
  - The IdentificationOfSurfaceWaterBodies element has been simplified to a list structure broken down by Surface Water Body Category



  - The overall structure is the same for each Surface Water Body Category. The provision of IdentificationDetails is conditional to the answer to the NotApplicable element.

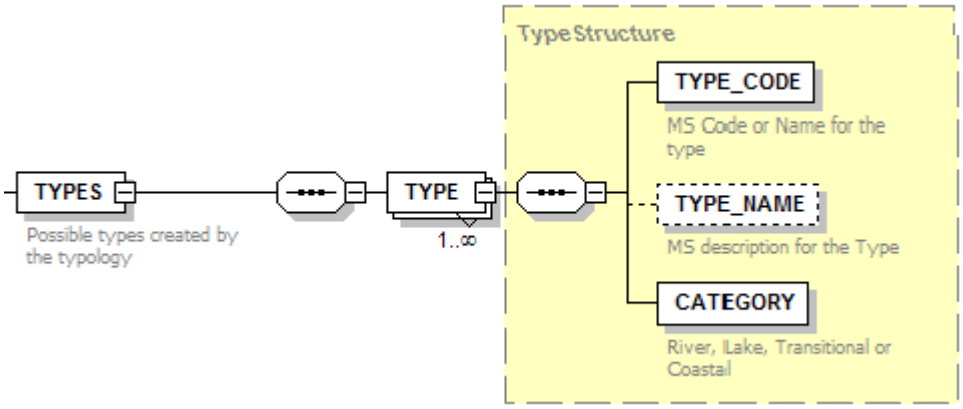


  - The detail required for IdentificationDetails is described in the diagram below. The elements related to Area and Numbers of Surface Water Bodies are no longer required. New elements previously in the Typology element are required for describing the method for identifying small Surface Water Bodies.



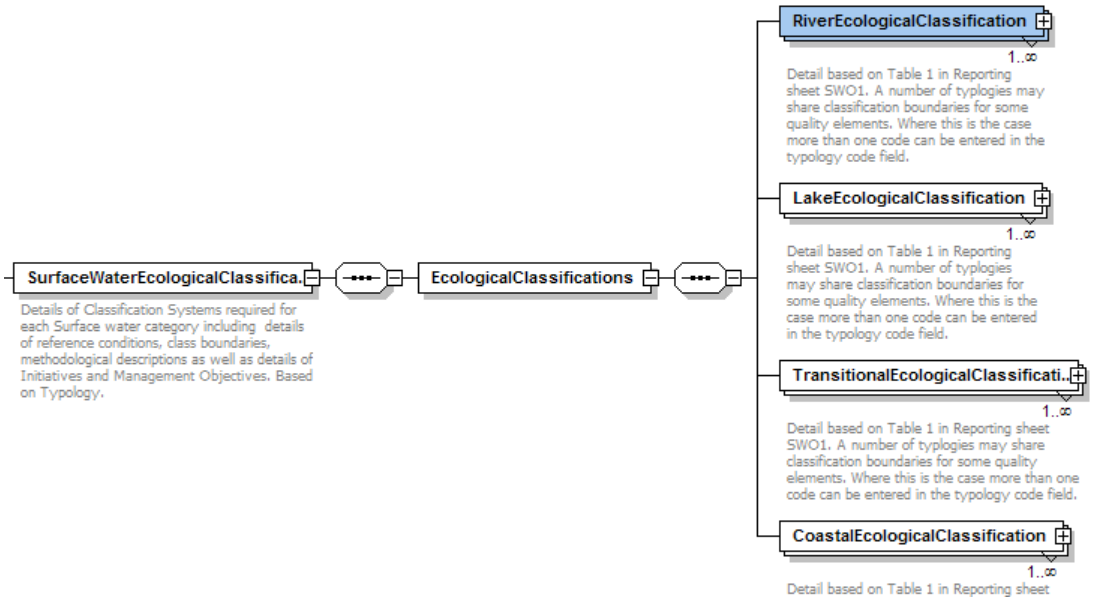
5.2 Typology Methods

- **Typology of Surface Water Bodies**
  - The detail contained in the element TypologyOfSurfaceWaterBodies is that required from the original Article 5 Reporting Sheet SWB1 renamed to SWB2 in the revised Article 5 Reporting sheets.
  - The structure for the TypologyOfSurfaceWaterBodies element is unchanged with the following exceptions.
    - The elements CONSISTENT, SMALL_BODIES, SMALL_BODIES_REF , SYSTEM_RW, SYSTEM_LW, SYSTEM_TW and SYSTEM_CW, have been removed.
    - The element COUNT has been removed from the TYPES structure (see below)



5.3 Classification Methods

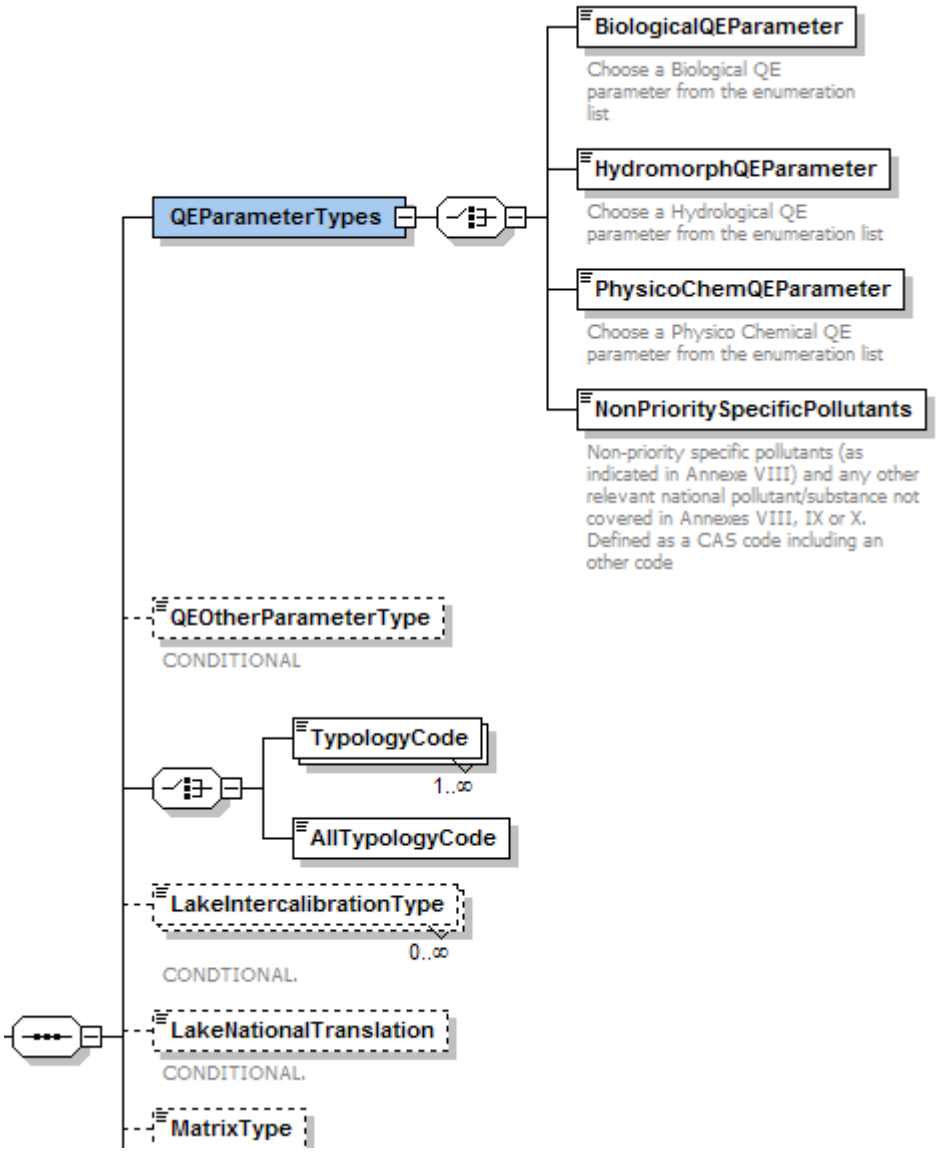
- **System for classification of surface water bodies**
  - Detail contained in the element IdentificationOfSurfaceWaterBodies has been taken from the Article 13 Reporting Sheet element SWO1
  - The elements HMARiversReferenceConditions, HMALakesReferenceConditions, HMATransitionalReferenceConditions and HMACoastalReferenceConditions have been removed.
  - The provision of classification detail for Biological, Hydromorphology and Physico Chemical Quality Elements is now supported by a list structure.
  - The structure also supports the classification details for NonPriority Specific Pollutants



  - The structure is repeated for each Surface Water Category.
    - The Classifications are defined for one or more Typology codes. There is an option to define all Typology codes if required.
    - For each group of typology codes a quality element has to be defined.
  - The structure then contains the information requirements from the previous schema with the following exceptions

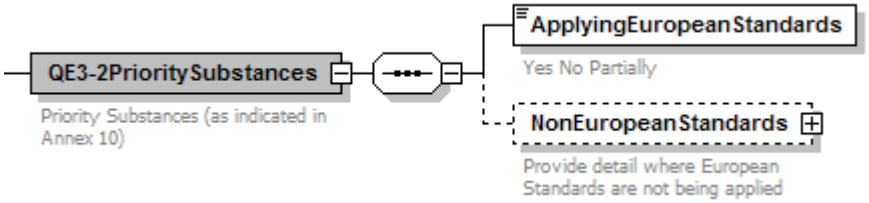
- A choice option supports the input of QE parameter type
- A conditional field is provided for “Other” measurement types if they are not in the enumeration lists and a type “other” is chosen.
- A MatrixType element has been added to support NonPriority Specific Pollutants
- .

o The structure is shown below for each quality parameter type

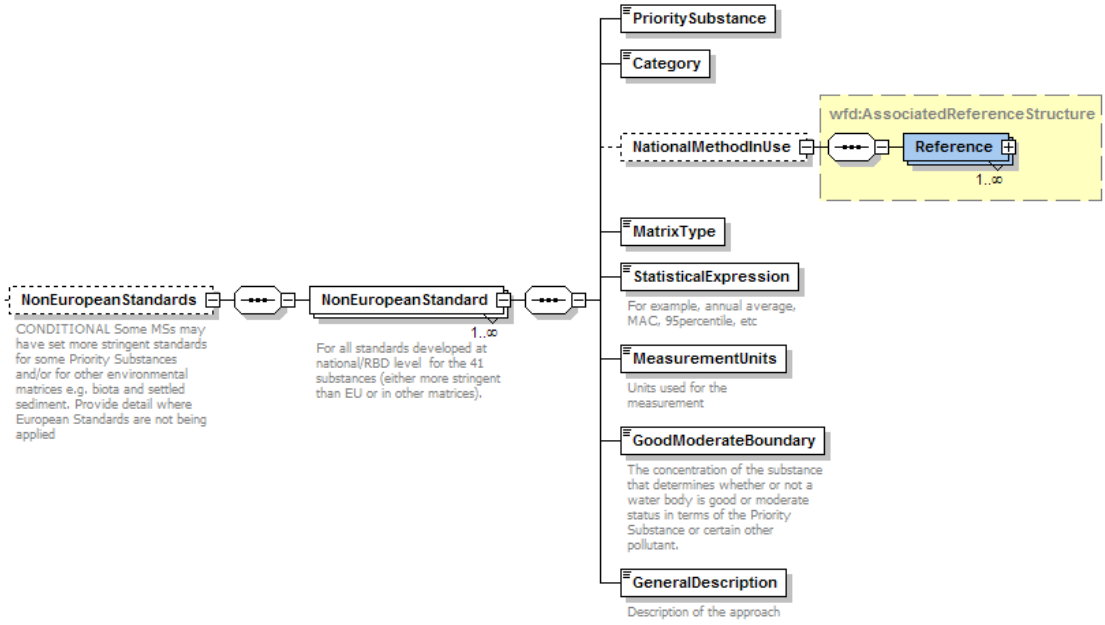


o The threshold values then have to be defined.

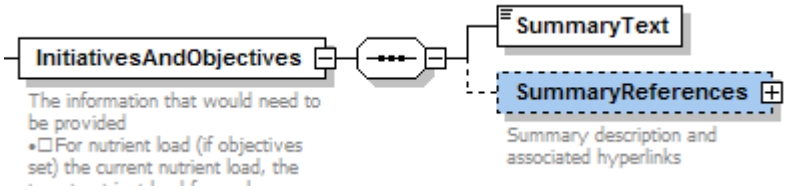
- The SurfaceWatersChemicalStatusClassification sub-element QE3-2PrioritySubstances element now provides an “Are you applying European Standards” conditional option.



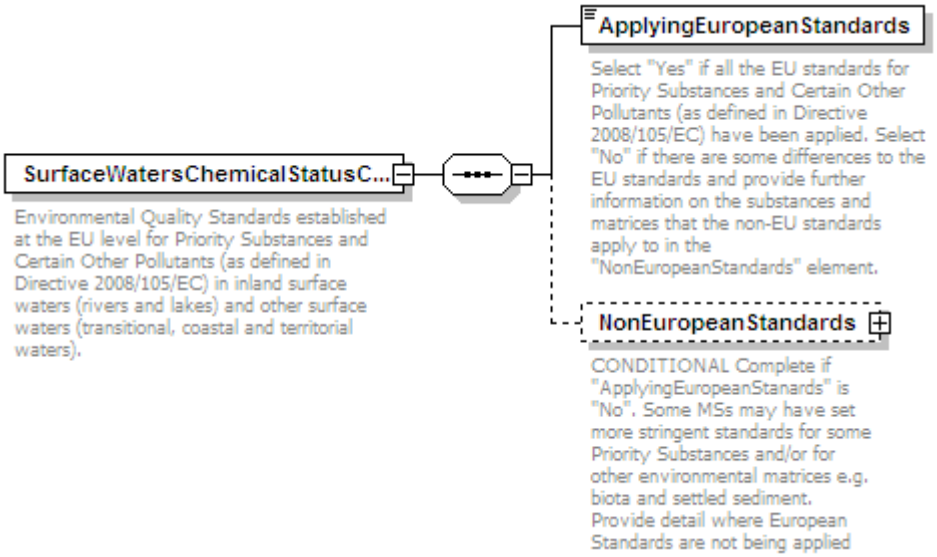
- A single element has replaced the multiple elements for RiversLakes and CoastalTransitional. The distinction between Priority Substances EQS and Other Non priority substances EQS has been removed as the latter has been moved to the SurfaceWaterEcologicalClassification element see above.
- For the element PrioritySubstancesEQSSurfaceWater
  - A list structure has been provided to define the conditional Priority Substances Classification detail under the NonEuropeanStandards element..
  - Compulsory StatisticalExpression and MeasurementUnits elements have been added.



- The InitiativesAndObjectives element has been simplified to a compulsory SummaryText element and an optional SummaryRefrences element.



- **The intermediate QE3-2PrioritySubstances sub-element under the SurfaceWatersChemicalStatusClassification element has been removed**



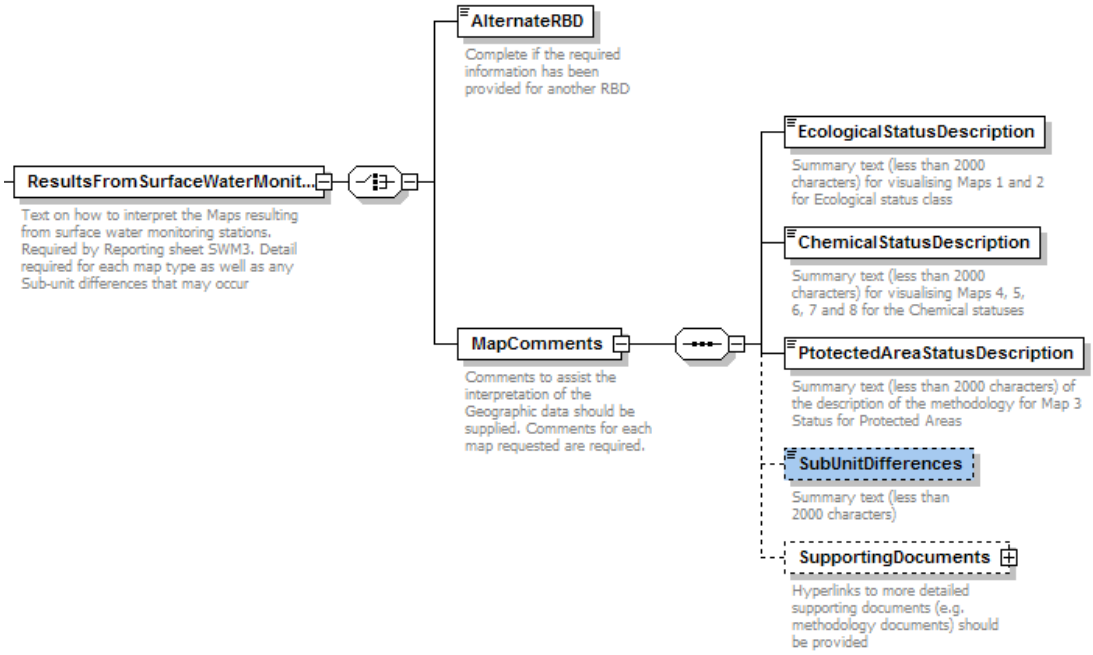
-
- GoodModerateBoundary renamed to GoodFailBoundary

5.4 Map Representation

- **Results of surface water monitoring programmes**
  - Detail contained in the element ResultsFromSurfaceWaterMonitoring is taken from the Article 13 Reporting Sheet element SWM3

- The detail is now only required at RBD level. The detail need not be provided if it is the same as a previously provided or another RBD.
- The maps comments have been explicitly identified as individual elements.
- A SubUnitDifferences element has been added.

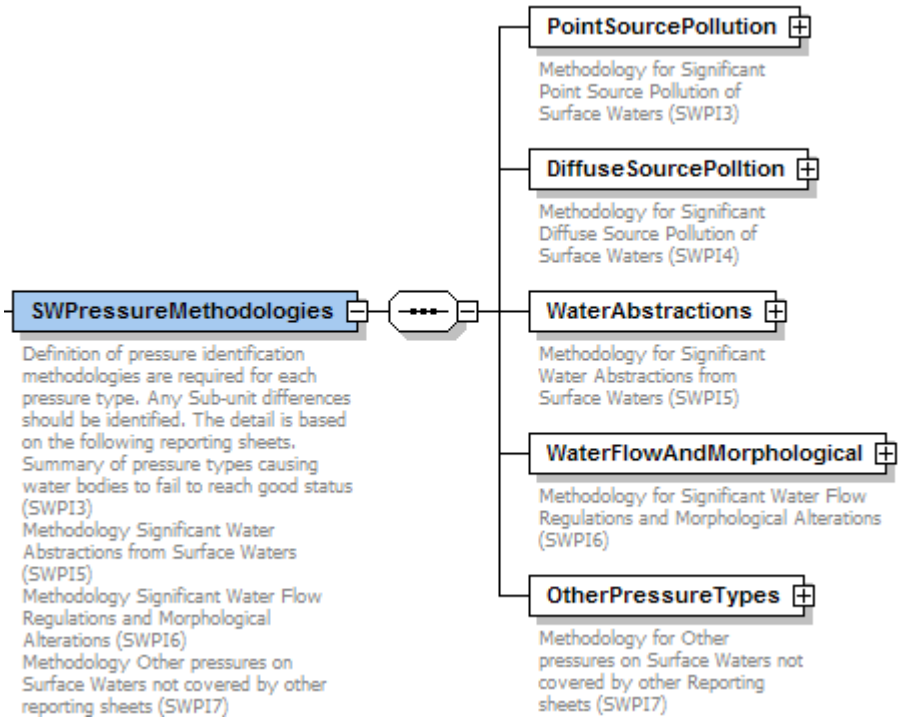
See below for the full structure



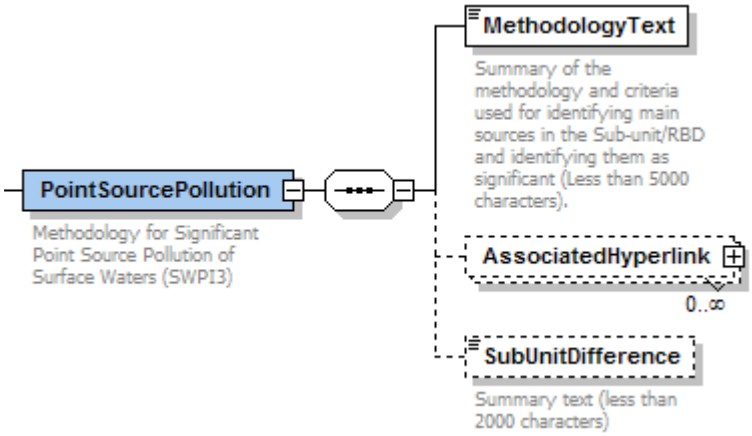
5.5 Pressure methodologies

- A new element SWPressureMethodologies has been created to hold the Methodology text and hyperlinks for a number of Article 5 Reporting Sheets.
  - Summary of pressure types causing water bodies to fail to reach good status (SWPI1)
  - Significant point Source Pollution of Surface Waters (SWPI3)
  - Significant Diffuse Source Pollution of Surface Waters (SWPI4)
  - Significant Water Abstractions from Surface Waters (SWPI5)
  - Significant Water Flow Regulations and Morphological Alterations (SWPI6)
  - Other pressures on Surface Waters not covered by other reporting sheets (SWPI7)
- The SWPI2 Reporting sheet information is no longer required.
- The ImportanceCode elements within the previous Article 5 RBD schema are now being addressed within the PressuresAndImpacts Schema.
- The NO_SOURCES elements (all variations) and the CURRENT_POS elements within the previous Article 5 RBD schema are no longer required.
- The detail about “Other Pressures on Surface Waters not covered by other Reporting Sheets” (SWPI7) is a new Reporting sheet.

The structure is shown below.

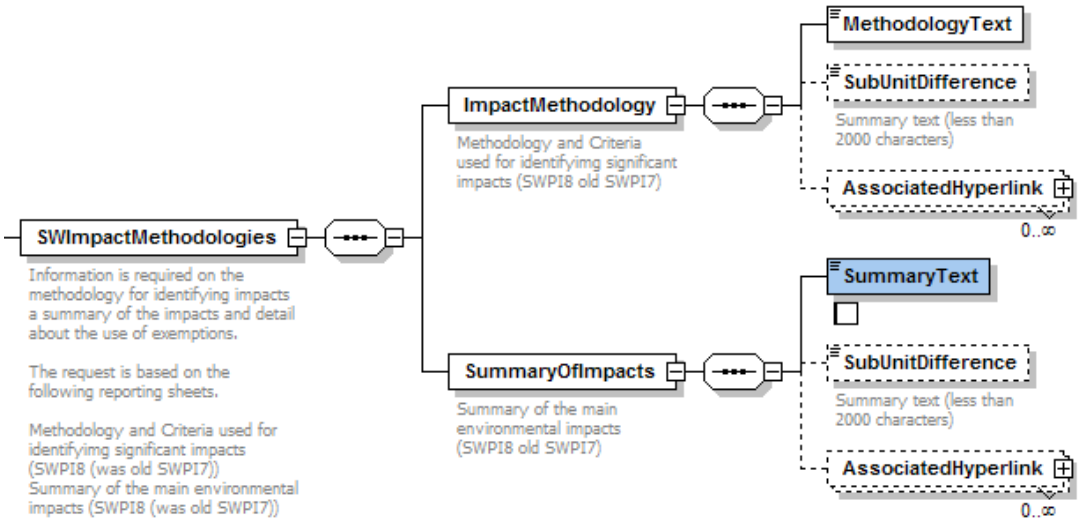


- An optional SubUnitsDifferences element has been provided for each Surface Water methodology to state if there is variation in the Sub-Units.



5.6 Impact methodologies

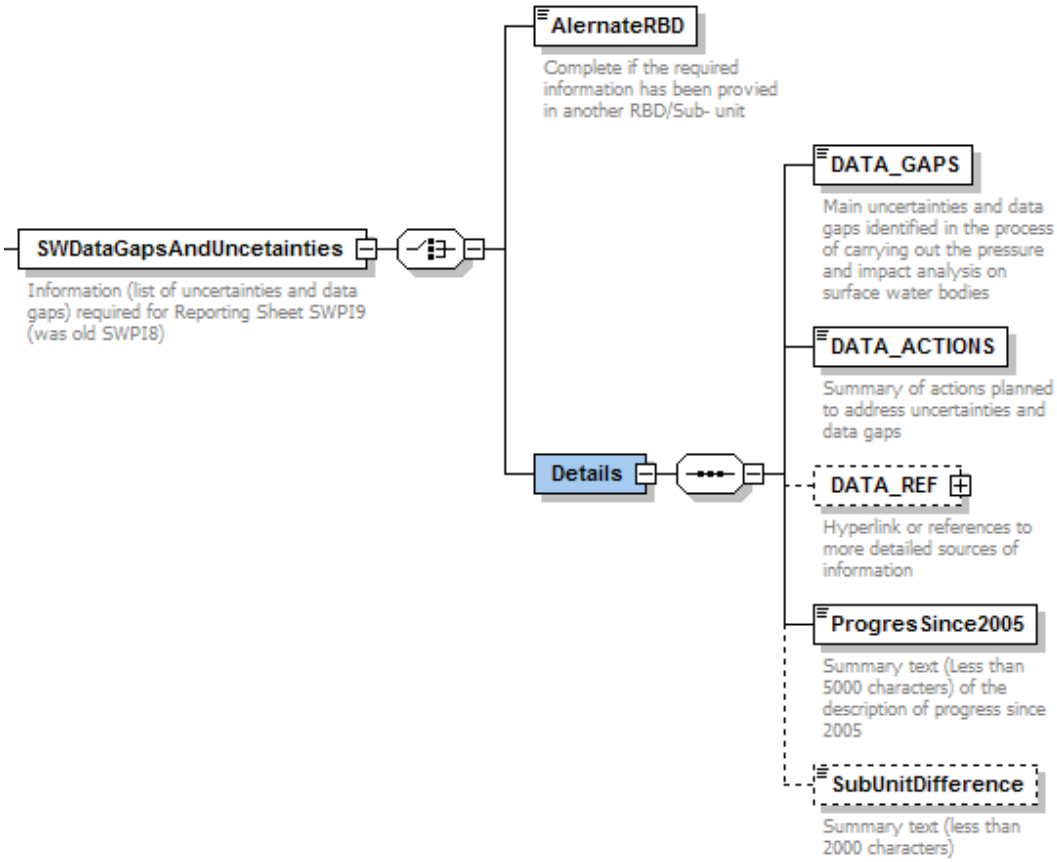
- A new element SWImpactMethodologies has been created to hold the text and hyperlinks for
  - Impact Methodology for Surface Water Bodies (SWPI8 old SWPI7 - Article 5)
  - Summary assessment of the Impacts of Surface Water Bodies (SWPI8 old SWPI7 – Article 5)



- The ImpactMethodology and SummaryOfImpacts elements both have a text and hyperlink structure

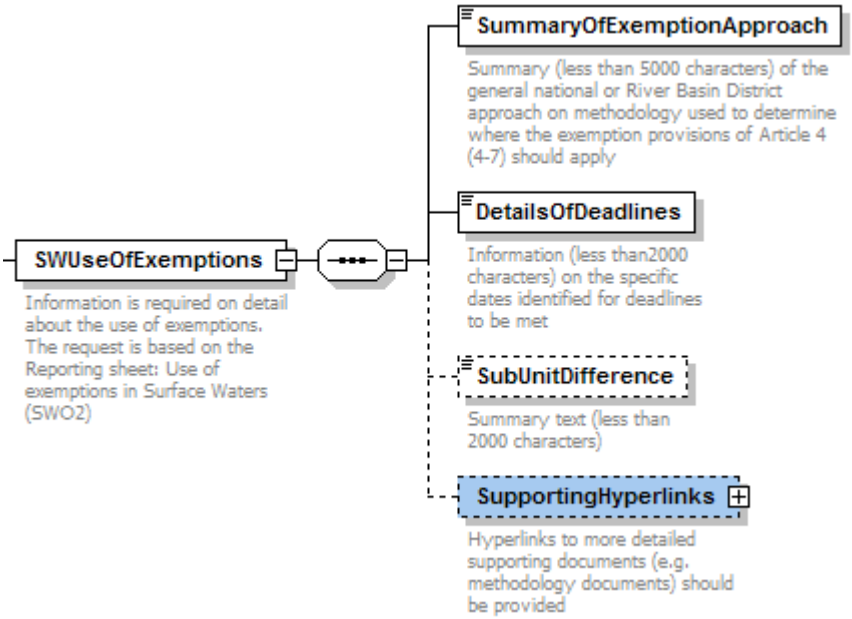
5.7 Uncertainties and Data Gaps Groundwaters

- The SWDataGapsAndUncetainties element is the new name for the Article 5 SWPI8 element.
- An option has been provided to allow an alternative RBD to be nominated.
- The ProgressSince2005 and SubUnitDifferences elements have been added.



5.8 Use of exemptions

- A new element SWUseOfExemptions has been created to hold the text and hyperlinks for
    - Use of exemptions in surface waters (SWO2 - Article 13)



6. GWMethods Schema

A single RBD level XML schema has been created to define the Groundwater characterisation methods, classification methods, pressure assessment methods, impact measuring methods and exemption measuring methods.

The schema was based on the Article 5 RBD schema but where appropriate structures defined in the Article 13 Article13RBD schema have been used.

Some initial naming changes have been made:

- The EU_CD has been changed to EURBDCode
- MS_CD and Name are renamed as RBD_MS_CD and RBDName

6.1 Characterisation Methods

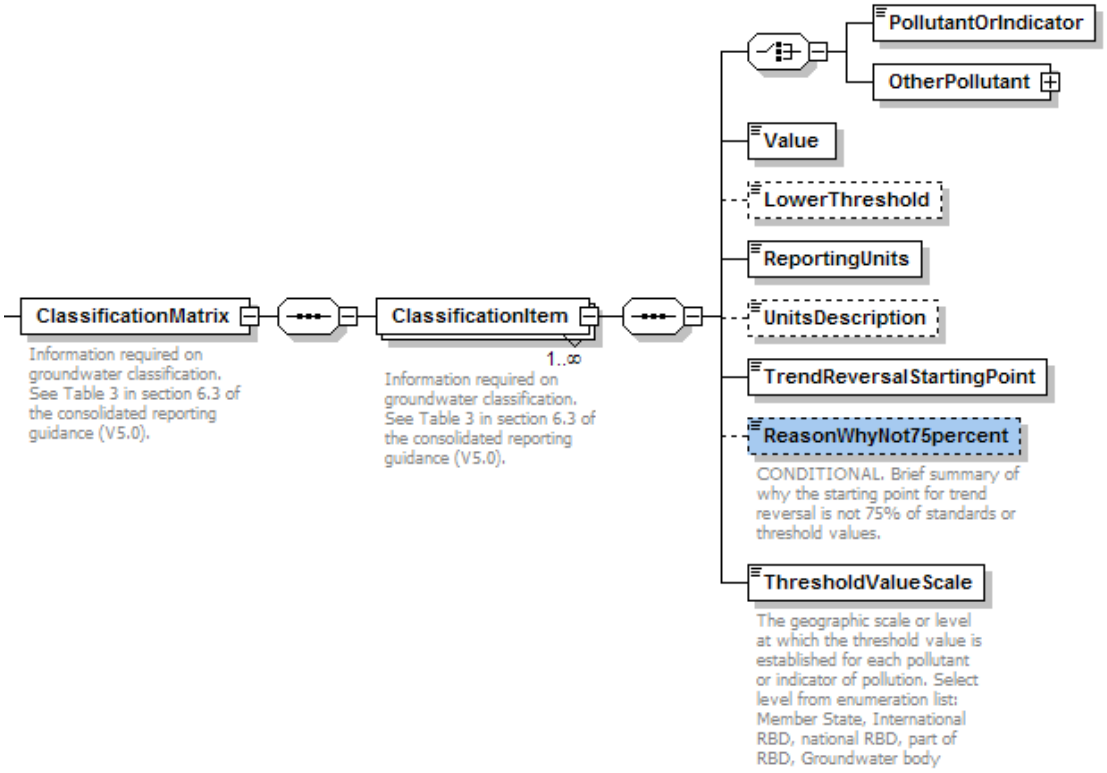
- **Identification/Delineation of Groundwater Water Bodies**
    - The IdentificationOfGroundwaterBodies is the new name for the GWB1 Article 5 element
    - The elements GWB, OUT_OF_RBD and SWB_ASSOC have been removed.

- **Further characterisation**
    - A new GWFurtherCharacterisation element has been added to reflect the new GWPI10 Article 5 Reporting Sheet request for information.

6.2 Classification Methods

- **System for classification of groundwater bodies**
    - The MethodologyGroundwaterClassification element is the name for the GWO1 Article 13 Reporting Sheet element.

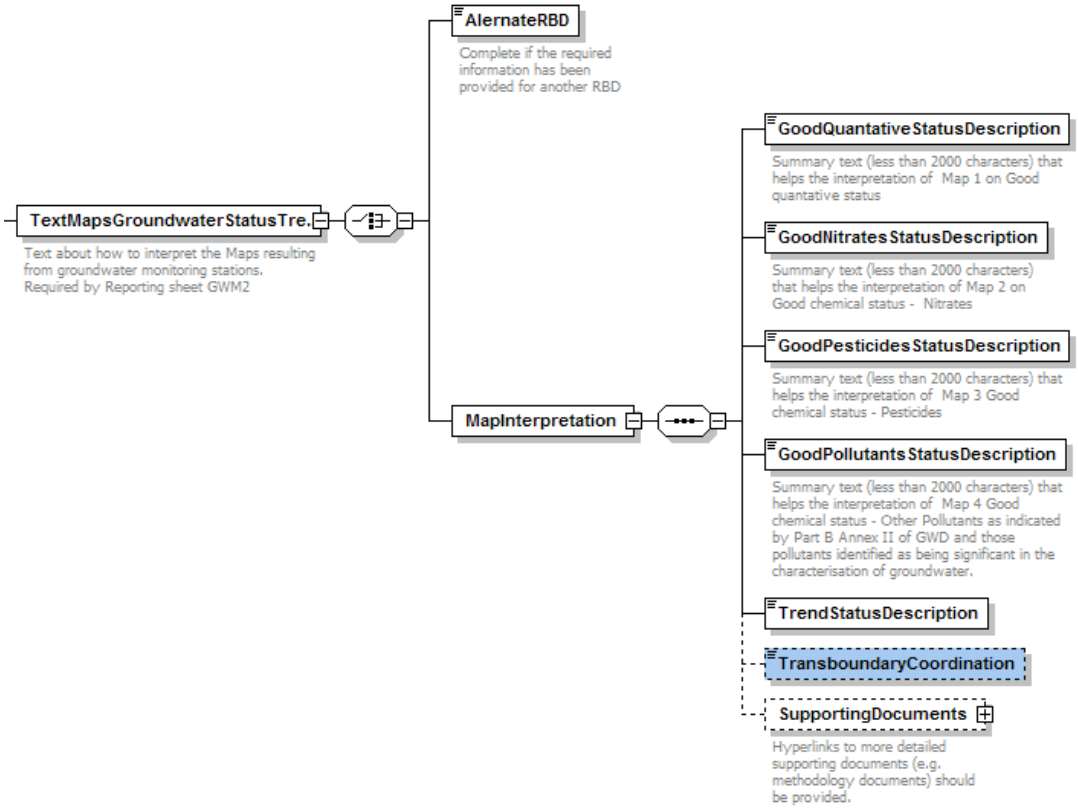
- The ReportingReferenceMatrix has been changed to a list structure based on the new GWD1 Reporting sheet. (See below)



- The PolltantOrIndicator is an enumeration list
- OtherPollutant is a choice field if the Annex I – II Annex pollutant is not in the enumeration list.
- The GoodPoorBoundary has been removed
- Elements have been defined in line with the requirements of GWD1.

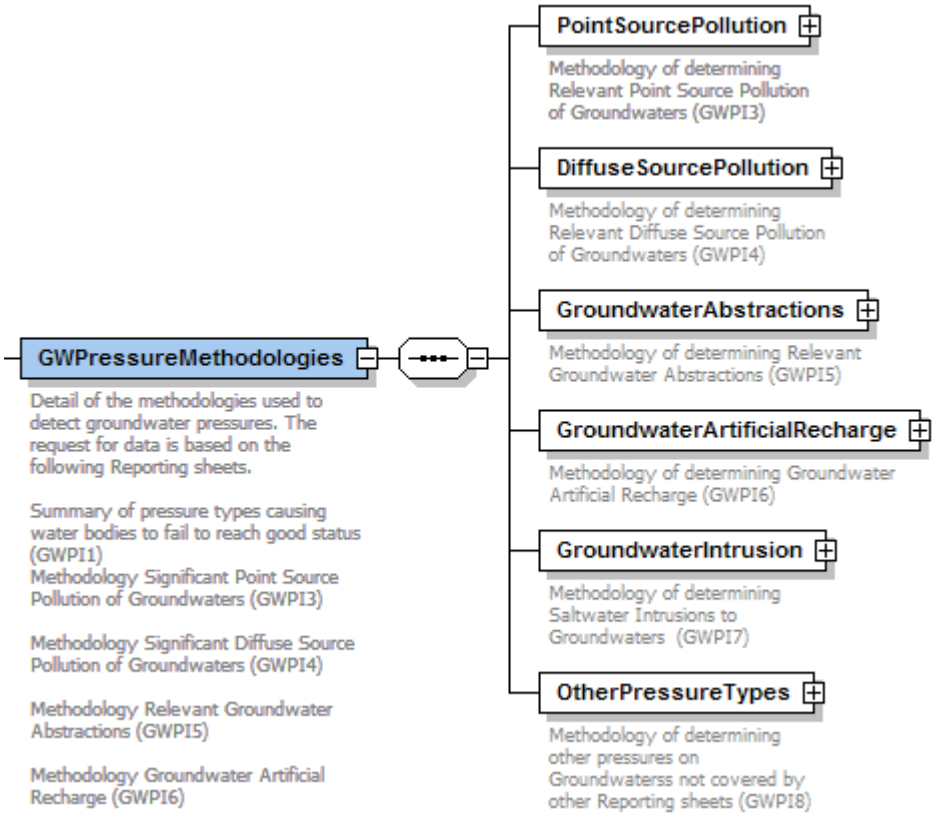
6.3 Map Representation

- **Results of groundwater monitoring programmes**
  - The structure of the element TextMapsGroundwaterStatusTrends is taken from the Article 13 Reporting Sheet GWM2 and the originally titled ResultsFromGroundwaterMonitoring element.
  - The detail is now only required at RBD level. The detail need not be provided if it is the same as a previously provided or another RBD.
  - The maps comments have been explicitly identified as individual elements.

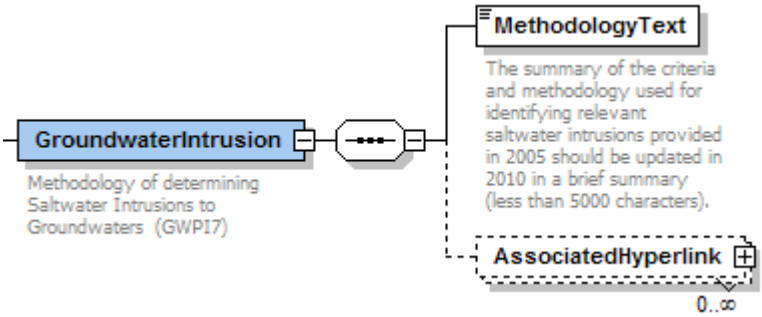


6.4 Pressure methodologies

- A new element GWPressureMethodologies has been created to hold the methodology text and hyperlinks for a number of Article 5 Reporting Sheets.
    - Summary of pressure types causing groundwater bodies to fail to reach good status (GWPI1)
    - Relevant point Source Pollution of GroundWaters (GWPI3)
    - Relevant Diffuse Source Pollution of GroundWaters (GWPI4)
    - Relevant groundwater Abstractions from Surface Waters (GWPI5)
    - Relevant Artificial Groundwater Recharge (GWPI6)
    - Relevant saltwater and other intrusions (GWPI7)
    - Other pressures on Groundwaters not covered by other reporting sheets (GWPI8)5
- The GWPI2 Reporting sheet is no longer required.
- The ImportanceCode elements required in the Article 5 schema are now addressed by the PressuresAndImpact schema.
- The NO_SOURCES elements (all variations), the GWB (all variations) and the CURRENT_POS elements the previous Article 5 RBD schema are no longer required.



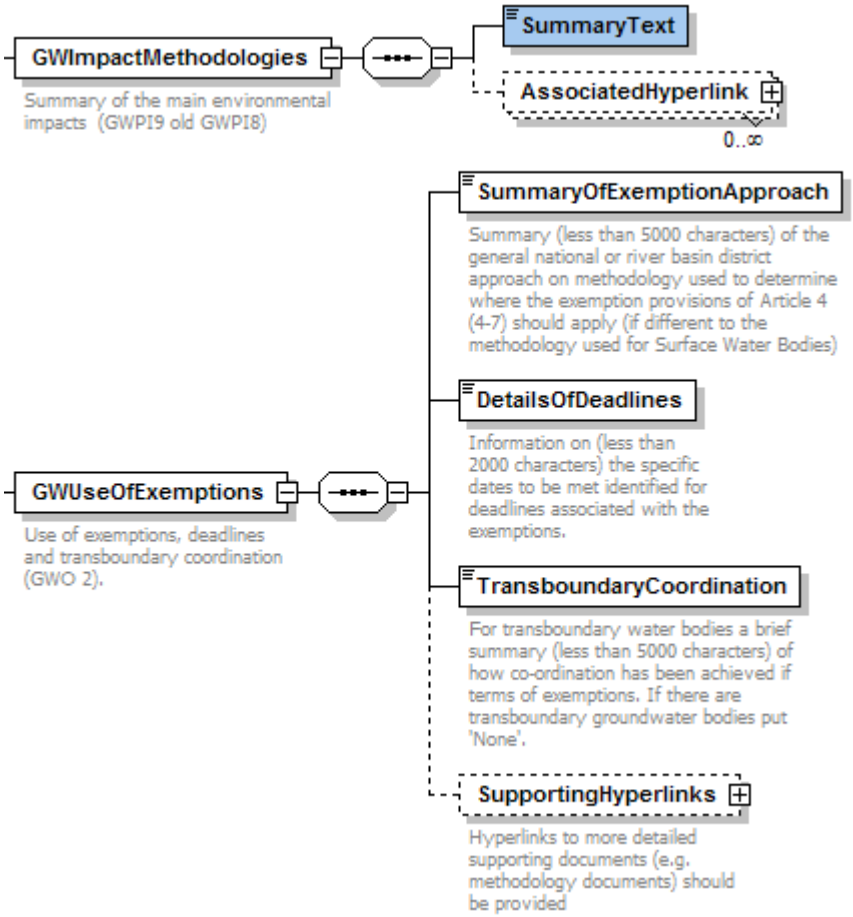
- For each Pressure Type element SummaryText and AssociatedHyperlink elements are required. See example below.



6.5 Impact and exemption methodologies

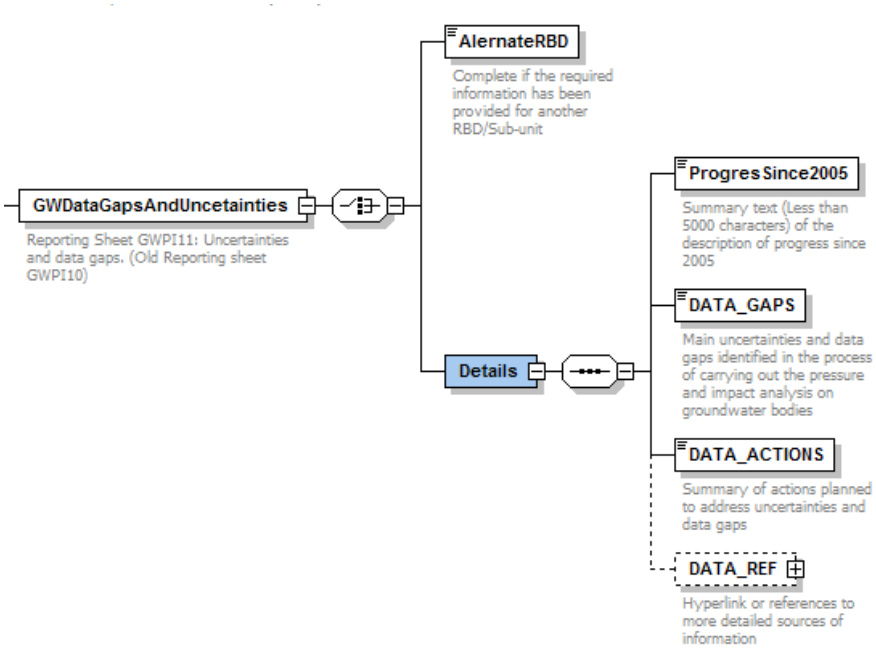
- Two separate elements have been created to hold the text and hyperlinks for
  - Impact Methodology for Groundwater Bodies (GWPI8 – Article 5)
  - Use of exemptions in groundwaters (GWO2 – Article 13)

  They are GWImpactMethodologies and GWUseOfExemptions



6.6 Uncertainties and Data Gaps Groundwaters

- The GWDataGapsAndUncetainties element is the new name for the Article 5 RBD schema element GWPI10
- An option has been provided to allow an alternative RBD to be nominated.
- A new element called ProgressSince2005 has been added. (See below).



7. wfd:COMMON

The following changes have been made to wfd:Common.

7.1. Element renaming following Commission and MS comments

Original	Rename
BasicMeasuresType	MeasuresBasicType
CASNumberType	ChemicalCASNumberType
ChemicalMeasurementType	ChemicalMatrixType
ClassificationCode	DataConfidentilityClassificationCode
CoastalBilogicalQEType	QECoastalBiologicalCode
CoastalHydromorphQEType	QECoastalHydromorphCode
CoastalIntercallibrationTypeCode	TypologyCoastalIntercallibrationCode
CoastalQualityElementCode	QECoastalCode
CodeType	FeatureUniqueCode
CoordinateType	GeoCoordinateType
DecimalBaseType	NumberDecimalBaseType
DecimalCostType	CostDecimalType
DecimalType	NumberDecimalType
DepthCode	MonitoringDepthCode
EQSConfidenceType	StatusConfidenceType
EUCodeType	FeatureUniqueEUCodeType
ExceptionType	NumberExceptionType
ExemptionType	ObjectivesExemptionType
GroundwaterElementCode	GECode
GWClassificationType	GWPollutantType
GWStatusCodeType	GWStatusCode
GWClassificationType	GWPollutantType
GWQuantativeFailureCode	GWQuantitativeFailureCode
HowMeasuredType	MethodLoadType
InternationalMonitoringNetworkCode	MonitoringInternationalNetworkType
InvestigativeMonitoringTypeCode	MonitoringInvestigativeCode
LakeHydromorphQEType	QELakeHydromorphCode
LakeIntercallibrationTypeCode	TypologyLakeIntercallibrationCode
LakeQualityElementCode	QELakeCode
NonNegativeIntegerType	NumberNonNegativeIntegerType
NonPriorityPollutantCode	ChemicalNonPrioritySubstancesCASCode
OtherBasicMeasureType	MeasureBasicOtherType
OtherPhysioChemQEType	QEPhysicoChemOtherType
PercentageBaseType	NumberPercentageBaseType
PercentageType	NumberPercentageType
PrioritySubstancesAndCasNumberType	ChemicalPrioritySubstanceType
ProgrammeLevelCode	MonitoringProgrammeLevelCode
QualityElementCode	QECode
ProtectedAreaTypeCode	ProtectedAreaType
RiverHydromorphQEType	QERiverHydromorphCode
RiverIntercallibrationTypeCode	TypologyRiverIntercallibrationCode
RiverLakeBiologicalQEType	QERiverLakeBiologicalCode
RiverPhysioChemQEType	QEPhysicoChemRiverType
RiverQualityElementCode	QERiverCode
SubsiteTypeCode	MonitoringSubsiteCode
SurfaceWaterBodyCategoryCode	SWCategoryCode

SWStatusChemicalCode	SWStatusChemicalCode
SWBilogicalStatusTypeCode	SWStatusEcologicalCode (no N option)
SWEcologicalStatusTypeCode	SWStatusEcologicalCode
SWGeneralChemicalStatusTypeCode	SWStatusGeneralPhysicoChemicalCode
SWHydromorphStatusTypeCode	SWStatusHydromorphCode
SWNonPriorityChemicallStatusType	SWStatusNonPrioritySubstancelCode
SWPressuresRequiringSupplementaryOr AdditionalMeasures	SWPressureType
TransitionalBiologicalQEType	QETransitionalBiologicalCode
TransitionalHydromorphQEType	QETransitionalHydromorphCode
TransitionalIntercallibrationTypeCode	TypologyTransitionalIntercallibrationCode
TransitionalQualityElementCode	QETransitionalCode
WellOrSpringCode	GWWellOrSpringCode

7.2. Rationalisation of QE and GE enumeration list elements

All QE enumeration lists have been changed to QE number plus the description e.g. QE1-1 Phytoplankton. Ditto GE enumeration lists.

All QE elelments are now in common and include QECode, RiverQECode, LakeQECode, TransitionalQECode, CoastalQECode, QEcologicalCode, QEBiologicalRiverCode, QEBiologicalLakeCode, QEBiologicalTransitionalCode, QEBiologicalCoastalCode, QEHydrologicalRiverCode, QEHydrologicalLakeCode, QEHydrologicalTransitionalCode and QEHydrologicalCoastalCode.

A new single consolidated QE3-1ParameterType element has been added to replace the QE3-1-1MeasurementType to QE3-1-6MeasurementType elements.

The following QE Enumeration list elements were no longer required following restructuring; QE3-1-1MeasurementType, QE3-1-2MeasurementType, QE3-1-3MeasurementType, QE3-1-4MeasurementType, QE3-1-5MeasurementType, QE3-1-6MeasurementType, RiverPhysioChemQEType, OtherPhysioChemQEType and ChemicalMeasurementType.

7.3. Elements consolidated into a single enumeration list.

GWPollutantsCode - new element created as a single enumeration list of GWIndividualPesticideCode and GWAnnexIIPollutantsCode.

Each item in the enumeration list is also now prefixed by a hierarchy code of 1, 1.1, 1.2 etc. New level 1 entries were created.

ChemicalAllSubstancesType - new element created as a single enumeration list of HeavyMetalType, PesticidesType, PrioritySubstancesOrganicType and OtherPollutantType.

Each item in the enumeration list is also now being prefixed by a hierarchy code of 1, 1.1, 1.2 etc. New level 1 entries were created. Also 3.3 Pentabromodiphenylether was changed to 3.3 Brominated diphenylether.

SWPressuresType - new element created as a single enumeration list of SWAbstractionPressureType, SWBiologicalExceedenceStatusTypeCode, SWBiologicalStatusTypeCode, SWDiffuseSourcePressureType,

SWOtherPressureType, SWPointSourcePressureType and SWWaterFlowMorphType.
A two level enumeration list was created prefixed by a hierarchy number 1, 1.1, 1.2, 1.2.1, 1.2.2 etc. New level 1 entries were created. The list was also changed to reflect the new definitions within the Reporting Sheet.

Also note that
SWAbstractionPressureType is retained but renamed **SWPressureAbstractionType**
An element called **SWPressureAggregatedType** of all SW level 1 pressures has been added

GWPressuresType - new element created as a single enumeration list of GWAbstractionPressureType, GWArtificialRechargeType, GWDiffuseSourcePressureType, GWIntusionType, GWPointSourcePressureType,

A two level enumeration list was created prefixed by a hierarchy number 1, 1.1, 1.2, 1.2.1, 1.2.2 etc. New level 1 entries were created.

Also note that
GWAbstractionPressureType retained but renamed **GWPressureAbstractionType**
GWArtificialRechargeType is retained but renamed **GWPressureRechargeType**
An element called **GWPressureAggregatedType** of all GW level 1 pressures has been added

7.4. Elements removed after consolidating separate enumeration lists

HeavyMetalType, PesticidesType, PrioritySubstancesOrganicType and OtherPollutantType**.**

SWAbstractionPressureType, SWBiologicalExceedenceStatusTypeCode, SWBiologicalStatusTypeCode, SWDiffuseSourcePressureType, SWOtherPressureType, SWPointSourcePressureType and SWWaterFlowMorphType,

GWAbstractionPressureType, GWArtificialRechargeType, GWDiffuseSourcePressureType, GWIntusionType and GWPointSourcePressureType.

IndividualPesticideCode and AnnexIIPollutantsCode.

7.5. Elements whose enumeration lists have been altered

All QE enumeration lists have been changed to QE number plus the description e.g. QE1-1 Phytoplankton. Ditto GE enumeration lists.

CountryCode - GR changed to EL for Greece.

ProtectedAreaType - UWWT, Drinking and Abstraction have been removed from the enumeration list. The item "Article 7" has been changed to "Article 7 - abstraction for drinking water"

SWPressureType changed to reflect the new requirements within the Reporting Sheet. The full list is defined in the annotation associated with SWPressureType. Effectively all codes have changed as they have been prefixed with a hierarchy. Ditto GWPressureType.

TypologyRiversIntercalibrationCodes - the following codes were removed R-E3, R-E5, R-E6, R-M3, R-N2, R-N7 and R-N9
TypologyLakesIntercalibrationCodes - the following codes were removed L-A3 and L-M1
TypologyTransitionalIntercalibrationCodes - the following codes were removed TW-M5, TW-M6 and TW-M7
TypologyCoastalIntercalibrationCodes - the following codes were removed CW-M1, CW-M2, CW-M3 and CW-M4
TypologyCoastalIntercalibrationCodes - the following codes were added NEA1/26e

ChemicalPrioritySubstanceType CAS number now prefixes substance name.

New elelment SWStatusProtAreaCode added. Enumeration list is as follows 1=high, 2=good, 3=failing, U=unknown

EconomicWaterServiceType has a new member in the list ‘C.other’

Changes arising from outcomes of second testing perion 22-oct-2009

1. SWStatusNonPrioritySubstanceCode - Add enumeration '1' corresponding to 'High status'
2. GWPollutantAnnexI-IIType - Eliminate the option IndividualPesticides
3. QE3-1ParameterType - Add the following:
   QE3-1-4 Chloride
   QE3-1-4 Sulfate
   QE3-1-6 N mineral
   QE3-1-3 Dissolved organic carbon
4. Economic2009to2015Code - Add the option "2009-2015"
5. GWStatusCode - changed annotation - unclassified to unknown
6. EconomicWaterServiceType - replace enumeration list with
   -water supply for households
   -water supply for industry
   -water supply for agriculture
   -wastewater collection and treatment for households
   -wastewater collection and treatment for industry
   -Other

7.6. Elements added to wfd:Common

ProtectedAreaSWType - Same as ProtectedAreaType but with UWWT removed.
ProtectedAreaGWType - The list is the same as ProtectedAreaType but with UWWT as an extra entry in the enumeration list
GWPollutantAnnexI-IIType - a subset of GWPollutantType used in GWMethods
GWClassification element PolluntantOrIndicator

7.7. Elements added to wfd:Common which had previously been described as enumeration lists in separate schemas.

CARoleCode,
ChemicalCadmiumClassType,
ChemicalDeOxygenatingSubstanceCode,
ChemicalNutrientType,

Economic2009to2015Code,
EconomicWaterServiceType.
GWAnnexIIPollutantsCode,
GWBackgoundSubstancesCode,
GWChemicalFailureCode,
GWConcentrationUnitsCode,
GWDepthRangeCode,
GWGeologicalFormationCode,
GWIndividualPesticideCode,
GWMeasureLevelCode,
GWQuantativeFailureCode,
GWVerticalOrientationCode,
MeasureCostAggregationType,
MeasureCostClassificationType,
MeasureCoverageType,
MeasureRBDorNationalCode,
MeasureSWSupplementaryType,
PressureGWAbstractionPeriodType,
PressureGWAbstractionUnitType,
PressureLoadUnitType,
ProtAreaAssociationType,
QE3-1-1MeasurementType,
QE3-1-2MeasurementType,
QE3-1-3MeasurementType,
QE3-1-4MeasurementType,
QE3-1-5MeasurementType,
QE3-1-6MeasurementType,
QEEcologicalCode,
SWNaturalCode,

7.8. Elements removed from wfd:Common

AltitudeTypeCode,
ConfidenceLevelCode,
CostRecoveryLevelCode,
CountryCodeType,
DesignationCode,
EcoregionCode,
FlowDirCode,
GWPollutantType
ImportanceCode,
MSCodeType,
NationalInternationalCode,
NationalInternationalType,
NitrogenMethodType,
OptionalString1000Type,
OptionalString100Type,
OptionalString250Type,
OptionalString500Type,
OptionalString50Type,
ProtectedAreaCode,
ProtectedAreaTypeCode,
RiskStatusCode,
SystemTypeCode,
WaterBodyCategoryCode ,

YesNoType.

The following elements were created, renamed and then removed during the compilation of the streamlined schemas.

CoastalQualityElementCode renamed to QECoastalCode
LakeQualityElementCode renamed to QELakeCode
RiverQualityElementCode renamed to QERiverCode
TransitionalQualityElementCode renamed to QETransitionalCode