

B.1.2 FSU Index Flood Estimation – Method 4.2a

Job Title	Midleton FRS
Job Number	252803
Calculation	Flood Studies Update Method 4.2a

1.0 Subcatchment: 19_990_4

2.0 Flood Studies Update Physical Catchment Descriptors:

AREA	=	2.55	km ²	Catchment Area
BFIsols	=	0.66		Base flow index derived from soils data
SAAR	=	1014	mm	Standard annual average rainfall (1961-1990)
FARL	=	1.00		Flood attenuation by reservoirs and lakes
DRAIN D	=	0.61		Drainage density, relates to the length stream network and catchment area (NETLEN/AREA)
S1085	=	0.58	m/km	Slope of the main channel between 10% and 85% of its length measured upstream from the HEP
ARTDRAIN2	=	0		Proportion of the river network that is included in arterial drainage schemes

3.0 Median Annual Flood (Rural)

$$Q_{med} (rural, PCD) = 2.0951 \times 10^{-5} AREA^{0.9245} BFIsols^{-0.9030} SAAR^{1.2695} FARL^{2.3163} S1085^{0.2513}$$

$Q_{med} (rural, PCD) = 0.41 \text{ m}^3/\text{s}$

4.0 Adjustment for Urbanisation

Urban area	=	0.00	km ²	Urbanised area as per Corine landcover 2000 (optional)
URBEXT	=	0.00		
UAF	=	$(1+URBEXT)^{1.48}$ Urban adjustment factor		
UAF	=	1.00		
$Q_{med} (urban, adjusted)$	=	0.41	m^3/s	

5.0 Standard Factorial Error

Standard Factorial Error	=	1.686	
Q_{bar} (68% Confidence)	=	0.70	m^3/s

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1.0 Subcatchment: 19_1462_5

2.0 Flood Studies Update Physical Catchment Descriptors:

AREA	=	8.25	km ²	Catchment Area
BFIsoils	=	0.68		Base flow index derived from soils data
SAAR	=	1103	mm	Standard annual averagen rainfall (1961-1990)
FARL	=	1.00		Flood attenuation by reservoirs and lakes
DRAIN2	=	0.55		Drainage density, relates to the length stream network and catchment area (NETLEN/AREA)
S1085	=	26.22	m/km	Slope of the main channel between 10% and 85% of its length measured upstream from the HEP
ARTDRAIN2	=	0		Proportion of the river network that is included in arterial drainage schemes

3.0 Median Annual Flood (Rural)

$$Q_{med} (rural, PCD) = 2.0951 \times 10^{-5} AREA^{0.9245} BFIsoils^{-0.9030} SAAR^{1.2695} FARL^{2.3163} S1085^{0.2513}$$

<i>Q_{med} (rural, PCD)</i>	=	3.45	m ³ /s
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4.0 Adjustment for Urbanisation

Urban area	=	0.00	km ²	Urbanised area as per Corine landcover 2000 (optional)
URBEXT	=	0.00		
<i>UAF</i>	=	$(1+URBEXT)^{1.48}$ Urban adjustment factor		
UAF	=	1.00		
<i>Q_{med} (urban, adjusted)</i>	=	3.45	m ³ /s	

5.0 Standard Factorial Error

Standard Factorial Error	=	1.686	
Qbar (68% Confidence)	=	5.82	m ³ /s

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Calculation	Flood Studies Update Method 4.2a

1.0 Subcatchment:	19_965_4
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2.0 Flood Studies Update Physical Catchment Descriptors:				
AREA	=	12.72	km ²	Catchment Area
BFIsoils	=	0.67		Base flow index derived from soils data
SAAR	=	1171	mm	Standard annual averagen rainfall (1961-1990)
FARL	=	1.00		Flood attenuation by reservoirs and lakes
DRAIN2	=	0.94		Drainage density, relates to the length stream network and catchment area (NETLEN/AREA)
S1085	=	17.37	m/km	Slope of the main channel between 10% and 85% of its length measured upstream from the HEP
ARTDRAIN2	=	0		Proportion of the river network that is included in arterial drainage schemes

3.0 Median Annual Flood (Rural)				
<i>Qmed (rural, PCD)</i>		$2.0951 \times 10^{-5} \text{ AREA}^{0.9245} \text{ BFIsoils}^{-0.9030} \text{ SAAR}^{1.2695} \text{ FARL}^{2.3163} \text{ S1085}^{0.2513}$		
<i>Qmed (rural, PCD)</i>	=	5.10	m ³ /s	

4.0 Adjustment for Urbanisation				
Urban area	=	0.00	km ²	Urbanised area as per Corine landcover 2000 (optional)
URBEXT	=	0.00		
<i>UAF</i>	=	$(1 + \text{URBEXT})^{1.48}$ Urban adjustment factor		
UAF	=	1.00		
Qmed (urban, adjusted)	=	5.10	m ³ /s	

5.0 Standard Factorial Error				
Standard Factorial Error	=	1.686		
Qbar (68% Confidence)	=	8.61	m ³ /s	

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1.0 Subcatchment: 19_1721_7

2.0 Flood Studies Update Physical Catchment Descriptors:

AREA	=	10.33	km ²	Catchment Area
BFIsoils	=	0.68		Base flow index derived from soils data
SAAR	=	1059	mm	Standard annual average rainfall (1961-1990)
FARL	=	0.92		Flood attenuation by reservoirs and lakes
DRAIN2	=	0.49		Drainage density, relates to the length stream network and catchment area (NETLEN/AREA)
S1085	=	1.67	m/km	Slope of the main channel between 10% and 85% of its length measured upstream from the HEP
ARTDRAIN2	=	0		Proportion of the river network that is included in arterial drainage schemes

3.0 Median Annual Flood (Rural)

$$Q_{med} (rural, PCD) = 2.0951 \times 10^{-5} AREA^{0.9245} BFIsoils^{-0.9030} SAAR^{1.2695} FARL^{2.3163} S1085^{0.2513}$$

$Q_{med} (rural, PCD)$	=	1.69	m ³ /s
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4.0 Adjustment for Urbanisation

Urban area	=	0.00	km ²	Urbanised area as per Corine landcover 2000 (optional)
URBEXT	=	0.00		
UAF	=	$(1+URBEXT)^{1.48}$ Urban adjustment factor		
UAF	=	1.00		
$Q_{med} (urban, adjusted)$	=	1.69	m ³ /s	

5.0 Standard Factorial Error

Standard Factorial Error	=	1.686	
Qbar (68% Confidence)	=	2.84	m ³ /s

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1.0 Subcatchment: Sink - Not indicated on FSU Web Portal (Manual)

2.0 Flood Studies Update Physical Catchment Descriptors:

AREA	=	4.21	km ²	Catchment Area
BFIsoils	=	0.68		Base flow index derived from soils data
SAAR	=	1051	mm	Standard annual averagen rainfall (1961-1990)
FARL	=	1.00		Flood attenuation by reservoirs and lakes
DRAIN2	=	0.15		Drainage density, relates to the length stream network and catchment area (NETLEN/AREA)
S1085	=	1.77	m/km	Slope of the main channel between 10% and 85% of its length measured upstream from the HEP
ARTDRAIN2	=	0		Proportion of the river network that is included in arterial drainage schemes

3.0 Median Annual Flood (Rural)

$$Q_{med} (rural, PCD) = 2.0951 \times 10^{-5} AREA^{0.9245} BFIsoils^{-0.9030} SAAR^{1.2695} FARL^{2.3163} S1085^{0.2513}$$

$Q_{med} (rural, PCD)$	=	0.89	m ³ /s
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4.0 Adjustment for Urbanisation

Urban area	=		km ²	Urbanised area as per Corine landcover 2000 (optional)
URBEXT	=	0.00		
UAF	=	$(1+URBEXT)^{1.48}$ Urban adjustment factor		
UAF	=	1.40		
$Q_{med} (urban, adjusted)$	=	1.25	m ³ /s	

5.0 Standard Factorial Error

Standard Factorial Error	=	1.686	
Qbar (68% Confidence)	=	2.10	m ³ /s

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1.0 Subcatchment: 19_1959_2 - PCDs (incl. catchment area) corrected from FSU node

2.0 Flood Studies Update Physical Catchment Descriptors:				
AREA	=	10.33	km ²	Catchment Area
BFIsoils	=	0.68		Base flow index derived from soils data
SAAR	=	1047	mm	Standard annual averagen rainfall (1961-1990)
FARL	=	1.00		Flood attenuation by reservoirs and lakes
DRAIN2	=	0.21		Drainage density, relates to the length stream network and catchment area (NETLEN/AREA)
S1085	=	1.77	m/km	Slope of the main channel between 10% and 85% of its length measured upstream from the HEP
ARTDRAIN2	=	0		Proportion of the river network that is included in arterial drainage schemes

3.0 Median Annual Flood (Rural)				
<i>Qmed (rural, PCD)</i>		$2.0951 \times 10^{-5} \text{ AREA}^{0.9245} \text{ BFIsoils}^{-0.9030} \text{ SAAR}^{1.2695} \text{ FARL}^{2.3163} \text{ S1085}^{0.2513}$		
<i>Qmed (rural, PCD)</i>	=	2.03	m ³ /s	

4.0 Adjustment for Urbanisation				
Urban area	=		km ²	Urbanised area as per Corine landcover 2000 (optional)
URBEXT	=	0.00		
<i>UAF</i>	=	$(1 + \text{URBEXT})^{1.48}$ Urban adjustment factor		
UAF	=	1.25		
Qmed (urban, adjusted)	=	2.54	m ³ /s	

5.0 Standard Factorial Error				
Standard Factorial Error	=	1.686		
Qbar (68% Confidence)	=	4.28	m ³ /s	

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1.0 Subcatchment: 19_711_1

2.0 Flood Studies Update Physical Catchment Descriptors:

AREA	=	21.34	km ²	Catchment Area
BFIsoils	=	0.67		Base flow index derived from soils data
SAAR	=	1143	mm	Standard annual average rainfall (1961-1990)
FARL	=	1.00		Flood attenuation by reservoirs and lakes
DRAIN2	=	0.81		Drainage density, relates to the length stream network and catchment area (NETLEN/AREA)
S1085	=	17.34	m/km	Slope of the main channel between 10% and 85% of its length measured upstream from the HEP
ARTDRAIN2	=	0		Proportion of the river network that is included in arterial drainage schemes

3.0 Median Annual Flood (Rural)

$$Q_{med} (rural, PCD) = 2.0951 \times 10^{-5} AREA^{0.9245} BFIsoils^{-0.9030} SAAR^{1.2695} FARL^{2.3163} S1085^{0.2513}$$

<i>Q_{med} (rural, PCD)</i>	=	7.92	m ³ /s
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4.0 Adjustment for Urbanisation

Urban area	=	0.00	km ²	Urbanised area as per Corine landcover 2000 (optional)
URBEXT	=	0.00		
<i>UAF</i>	=	$(1+URBEXT)^{1.48}$ Urban adjustment factor		
UAF	=	1.00		
<i>Q_{med} (urban, adjusted)</i>	=	7.92	m ³ /s	

5.0 Standard Factorial Error

Standard Factorial Error	=	1.686	
Qbar (68% Confidence)	=	13.36	m ³ /s