

## Hyperlinks to Various FEMA-NFIP Websites

**Created by:** Joe Weber, FEMA, Region 10

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### [100-Year Flood](#) – Definition

See also Hydrology, The 100-year Flood

A Unified National Program for Floodplain Management - FEMA 100 – see Publications, FEMA

Above the Flood: Elevating Your Floodprone House – FEMA 347 – see Publications, FEMA

Addressing Your Community's Flood Problems - FEMA 309 – see Publications, FEMA

Aerial Photos

[TerraServer V5.0 Homepage](#) – contains aerial photos and USGS Quads

Aerial Survey & Mapping - see Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix A

Agent's Training – see Online Tutorials, Insurance Agent's Training

[A Zone Manual](#) – Manual for determining flood depths in unnumbered A Zones

Alaska Community Maps – see Maps, Alaska Community Maps

[Alaska Communities Floodplain Hazard Data](#) – USACE, Alaska District

Alluvial Fans

[Alluvial Fan Flooding](#) – National Research Council (NRC) Report

[Alluvial Fan Flooding \(1996\)](#) - Online Version of NRC Report

[Alluvial Fans – Hazards and Management](#)

[Assessment of Structural Flood Control Measures on Alluvial Fans](#) – by the U.S. Army Corps of Engineers

[Debris-Flow Hazards in the United States](#) – USGS Fact Sheet 176-97

[Definition of Alluvial Fan Flooding](#)

[Fan](#) – FEMA's Alluvial Fan Computer Program & User's Manual

[Frequently Asked Questions](#)

[Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix G: Guidance for](#)

[Alluvial Fan Flooding Analyses and Mapping](#) – FEMA's currently effective guidelines for mapping alluvial fan areas

[Guidelines for Determining Flood Hazards on Alluvial Fans](#) – Guidance for computing flood depths on alluvial fans

[Guidelines for Determining Flood Hazards on Alluvial Fans - Online Version](#)

[Nat'l Academies Press: Alluvial Fan Flooding](#) – website for viewing this publication online

[Natural Hazards on Alluvial Fans: The Venezuela Debris Flow and Flash Flood Disaster](#) – USGS Fact Sheet 0103-01

See also – Guidelines & Specifications for Flood Hazard Mapping Partners, Appendix G

[Summary of NRC Report on Alluvial Fan Flooding](#)

[Review of the U.S. Army Corps of Engineers Involvement with Alluvial Fan Flooding Problems](#) - by the U.S. Army Corps of Engineers

[Urban Growth and Increased hazard Vulnerability](#) – by Utah Geological Survey.

[Using Geology to Improve Flood Hazard Management on Alluvial Fans - An Example from](#)

[Laughlin, Nevada](#) – Journal of American Water Resources Association

### [Answers to Questions About the NFIP](#)

Answers to Questions About Substantially Damaged Buildings - FEMA 213 – see Publications, FEMA

[ASFPM Certified Floodplain Manager \(CFM\) Program](#) – select Certification on ASFPM's homepage

[Association of State Floodplain Managers \(ASFPM\)](#)

Basements on Fill – See Technical Bulletin 10-01

[List of communities permitted to have basements](#)

Bathymetry

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[Puget Sound DEM](#) – Combined Bathymetry and Topography Puget Sound, Washington, University of Washington School of Oceanography

### Benchmarks

NOAA - NGS Benchmarks

[By County](#)

[By Map](#)

[By PID](#)

[By Quad](#)

[By Radius](#)

[By Station Name](#)

[VERTCON - North American Vertical Datum Conversion](#) – NGVD 29/NAVD 88 conversion program

NOAA – NOS Tidal Benchmarks and Water Levels

Tidal Benchmarks

[All Stations](#) – you may also make selections by State

[Alaska Tidal Benchmark Stations](#)

[Oregon Tidal Benchmark Stations](#)

[U.S. Map of Published Tidal Benchmark Stations](#) – INTERACTIVE MAP

[Washington Tidal Benchmark Stations](#)

Tidal Water Levels

[All Stations](#) – you may also make selections by State

[Alaska Tidal Water Level Stations](#)

[Oregon Tidal Water Levels](#)

[U.S. Map of Tidal Water Level Stations](#) – INTERACTIVE MAP

[Washington Tidal Water Level Stations](#)

**NOTE:** Once connected to any of the sites listed above, choose a STATE, then a STATION, or select a station from the INTERACTIVE MAP, then choose:

TIDE/WATER LEVEL DATA

PRELIMINARY DATA – for current data

VERIFIED DATA – for historical data

EXTREMES – for extreme data

Tidal Water Levels – for current and previous days

[Current Tidal Water Levels for the Entire U.S.](#) – click on STATE and select STATION

Washington

[WSDOT Survey Monuments](#)

Best Available Data – see Floodplain Management Bulletin 1-98

[BFE Notices](#) – FEMA's BFE website

Building Standards

[Above the Flood: Elevating Your Floodprone House: FEMA Publication 347](#)

[Disaster Resistant Universities](#)

[Homeowner's Guide to Retrofitting: Six Ways to Protect Your House from Flooding, FEMA Publication 312](#) – includes link to PDF file

[Protecting Building Utilities From Flood Damage: FEMA Publication 348](#)

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### [Protecting Your Business From Disasters](#)

Protecting Your Property from Flooding

[Electrical System](#)

[Exterior Walls](#)

[Fuel Tanks](#)

[Heating, Ventilation & Air Conditioning Equipment](#)

[Sewer Backflow Valves](#)

[Reducing Flood Losses Through the International Code Series: Meeting the Requirements of the National Flood Insurance Program](#)

see also – Technical Bulletins

[Bureau of Reclamation](#) - Homepage

[Dataweb](#) – Information about BuRec dams

[Bureau & Statistical Agent BureauNet](#)

Cars & Low Water Crossings

[The Hidden Danger](#) – brochure by NOAA

[Low-Water Crossing Flood Safety Video](#) – by NWS

[Turn Around Don't Drown](#) – NWS website about not driving on flooded roads

Certified Floodplain Manager (CFM) – See ASFPM Certified Floodplain Manager Program

Channels

[Channel Restoration Design for Meandering Rivers](#) - USACE

[Channel Stability Assessment for Flood Control Projects](#) – EM 1110-2-1418 (USACE)

[Design of Spur-type Streambank Stabilization Structures](#) - FHWA

[Effects of Riprap on Riverine and Riparian Ecosystems](#) – ERDC/EL TR-03-4 (USACE), go to Technical Reports, 2003, and click on ERDC/EL TR-03-04

[Environmental Engineering for Flood Control Channels](#) – EM 1110-2-1205 (USACE)

[Hydraulic Design of Stream Restoration Projects](#) – USACE

[Stream Corridor Restoration Handbook](#) – NRCS

[Stream Systems Technology Center](#) – USFS

Climate

[Drought Assessment](#) - by NWS Climate Prediction Center

[El Niño/La Niña](#) – By NWS Climate Prediction Center

[NWS Climate Prediction Center](#) National weather Service site

[Uncertain Future: Climate Change and Its Effects on Puget Sound](#) – A Report for the Puget Sound Action Team by the Climate Impacts Group, Center for Science in the Earth System, Joint Institute for the Study of the Atmosphere and Oceans, University of Washington, Seattle, WA, 2005.

[Uncertain Future: Climate Change and Its Effects on Puget Sound - Foundation Document](#) – by the Climate Impacts Group, Center for Science in the Earth System, Joint Institute for the Study of the Atmosphere and Oceans, University of Washington, Seattle, WA, 2005.

CLOMAs/CLOMRs – see LOMAs/LOMRs

[Coastal Barrier Resources System](#)

Coastal Construction Information

[Coastal Construction Manual](#) – available on CD-ROM

[Homebuilder's Guide to Coastal Construction Technical Fact Sheet Series \(FEMA 499\)](#) - 31 fact sheets to provide technical guidance and recommendations concerning the construction of coastal residential buildings

Coastal Engineering Manual – EM 1100-2-1100 (USACE)

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[Part I](#)

[Part II](#)

[Part III](#)

[Part IV](#)

[Part V](#)

[Appendix A](#)

[Coastal Engineering Manual](#) – all of the chapters listed above can also be downloaded from the Coastal and Hydraulics Laboratory's website

Coastal Erosion – see Erosion

Coastal Flood Protection Structures

[Design of Coastal Revetments, Seawalls and Bulkheads](#) – EM 1110-2-1614 (USACE)

[Environmental Engineering for Coastal Shore Protection](#) – EM 1110-2-1204 (USACE)

[FEMA Certification Criteria for Coastal Flood Protection Structures](#)

[Coastal Geology](#) – EM 1110-2-1810 (USACE)

Coastal Guidelines

[CHAMP User's Manual](#)

[Coastal Flood Hazard Analysis and Mapping for the Pacific Coast of the United States: Final Draft Guidelines](#) – November 2004

[Coastal Flood Hazard Analysis and Mapping for the Pacific Coast of the United States: Phase 1 Summary Report](#) – February 2005

see also - Guidelines & Specifications for Flood Hazard Mapping Partners, Appendix D

see also - V Zones

[Community Rating System \(CRS\)](#)

[CRS Communities and their Current Classes](#)

[CRS Resource Center](#) – EMI website that provides instructions to communities for obtaining credits for CRS activities

[Community Status Book](#) – Lists the current communities participating in the NFIP

Computer Programs – see Software

Consumers Information – See NFIP – Information for Consumers

Conversion Factors – Metric to English & English to metric

[Table](#)

[Online Converter](#)

[Cooperating Technical Partners \(CTP\)](#)

[CTP Presentation](#)

[CTP Frequently Asked Questions](#)

[CTP Guidance Document](#)

[CTP Self-Assessment Tool \(Tutorial\)](#)

[Partnership Agreement Template](#)

[Mapping Activity Statement Templates](#)

[Digital Technical Support Data Notebook \(TSDN\)](#)

Correcting Flood Maps – see Maps, How to Correct

Courses - see Training

CRS – see Community Rating System

CTP – see Cooperating Technical Partners

Culverts

[Engineering Design - Conduits, Culverts and Pipes](#) – EM 1110-2-2902 (USACE)

Dams

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### FEMA Dam Safety Publications

[FEMA 64: Federal Guidelines for Dam Safety: Emergency Action Planning for Dam Owners](#) – Online Version

[FEMA 64: Federal Guidelines for Dam Safety: Emergency Action Planning for Dam Owners](#) – PDF Version

[FEMA 65: Federal Guidelines for Dam Safety: Earthquake Analyses and Design of Dams](#) – PDF File

[FEMA 93: Federal Guidelines for Dam Safety](#) – Online Version

[FEMA 93: Federal Guidelines for Dam Safety](#) – PDF Version

[FEMA 94: Federal Guidelines for Dam Safety: Selecting and Accommodating Inflow Design Floods for Dams](#) – PDF File

[FEMA 148: Federal Guidelines for Dam Safety: Glossary of Terms](#) – HTML Version

[FEMA 148: Federal Guidelines for Dam Safety: Glossary of Terms](#) – PDF Version

[FEMA L-264: Dam Owners Guide to Impacts of Animals on Earthen Dams](#) – PDF Version

[FEMA L-266: Conduits Through Embankment Dams](#) – PDF Version

[FEMA 333: Federal Guidelines For Dam Safety: Hazard Potential Classification System For Dams](#) – HTML Version

[FEMA 333: Federal Guidelines for Dam Safety: Hazard Potential Classification Systems for Dams](#) – PDF Version

[FEMA 466: Dam Safety and Security in the United States: A Progress Report on the National Dam Safety Program in Fiscal Years 2002 and 2003](#) – PDF Version

[FEMA 473: Technical Manual for Dam Owners, Impacts of Animals on Earthen Dams](#) – PDF Version

[FEMA 534: Technical Manual for Dam Owners, Impacts of Plants on Earthen Dams](#) – PDF Version

[FEMA 535: The National Dam Safety Program, Research Needs Workshop: Seepage Through Embankment Dams](#) – PDF Version

[FEMA 536: Research Needs Workshop: Dam Spillways](#) – HTML Page

[The National Dam Safety Program: 25 Years of Excellence](#)

[FEMA: Research Reports](#)

[Special Workshop on Risk assessment for Dams](#)

[Association of State Dam Officials \(ASDO\)/EPRI Spillway Gate Workshop](#)

[Liability for Water Control Structure Failure Due to Flooding](#) – a paper by Edward A Thomas, Esq.

See also Bureau of Reclamation

See also Tennessee valley Authority

### Definitions

[NFIP Insurance Definitions](#)

Disaster Resistant universities – see Building standards, Disaster Resistant Universities

Drought – see Climate

Elevation Certificate

[Elevation Certificate Form](#) – see also Forms

see also – Online Tutorials - Surveyor's Guide to the Elevation Certificate

see also – Floodplain Management Bulletins, FEMA 467-1 Elevation Certificate (Bulletin)

Software – available from ISO

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Elevating

[Above the Flood: Elevating Your Floodprone House: FEMA Publication 347](#)

Elevating on Fill – See Technical Bulletin 10-01

El Niño/La Niña – see Climate

Enclosures

[Answers To Questions On Enclosures Below Elevated Buildings](#)

see also - Technical Bulletins 1, 2, 6 & 7

Engineering Principles and Practices for Retrofitting Flood Prone Residential Buildings – *FEMA 259*

See – Publications, FEMA & USACE Publications

See also – Training,

Engineers/Surveyors – see Information For Engineers/Surveyors

E.O. 11988 – see Laws & Regulations

Erosion

Coastal Erosion

[Executive Summary of Erosion Hazards Study](#)

[Evaluation of Erosion Hazards Report](#)

[FEMA-257: Mitigation of Flood and Erosion Damage to Residential Buildings in Coastal Areas](#)

Riverine erosion

[Riverine Erosion Hazard Areas Mapping Feasibility Study](#)

Executive Order (EO) 11988 – see Laws & Regulations

Federal Highway Administration – Hydraulics Publications

[Hydraulics Engineering Current Publication List](#) - many of the documents in this list are also listed below

Hydrologic Design Series (HDS)

[HDS 1 - Hydraulics of Bridge Waterways](#)

[HDS 2 - Highway Hydrology](#)

[HDS 3 - Design Charts for Open-Channel Flow](#)

[HDS 4 - Introduction to Highway Hydraulics](#)

[HDS 5 - Hydraulic Design of Highway Culverts](#)

[Updated Charts for 2001 HDS 5](#)

[HDS 6 River Engineering for Highway Encroachments](#)

Hydrologic Engineering Circulars (HEC)

[HEC 9 - Debris Control Structures](#)

[HEC 11 - Design of Riprap Revetment](#)

[HEC 13 - Hydraulic design of Improved Inlets for Culverts](#)

[HEC 14 - Hydraulic design of Energy Dissipators for Culverts & Channels](#)

[Hydraulics Engineering HEC 14 Errata](#)

[HEC 15 - Design of Roadside Channels with Flexible Linings](#)

[HEC 17 - Design of Encroachments on Floodplains Using Risk Analysis](#)

[HEC 18 - Evaluating Scour at Bridges](#)

[Hydraulics Engineering Errata for HEC-18, HEC-20, and HEC-23](#)

[HEC 19 - Hydrology](#)

[HEC 20 - Stream Stability at Highway Structures](#)

[Hydraulics Engineering Errata for HEC-18, HEC-20, and HEC-23](#)

[HEC 21 - Bridge deck Drainage Systems](#)

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[HEC 22 - Urban Drainage design Manual](#)

[HEC 23 - Bridge Scour and Stream Instability Countermeasures](#)

[HEC 24 - Highway Stormwater Pump Station Design](#)

[HEC 25 - Tidal Hydrology, Hydraulics, and Scour at Bridges](#)

Hydraulic Reports

[HIRE - Highways in the River Environment](#)

[TS 80-216 - Hydraulic Flow Resistance factors for Corrugated Metal Culverts](#)

[USGS WSP 2339 - Guide for Selecting Manning's Roughness Coefficients for Natural Channels and Flood Plains](#)

[FEMA Online Phone Directory](#)

FIRMette – see Maps, Flood Map Store, How to Make a FIRMette

FIRMS

See Online Tutorials, FIRM Tutorial

See also Maps, Flood Map Store

FIS – see Flood Insurance Study

FIS Support Data

[How to Order Technical and Administrative Support Data](#)

[Map Service Center](#)

Flash Floods

[Natural Hazards](#) – see Section 2.1 Floods

[Floods and Flash Floods](#) – Brochure

[Floods & Flash Flood](#) – link to American Red Cross site

[Turn Around Don't Drown \(TM\)](#) – NOAA online flash flood tutorial

[Oregon's Notable Historical Storms](#)

**ADD FEMA BROCHURES HERE**

Flood Conditions – see Stream Flow Data

Flood Hazard Determination Form – see Forms, Flood Hazard Determination Form

[Flood Hazard Mapping -- Documents](#) – links to many FEMA documents

Flood Hazard Mapping Partners

[Reference Materials For Flood Hazard Mapping Partners](#)

Flood Hazard Zones

[Definitions of](#)

[Explained & Defined](#)

Flood History

Washington

[Skagit River History](#)

Flood Information Tool (FIT)

[FIT User's Manual](#)

Flood Insurance

[Flood Insurance Manual](#)

[Flood Insurance Policy Forms](#)

[FloodSmart.gov](#) – flood insurance information for individuals

Flood Insurance Study

[Flood Insurance Study](#) – Definition

[Sample Flood Insurance Study](#)

See also - Guidelines & Specifications for Flood Hazard Mapping Partners

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### [Flood Map Production Guidelines and Specifications](#)

[Procedure Memorandums](#) – links to guidance not yet incorporated into the Guidelines & Specifications

Flood Map Revision Process – see Revision, Flood Map revision Process

Flood Maps – see Maps

Flood Map Store – see Maps, Flood Map Store

### [Floodplain Boundary Standard Audit Procedures](#)

Floodplain Management Bulletins

[FEMA 467-1 Elevation Certificate \(Bulletin\)](#)

[FMB 1-98 Use of Flood Insurance Study \(FIS\) Data as Available Data](#)

[Floodplain Management Requirements](#) – A Study Guide and Desk Reference for Local Officials

[Floodplain Management Requirements for the NFIP](#)

Floodplain Managers – see Information For, Floodplain Managers

Flood Protection Systems - see Guidelines & Specifications for Flood Hazard Mapping Partners

Flood Proofing

[Flood Proofing Regulations](#) – EP 1165-2-314 (USACE)

Flood Proofing Certificate – see LOMAs/LOMRs, LOMCs

[Floods and Flash Floods](#) – Brochure

See also Hydrology, Significant Floods in the United States During the 20<sup>th</sup> Century

[Floods, Droughts, and Climate Change](#) - University of Arizona Press

[FloodSmart.gov](#) – FEMA's resource for flood insurance information

Flood Vents

[SmartVENT Foundation Flood Vents](#) – flood vents for foundations, walls, and garage doors

[FEMA Acceptance Letter](#) – Letter from FEMA stating that properly installed SmartVENTs meet the minimum NFIP regulations for flood vents.

Floodwalls

[Retaining & Floodwalls](#) – EM 1110-2-2502 (USACE)

Flood warnings

[Flood Warnings](#) – NOAA National Warning Center

Hurricanes

[Experimental forecast Tropical Cyclone Genesis Potential Fields](#) – Penn State

[National Hurricane Center / Tropical Prediction Center](#) - NOAA

[Hydrologic Aspects of Flood Warning Preparedness - Programs](#) – ETL 1110-2-540 (USACE)

[NWS Advanced Hydrologic Prediction Service](#) – provides flood predictions for northwest rivers

River Forecast Centers

[Organization - NOAA's National Weather Service](#) – click on Regional Support Centers to see a list of River Forecast Centers for the entire US

OR

pick from the list below

[Alaska - Pacific RFC](#)

[Arkansas-Red Basin RFC](#)

[California Nevada RFC](#)

[Colorado Basin RFC](#)

[Lower Mississippi RFC](#)

[Middle Atlantic RFC](#)

[Missouri River Basin RFC](#)

[Northcentral RFC](#)

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[Northeast RFC](#)

[Northwest RFC](#)

[Ohio RFC](#)

[Southeast RFC](#)

[West Gulf RFC](#)

[USACE, Portland District Water Management](#) – select [Reports](#) and [Graphics](#) for current river levels

[USACE, Seattle District](#) – current river levels

[USACE, Walla Walla District Water Management](#) – select [Reservoir Reports](#) and [Streamflow Reports](#) for current reservoir and river levels

Flood Watches – See Stream Flow Data, Water Watch

Floodways

[Definition](#) - & Restrictions

Floodway Revisions - see Guidelines & Specifications for Flood Hazard Mapping Partners, Map Revisions and LOMAs/LOMRs, MT-2 Forms

[Flood Zone Determination Companies](#)

Forms

[DocNet](#) – on-line electronic FEMA forms (NFIP forms are under the FF-81 sequence)

[Elevation Certificate](#)

[Fees](#)

[Flood Hazard Determination Form](#)

[Floodproofing Certificate](#)

[MT-1 Forms](#) (Multiple Lot LOMAs & LOMR-Fs)

[MT-2 Forms](#) (LOMRs and Physical Map Revisions)

[MT-EZ Form](#) (Single Residential Lot or Structure LOMAs & LOMR-Fs)

[NFIP- Forms](#) (links to a variety of forms, including those listed above)

[Frequently Asked Questions](#)

[NFIP FAQs](#) – Frequently asked questions about the NFIP

Future Conditions Hydrology

See Hydrology, Future Conditions Hydrology

Guidelines & Specifications

A Zones – see A Zone Manual

Coastal Flooding Analyses – see below and also see V Zones

[Floodplain Boundary Audit Procedures](#)

[Guidelines and Specifications for Flood Hazard Mapping Partners](#) – Homepage

[Guidelines and Specifications for Flood Hazard Mapping Partners](#)

[Table of Contents](#)

[Executive Summary](#)

[Introduction](#)

[Volume 1: Flood Studies and Mapping](#)

[Volume 2: Map Revisions and Amendments](#)

See also - Revisions

[Volume 3: Program Support](#)

[Appendix A: Guidance for Aerial Mapping and Surveying](#)

[Appendix B: Guidance for Converting to the North American Vertical Datum of 1988](#)

[Appendix C: Guidance for Riverine Flooding Analyses and mapping](#)

[Appendix D: Guidance for Coastal Flooding Analyses and Mapping](#)

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[Appendix D.4 Coastal Flood Hazard Analysis and Mapping for the Pacific Coast of the United States: Final Draft Guidelines](#) – November 2004

See also - Coastal Guidelines, Coastal Flood Hazard and mapping Analysis for the Pacific Coast of the United States: Phase 1 Summary Report

See also V Zones

[Appendix E: Guidance for Shallow Flooding Analyses and Mapping](#)

[Appendix F: Guidance for Ice-Jam Analyses and Mapping](#)

[Appendix G: Guidance for Alluvial Fan Flooding Analyses and Mapping](#)

see also Alluvial Fans

[Appendix H: Guidance for Mapping Areas Protected by Levee Systems](#)

[Appendix I: Project Scoping Toolbox](#)

[Appendix J: Format and Specifications for Flood Insurance Study Reports](#)

[Appendix K: Format and Specifications for Flood Insurance Rate Maps](#)

Appendix L: Guidance for Preparing Draft Digital Data and DFIRM Database

[Appendix L: - Part 1](#)

[Appendix L: - Part 2](#)

[Appendix M: Guidance for Preparing and Maintaining Technical and Administrative Support Data](#)

Appendix N: Data Capture Standards and Guidelines

[Appendix N: Data Captures Standards](#) – Part 1

[Appendix N: Data Capture Guidelines](#) – Part 2

[Glossary](#)

[Procedure Memorandums](#) – links to guidance not yet incorporated into the Guidelines & Specifications

Same links by Subject

[Aerial Survey](#) – Appendix A

[Alluvial Fan Flooding Analyses](#) – Appendix G

[Coastal Flooding Analyses](#) – Appendix D

Data Capture Standards & Guidelines – Appendix N

[Appendix N: Data Captures Standards](#) – Part 1

[Appendix N: Data Capture Guidelines](#) – Part 2

Digital Data and DFIRM Database Guidance – Appendix L

[Appendix L: - Part 1](#)

[Appendix L: - Part 2](#)

[DFIRMs](#) – Appendix L

[FIS Reports](#) – Appendix J

[Flood Maps](#) – Appendix K

[Flood Studies](#) – Volume 1

[Ice-Jam Analyses](#) – Appendix F

[Levee Analyses](#) – Appendix H

[LIDAR](#) – Appendix A

[Map Revisions](#) – Volume 2

[NAVD 88](#) – Appendix B

[Program Support](#) – Volume 3

[Riverine Flooding Analyses](#) – Appendix C

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[Scoping Guidance Tools](#) – Appendix I  
[Shallow Flooding Analyses](#) – Appendix E  
[Technical and Administrative Support Data](#) – Appendix M  
[V Zone Analyses](#) - Appendix D

### High Water Marks

[HWM for TX Flood](#) – Watershed Concepts  
[Identifying Ordinary HWMs](#) - NRCS

Historic Stream Flow Data – see Surface Water Data for USA

### Homeowners

[Homeowner's Guide to Retrofitting: Six Ways to Protect Your House from Flooding](#)

See also – Information For Homeowners

Hydraulic Models – see Hydraulics, FEMA Software

### Hydraulics

[Environmental Engineering for Flood Control Channels](#) – EM 1110-2-1205 (USACE)  
[E431](#) – Computer Applications for Step-Backwater and Floodway Analyses (USGS)  
[E-431 Users Manual](#) - the manual can be viewed online at USGS's Publication Warehouse (if you view the file you will be able to print or save it) (USGS)  
[FEMA Software](#) – includes Champ, Check-2 Check-RAS, FAN, FISPLOT, NFF, Quick-2, RASPLOT, RUNUP, & WHAFIS  
[HEC's Homepage](#) – contains hyperlinks to HEC's software including HEC-RAS, HEC-GeoRAS, HEC-2, HEC-5, & HEC-6  
[HEC-RAS Procedures for HEC-2 Modelers](#) – FEMA website & link to report  
[Hydraulic Design of Flood Control Channels Change 1](#) – EM 1110-2-1601 (USACE)  
[Introduction to HEC-RAS](#) – course by NRCS  
[Quick-2, Version 2.0](#) – computer program for computing BFEs in unnumbered A zones  
[River Hydraulics](#) – EM 1110-2-1416 (USACE)  
[WRAS – HEC-RAS Conversion Program](#) – NRCS program that converts WSP2 data sets to HEC-RAS format

See also Coastal Flood Protection Structures

See also Guidelines and Specifications for Flood Hazard Mapping Partners, Appendices C,D,E,F,G & H

See also Tidal Hydraulics

### Hydrology

[Automated Hydrology and Hydraulics](#)  
[Guidelines for Determining Flood Flow Frequency, Bulletin 17B](#)  
[Bulletin 17-B Frequently Asked Questions](#) – (USGS-ACWI)  
[Subcommittee on Hydrology - Frequency Index page](#) – (USGS-ACWI)  
[Curve Number Information](#) - NRCS  
Effects of Urban Development on  
[Effects of Urban Development on Floods](#) – USGS Fact Sheet 076-03  
[Hydrologic Trends Associated with Urban Development for Selected Streams in the Puget Sound Basin, Western Washington](#) – USGS WRI Report 02-4040  
[Flood Flow Frequency Guidelines, Bulletin 17B](#)  
[Frequency WGP - Bulletin 17-B Frequently Asked Questions](#)  
[Flood-Runoff Analysis](#) – EM 1110-2-1417 (USACE)  
[Future Conditions Hydrology](#) - FEMA website & link to report  
[Future Conditions Hydrology](#) - final rule in Federal Register

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[Groundwater Hydrology](#) – EM 1110-2-1421 (USACE)

[HEC's Homepage](#) – contains hyperlinks to the USACE's HEC's software including HEC-HMS, HEC-GeoHMS, & HEC-1  
HEC-FFA

[HEC-FFA Software](#) – HEC doesn't distribute this outside of the USACE, but it's available from BOSS International

[HEC-FFA, Flood Frequency Analysis User's Manual](#) – CPD-13 (USACE)

[HEC-HMS](#)

[HEC-IFH Interior Flood Hydrology Package to Perform Interior Drainage Analysis](#)

[HEC-Resim](#)

[HEC-SSP](#)

[Vendor List](#) - list of vendors that distribute HEC software to non-USACE offices

[Hydrologic Analysis of Interior Areas](#) – EM 1110-2-1413 (USACE)

[Hydrologic Engineering Requirements for Flood Damage Reduction Studies](#) – EM 1110-2-1419 (USACE)

[Hydrologic Engineering Requirements for Reservoirs](#) – EM 1110-2-1420 (USACE)

[Hydrologic Frequency Analysis](#) – EM 1110-2-1415 (USACE)

[Hydrologic Trends Associated with Urban Development for selected Streams in the Puget Sound Basin, western Washington](#) – by USGS

[Ice-Influenced Flood Stage frequency Analysis](#) – ETL 1110-2-325 (USACE)

[Interior Flood Hydrology](#) – ETL 1110-2-367 (USACE)

[Large Floods in the United States: Where They Happen and Why](#) – USGS Circular 1245

[The World's Largest Floods, Past and Present: Their Causes and Magnitudes](#) – USGS Circular 1245

National Flood Frequency (NFF) Program

[NFF Bulletin Archive](#)

[NFF, Version 3: Report](#) – USGS website & link to PDF file of the report

[NFF, Version 3.2: Software](#) – USGS website & link to the Windows version of NFF software

[NFF Tutorial](#)

[NFF Updated Publications](#) – Table that indicates states with updated equations since NFF Version 1.0

[USGS Office of Surface Water](#)

NOAA

[Hydrometeorological Design Studies Center](#)

[Current Precipitation Frequency Information & Publications](#) – Online versions of NOAA Precipitation Atlases 2 & 14

[NWS Precipitation Frequency Data Server](#) – Precipitation Maps online (NOAA-NWS)

[Probable Maximum Precipitation \(PMP\)](#) – PMP Reports online (NOAA-NWS)

[Record Rainfalls](#) – Record rainfalls in the US and the World (NOAA-NWS)

Regional Frequency Equations

[Alaska](#) – USGS regional frequency equations for Alaska

See also Hydrology, USGS—Water resources Publications

Idaho

[Idaho](#) – USGS regional frequency equations for Idaho

[StreamStats](#) – USGS web-based program

See also, Hydrology, USGS--Water Resources Publications:

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### Oregon

[Oregon](#) – OWRD regional frequency equations for western Oregon

[StreamStats](#) – USGS web-based program

See also Hydrology, USGS—Water resources Publications

### Washington

[StreamStats](#) – USGS web-based program

See also Hydrology, USGS—Water resources Publications

See Hydrology, National Flood Frequency (NFF) Program for other states

### Risk

[Explaining Flood Risk](#) – EP 1110-2-8 (USACE)

[Hydrologic Risk](#) – EP 1110-2-7 (USACE)

[Risk Analysis and Uncertainty in Flood Damage Reduction Studies](#) – NRC Report Online

Version

[Risk-Based Analysis for Flood Damage Reduction Studies](#) – EM 1110-2-1619 (USACE)

[Runoff from Snowmelt](#) – EM 1110-2-1406 (USACE)

[Significant Floods in the United States During the 20th Century--USGS Measures a Century of Floods](#)

[Standard Project Flood Determinations](#) – EM 1110-2-1411 (USACE)

[StreamStats](#) - a Web-based tool from USGS that allows users to compute flows for user-selected sites on streams (currently available for the states of Idaho Vermont & Washington)

[The 100-year Flood](#) – USGS Fact Sheet 229-96

[TR-55 for Windows](#) – Windows version of NRCS's TR-55 hydrology program "Urban Hydrology for Small Watersheds"

[USGS--Water Resources of the United States](#)

[USGS--Water Resources Publications](#)

[Summary of ALASKA Flood-Frequency Techniques](#)

[Estimating Magnitude and Frequency of Floods in Idaho](#)

[Estimating the Magnitude of Peak Flows at Selected Recurrence Intervals for Streams in Idaho, WRI-02-4170](#)

[Summary of OREGON Flood-Frequency Techniques](#)

[Magnitude and Frequency of Floods in Washington](#)

See also, Guidelines and Specifications for Flood Hazard Mapping Partners, Appendices C & D

Ice-Jams - see Guidelines & Specifications for Flood Hazard Mapping Partners, Appendix F

[Idaho Department of Water Resources](#) – IDWR's website

Information for

[Engineers/Surveyors](#) – Includes Forms, Software, Documents & Manuals, Training

[Study Contractor Guidelines](#)

[Flood Map Production Guidelines and Specifications](#)

[Floodplain Managers](#)

[Homeowners](#)

[Insurers/Lenders](#)

[Inspection of Insured Structures by Communities: Proposed Rule](#)

Insurance Agent's Training – see Online Tutorials, Insurance Agent's Training

Insurance Professionals Information

[NFIP Insurance Definitions](#)

[Flood Insurance Manual](#)

See NFIP – Information for Insurance Professionals

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See also – Information For – Insurers/Lenders  
International Building Code – see Publications, Reducing Flood Losses Through the International Building Code Series

[Landslides & Mudflows - Background Information](#)

[Landslides & Mudflows - Fact Sheet](#)

[Landslides in Puget Sound](#) – contains landslide maps of the Puget Sound area by the Washington State Department of Ecology

Laws & Regulations

[Executive Order 11988 -- Floodplain Management](#)

[Executive Order 11988, Floodplain Management, 1977](#)

[Further Advice on Executive Order 11988 Floodplain Management](#)

[44 CFR Ch. I \(10-1-04 Edition\)](#) – Parts 59-78 pertain to the NFIP

[National Flood Insurance Act of 1968 & Flood Disaster Protection Act of 1973](#)

[National Flood Insurance Reform Act of 1994](#)

[National Flood Insurance Reform Act of 2004](#)

[NFIP Laws and Regulations](#)

Lenders Information

See NFIP – Information For – Lenders

See also – Information For – Insurers/Lenders

Levees

ASFPM

[Levees: The Double-Edged Sword](#) – ASFPM White Paper

[Joint Recommendations on Levee Policy](#) – ASFPM NAFSMA

[Certification Requirements](#)

Design, Operation & Maintenance Standards - see Laws & Regulations, 44 CFR Ch. I, Part 65.10

[Design and Construction of Levees](#) – EM 1110-2-1913 (USACE)

FEMA Guidelines & Policy

[FEMA Clarifies Policy on Mapping Areas Protected By Levees](#) – A brief description  
FEMA's policy on mapping areas protected by levees (leads to most of the hyperlinks listed below)

[44 CFR Part 65.10 - Mapping of Areas Protected by Levee Systems](#)

[Appendix H: Guidance for Mapping Areas Protected by Levee Systems](#)

[Glossary - Frequently Used Acronyms and Abbreviations for Levees](#)

[Glossary - Frequently Used Terms for Levees](#)

[Living Behind Levees - Information for Property Owners](#) – Fact Sheet

[Meeting the Criteria for accrediting Levees on Flood Maps: How to Guide for Floodplain Managers and Engineers](#)

[Procedure Memorandum 30 - FEMA Levee Inventory System](#)

[Procedure Memorandum 34 - Interim Guidance for Studies Including Levees](#)

[Procedure Memorandum No. 43 – Guidelines for Identifying Provisionally Accredited Levees \(PALs\)](#)

[Provisionally Accredited Levees \(PALs\)](#) – Brochure

[Guidelines for Identifying Provisionally Accredited Levees \(PALs\)](#)

[Provisionally Accredited Levees - Mapping Scenarios for Procedure Memorandum 43](#)

[Procedure Memorandum No. 43](#) – full set of documents

[The NFIP and Levees - An Overview](#) – Fact sheet

## Hyperlinks to Various FEMA-NFIP Websites

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### [The NFIP and Levees - Frequently Asked Questions](#)

#### Liability

Liability for Water Control Structure Failure Due to Flooding – see Dams

[Professional Liability for Construction in Flood hazard Areas](#) – prepared for ASFPM by Jon Kusler, Esq.

#### USACE

[Automated Levee Inspection System User Manual](#)

[Design and Construction of Levees](#) – EM 1110-2-1913 (USACE)

[Design Guidance for Levee Underseepage](#) – ETL 1110-2-569 (USACE)

[Landscape Planting and Vegetation Management at Floodwalls, Levees and Embankment Dams](#) – EM 1110-2-301 (USACE)

[Levee Inspection System](#) – USACE Engineer Research Development Center

[Levee Owner's Manual for Non-Federal Flood Control Works](#) – USACE

[Levee Guidance Documents](#) – USACE

[National Levee Safety Program - Fact Sheet](#) – USACE

[Planning - Risk Analysis for Flood Damage Reduction Studies](#) - ER 1105-2-101 (USACE)

[Settlement Analysis](#) – EM 1110-1-1904 (USACE)

[Waterstops and Other Prefomed Joint Materials for Civil Works Structures](#) - EM-1110-2-2102 (USACE)

See also Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix H

Liability for Water Control Structure Failure Due to Flooding – see Dams

#### LIDAR

See Guidelines & Specifications for Flood Hazard Mapping Partners, Appendix A

[Hydrographic LIDAR](#)

#### Local Officials

See NFIP – Information for State and Local Officials

See also – Information For Floodplain Managers

#### LODR – Letter of Determination Review

[What is a LODR and what are the requirements?](#)

[LODR Instructions](#)

[Flood Insurance Information for Prospective Buyers](#) – What if I disagree with my lender's determination that I am in a flood zone?

[Flood Insurance Information for Prospective Buyers](#) – What fees and data are required for LODRs

[NFIP - Ask The Expert](#) – My Bank said I'm in the floodplain and have to buy flood insurance. I don't believe it. What can I do?

#### LOMAs/LOMRs, LOMCs – (the following websites also apply to CLOMAs/CLOMRs)

[Compendium of Flood Map Changes](#)

[Definitions](#)

[Explanation of LOMAs, CLOMAs, LOMRs & CLOMRs](#)

[Explanation of LOMA/LOMR-F Process](#)

[Explanation & Links to LOMA/LOMR Forms](#)

[Elevation Certificate](#)

[FAQs](#) – Frequently asked questions about LOMAs & LOMRs

[Fees](#)

[Floodproofing Certificate](#)

[LomaLomr.com](#) a private firm that searches for currently active LOMAs/LOMRs

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### [LOMC Revalidation and Re-Issuance Process](#)

LOMR-Fs

[LOMR-F Rule](#) – from 44 CFR

[Questions & Answers on New LOMR-F Rule](#)

See also – Technical Bulletins – TB 10-01

### [LOMA/LOMR-F Tutorials](#)

[LOMA Tutorial](#)

[LOMR-F Tutorial](#)

LOMRs

[Riverine Letter of Map Revision Tutorial](#)

[Riverine Letter of Map Revision Tutorial](#)- new draft Flash MX format version

[MT-1 Forms](#) (Single & Multiple Lot LOMAs & LOMRs Based on Fill)

[MT-2 Forms](#) (LOMRs, CLOMRs, Floodway, and Physical Map Revisions)

[MT-EZ Form](#) (Single Residential Lot or Structure LOMAs)

[Status of Map Change Requests](#)

[Tips to Speed Up Application Process](#)

LOMCs – see LOMAs/LOMRs, LOMCs

Low Water Crossings – see Cars & Low Water Crossings

[Mandatory Purchase of Flood Insurance Guidelines](#)

Manning's "n"

["n" values for CMPs](#)

["n" values for RCPs](#)

["n" values for channels, crops, etc.](#)

[WSP 1849 – Roughness Characteristics of natural Channels](#) - USGS

[WSP 2339 - Guide for Selecting Manning's Roughness Coefficients for Natural Channels and](#)

[Flood Plains](#) – USGS

[Database and Computational Tools to Aid in Determination of Roughness Coefficients of Streams](#)

– USGS

[n-values index - Verified Roughness Coefficients of natural Channels](#) – USGS

[Manning's n Values](#) – Chow, 1959

[Methods for Predicting Mannings n](#) – EM 1110-2-1601 (USACE)

[Manufactured Home Installation in Flood Hazard Areas - FEMA 85](#)

Mapping Activity Statement Template – see Cooperating Technical Partners

Maps

[Alaska Community Maps](#) – online versions of community profile maps in MrSID format

[Fees for Flood Maps](#)

[Flood Hazard Mapping](#)

[Flood Hazard Mapping Documents](#)

Flood Map Revisions – see Revisions, Flood Map revision Process

Flood Map Store – see Map Service Center

FIRM Map Numbers

FIPS Codes

[County FIPS Code Lookup](#)

[State FIPS Code Listing](#) – also includes links to County FIPS codes

[FIRM Product Naming Conventions](#)

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[FIRM Tutorial](#)

[FIS Tutorial](#)

[How to Correct](#)

[Mapping Information Platform](#)

[Map Modernization](#) – FEMA’s plan for converting to digital FIRMs

[Map Service Center](#) – you can order Flood Maps here

[DFIRM Viewer](#) – link to the new DFIRM viewer

Free How To Guides

[Call Center Reference Sheet](#)

[Instructions for using Map Search](#)

How to Make a FIRMette

[Using Map Search](#)

[Using Product Catalog](#)

LOMCs - Letters of Map Changes (LOMCs) created after June 1, 1997 are available for online viewing through the FEMA Flood Map Store

[MT-2 Forms](#) (Physical Map Revisions)

[Online Hazard Maps - from FEMA & ESRI](#)

Q3 Maps – see Q3 Digital Flood Maps

Revisions to Flood Maps – see Revisions

Real Estate Map Sites

[Zillow](#) – free real estate information – an excellent site for locating properties by address  
– shows lot

Road Maps

[Google Maps](#) – very fast site – road and aerial orthophoto & satellite coverage by Google

[Live Search](#) – fast site – road & aerial orthophoto & satellite coverage by Microsoft

See also Photogrammetric Mapping

[Status of Map Change Requests](#)

USGS Quads

[Maptech MapServer - Online Topo Maps, Nautical Charts, Aero Charts, and Nav Photos](#)

[National Map Viewer](#) – USGS website

[TerraServer V5.0 Homepage](#) – also has Aerial Photos

[TopoZone - The Web's Topographic Map](#) – high quality USGS quads

USGS Map Symbols

[USGS Map Symbols](#) – excellent readable legend of USGS map symbols

[Topographic Map Symbols](#) – USGS’s official description of their topographic map symbols

[Key to Topographic Map Symbols](#) - very readable legend of standard USGS map symbols

Metric Conversion Factors – see Conversion Factors

MNUSS – See Online Tutorials

Models

[Numerical Models Accepted by FEMA for NFIP Usage](#)

National Flood Proofing Committee – see Publications, USACE National Flood Proofing Committee

Natural resources Conservation Service (NRCS) – formerly Soil Conservation Service (SCS)

[National Resources Conservation Engineering Documents](#) - an extensive list of NRCS engineering documents available online

[NEH 3 - Sedimentation](#)

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[NEH 5 - Hydraulics](#)

[NEH 11 - Drop Spillways](#)

[NEH 11 - Drop Spillways, Circular 1](#)

[NEH 14 - Chute Spillways](#)

NEH Part 630 – Hydrology

[Chapter 1 - Introduction](#)

[Chapter 2 - Procedures](#)

[Chapter 3 - Preliminary Investigations](#)

[Chapter 4 - Storm Rainfall Depth](#)

[Chapter 5 - Streamflow Data](#)

[Chapter 6 - Stream Reaches and Hydrologic Units](#)

[Chapter 7 - Hydrologic Soil Groups](#)

[Chapter 8 - Land Use and Treatment Classes](#)

[Chapter 9 - Hydrologic Soil Cover Complexes](#)

[Chapter 10 - Estimation of Direct Runoff From Storm Rainfall](#)

[Chapter 11 - Estimation of Direct Runoff From Snowmelt](#)

[Chapter 12 - Hydrologic Effect of Land Use and Treatment](#)

[Chapter 13 - Stage Inundation Relationships](#)

[Chapter 14 - Stage-Discharge Relationships](#)

[Chapter 15 - Travel time, Time of Concentration and Lag](#)

[Chapter 16 - Hydrographs](#)

[Chapter 17 - Flood Routing](#)

[Chapter 18 - Selected Statistical Methods](#)

[Chapter 19 - Transmission Losses](#)

[Chapter 20 - Watershed Yield](#)

[Chapter 21 - Design Hydrographs](#)

[Chapter 22 - Glossary](#)

[NEH Part 650 - Hydrology Tools for Wetland Determination](#)

[Stream Corridor Restoration - Principles, Processes and Practices](#)

[TR-55 for Windows](#) NAVD 88 – see North American Vertical Datum of 1988

NAVD 88/NGVD 29 Conversion – see Benchmarks, VERTCON

NFIP – Information for

[Application for Participation in the NFIP](#)

[Consumers](#)

[Insurance Professionals](#)

[Lenders](#)

[State & Local Officials](#)

[Surveyor's Guide to the Elevation Certificate](#)

[NFIP Policy Index - Keywords](#)

[NFIP Program Description](#)

[NOAA Restoration Center - Restoration Center Programs](#) – NOAA, National Marine Fisheries Service,

Restoration Center, website

Non-Structural Floodplain Management Alternatives

[Federal Programs Offering Non-Structural Flood Recovery and Floodplain Management](#)

[Alternatives](#) **??????????**

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North American Vertical Datum of 1988 (NAVD 88) - see Guidelines and Specifications, Draft Comprehensive Guidelines & Specifications

### Online Videos

[Downloadable Video Clips](#) – Flooding, Post-Flood, and Rebuilding – (BureauNet)

[NFIP Video Server](#) – excellent videos from FEMA on all aspects of the NFIP

### Online Tutorials

[Online Tutorials](#) – Main Page (contains links to many of FEMA's online tutorials listed below)

[CHECK-RAS Tutorial](#)

[Coastal Tutorial](#)

[CTP Tutorial](#)

[CTP Tutorial](#) = prototype Flash MX format version

[FIRM Tutorial – How to Read a Flood Insurance Rate Map](#)

[FIS Tutorial – How to Read a Flood Insurance Study](#)

[GIS Tutorial 1 – Introduction to GIS](#)

[GIS Tutorial 2 – Using GIS to Create DFIRMs](#)

[GIS Tutorial 3 - Using GIS, DFIRMs & other data for community applications](#)

[Insurance Agent's Training](#)

[LOMA/LOMR-F Tutorials](#)

[LOMR Riverine Tutorial](#)

[Riverine Letter of Map Revision Tutorial](#)

[Riverine Letter of Map Revision Tutorial](#) – draft Flash MX format version

[MNUSS Tutorial for Controllers](#)

[MNUSS Tutorial for Users](#)

[National Flood Frequency Tutorial System](#)

[Quick-2 Tutorial](#)

[RASLOT Tutorial](#)

[Surveyor's Guide to the Elevation Certificate](#)

[Ordering Technical and Administrative Support Data for Flood Insurance Studies/Restudies and Map Revisions](#)

[Oregon Water Resources Department](#)

[Estimation of Peak Discharges](#) – Regional frequency equations for western Oregon

Partnership Agreement – see Cooperating Technical Partners

Phone Numbers

[FEMA Online Phone Directory](#)

[Important Toll Free Telephone Numbers](#)

[Photogrammetric Mapping](#) – EM 1110-1-1000 (USACE)

Program Support – see Guidelines & Specifications

Precipitation Atlases – See Hydrology, NOAA

[Protecting Your Home from Flood Damage](#)

[Protecting Your Property From Disasters](#)

Publications

[Effects of Urban Development on Floods](#) - fact sheet from USGS with hyperlink to PDF version

[Flood Resistant Design Construction Publications](#) – list of available publications

FIA Publications

[FIA 17 & 18: Floodplain Management in the United States: An Assessment Report](#)

FEMA Publications

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[FEMA 15: Design Guidelines for Flood Damage Reduction](#)

[FEMA 54: Elevated Residential Structures](#)

[FEMA 85: Manufactured Home Installation in Flood Hazard Areas](#)

[FEMA 55: Coastal Construction Manual](#)

[FEMA 100: A Unified National Program for Floodplain Management](#)

[FEMA 102: Floodproofing Non-Residential Structures](#)

[FEMA 116: Reducing Losses in High Risk Flood Hazard Areas: A Guidebook for Local Officials](#)

[FEMA 165: Alluvial Fans: Hazards and Management](#)

[FEMA 186: Mandatory Purchase of Flood Insurance Guidelines](#)

[FEMA 213: Answers to Questions About Substantially Damaged Buildings](#)

[FEMA L-231: Mitigation Recovery Information: Information and Guidance on Building Safer](#)

[FEMA 234: Repairing Your Flooded Home](#)

[FEMA 247: Against the Wind: Protecting Your Home From Hurricane and Wind Damage](#)

[FEMA 257: A Report - Mitigation of Flood and Erosion Damage to Residential Buildings in Coastal Areas](#)

[FEMA 259: Engineering Principles and Practices of Retrofitting Floodprone Residential Structures](#)

[FEMA 265: Managing Floodplain Development in Approximate Zone A Areas - A Guide for Obtaining and Developing Base \(100 yr\) Flood Elevations](#)

[FEMA 268: Protecting Floodplain Resources - A Guidebook for Communities](#)

[FEMA 296, 297 & 298: Code Capability Report](#)

[FEMA 309: Addressing Your Community's Flood Problems](#)

[FEMA 312: Homeowner's Guide to Retrofitting: Six Ways to Protect Your House From Flooding](#)

[FEMA 317: Property Acquisition Handbook for Local Communities](#)

[FEMA 320: Taking Shelter From the Storm Building a Safe Room Inside Your House](#)

[FEMA 345: Hazard Mitigation Grant Program Desk Reference](#)

[FEMA 347: Above the Flood: Elevating Your Floodprone House](#)

[FEMA 348: Protecting Building Utilities From Flood Damage](#)

[FEMA 361: Design and Construction Guidance for Community Shelters](#)

[FEMA 467-1: Elevation Certificate Cover and Bulletin](#)

[FEMA 480: National Flood insurance Program \(NFIP\) Floodplain Management Requirements: A Study Guide and Desk Reference for Local Officials – see “NFIP Floodplain Management Requirements: A Study Guide and desk Reference for Local Officials” below](#)

[FEMA 488: MAT Report: Hurricane Charley in Florida](#)

[FEMA 489: MAT Report: Hurricane Ivan in Alabama and Florida](#)

[FEMA 490: MAT Report: Summary Report on Building Performance](#)

[FEMA 499: Home Builder's Guide to Coastal Construction Technical Fact Sheet Series NFIP Floodplain Management Requirements: A Study Guide and Desk Reference for Local Officials](#)

[Watermark](#) – FEMA's NFIP Newsletter

[FEMA & USACE Publications](#) – list of available publications

[FEMA: Publications Library](#) – list of extensive online and other publications

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[FEMA's Information Resource Library](#) - You can search FEMA's library for all documents here.

Many are available online. Searches can be done by Keyword, Subject, Audience Category, Hazard Type, Language, and Resource Type/

[FEMA: NFIP Publications](#) – online publications

[Hydrologic Trends Associated with Urban Development for selected Streams in the Puget Sound Basin, western Washington](#) – by USGS

[Large Floods in the United States: Where They Happen and Why](#) – USGS Circular 1245

[Publications and Videos for the Building Community](#) – list of available publications

[Reducing Flood Losses Through the International Code Series: Meeting the Requirements of the National Flood Insurance Program](#)

[Technical Bulletins](#) – online publications

[USACE National Flood Proofing Committee](#) – online publications

[USGS Publications Warehouse](#)

[USGS--Water Resources Publications](#)

See also – Floodplain Management Bulletins

Q3 Digital Flood Maps

[Availability -- States Map](#)

[Availability -- States list](#)

[Frequently Asked Questions](#)– Frequently asked questions about Digital (Q3) Flood Maps

[Q3 Digital Flood Data and Coastal Barrier Resource Area \(CBRA\) Q3 Data](#) – FEMA Flood Map Store

[User's Guide](#)

[View Q3 Flood Maps Online](#)

Real-Time Stream Flow Data – See Surface Water Data for USA

Reducing Flood Losses Through the International Code Series: Meeting the Requirements of the National Flood Insurance Program – See Publications

Revisions

[Flood Map Revision Processes](#)

Floodway Revisions – see LOMAs/LOMRs

[Frequently Asked Questions on Conditional Map Revisions](#)

[Frequently Asked Questions on Flood Insurance Rate Map Revisions](#)

[Frequently Asked Questions on Revisions by Homeowners](#)

See Also – LOMAs/LOMRs

See also – Guidelines and Specifications

Riverine Flooding Analyses - see Guidelines & Specifications for Flood Hazard Mapping Partners, Appendix C

[River Hydraulics](#) – EM 1110-2-1416 (USACE)

Riprap – see Channels, Effects of Riprap on Riverine and Riparian Ecosystems

[Runoff from Snowmelt](#) – EM 1110-2-2406 (USACE)

Shallow Flooding - see Guidelines & Specifications, Draft Comprehensive Guidelines & Specifications

Shore Protection Manual – superceded, see Coastal Engineering Manual

Software

[FEMA Software](#) – developed by FEMA to support the NFIP

[Hydrologic Engineering Center's HomePage](#) – contains H&H Software

[Numerical Models Accepted by FEMA](#)

Standard Flood Hazard Determination Form – see Forms, Flood Hazard Determination Form

Standard Flood Insurance Policy Forms – see Flood Insurance Policy Forms

## Hyperlinks to Various FEMA-NFIP Websites

**Created by:** Joe Weber, FEMA, Region 10

**Updated:** 06/22/2007

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State Officials Information – See NFIP – Information for State and Local Officials

[Stream Corridor Restoration, Principles Processes and Practices](#) – by the Federal Interagency Stream Corridor Restoration Group

Stream Flow Data – See Surface Water Data for USA

See also Oregon Water Resources Department

[Northwest River Forecast Center](#) - NOAA

[WaterWatch](#) – Maps and graphs of current & recent water resource conditions from USGS

To view Recent Flood Data

Select *Flood and High Flow* under *Category*

Select *Summarize Recent Conditions*

Select the *Help* button for further instructions or do the following

Enter *State*

Enter *Begin Date*

Enter *End Date*

Enter *Output Format* – (select *map* to get a map of all gages)

Enter *Significant Recurrence Interval (year)* – (enter *0* to get all recurrence intervals, *2* to get the 2-yr and all higher floods)

Select *GO*

When the map displays, *hover your mouse over a gage* to get the statistical data for the flood at that gage

[Washington - Current Streamflow Conditions](#)

[Stream Systems Technology \(USFS\)](#)

Study Contractor Guidelines & Specifications

[Guidelines and Specifications for Flood Hazard Mapping Partners](#) – this replaces the following 3 documents

[Guidelines and Specifications for Flood Map Production Coordination Contractors](#)

[Guide for Preparing Technical Support Data Notebook](#)

[Study Contractor Guidelines & Specifications](#)

[Surface-Water Data for USA](#) – Real-time and Historic Stream-flow Data for Entire USA from USGS

Substantial Damage

[Answers to Questions About Substantially Damaged Building – FEMA 213](#)

Surveying

[Geodetic and Control Surveying](#) – EM 1110-1-1004 (UASCE)

[Hydrographic Surveying](#) – EM 1110-2-1003 (USACE)

[NAVSTAR Global Positioning Surveying](#) – EM 1110-1-1003 (USACE)

[Survey Markers and Monumentation](#) – EM 1110-1-1002 (USACE)

[Topographic Surveying](#) – EM 1110-1-1005 (USACE)

Surveyors

See Aerial Survey and Mapping

See also Engineers/Surveyors – Information For

See also – Online Tutorials - Surveyor's Guide to the Elevation Certificate

Technical & Administrative Support Data - see Guidelines & Specifications, Draft Comprehensive Guidelines & Specifications

Technical Bulletins

[Available Technical Bulletins](#) – list with hyperlinks to the bulletins listed below

[TB - 01 User's Guide to Technical Bulletins](#)

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[TB 1-93 - Openings in Foundation Walls](#)

[TB 2-93 - Flood Resistant Materials Requirements](#)

[TB 3-93 - Non-Residential Floodproofing Requirements and Certification](#)

[TB 4-93 - Elevator Installation](#)

[TB 5-93 - Free-of-Obstructions Requirements](#) – for buildings located in V zones

[TB 6-93 - Below-Grade Parking Requirements](#)

[TB 7-93 - Wet Floodproofing Requirements](#)

[TB 8-96 - Corrosion Protection for Metal Connectors in Coastal Areas](#)

[TB 9-99 - Design and Construction Guidance for Breakaway Walls Below Elevated Coastal Buildings](#)

[TB 10-01 - Ensuring That Structures Built In or Near Special Flood Hazard Areas Are Reasonably Safe From Flooding](#)

[TB 11-01 - Crawlspace Construction for Buildings Located in Special Flood Hazard Areas](#)

[Telephone Poles](#) – (see Page 5-23 of the hyperlink document or select FIND, Telephone Pole)

[Tennessee Valley Authority \(TVA\)](#) – Homepage

[Reservoir Information](#)

### Tides

[About Water Levels, Tides and Currents](#) – (NOAA)

[OUR RESTLESS TIDES](#) – *A BRIEF EXPLANATION OF THE BASIC ASTRONOMICAL FACTORS WHICH PRODUCE TIDES AND TIDAL CURRENTS* (NOAA)

[Sea Level Trends](#) – NOAA

[Tide and Current Glossary](#) - NOAA

Tidal Benchmarks – see Benchmarks

[Tidal Data](#) – Historic and Current Tidal Data from NOAA – see NOTE below

**NOTE:** Once connected to the site, choose a STATE, then a STATION, or select a station from the INTERACTIVE MAP, then choose:

TIDE/WATER LEVEL DATA

PRELIMINARY DATA – for current data

VERIFIED DATA – for historical data

EXTREMES – for extreme data

### Tidal Datums

[Computational Techniques for Tidal Datums Handbook](#) – PDF File (NOAA)

[NOAA Publications](#) – (NOAA-CO-OPS)

[Tidal Datum Distributions in Puget Sound, Washington, Based on a Tidal Model](#)

[Tidal Datums and Their Applications](#) – PDF File (NOAA)

[Appendix I](#) – National Water Level Observation Network Stations

[Appendix II](#) – Time Series of Monthly Mean Sea Level After Removal of Seasonal Cycle Showing the Deriver Linear Trend

[Appendix III](#) – Average Seasonal Cycle of Monthly Sea Level

[Appendix IV](#) – Time Series of Monthly Sea Level

[Appendix V](#) – Linear Trends for 50-year Periods

[Tidal Datums and Their Applications – PowerPoint Presentation \(NOAA\)](#)

[Sea Level Variations of the United States 1854-1999](#) – NOAA Technical Report NOS CO-OPS 36

See also – Benchmarks, NOAA-NOS, Tidal Benchmarks - (for listing by state)

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[Tidal Hydraulics](#) – EM 1110-2-1607 (USACE)

[Tidal Predictions](#) – Tidal Predictions from NOAA

[Tidal Current Tables](#) – from NOAA

Tidal Water Levels – see Benchmarks

[Tides Online](#) – online data of daily predicted and observed tide levels (NOAA-CO-OPS)

[Tides & Currents](#) – daily predications from Nobeltec/Nautical Software

### Training

[Engineering Principles and Practices for Retrofitting Flood-Prone Residential Structures IS-279](#) – a home-study course from EMI

[Floodplain Management Requirements](#) – A study Guide and Desk Reference for Local Officials

[Introduction to Residential Coastal Construction IS-386](#) – a home-study course from EMI

[Introduction to Mitigation IS-393](#) – a home-study course from EMI

[Managing Floodplain Development Through the NFIP - FEMA Home Study Course IS-9](#) – a home study course about the NFIP available through FEMA

[Managing Floodplain development Through the NFIP - FEMA Home Study Course IS-9](#) – same as the course above but available through the ASFPM

[Mitigation for Homeowners IS-394](#) – a home-study course from EMI

[NFIP Floodplain Management Requirements Study Guide & Desk Reference – FEMA 480](#) – a home study course about the NFIP available through the ASFPM

[NFIP : Flood Smart Agent Training Station : NFIP | FEMA](#)

### Tsunamis

#### Oregon

[Department of Geology and Mineral Industries Geologic Hazards on the Oregon Coast](#)

DOGAMI's tsunami website – this site includes numerous links, including the two listed below

[Department of Geology and Mineral Industries Coastal Hazards](#) – Tsunami Hazard Maps for Oregon coastal communities

[Department of Geology and Mineral Industries Tsunami Evacuation Maps](#) – Tsunami Evacuation Maps for Oregon coastal communities

[University of Washington Website](#)

[International Tsunami Information Centre](#)

#### NOAA

[Deep-ocean Assessment and Reporting of Tsunamis \(DART\)](#) – NOAA's tsunami buoys

[NOAA Tsunami Website](#)

[NOAA Center for Tsunami Research](#)

[Tsunami Inundation Gridding Project](#)

Warning Centers

[Pacific Tsunami Warning Center - Ewa Beach, Hawai'i](#)

[West Coast & Alaska Tsunami Warning Center - Palmer, Alaska](#)

#### USGS

[Tsunami and Earthquake Research at the USGS](#)

[Natural Hazards - Tsunamis](#) – USGS Tsunami Website

Warning Centers – see Tsunamis, NOAA, Warning Centers

Tutorials – See Online Tutorials

#### Utilities

[Protecting Building Utilities From Flood Damage: Principles and Practices for the Design and Construction of Flood Resistant Utility Systems](#) – also available as FEMA 348

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U.S. Army Corps of Engineers

[Civil Works ENGINEER MANUALS](#) – Online Publications

See also Publications, USACE National Flood Proofing Committee

Variances

[Managing Floodplain Development Through the NFIP - Independent Study Course #9, Unit 7](#) – see pages 44-55

V Zones

Free of Obstructions Requirement – see Technical Bulletins, TB 5-93

[V Zone Guidelines & Specifications](#)

See also Guidelines & Specifications, Draft Comprehensive Guidelines & Specifications

[Warning Brochures from NOAA](#) – index of online brochures available from NOAA

Weather

[Climatic Extremes and Weather Events](#) – current & historic data from NOAA National Climatic Data Center

[Earth Satellite Corporation - Flooding](#)

[NOAA Home Page](#)

[NOAA's National Weather Service](#)

[weather.com](#)

Wood Preservatives

[American Wood Preservers Institute](#) – contains information about wood preservatives

[American Wood-Preservers' Association](#) – contains information about wood preservatives

[NatureWood®](#)

[Preserve](#)

[Wolmanized Natural Select Treated Wood](#)

Wood Sealers (Waterproofing) – these products do not meet FEMA's flood resistant requirements

[Behr.com: Products - Wood Waterproofers](#)

[EverWood \(EverCrete\)](#)

[Technical Bulletin No. 6 Clearing Confusion on Waterproofing Wood Sealers...](#)

[Thompson's Water Seal](#)

Zones – See Flood Hazard Zones

**NEED TO NOTIFY THE FOLLOWING THAT THIS LIST HAS BEEN UPDATED:**

**HAZUS.ORG/FLOOD INFO LINKS**

**CLACKAMAS COUNTY**

**ADD INFORMATION FROM THE FOLLOWING SITE**

**[FEMA: Mitigation Recovery Information: Community Rebuilding Resources: Information and Guidance on Building Safer](#)**