The Role of National Flood Insurance and the Community Rating System in Local Decisions and Programs for Flood Mitigation in the U.S.

L D Duke, Ph.D., P.E.

Professor of Environmental Studies
Florida Gulf Coast University

Southwest Florida Water Resources Conference
February 2, 2018

Does the U.S. have a national flood policy?

Yes: NFIP systematically identifies floodplains, offers insurance, pays claims

But: Not required; not financially self-sustaining; additional purposed $ relief

Yes: US Army Corps of Engineers charged with, and funded for, enormous numbers of projects including local flood protection

But: No overarching plan from Congress, Corps, others to seek out and integrate projects or prioritize by damages

Lead role for local agencies, profoundly affected

Historic communities such as Mid-Atlantic region: deeply personal, cultural, historical, economic relationship with flooding

Sunbury PA, 1936

Source: Dallin Aerial Photos / Hagler Museum & Library, in Roberts & Messer, 2005, Triumph VII Harrisburg to the Lakes

US Flood Policy(ies): Fragmented by History and by Design

All levels of government

- Local efforts since ?
- State efforts since about 1890s (Ohio R)
- Federal programs since about 1910s (Mississippi R, Sacramento Delta)

>100 Congressional one-time appropriations, 1860s – 1970s

Major federal programs:

- USACE mission, Omnibus Flood Control Act, 1936
- FEMA & predecessors, 1973
- NOAA, information

Do a group of reactions form a national policy?

When I waded into the controversy:

Flood Response Policies on the Susquehanna River, Pennsylvania:

Fragmentation and Cross-Purposes at Three Levels of Government

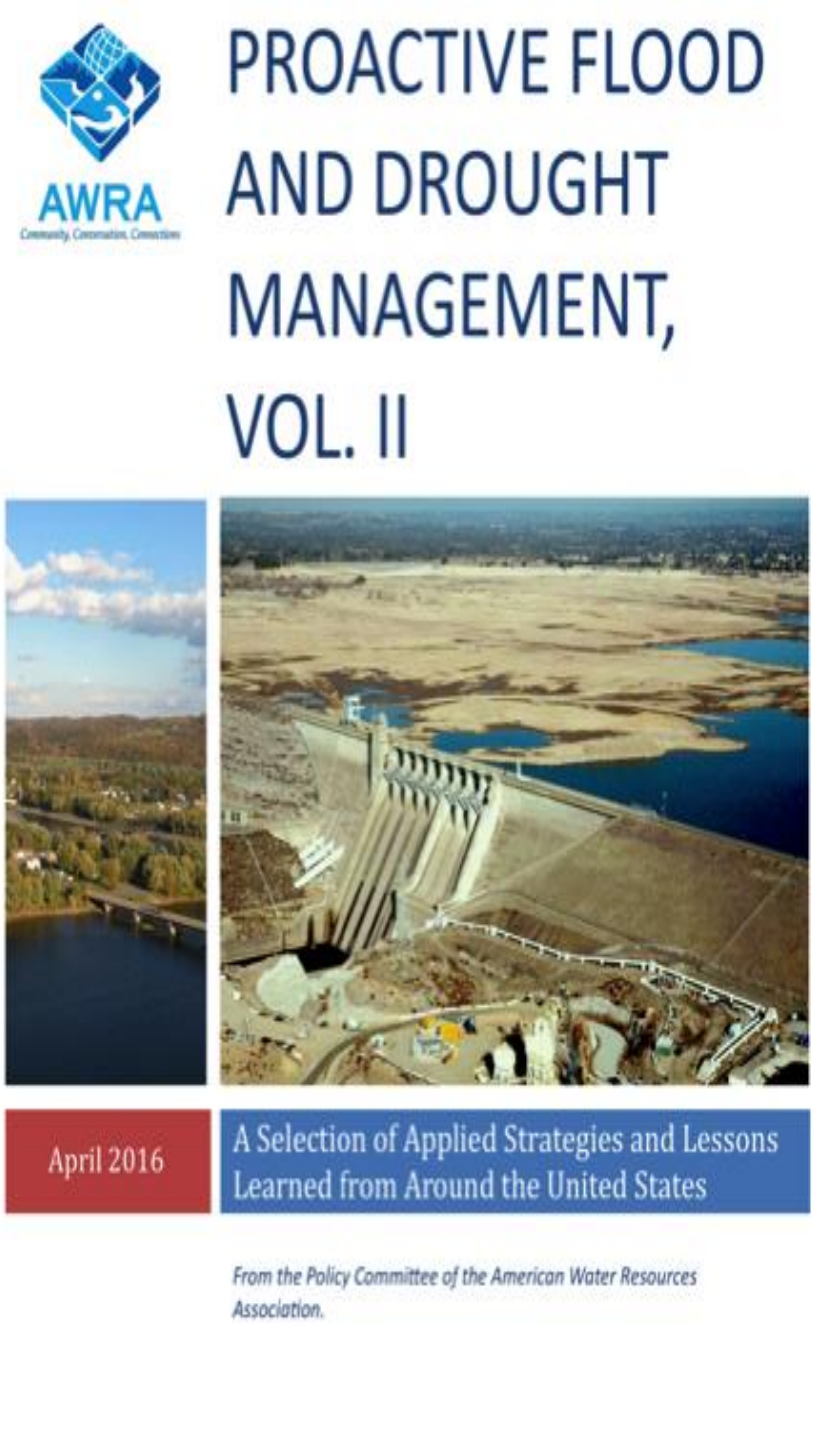
Case Study of 10 River Towns, 2013

L. Donald Duke, Ph.D., P.E.
Professor of Environmental Studies
Dept of Marine and Ecological Sciences
Florida Gulf Coast University
Fort Myers, FL ldduke@fgcu.edu

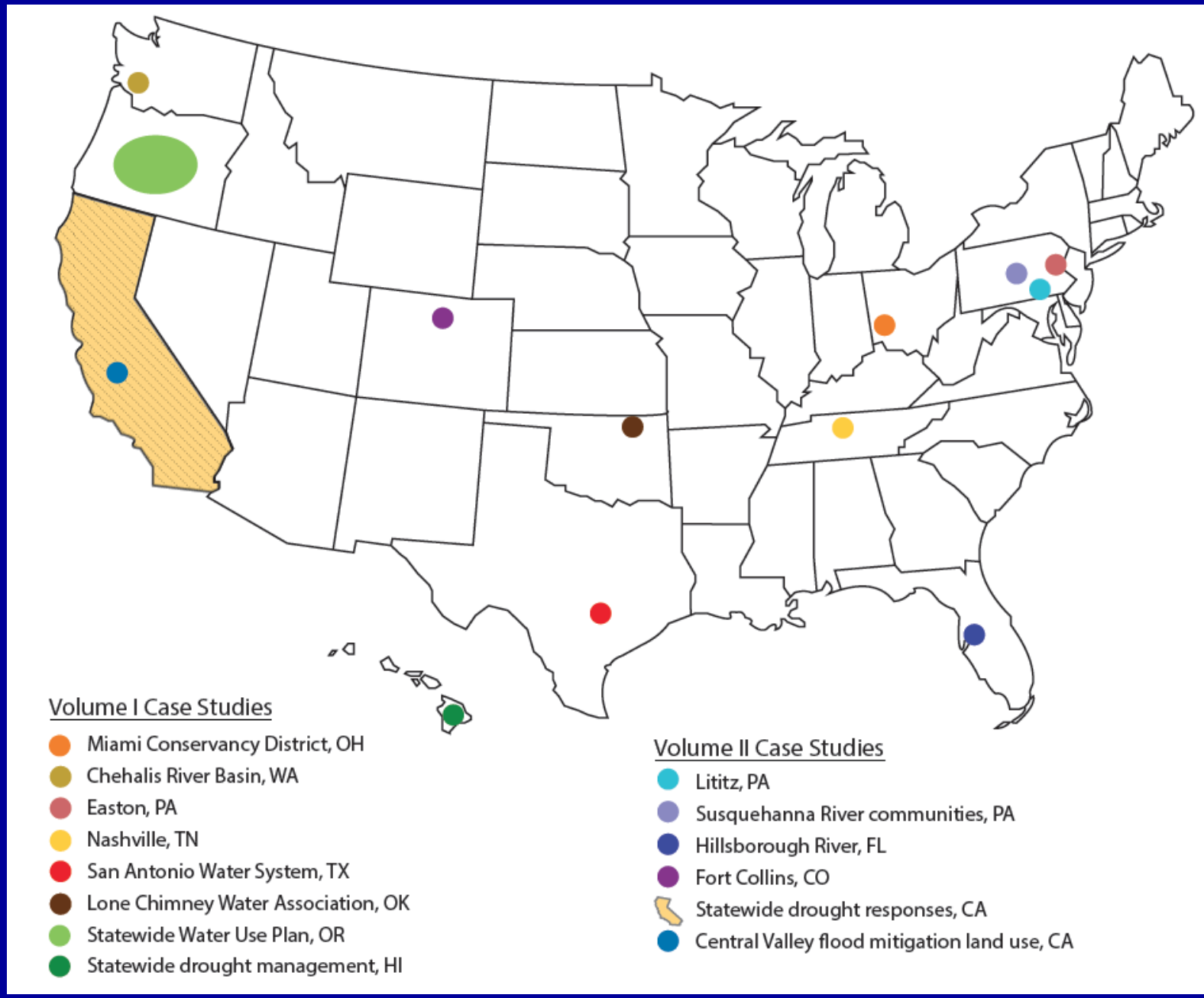
AMERICAN WATER RESOURCES ASSOCIATION (AWRA)'s "PROACTIVE FLOOD AND DROUGHT MANAGEMENT" PUBLICATIONS, CONFERENCE SESSIONS, WEBINARS

A continuing dialogue on

- Policies and programs in the U.S. for prevention, mitigation, management, response, and recovery from
- Socioeconomic and ecological effects of extremes in water resources, flows, and supply

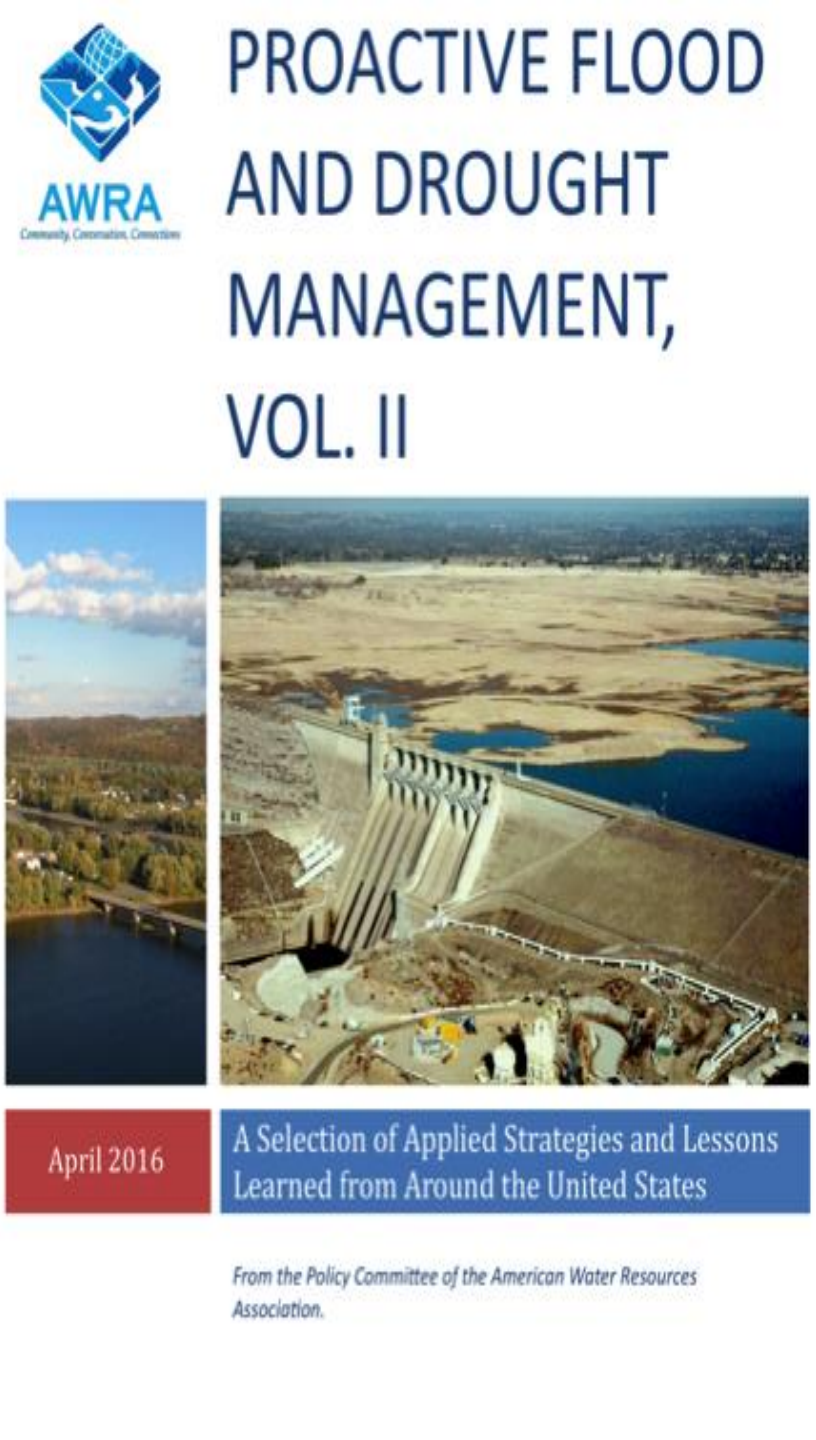


Proactive Flood and Drought Case Studies: Locations



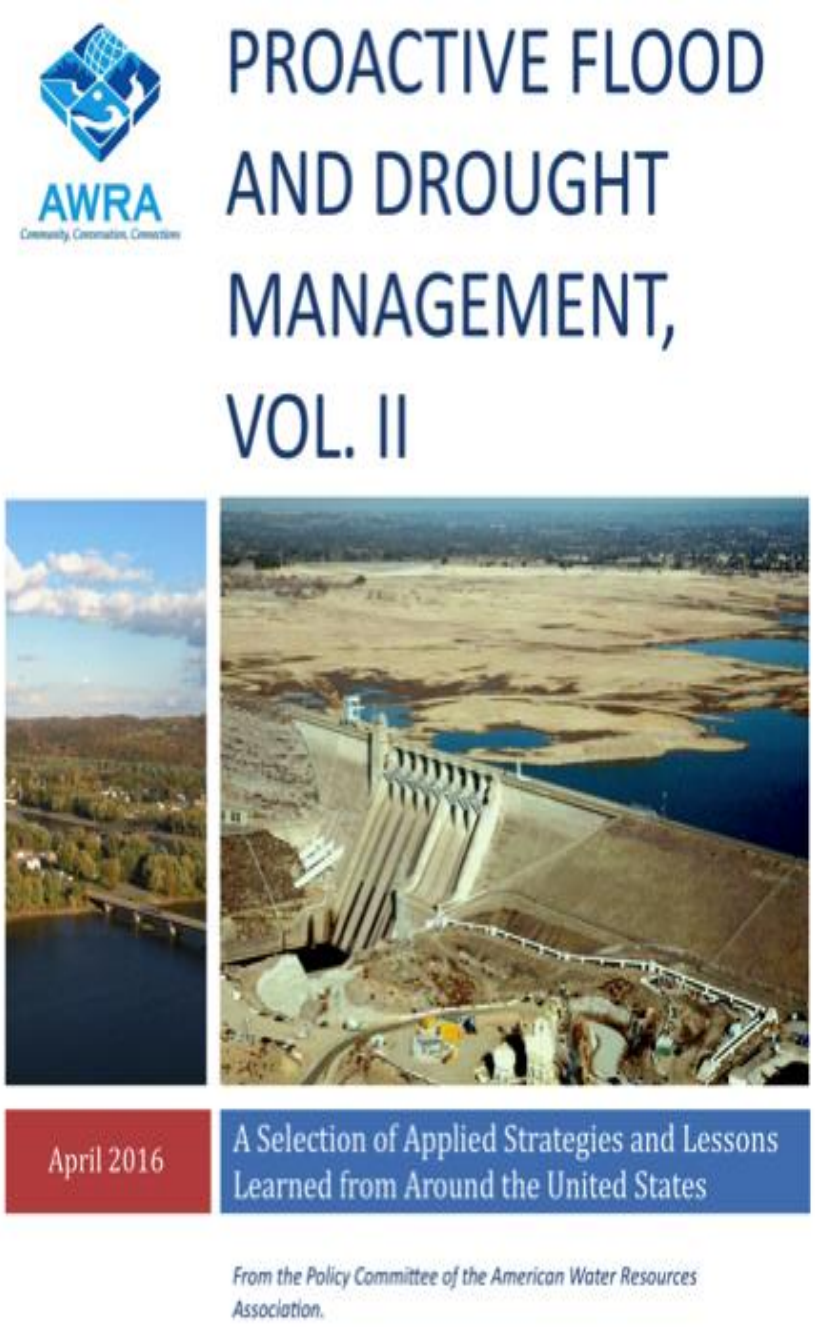
THEMES AND IMPLICATIONS

- Disaster or urgent need appears time and time again as a driver for longer-term solutions
- Collaboration, communication, education:
  - -- Among multiple agencies that may not have direct flood/drought missions, promotes IWRM
  - -- Regionwide, can alleviate barriers; jurisdictional lines inhibit this strategy
- Strategy design important; implementation more important, relies on communication / education



THEMES AND IMPLICATIONS

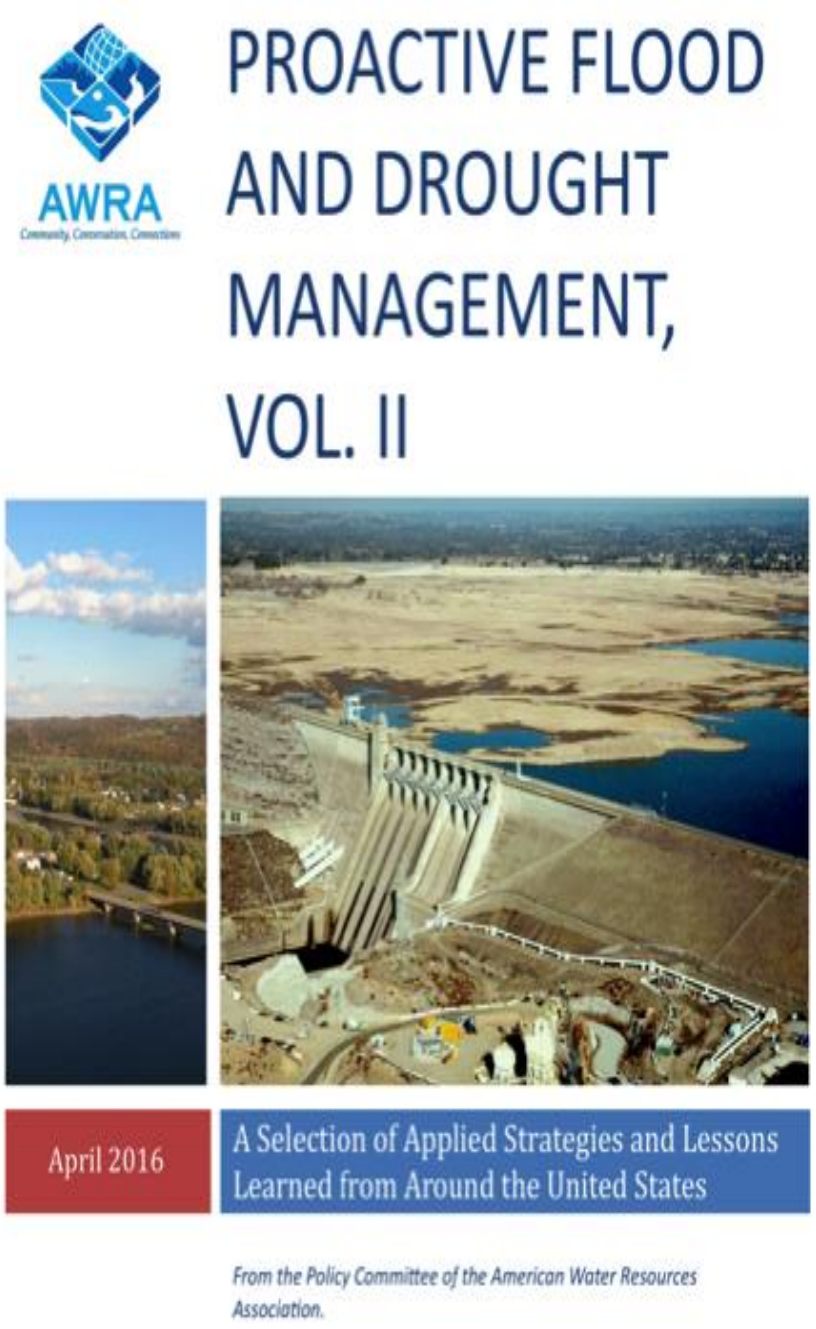
- Regulatory requirements – perhaps unrelated to flood/drought problems – can drive multi-objective program including flood/drought
- Flexibility of regulatory / institutional requirements – if it can be obtained
- U.S. nationwide programs, policies – though enormous – are piecemeal, not integrated; and not always appreciated, understood, fully implemented by local jurisdictions



For access to the full reports, more information and analysis, ideas about potential strategies: Locatable at www.awra.org

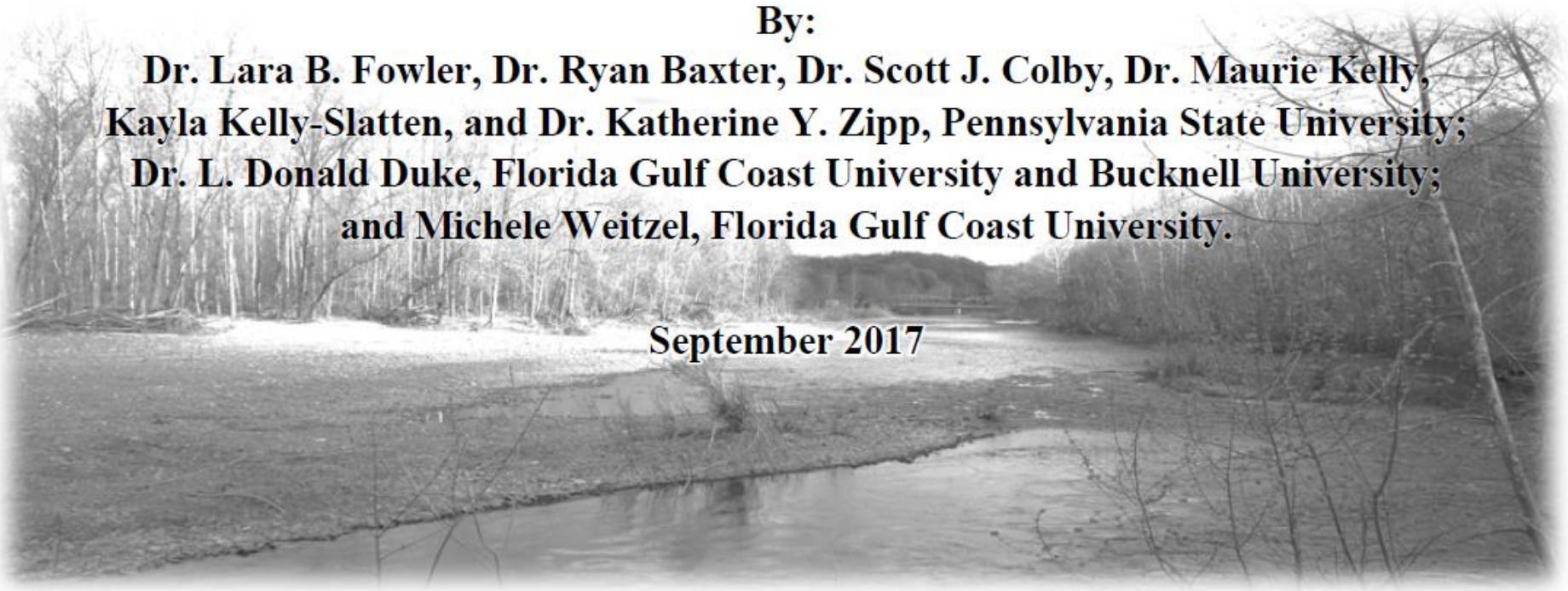
Vol I:
http://www.awra.org/webinars/AWRA_report_proactive_flood_drought_final.pdf

Vol II:
http://www.awra.org/document_request.cgi?docname=impact

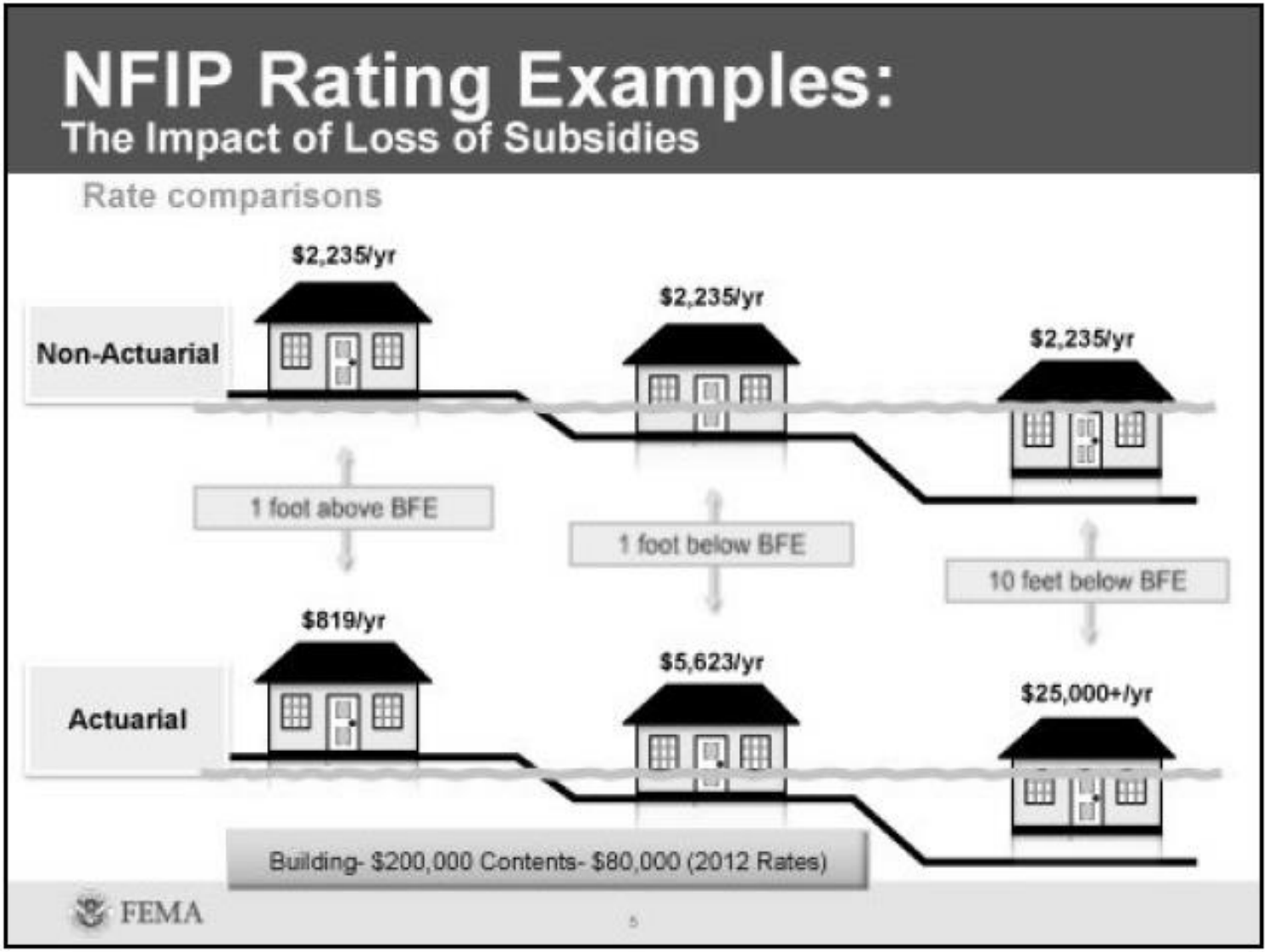


Flood Mitigation for Pennsylvania's Rural Communities: Community-Scale Impact of Federal Policies

By:
Dr. Lara B. Fowler, Dr. Ryan Baxter, Dr. Scott J. Colby, Dr. Maurie Kelly,
Kayla Kelly-Slatten, and Dr. Katherine Y. Zipp, Pennsylvania State University;
Dr. L. Donald Duke, Florida Gulf Coast University and Bucknell University;
and Michele Weitzel, Florida Gulf Coast University.



September 2017



Proposed changes to NFIP rates via Biggert-Waters (FEMA, 2012)

National Flood Insurance Program (NFIP)

- Intent: to replace one-time appropriations (subject to politics….)
- *Purpose:* "compassion?" – to allow our stricken fellow citizens to recover and rebuild without financial distress
- *Purpose:* "tough love?" – to add to cost of living in disaster-susceptible regions, thus discourage building
- *It can't do both of those things.*

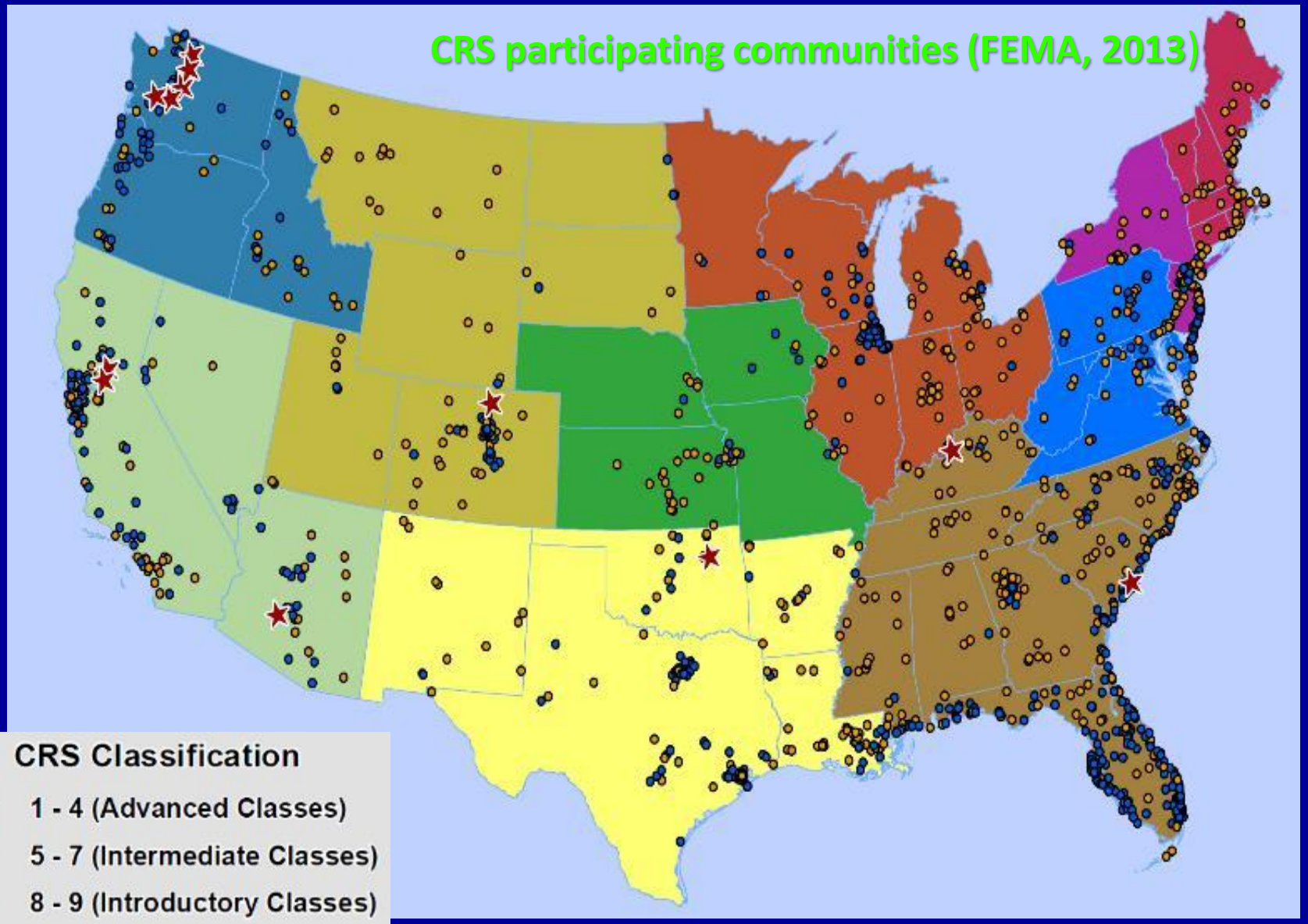
Community Rating System of NFIP

- Communities must *choose to participate* in NFIP, including minimum requirements, in order for residents and businesses to purchase insurance
- (Adopting a floodplain ordinance among them)
- CRS is voluntary program of additional actions that further reduce projected impacts
- CRS communities achieve discounts in NFIP prices for residents, businesses:

  5% for level 9, 45% for level 1

- Some communities report CRS is tremendously valuable (Ft Collins CO)

The National Flood Insurance Program's Community Rating System : Participation as of 2013



Community Rating System of NFIP

- NFIP participation is essentially universal because *most states declare communities ineligible for disaster-recovery funds* if they do not participate in NFIP
- CRS billed as promoting more flood mitigation than the basics –
- Community residents can have NFIP premiums reduced 5% - 45% if communities participate
- CRS gains very uneven participation: FL, over 200 communities; PA, 28 communities as of 2015

Community Rating System of NFIP

Findings

- Small communities find CRS application and reporting burdensome – limited resources
- Participants in general are enthusiastic about rate reduction for policy-holders
- Alternate mechanisms that some prefer are of varying compatibility with CRS

City of Fort Collins, CO: A champion for CRS

- Following slides from Marsha Hilmes-Robinson, City of Fort Collins
- AWRA national meeting 2015

Floodplain Management

Marsha Hilmes-Robinson, CFM
Floodplain Administrator

AWRA Conference - Nov. 17, 2015

Fort Collins Overview

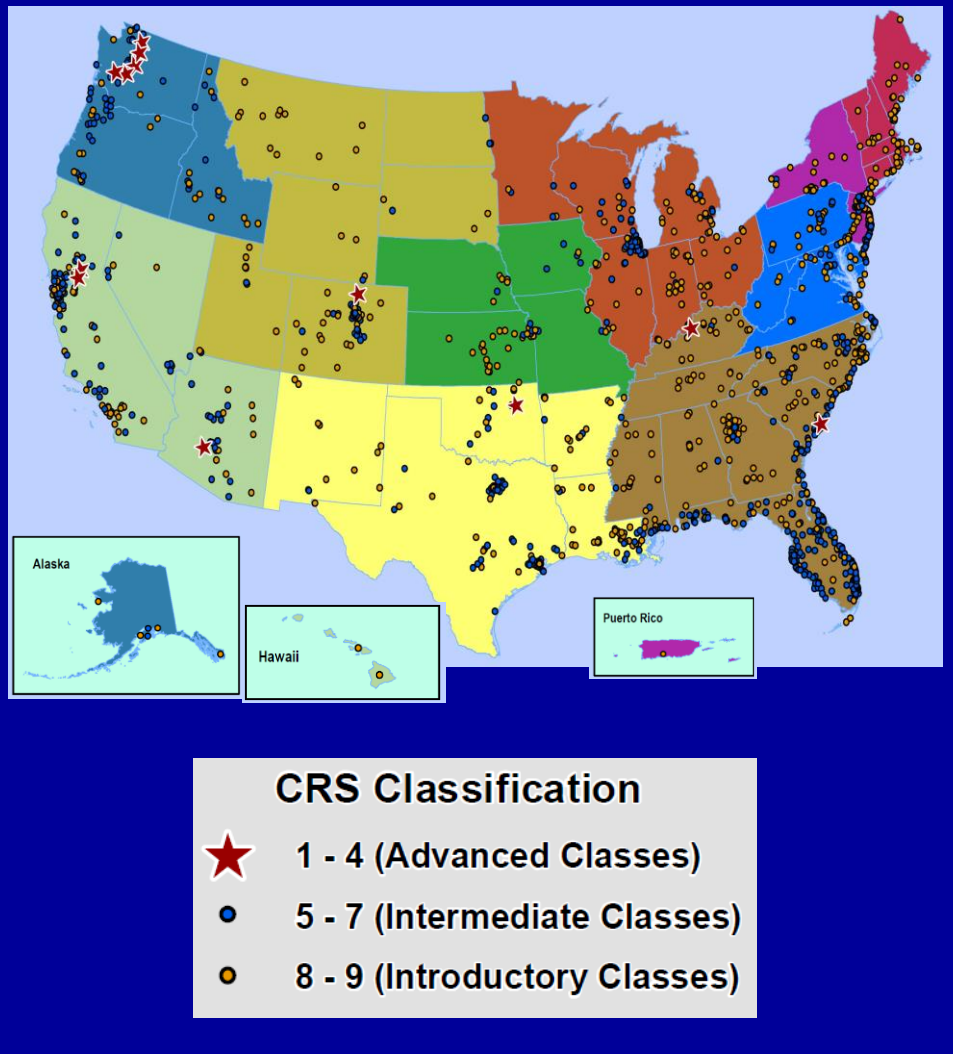
- Colorado Front Range
- Population = 156,000
  - Colorado State University
- Stormwater Utility - 1980
- Flash Flooding and Riverine Flooding
- Major Recent Flood Events
  - Spring Creek – 1997
  - Poudre River – Sept. 2013

Mitigation Strategies

- Public Outreach
- Flood Warning System
- Regulations
- Capital Improvements
- Maintenance
- Open Space Preservation
  - 66% of Poudre River 100-yr floodplain preserved as open space

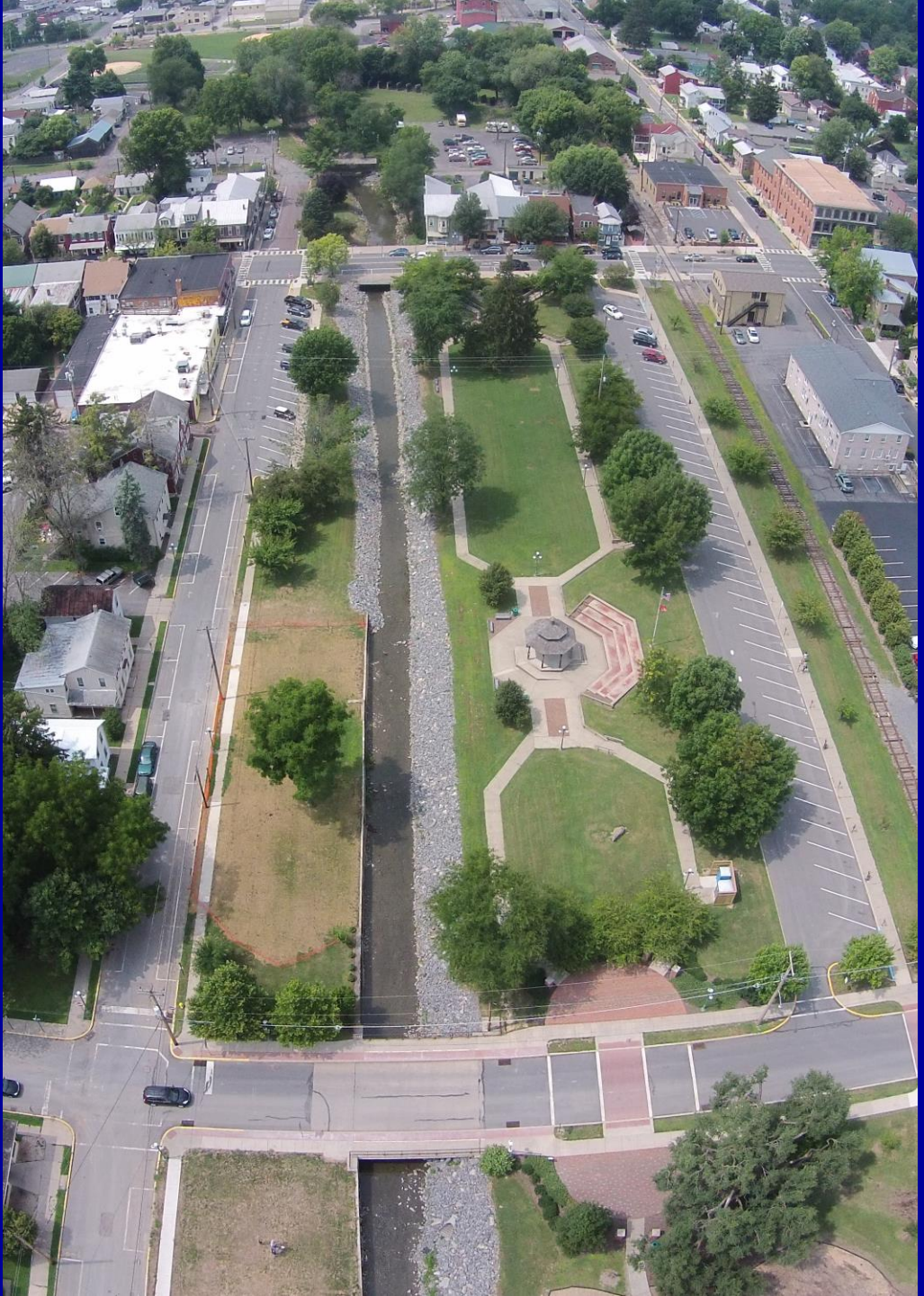
Community Rating System

- Best Practices for Floodplain Management
- Currently a CRS Class 4
- Will be a CRS Class 2 in May 2016!
- Provides up to a 30% discount on flood insurance premiums for citizens and businesses
- Metric for comparing with other communities



Land use changes in Lewisburg PA: Decades of mitigation?

- GIS study, 2014
- Identified plots converted from commercial/residential/other uses into open spaces in the floodplain
- 1950s, “city dump” is a ballfield; 1970s, HUD recovery funds created Hufnagel Park; property buyouts 2017; others in between
- County Plan encourages – but – interviewed staff know of no such concerted effort



Lewisburg PA: Limestone Run ("Bull Run") downtown floodway and 1% probability zones

Hufnagel Park, acquired 1980s; 6th Street properties acquired and demolished summer 2014

Photo courtesy Prof. Ben Hayes, Watershed Sciences and Engineering Program, Bucknell University Center for Sustainability and the Environment

FEMA Funds to elevate structures

- Very much easier to complete for new structures than to raise existing structures!
- But – retrofit technology is well developed; private firms are available
- Older housing stock finds cost prohibitive

“Wall envy:” Local protection projects (USACoE, State, local)

- Since 1950s many locations (including small towns!) protected with physical barriers
- Communities not “walled off” then, now disagree: count your blessings or agitate for funding?
- Apparent evolution in societal (and Corps) preferences and approaches
  - 1940s (Johnstown), channelization
  - 1950s-60s (Williamsport and many others), miles of earth levees
  - 1990s (Lock Haven, others) retain ecosystems, promote regional plan, turn over to local entity management

Conclusions: Of a highly conceptual kind

- U.S., its states, its communities have been deeply concerned with flood control for many decades
- Technologies, planning approaches, and institutional mechanisms exist – from tested/true to evolving/innovative
- Institutional barriers, silos (vertical and horizontal), funding – all are limits
- It is time we defeat this problem.

Tropical Storm Agnes, 1972:

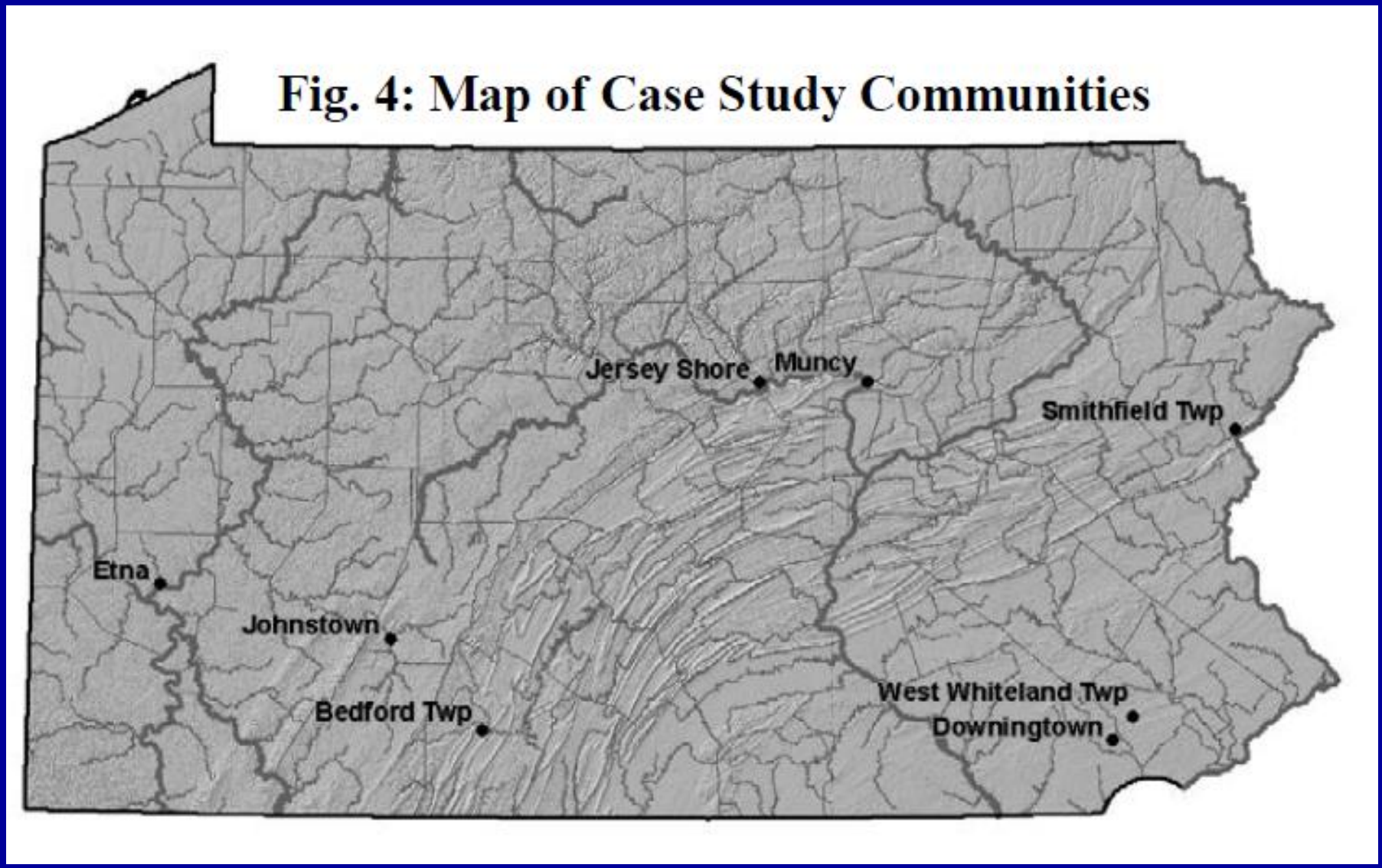
City of Sunbury

http://www.sunburyfloodcontrol.com

Questions?

Location of selected case study communities

Diversity of municipality sizes, governance types, waterbodies leading to flooding, and drainages in PA



Selected case studies: Communities with history of flooding – and projected future impacts

Municipality	County	Population (2010, approx.)	NFIP claims, 1978 – 2015 Number	$, millions	Approx structures in floodplain
Johnstown	Cambria	20,200	323	1.4	2,342
Muncy	Lycoming	2,500	475	5.5	457
Jersey Shore	Lycoming	4,300	254	1.7	1,143
Etna	Allegheny	3,500	244	5.8	361
Downingtown	Chester	8,000	278	2.2	344
West Whiteland Twp	Chester	18,200	71	0.8	388
Bedford Twp	Bedford	5,400	495	4.5	320
Smithfield Twp	Monroe	7,300	120	8.2	230

Boroughs, Townships, Cities: Different Impacts, Options, Limitations

	Number of Jurisdictions with Claims Filed	Number of NFIP Claims, 1978-2015
PA total	1,982	69,055
PA all Cities	55	9,304
PA all Boroughs**	685	22,501
PA all Townships	1,242	37,250

	Value of Claims, $ million *	Average Value of Claims, $ / claim
PA total	1,134	16,400
PA all Cities	133	14,300
PA all Boroughs**	376	16,700
PA all Townships	625	16,800

* Dollar value includes claims as reported from all years 1978-2015 (not inflation adjusted).
** Includes one Town. Data from J. Young, PHMC, 2015 (included as Appendix 7.2).