Protecting Irelands Water – the challenge of invasive species

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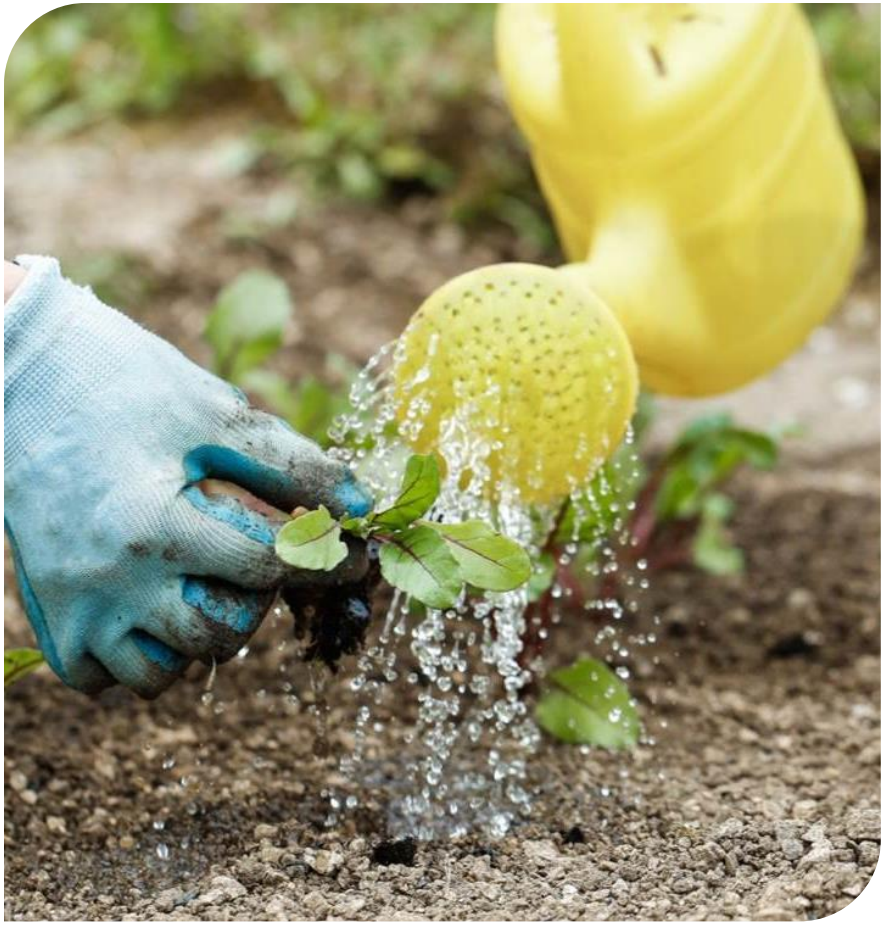
Part of ervia group

Outline

- Irish Water's Origins & Responsibilities
- Irish Water Vision
- Irish Water's Ecological Requirements
- Case Studies
  - Dungloe / Glenties
  - Callow Hill
  - Crayfish Plague



Irish Water's Origins & Responsibilities

Irish Water at a glance...

Irish Water was created in

2013 and serves

3.3 million people producing over

1.6 billion Litres

of drinking water every day and taking wastewater away for treatment before it is returned to our rivers and seas.

Thousands of assets are operated and maintained to provide these services, including around:

900 ***water treatment plants***

which deliver water through an estimated

60,000 kilometres of pipelines

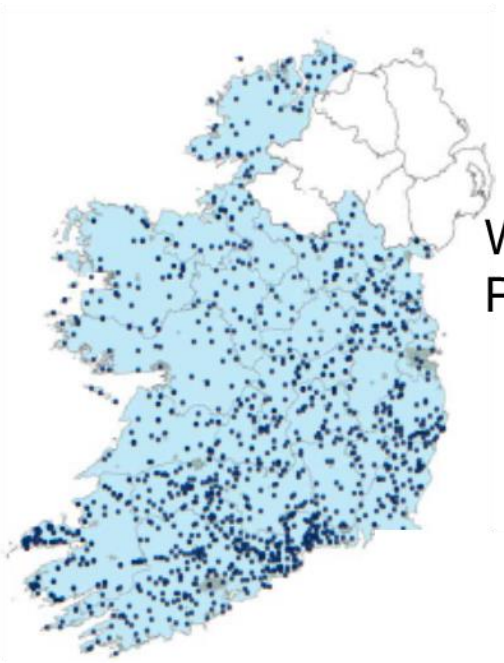
We treat wastewater in more than

1000 wastewater treatment plants

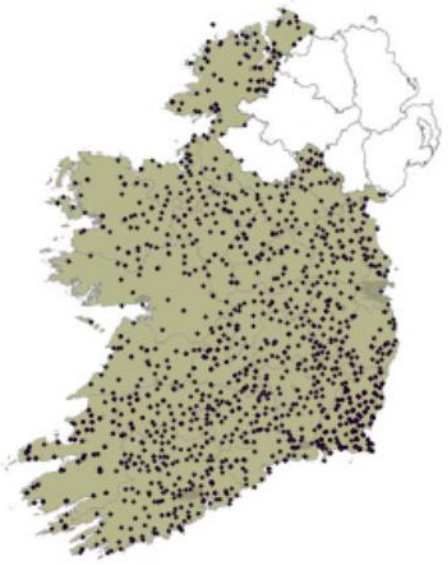
and it is collected through an estimated

25,000 kilometres of pipelines

plus numerous pumping stations and sludge treatment centres.



Water Treatment Plants

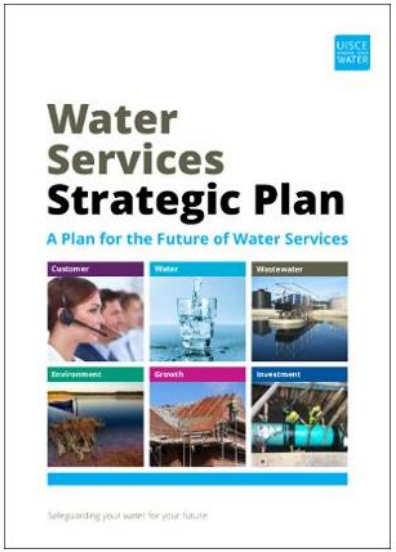


Wastewater Treatment Plants

IW Strategic Plan & Business Plan

Irish Water's Water Services Strategic Plan

- Ireland's first integrated national plan for the delivery of water services
- 25 year strategy to 2040
- Identifies strategic national priorities



Irish Water's Business Plan

- Objective of delivering a quality service to customers
- 7 year business plan to 2021
- Revised on 7 year cycle

Irish Water's Vision

"*Through responsible stewardship, efficient management and strong partnerships, Ireland has a world-class water infrastructure that ensures secure and* ***sustainable*** *water services, essential for our health, our communities, the economy and the* ***environment***"

Ecological Requirements

- Water and Wastewater Programmes
- Water and Wastewater Infrastructure Projects
- Licencing, Compliance & Enforcement
- Plans and Strategies
- Biodiversity Policy
- WFD & River Basin Management Plan
- Research Projects – EPA & Interreg
- Ecological Advice and Guidance Documents
- National Water Resources Plan

Irish Water Biodiversity Policy…

Within the Irish Water Biodiversity Policy are specific policies which relate to the management of invasive alien species such as Japanese knotweed, and include:

- Where Invasive Alien Species are present on sites owned or managed by Irish Water, invasive species management plans will be developed and implemented in accordance with the relevant environmental legislation; and

- All Contractors carrying out works on behalf of Irish Water will ensure that Invasive Alien Species are not transferred through contaminated materials and equipment.

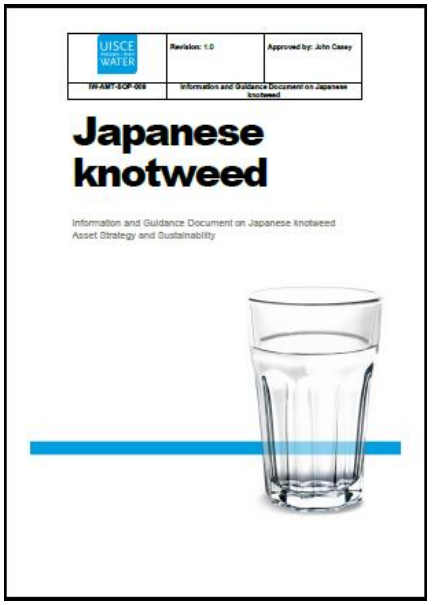
Legal obligations…

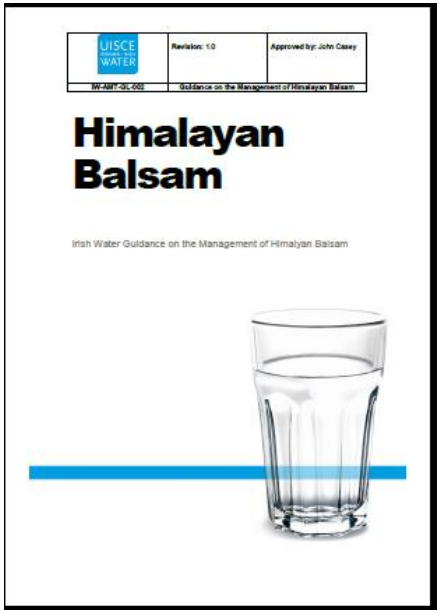
- European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477).
  - *Articles 49 and 50*
  - *Schedule 3: Invasive Species*

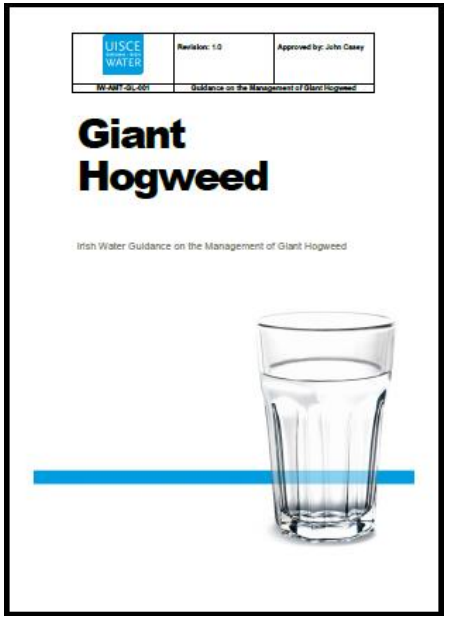
- Under Article 49 and 50 of these Regulations it is an offence to;
  - ***Plant, disperse, allow dispersal or cause the spread of an alien invasive species***,

Birds and Habitats Regulations (2011)

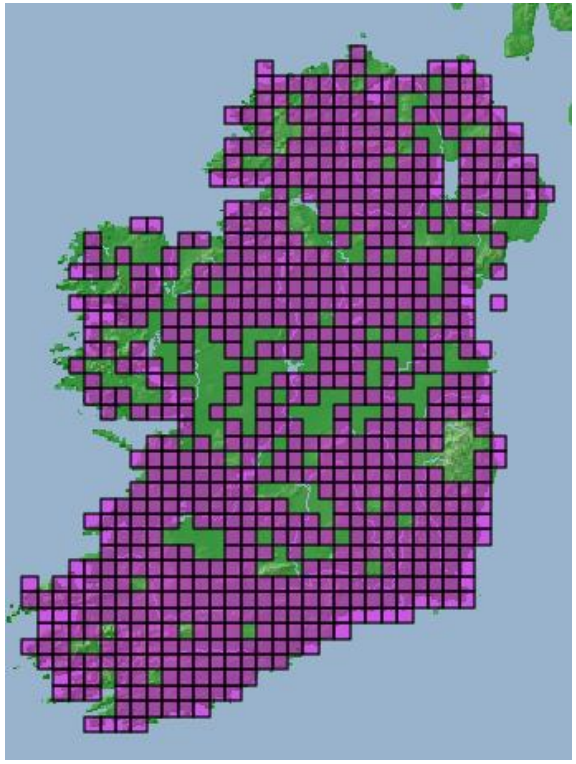
- **Third Schedule – Invasive species**
  - *E.g. Japanese knotweed, Himalayan balsam, Himalayan knotweed, Giant hogweed, etc.*



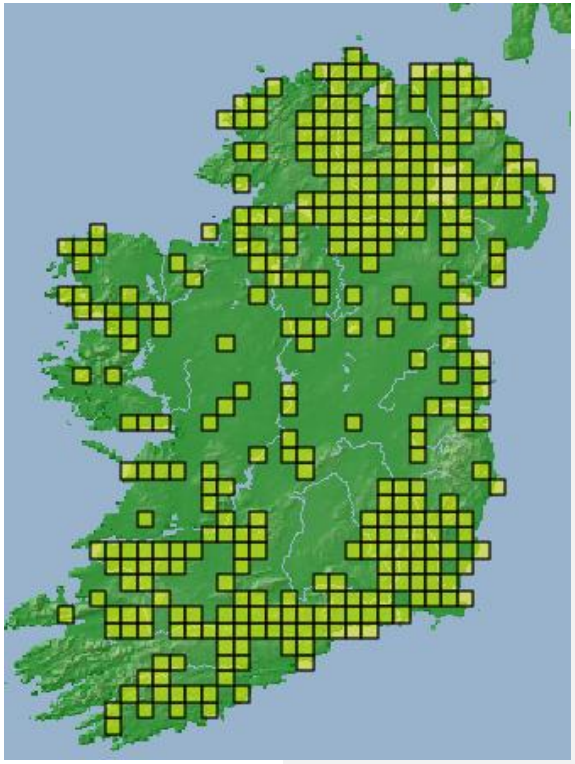




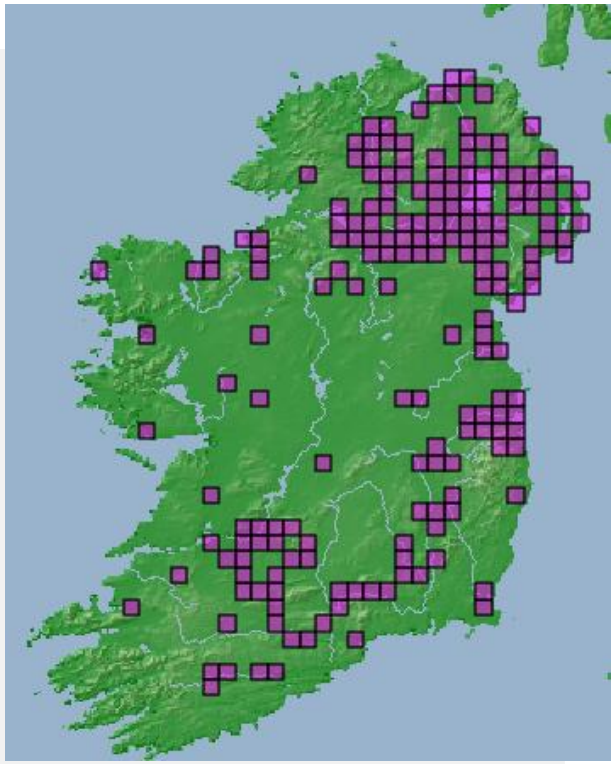
Distribution…..



Japanese Knotweed



Himalayan Balsam



Giant Hogweed

“The site is a challenge. We have identified unexploded wartime bombs and Japanese knotweed….the bombs we can deal with”

Head of London Development Agency on the subject of the 2012 Olympic site

Japanese Knotweed Management Options

Chemical Treatment

- Foliar applications
- Stem injection
- Cutting and injection

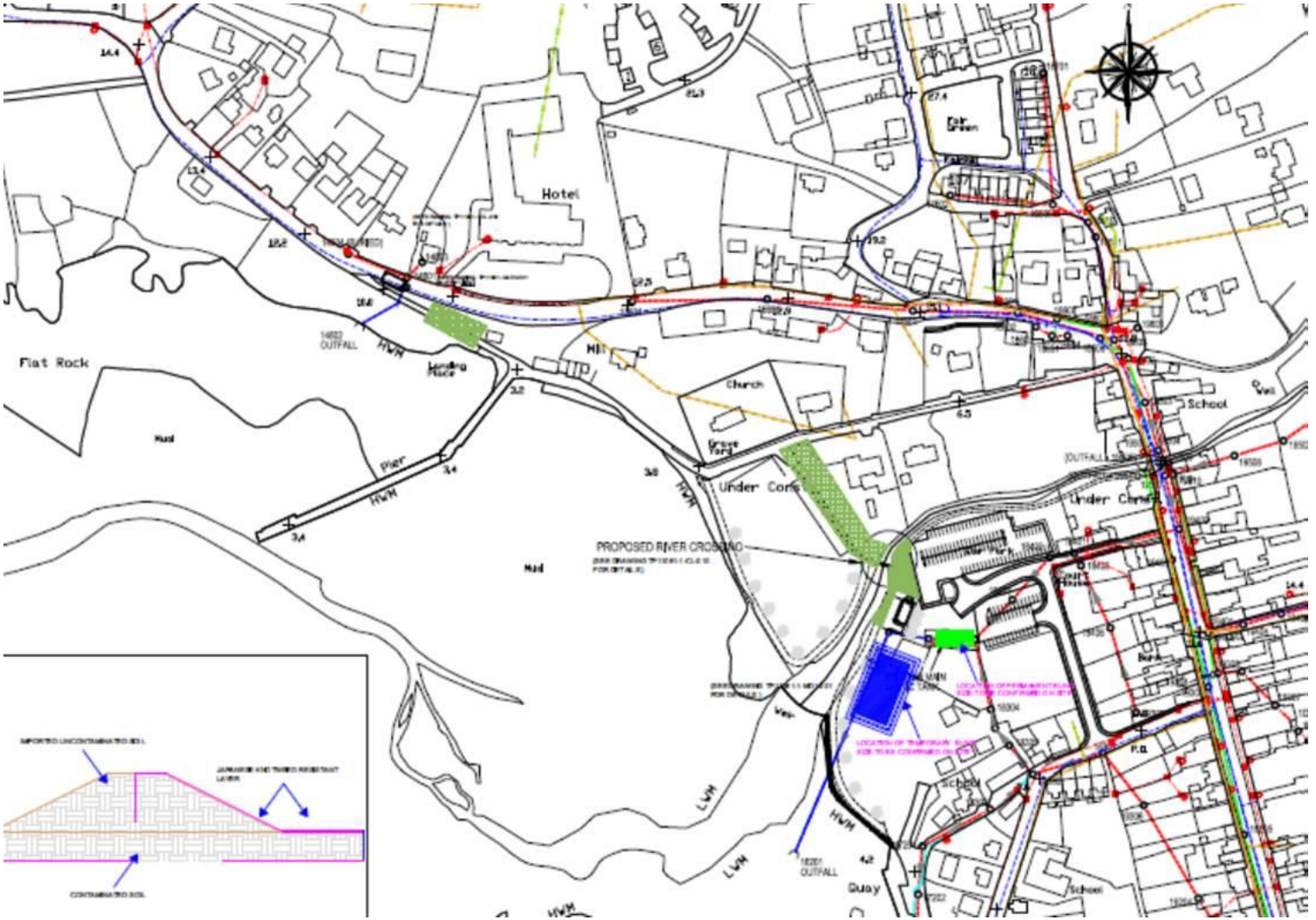
Physical and Chemical Treatment

- Disturb and Herbicide treatment
- Excavation and Burial
- Excavation and Root Barrier Cell Method
- Excavation and Bund Method
- Excavation and Removal from Site - least favourable option owing to the high costs involved

Invasive Species Case Studies

- **Glenties / Dungloe WWTP**
  - *Japanese knotweed & road networks*
- **Callow Hill, Vartry**
  - *Japanese knotweed & treated water*
- **Crayfish Plague**
  - *Biosecurity Protocol for Aquatic Sampling*

Irish Water's Experience…Dungloe



Dungloe / Glenties WwTP Upgrade – Japanese knotweed Experience

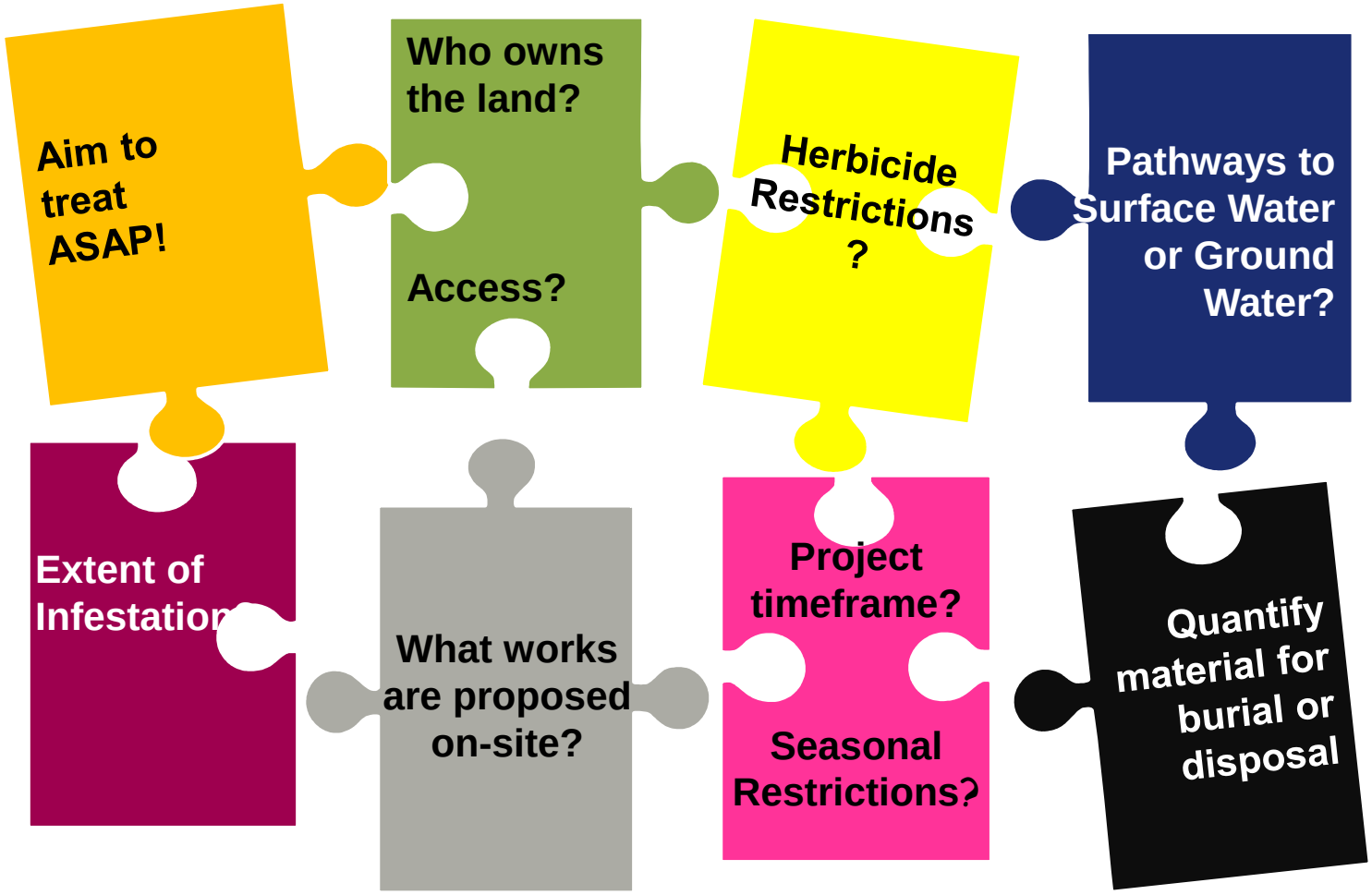
Irish Water's Experience…Callowhill

- November 2015 – infested area = 291m^2
- May 2016 – infested area = 660m^2
- Original plan to bury
- Spread of plant meant in-situ treatment required

Irish Water's Experience…Callowhill

- Management options
  - *Part of Main contract for Callowhill Upgrade*
  - *However action required now to contain the current infestation*
- Direct injection programme completed October 2017
  - *Involved extensive WQ monitoring programme*
  - *Business Risk*

Invasive Species Management



Invasive Species Surveys and Management Plans

- **SURVEY**
  - *Third Schedule Species*
  - *Appropriate Time of Year*
  - *Skilled surveyor*
  - *Recommendation re. further surveys or ISMP*
- **ISMP**
  - *Most appropriate management method (timeframe, risks etc)*
  - *Identify early intervention options*
  - *Identify areas that may pose risks in future*
  - *Quantify IAS for burial/disposal*
  - *On site management & planning implications*
  - *Needs to be a working document if time will elapse between plan and works on the ground*

Invasive Species - Biosecurity

- Specific biosecurity measures that can be captured in planning conditions and contracts
  - *Who is responsible for overseeing the ISMP?*
  - *What areas need to be fenced off?*
  - *If infested areas must be accessed – Do there need to be restrictions on types/number of vehicles in the area?*
  - *Who will do any 'toolbox' talks and what will they need to include?*
  - *How will equipment and vehicles be washed down?*
  - *Where will this take place?*
  - *What is needed? Water sufficient or do wheels need to be physically brushed off?*
  - *Where will contaminated material from wash down go?*
  - *Has space been allocated within the temp works area?*

Biosecurity SOP & Guidelines

- Need highlighted by EPA following crayfish plague outbreak
- Aim of guidance and SOP to avoid the unnecessary spread of invasive flora, fauna and diseases from catchment to catchment through Irish Water's sampling activities

Biosecurity SOP & Guidelines

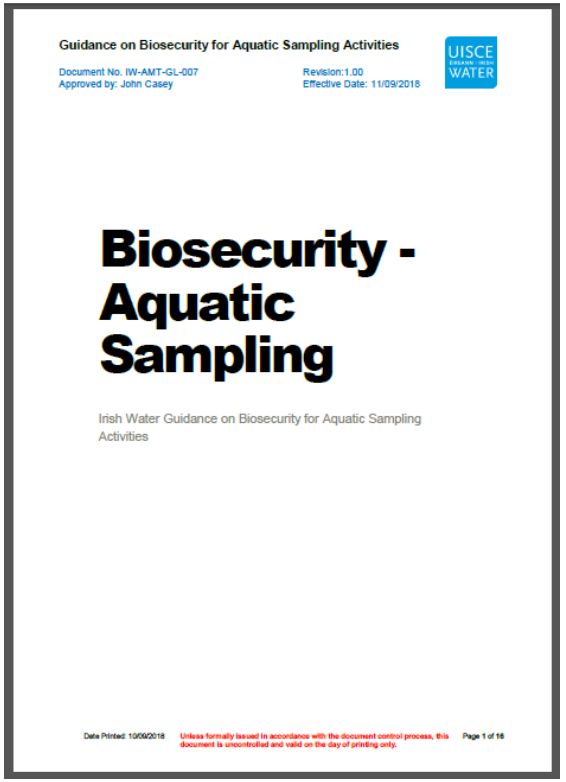
How are Invasive Alien Species Spread?

- Easily spread within and between watercourses
  - *Plants – fragmentation or seed*
  - *Crayfish plague – Zoospores*
  - *Mussels – produce large numbers of tiny free-floating young (veliger's)*
- These readily attach to water sampling equipment, nets, boots, Etc.
- Most of the plant fragments, veligers and zoospores produced by IAS can remain alive out of water, in damp conditions, for at least a few days.

Biosecurity - Aquatic Sampling Guidelines

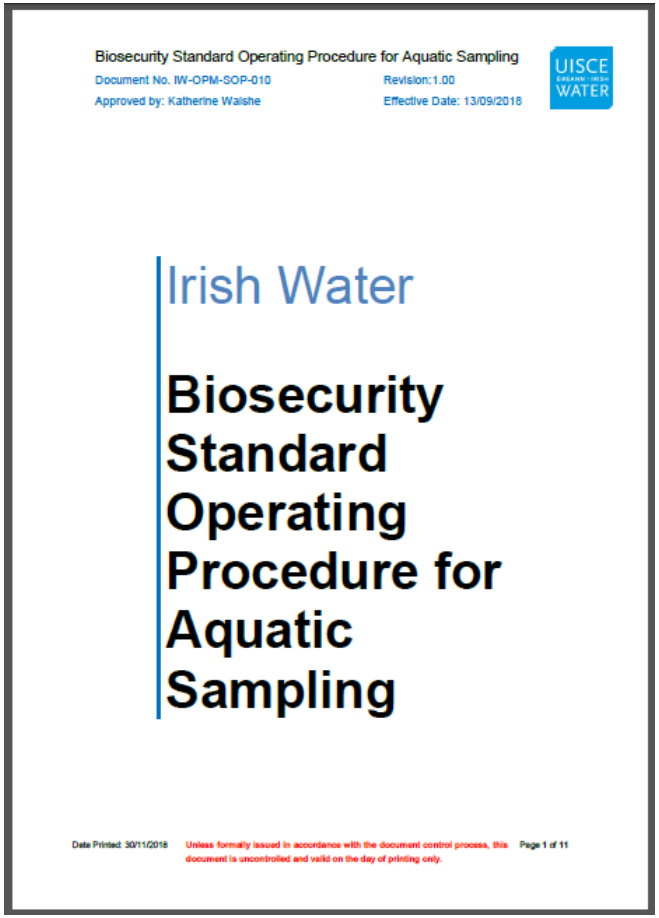
CHECK | CLEAN | DRY | NOTIFY

- General survey guidelines
- Gear specific disinfection protocols
- Disinfectants and procedures for their use
- Who to contact?



Biosecurity - SOP

- Pre-sampling checks
- Operational tasks
- Troubleshooting



A few final thoughts……..

- New legislation
- New technologies
- New research
- New & revised IW guidelines

Thank you for your attention

Questions?

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