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Wales

Biennial report to the Minister for Natural Resources
Reservoir Safety in Wales

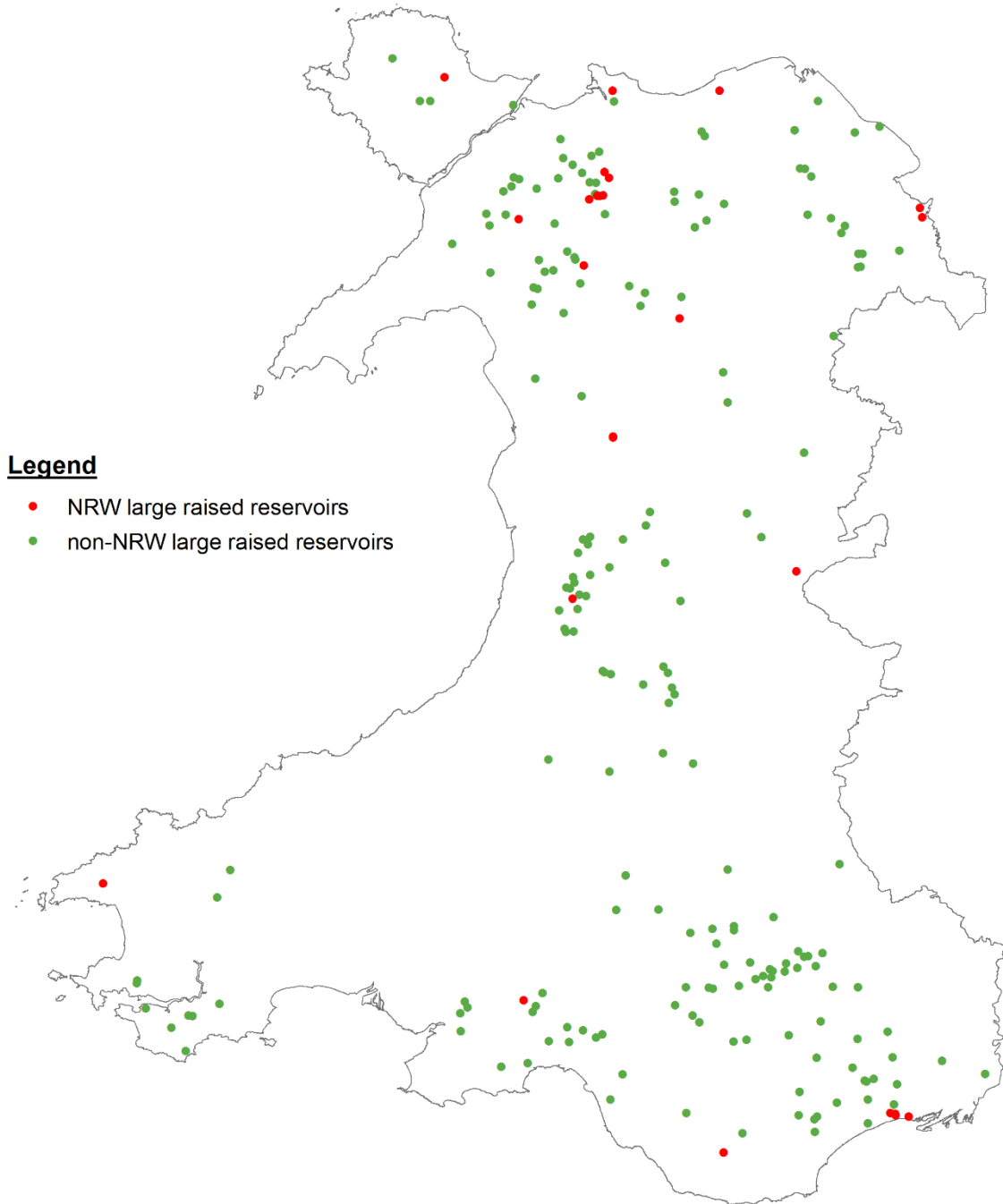
For the period 1 April 2013 to 31 March 2015

Natural Resources Wales

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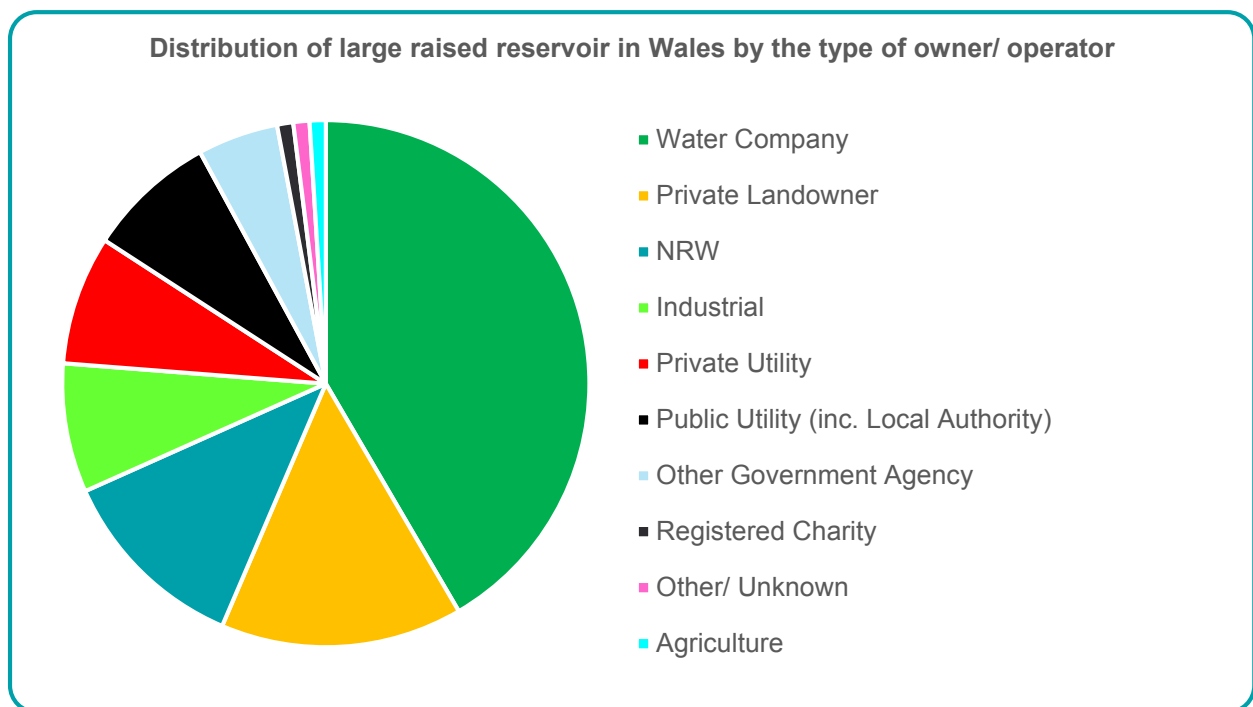
The distribution of large raised reservoirs in Wales



1. Introduction

On 1 April 2013 Natural Resources Wales¹ (NRW) was appointed the duty of enforcement authority for the Reservoirs Act 1975, in Wales; a role previously carried out by the Environment Agency throughout all England and Wales.

Wales is well known for its reservoirs which in total hold in excess of 700 million cubic metres of water. We recognise that these structures, with an average age of over 100 years, pose a potential flood risk to over 220,000 people and numerous infrastructure services such as roads, railways and utilities.



We are specifically reminded this year of the infamous Dolgarrog reservoir disaster of 1925 when 16 people were killed after two dams failed, destroying buildings and flooding the village. November 2015 is the 90th anniversary of this tragedy which was a significant prompt for the government of the day to introduce the first statutory controls for reservoir safety.

Our purpose as the enforcement authority is to provide Welsh Government, and the people of Wales, with reassurance that the large raised reservoirs² in Wales are kept in safe condition to protect the people who live and work downstream from potentially catastrophic flooding.

¹ The Natural Resources Body for Wales (Functions) Order 2013 transferred the statutory functions of Environment Agency Wales, Forestry Commission Wales and the Countryside Council for Wales, along with some functions of Welsh Government, to NRW

² A large raised reservoir is one which designed or capable of holding 25,000 cubic metres of water, or more, above the natural level of the adjoining land.

This is our first biennial report, covering the period 1st April 2013 to 31st March 2015. During our first two years we have:

- established a new Wales only reservoir safety enforcement service
- identified and brought into regulation previously unregistered reservoirs
- maintained close surveillance on the appointment of qualified civil engineers
- sought to ensure safety measures are carried into effect, and
- overseen an increase in the number of reservoirs which are compliant with the law.

We are also anticipating significant changes to the Reservoirs Act with the implementation of Schedule 4 to the Flood and Water Management Act 2010. Our preparation for this has begun, as has the process of raising awareness with people likely to be affected by the changes.

2. Encouraging & enforcing reservoir safety

The Reservoirs Act 1975 is a law solely designed to protect public safety by requiring that reservoirs are constructed, supervised, inspected, maintained and ultimately removed under the guidance of qualified civil engineers. We have set out from day one with the intention of maximising compliance with this law.

Businesses and people are under increasing financial pressure, and not all requirements of the law have an equal bearing on safety. To recognise these factors, we have adopted a risk-based approach to our regulatory duty which focusses on the activities most likely to impair the safety of reservoirs and have a direct bearing on public safety.

At the close of the reporting period, there were 224 large raised reservoirs in Wales; either in operation, abandoned or under construction/ alteration.

New or altered large raised reservoirs

We recorded five reservoirs as being under construction or alteration and verified that each has a correctly appointed Construction Engineer³.

The total number of large raised reservoirs has increased by 23 since the 2011-2013 biennial report made by the Environment Agency. This increase is largely a result of our investigations to assess reservoirs, previously constructed, which may come under regulation following changes in legislation. Following these investigations some were shown to have a capacity greater than 25,000 cubic metres. We also received some notifications from undertakers⁴ through self-reporting and from reports from the engineering profession.

Following the registration of these additional reservoirs, we took steps to ensure the undertakers appointed the correct engineers and carried out the inspections required.

At the close of the reporting period, all registered large raised reservoirs had been inspected, and Supervising Engineers⁵ appointed. Further reservoirs remain under investigation.

2013-15 Highlights

23

more large raised reservoirs (LRRs)

5

large raised reservoirs under construction

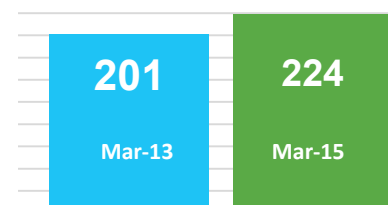
18

previously built and brought into regulation

100%

registered LRRs are supervised and inspected

Number of large raised reservoirs



³ A Construction Engineer ensures that reservoirs are designed, built or altered correctly and certifies their completion is satisfactory and efficiently executed.

⁴ The undertaker is the legal term for the person, people, company or organisation who operates or manages the reservoir. If no activity is undertaken at the reservoir, the owner is the undertaker.

⁵ Supervising Engineers provide the undertaker and us with a qualified opinion about how a reservoir is behaving. They may require a full inspection to be carried out when they are concerned for the safety of a reservoir.

Appointment of Supervising Engineers

Throughout the reporting period we have ensured that all large raised reservoirs have had a Supervising Engineer appointed to them. We have verified that every engineer belongs to an appropriate engineering panel as appointed by Defra on behalf of England and Wales; following recommendation by the Reservoirs Committee of the Institution of Civil Engineers.

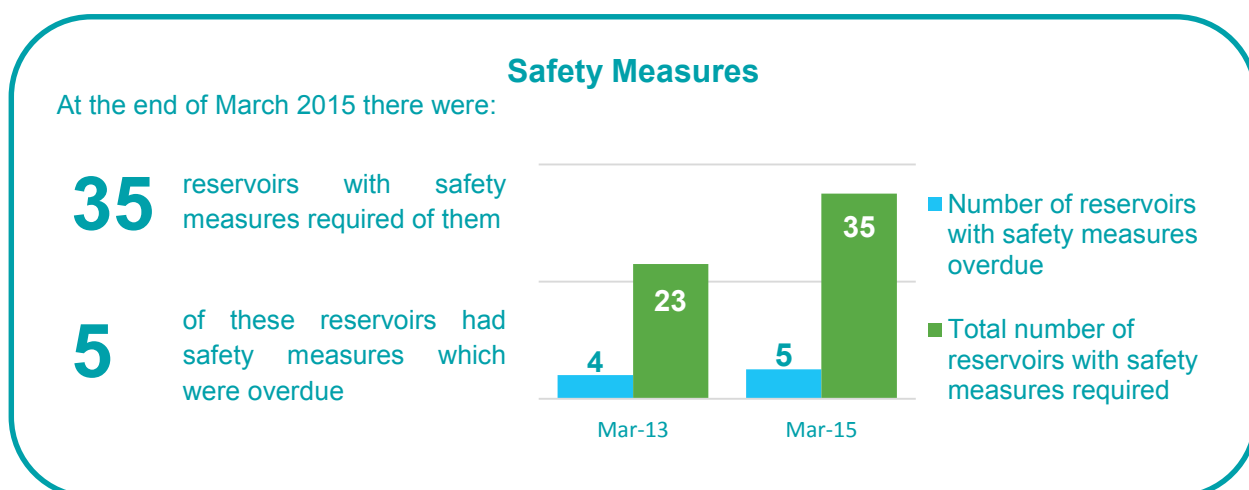
For two reservoirs we have appointed Supervising Engineers in lieu of the undertakers using our enforcement powers. In these cases there is either no owner, or we have not been able to identify the owners despite extensive searching. As an added precaution at these sites, we use local officers to maintain a schedule of regular site inspections and report their findings to the Supervising Engineers.

Appointment of Inspecting Engineers⁶

As with Supervising Engineer appointments, we have received and verified the appointment of Inspecting Engineers for every reservoir where inspection has been due. At the close of the reporting period, one reservoir had not been inspected within its statutory timeframe; however the inspection of this reservoir was completed prior to the publication of this report.

Measures in the Interests of Safety⁷

Where reservoirs have been inspected and the Inspecting Engineer has recommended safety measures, we have monitored their implementation and reminded undertakers for their completion. In one case we considered it necessary to serve notice on the undertaker requiring completion of the work. Our principle has been to seek to understand the root cause for failing to implement safety measures and to balance this with the potential flood risk and opinion of the Inspecting Engineer.



⁶ Inspecting Engineers carry out periodic statutory inspections and recommend measures to be taken in the interests of safety; we refer to these measures as MIOS.

⁷ Measures in the Interests of Safety are recommended by the Inspecting Engineer and are statutory obligations which are enforceable by us.

Enforcement notices

We recognise that not all requirements of the Reservoirs Act 1975 have the same bearing on public safety. Additionally, understandable delays in implementing safety measures do occur; for example, extended periods of bad weather at remote reservoirs. We have balanced these with the potential flood risk to the downstream population. Where legitimate reasons for delay are expressed, we have sought the inspecting engineer's confirmation as to the overall risk.

When we are unable to persuade undertakers to fulfil their statutory obligations we are empowered to serve notices on them requiring compliance with the law. Our investigations have considered whether delays were caused by a lack of appropriate, timely action and whether we have concerns because of an increased flood risk.

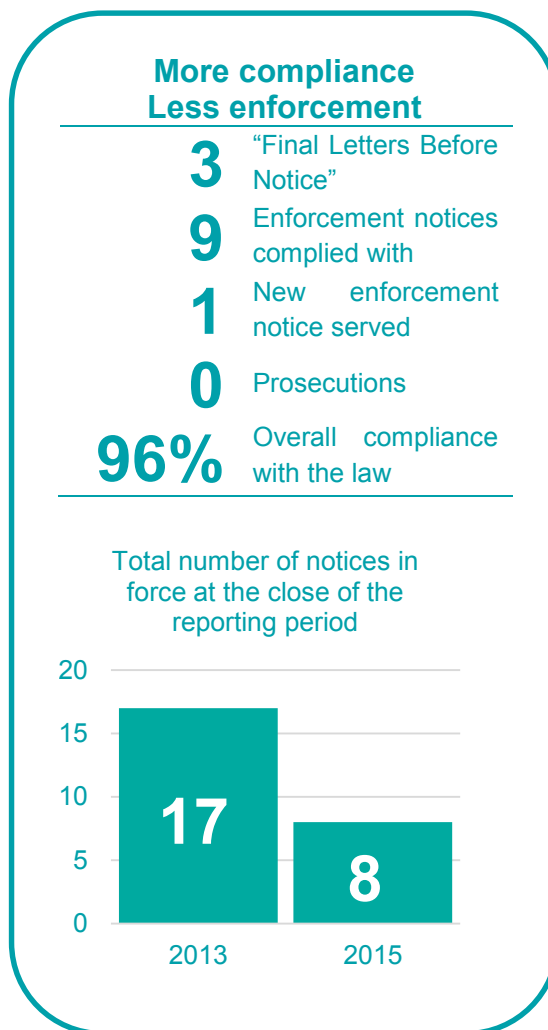
The notices in force during the reporting period are for the most common breaches of the law, namely for the appointment of engineers and the requirement to complete safety measures⁸.

Before serving notice we write to the undertakers to inform them that we are considering this action and setting out what they should do to avoid this. From 1 April 2013 we sent out three of these 'Final Letters' and in two cases this was sufficient to prompt action by the undertaker, with no use of enforcement notices by us.

We consider the minor level of notices served, and the overall high level of compliance to be an indicator that our approach has encouraged undertakers to take a responsible attitude toward their duties.

With regard to the 4% of reservoirs where undertakers are not fulfilling their duties, we are reassured that these 9 reservoirs are monitored by Supervising Engineers for any deterioration. We challenge complacency amongst these few undertakers and regularly prompt them to take action to resolve outstanding issues, and balance an aspirational 100% compliance objective against our principles of risk based regulation.

We have not considered it necessary to take formal criminal proceedings against any undertaker, and our advisory work has focussed on less well informed undertakers to ensure they understand the intent and requirements of the law.



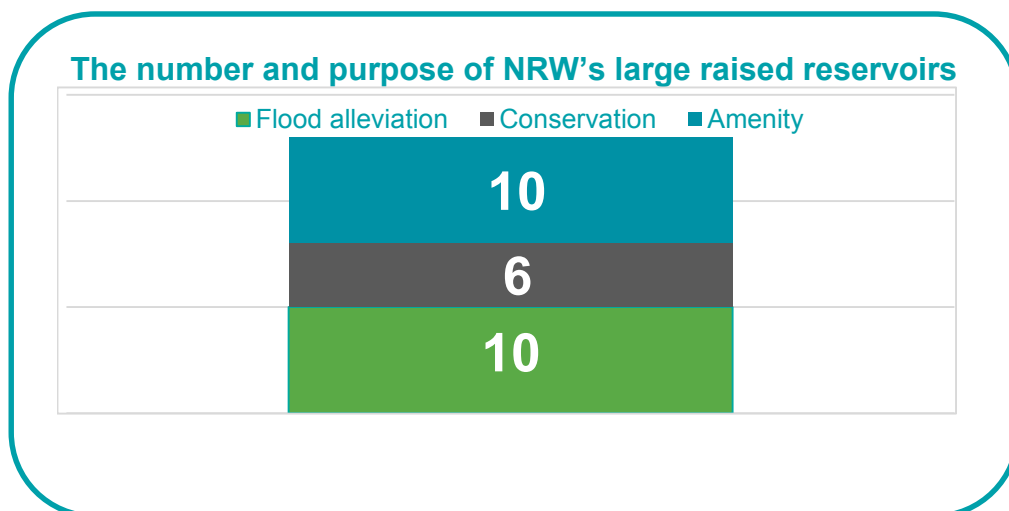
⁸ It is normal for Inspecting Engineers to recommend safety measures in their reports. We do not consider these to indicate undertaker non-compliance with the law unless the prescribed timescale for completion has been exceeded.

3. Reservoirs for which NRW is the undertaker

NRW has two roles under the Reservoirs Act: to perform the duties of the enforcement authority, and as a reservoir undertaker. At the close of the reporting period we were undertaker for 26 large raised reservoirs, inherited from each of the legacy bodies: Countryside Council for Wales, Forestry Commission Wales and Environment Agency Wales.

During the transition process from the legacy bodies to NRW, and through our investigation work, our reservoir safety enforcement team identified reservoirs under NRW ownership or management to which the Reservoirs Act 1975 applies. We have taken steps to bring these additional reservoirs to the attention of our colleagues within the Operational functions of NRW, and required swift action by them to bring the reservoirs into compliance.

At the close of the reporting period all NRW confirmed large raised reservoirs had been inspected and Supervising Engineers appointed. Our investigation into this has continued to ascertain the status of further reservoirs under the current and proposed amended Act. Our enforcement team will continue to closely monitor the progress of any Measures in the Interests of Safety at all NRW reservoirs.



4. Information & data

In addition to our regulatory activities we have performed the following actions relating to the management of large raised reservoirs in Wales:

- Migrated Welsh reservoir information from the Environment Agency and developed our own systems to securely hold this data
- Responded to internal and external enquiries for information on reservoir safety; for example, to assess recreation and access opportunities for disabled people, provision of information on sites with a high level of public interest and information to inform reservoir safety research
- Responded to consultations on applications for planning consent, water abstraction and hydropower production
- Maintained a register of large raised reservoirs
- Created and maintained an enhanced Emergency Response Register to help us in our role as a Category 1 emergency responder
- Developed our working relationship with the Environment Agency on cross-border matters (there are 21 large raised reservoirs where potential reservoir flood risk straddles the Wales-England border, 19 of these reservoirs are situated in Wales and regulated by us)
- Agreed with the Environment Agency, Scottish Environment Protection Agency and Northern Ireland Rivers Agency that incident reports will be shared for collective review; enabling a wider base of information from which to identify trends and learning points
- Observed and participated in Local Resilience Fora exercises and have provided advice to the organisations involved
- Attended meetings of the Reservoirs Committee⁹; a statutory function of the Institution of Civil Engineers, both in our role as an enforcement authority, and to represent the broader needs of Wales on behalf of Welsh Government
- Represented Wales within the European Reservoirs Regulators Forum
- Contributed to research and development projects, steered by the Reservoir Safety Advisory Group – an assembly of industry, academia and government functions
- Developed these wider working relationships to ensure that we have not developed an approach to reservoir safety in isolation, but have sought to engage at many levels to ensure we maintain and improve our service.

⁹ The Reservoirs Committee sets standards for the different panels of engineers, and the appointments to these panels. It makes recommendations to Defra on the appointment of engineers to the different panels.

5. The next two years

We anticipate that the proposed amendments¹⁰ to the Reservoirs Act 1975 will result in a significant period of activity as the changes to the legislation are implemented. We anticipate the principle amendments to include, amongst others:

- Lowering of the capacity threshold for regulation to 10,000 cubic metres
- The ability for us to designate large raised reservoirs as high risk, or not. Undertakers of reservoirs we consider to be not high risk will be released of the supervision and inspection requirements of the law.

We are preparing for these forthcoming changes in a number of ways; for example

1. We are reviewing information gained from our records, map studies, reservoir documentation and site visits to identify additional reservoirs that may be captured under the new regulations.
2. To inform our decision making with regard to the level of risk posed by large raised reservoirs, we have reviewed the specification for reservoir flood maps. From this review we will develop a revised specification which will be available to provide us with flood maps indicating people and properties at risk in the event of an uncontrolled release of water. We expect to use this specification to generate flood maps for all newly registered reservoirs.
3. There are over 200 reservoirs which are currently registered and for which we have engineering reports and flood maps. We have begun to review the information for these reservoirs and are using this to plan our implementation of the changes to the legislation in a risk based and efficient way.
4. Engaging with key stakeholders and raising awareness of the forthcoming changes.

“Over the last two years, NRW and DCWW have developed a positive, open and constructive working relationship. We consider this approach to be extremely important as management of our dams and reservoirs is a matter of public safety and by working together in this manner, it promotes reassurance to both the enforcement authority and the communities downstream of these reservoirs. We look forward to building on this as we work together in the future and will aim to seek further opportunities for continual improvement in reservoir management to the benefit of public safety in Wales”.

Tracey Williamson
Dam Safety Manager, Dŵr Cymru Welsh Water

¹⁰ Introduced by Schedule 4 (Reservoirs) Flood and Water Management Act 2010
www.naturalresourceswales.gov.uk

6. Summary

Throughout the two year period of this report, our small team of 2.5 people has progressively established NRW as the enforcement authority in Wales and we are confident to report that the migration of duties from the Environment Agency has been smooth and has maintained a high level of compliance and therefore public safety assurance.

The public of Wales have benefitted from the change of regulator, particularly from the increased focus at an all-Wales level. This is demonstrated in the registration of reservoirs that have previously lain outside of regulation and posing dormant, unknown risks. Better local knowledge, a wider remit for NRW and an agile approach adopted by the enforcement team have all helped our development of our service. This approach will continue to help us as we move towards the registration of smaller reservoirs and the process of risk-designation.



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