



DASSH Digital Preservation Plan

Marine Biological Association (MBA)

Data Archive for Seabed Species and Habitats (DASSH)

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1. Introduction

The Marine Biological Association (MBA), through DASSH (the UK Archive for Marine Species and Habitats Data), maintains a comprehensive digital preservation framework ensuring long-term integrity, accessibility, and usability of data. The framework aligns with CoreTrustSeal, FAIR (Findable, Accessible, Interoperable, Reusable) and TRUST principles (Transparency, Responsibility, User focus, Sustainability, Technology).

2. Scope

This plan applies to all digital assets curated by DASSH including species and habitats datasets, associated metadata, documentation, and derived products, covering the full lifecycle from ingestion through active preservation and access.

3. Governance and Responsibility

DASSH operates within the governance framework of the MBA, which provides organisational oversight, technical infrastructure, business continuity arrangements and institutional support for long-term digital preservation activities.

Strategic accountability for the preservation programme rests with the DASSH Coordinator, who is responsible for ensuring that preservation policies, procedures and practices remain aligned with organisational objectives, community standards and repository certification requirements. The DASSH Coordinator is also responsible for reviewing the effectiveness of preservation activities and reporting on repository performance.

Operational responsibility for implementing preservation activities is delegated to the Data Manager and Senior Data Officer. These roles are responsible for data ingestion, metadata management, quality assurance, preservation planning, repository administration, access provision and the maintenance of documentation supporting the long-term stewardship of repository holdings.

Preservation responsibilities are defined throughout the data lifecycle (collection, processing, storage, analysis/use, sharing/reporting and feedback). Data providers retain responsibility for the accuracy, completeness and legal ownership of data submitted to DASSH. Upon acceptance into the repository, DASSH assumes responsibility for the curation, active preservation, management and dissemination of the archived digital assets and associated metadata in accordance with documented policies and procedures. Responsibility for preservation is maintained for as long as the data remain within the repository's stewardship.

The MBA provides institutional oversight and continuity planning to ensure that preservation responsibilities can continue to be fulfilled in the event of organisational, staffing or technical changes.

Roles and responsibilities are reviewed periodically as part of repository governance and operational planning.

4. Preservation Policies

DASSH maintains documented preservation policies and procedures to ensure the long-term accessibility, integrity, usability and discoverability of marine species and habitat data [https://www.dassh.ac.uk/data_policies_procedures].

DASSH's documented procedures define the conditions under which datasets are accepted into the repository, the information required from depositors, and the point at which responsibility for preservation transfers from the data provider to DASSH. Submission requirements include the provision of data in approved or supported formats, accompanying metadata compliant with Marine Environmental Data and Information Network (MEDIN) standards, licensing information, provenance details and any documentation necessary to support the interpretation and future reuse of the data. Upon acceptance into the repository, DASSH assumes responsibility for the curation, active preservation and dissemination of the archived digital assets in accordance with its published policies and procedures.

Preservation activities are aligned with recognised community standards and best practice within the marine environmental data community, including MEDIN standards and internationally adopted biodiversity data standards such as Darwin Core. DASSH provides guidance and support to data providers to promote the use of standardised formats, metadata schemas and controlled vocabularies that facilitate interoperability and long-term preservation. DASSH implements preservation strategies that prioritise the use of sustainable, non-proprietary and widely supported file formats where possible, while maintaining procedures for format migration and data transformation to mitigate risks associated with technological obsolescence. Archived data and metadata are subject to quality assurance processes and are managed within secure storage environments supported by backup and recovery procedures.

DASSH maintains preservation information metadata sufficient to support the authenticity, integrity, provenance, management and long-term usability of archived resources. This includes descriptive, administrative and technical metadata, records of quality assurance activities, dataset version information, preservation actions and, where applicable, information relating to transformations or migrations undertaken during the preservation lifecycle.

Preservation actions, including any transformations or migrations, are documented to maintain provenance, authenticity and traceability of archived resources. Metadata are maintained in accordance with recognised marine and biodiversity information standards, and are disseminated through national and international infrastructures including MEDIN, the Ocean Biodiversity Information System (OBIS), National Biodiversity Network (NBN), Global Biodiversity Information Facility (GBIF) and other relevant aggregators. DASSH maintains documented access protocols that support open and FAIR data principles while respecting restrictions relating to sensitive species, personal information, intellectual property rights and agreed embargo periods. These policies are reviewed periodically to ensure continued alignment with evolving community standards, user requirements and technological developments. DASSH's preservation framework is informed by established digital preservation principles, including the maintenance of preservation metadata,

provenance information and documentation necessary to support the long-term usability and authenticity of archived digital assets. Where appropriate, preservation activities are guided by concepts established within the Open Archival Information System (OAIS) reference model and wider digital preservation best practice.

Compliance with preservation policies is supported through documented ingestion workflows, metadata validation procedures, quality assurance processes and staff oversight. Datasets are assessed against submission criteria prior to acceptance, preservation actions are recorded and auditable, and policies and procedures are reviewed periodically to ensure their continued effectiveness and alignment with community standards and repository certification requirements.

5. Data Management

DASSH applies a managed data lifecycle approach that supports the acquisition, curation, publication, preservation and reuse of marine species and habitat data. Data are accepted through documented submission workflows that provide guidance to data providers on required formats, metadata standards and supporting documentation [https://www.dassh.ac.uk/data_submitting-data]. During ingestion, submitted datasets undergo validation checks to assess completeness, structural integrity, adherence to relevant standards and suitability for long-term stewardship. Where issues are identified, DASSH works with data providers to resolve them before publication.

DASSH does not currently apply differentiated preservation levels to accepted datasets. All datasets accessioned into the repository are subject to the same core preservation, curation, metadata management, quality assurance, backup and access procedures regardless of size, subject area or origin. Variations may occur in access arrangements where legal, ethical or sensitivity considerations apply, but these do not affect DASSH's preservation commitment to the data.

Quality assurance and quality control procedures are applied throughout the data lifecycle [https://www.dassh.ac.uk/assets/pdf/DASSHQualityAssuranceProcedure_2023.07_v3_FINAL.pdf].

These processes include automated and manual validation of metadata records, taxonomic verification against recognised authorities, spatial and temporal consistency checks, and reviews of dataset completeness and documentation. Quality assurance actions are documented to maintain transparency and support the provenance and trustworthiness of published datasets.

Following successful validation and curation, datasets are prepared for publication and dissemination through DASSH and relevant national and international biodiversity data infrastructures. Persistent identifiers are assigned to appropriate datasets to support citation, attribution and long-term discoverability. DASSH acts through DataCite to assign Digital Object Identifiers (DOIs) to curated datasets that meet publication criteria. DOI registration is accompanied by the creation and maintenance of descriptive metadata to ensure datasets remain discoverable, citable and linked to their associated publications and outputs.

DASSH maintains records of all lifecycle actions, including data submission, validation, quality assurance activities, publication events, identifier assignment and subsequent updates through an internal issue tracking system. This lifecycle management approach supports the FAIR principles by ensuring that data remain Findable, Accessible, Interoperable and Reusable throughout their stewardship within DASSH and beyond.

Removal of datasets from the repository is expected to occur only in exceptional circumstances, such as legal requirements, proven data integrity issues, or depositor requests that are consistent with repository policy. Where a dataset is withdrawn, DASSH aims to retain a tombstone metadata record wherever possible to preserve the scholarly record and provide information regarding the withdrawal. Persistent identifiers, including DOIs, will remain registered and will continue to resolve to an appropriate landing page indicating the status of the dataset. Withdrawals, removals and associated actions are documented as part of the repository's lifecycle management processes.

6. Metadata Management

DASSH maintains comprehensive metadata for all curated datasets to support discovery, access, interpretation, reuse and long-term preservation. Metadata records are created and managed in accordance with recognised community standards, including the MEDIN Metadata Standard and ISO 19115 for geographic information. These standards ensure consistency, interoperability and compatibility with national and international marine and biodiversity data infrastructures.

Metadata are subject to validation and quality assurance processes throughout their lifecycle to ensure completeness, accuracy and compliance with applicable standards. Validation checks assess mandatory fields, controlled vocabulary usage, spatial and temporal information, data ownership and licensing details, and links to associated datasets and resources. Where deficiencies are identified, metadata records are reviewed and updated in collaboration with data providers and curators.

DASSH maintains version control for metadata records using documented, backed-up online and offline tracking, enabling changes, corrections and enhancements to be tracked over time while preserving an audit trail of significant revisions. Metadata updates are documented to maintain transparency, provenance and accountability, ensuring users can understand the history and context of both datasets and associated descriptive information.

To maximise discoverability and accessibility, metadata are exposed through DASSH catalogues, web services and application programming interfaces (APIs), and are made available to relevant national and international data discovery platforms including MEDIN, GBIF and OBIS. This approach supports interoperability across data systems and facilitates integration with wider marine and biodiversity information networks. Metadata management practices are reviewed periodically to ensure continued alignment with evolving standards, community requirements and FAIR data principles.

7. Format Management

DASSH promotes the use of sustainable, open and widely adopted file formats to support the long-term preservation, accessibility and reuse of marine biodiversity and habitat data. Preferred formats are selected on the basis of their openness, community acceptance, technical documentation and likelihood of long-term support. For tabular data, preferred preservation formats include CSV and other non-proprietary structured data formats, while documentation and reports are preserved in archival formats such as PDF/A, where appropriate.

During data ingest and curation, submitted files are assessed for suitability for long-term preservation. Where proprietary, obsolete or otherwise high-risk formats are encountered, DASSH may recommend or undertake conversion to preferred preservation formats while retaining sufficient information to preserve the integrity, usability and provenance of the original content.

DASSH actively and routinely maintains awareness of format-related risks, including software obsolescence, declining community support, and emerging interoperability requirements. DASSH staff periodically review the formats held within the repository and assess their sustainability against recognised digital preservation best practice.

Where format migration is necessary to maintain accessibility or usability, migration activities are planned, tested and documented to ensure that the content, structure and meaning of the data are preserved. Records of format transformations, including the rationale, methods used and outcomes achieved, are retained to support transparency and long-term stewardship. This approach helps ensure that DASSH holdings remain accessible and usable as technologies, standards and user requirements evolve.

8. Storage and Backup

DASSH stores digital assets within secure infrastructure managed by the MBA. Storage systems are designed to support the long-term preservation, integrity and availability of marine biodiversity and habitat data through the application of appropriate technical, organisational and security controls.

Through the MBA IT service, DASSH employs regular backup procedures to protect repository holdings and ensure the recoverability of data and metadata. Backup processes are monitored and periodically reviewed to verify their effectiveness and continued suitability. In addition to local redundancy, backup copies are maintained through geographically separated, offsite storage arrangements, reducing the risks associated with site-specific incidents such as physical damage, infrastructure failure or natural hazards.

Storage and backup arrangements form part of DASSH's broader preservation and risk management framework. Procedures for backup, recovery and restoration are documented and tested periodically to ensure that repository holdings can be restored in a timely and reliable manner should data loss, corruption or service disruption occur. These measures support the long-term security and accessibility of the data entrusted to DASSH.

9. Data Integrity

DASSH maintains audit trails, using an online tracking programme, that record significant actions performed on datasets, metadata records and repository systems. These records provide evidence of ingestion, validation, modification, preservation actions, access management and other lifecycle events, supporting accountability, transparency and provenance. Audit information is retained indefinitely alongside the dataset to facilitate operational monitoring, troubleshooting and preservation management.

Through integrity monitoring and audit trail management, DASSH seeks to ensure that archived data remain complete, authentic and trustworthy over time. These measures support long-term preservation objectives and provide confidence that users can access data that accurately reflect the content originally deposited and subsequently curated within the repository.

10. Migration

The DASSH team adopts a proactive approach to managing technological change in order to ensure the continued accessibility, usability and authenticity of preserved digital assets and associated software. DASSH staff monitor developments in file formats, software dependencies, storage

technologies, metadata standards and community practices to identify potential risks associated with technological obsolescence or declining support for existing preservation formats and systems.

Format and technology risks are assessed periodically as part of DASSH's preservation planning activities. Where a format, software environment or supporting technology is identified as being at risk, appropriate preservation actions are evaluated to ensure that data remain accessible and usable by current and future users. These actions may include format migration, normalisation, metadata enhancement or the adoption of alternative preservation approaches where appropriate.

Migration activities are undertaken in a controlled and documented manner to minimise the risk of information loss and to preserve the content, structure, context and meaning of digital objects. Original files are retained to support provenance and future preservation requirements.

All migration actions are documented through the internal issue tracking application, including the rationale for migration, tools and methods employed, dates of execution, validation outcomes and any impacts on the preserved content. This documentation forms part of the preservation metadata and audit trail associated with the affected digital assets. Through ongoing monitoring and managed migration processes, DASSH aims to ensure the long-term accessibility and usability of its holdings while maintaining their integrity and evidential value.

11. Access Provision

DASSH provides access to marine species and habitat data through a range of interoperable services designed to support discovery, access and reuse by researchers, policymakers, industry, conservation practitioners and the wider public. Data and metadata are made available through the DASSH data portal, machine-readable web services and APIs, enabling both manual and automated access to repository holdings.

Data Portal (mapper): <https://www.dassh.ac.uk/dasshmapper>

Geoserver (API): <https://www.dassh.ac.uk/geoserver>

Datasets (Full download): <https://www.dassh.ac.uk/datasets>

Integrated Publishing Toolkit (IPT): <https://dassh.ac.uk/ipt>

OGC Environmental Data Retrieval (API): <https://www.dassh.ac.uk/edr>

To maximise visibility and reuse, DASSH integrates with national and international marine and biodiversity data infrastructures (including GBIF and OBIS), facilitating the dissemination of data through recognised discovery platforms and aggregators. These integrations support the FAIR principles by enhancing the Findability, Accessibility and Interoperability of DASSH-managed datasets across the wider environmental data ecosystem.

DASSH operates an open access policy by default, making data available for use and reuse wherever legal, ethical and contractual considerations permit. Access restrictions are applied only where necessary, for example to protect sensitive species information, comply with legal obligations, respect intellectual property rights or honour agreed embargo periods. Any restrictions are documented and communicated transparently to users through metadata content.

Clear licensing information is provided for all published datasets to ensure that users understand the terms under which data may be accessed, used, shared and cited. Licensing and access conditions are recorded within associated metadata and made available alongside datasets wherever possible. By combining open access principles, interoperable delivery mechanisms and transparent licensing arrangements, DASSH seeks to maximise the value, impact and long-term usability of the data entrusted to its care.

12. Collaboration and Community Engagement

DASSH actively participates in national and international marine data and biodiversity information networks to ensure that its policies, procedures and services remain aligned with evolving community standards and best practices. Through ongoing engagement with the marine and biodiversity data communities, DASSH contributes to the development, adoption and implementation of standards that support data interoperability, discoverability, preservation and reuse.

DASSH is a long-standing partner within MEDIN and works closely with the UK marine data community to promote the use of common metadata standards, controlled vocabularies, data management practices and FAIR data principles. Participation in MEDIN working groups, standards development activities and community forums helps ensure that DASSH's preservation and access services remain consistent with recognised national best practice.

At the international level, DASSH collaborates with major biodiversity and marine data infrastructures including OBIS, European Marine Observation and Data Network (EMODnet) and GBIF. Through these partnerships, DASSH contributes data, expertise, and standards development activities that enhance the integration and accessibility of marine biodiversity information across regional and global data ecosystems. DASSH also supports data flows to other relevant international initiatives and repositories where appropriate, including through wider data networks, such as the World Data System and FIDELIS Trustworthy Data Repository Network.

Engagement with these communities enables DASSH to monitor emerging technologies, preservation approaches, metadata standards and user requirements, informing the continuous improvement of its repository services and preservation framework. Knowledge exchange, collaborative projects and participation in professional networks ensure that DASSH remains aligned with current best practice and continues to meet the needs of data providers, researchers, policymakers and other stakeholders.

Through active collaboration and community engagement, DASSH strengthens the sustainability, interoperability and long-term value of the data it curates, while contributing to the wider development of marine and biodiversity data infrastructures at national and international scales.

13. Periodic Review

DASSH is committed to the continuous improvement of its preservation programme and undertakes regular reviews of its policies, procedures and operational practices to ensure their ongoing effectiveness. This Preservation Plan and associated processes are reviewed at least annually, or more frequently where significant changes occur to organisational structures, technologies, standards, regulatory requirements or community expectations.

Periodic reviews assess the suitability of preservation objectives, risk management approaches, technical infrastructure, storage arrangements, access mechanisms and preservation workflows. The

review process considers feedback from stakeholders, developments in digital preservation practice, changes in community standards and lessons learned from operational experience to identify opportunities for improvement.

As part of its commitment to maintaining a trustworthy repository service, DASSH evaluates its preservation activities against recognised certification and best-practice frameworks, including the requirements of the CoreTrustSeal and the International Oceanographic Data and Information Exchange (IODE) Quality Management Framework (QMF). This assessment helps ensure that repository policies and procedures continue to meet internationally recognised expectations for organisational infrastructure, digital object management and technology.

Findings from reviews are documented and, where appropriate, result in updates to policies, procedures, guidance and technical controls. Significant revisions are approved through established governance processes and communicated to relevant stakeholders. Review outcomes are retained as part of DASSH's documentation framework, providing evidence of ongoing stewardship and continuous improvement.

14. Resources

DASSH is hosted within and supported by the MBA, which provides the organisational framework, technical infrastructure and staff resources necessary to support long-term stewardship and preservation activities. The MBA recognises digital preservation as a core component of DASSH's role as a trusted data repository and is committed to maintaining the resources required to deliver these services effectively.

Preservation activities are supported through appropriately skilled personnel responsible for data management, curation, metadata quality, repository operations and technical administration. Staff work collaboratively to ensure that data, metadata and associated documentation are managed in accordance with established policies, standards and preservation objectives.

DASSH benefits from access to the MBA-provided secure technical infrastructure, including managed storage, backup systems, network services and repository platforms that support the preservation, integrity and accessibility of digital assets. Infrastructure requirements are reviewed periodically to ensure that capacity, performance and resilience remain aligned with the growth of repository holdings and evolving user needs.

15. Training and Capacity Building

DASSH recognises that effective digital preservation depends upon the knowledge, skills and expertise of its staff. The repository is committed to supporting the ongoing professional development of all personnel involved in data management, curation, preservation, metadata creation, repository administration and related activities.

Staff are encouraged to participate in training, workshops, conferences, webinars and professional networks relevant to digital preservation, marine data management and biodiversity informatics. These activities help ensure that personnel remain informed about emerging technologies, evolving standards, preservation methodologies and developments within the wider data stewardship community.



DASSH actively engages with national and international organisations, including MEDIN, the UK NBN, OBIS, EMODnet and GBIF, providing opportunities for knowledge exchange and the sharing of best practice. Participation in these communities supports both individual professional development and organisational learning.

Knowledge gained through training and community engagement is disseminated within DASSH and the wider MBA through documentation, procedural updates and internal knowledge sharing. This helps ensure that expertise is retained and embedded within DASSH's operational practices, reducing reliance on individual staff members and strengthening organisational resilience.

16. Plan Approval and Review

Approved by Dan Lear (Head of Data, Information & Technology), May 2026.

Contact: dassh.enquiries@mba.ac.uk.

Version 2.0 with annual review cycle.