

LEAN Assessment Results

Licensing and Permitting, Inspections, Biotoxin Management,
and Export Certification



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LEAN Assessment Results

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Executive Summary

Following a legislative proviso in July 2024, DOH contracted with Greene Economics to perform a LEAN assessment of the Shellfish Licensing and Certification program to identify improvements and consider methods to offer data transparency and potentially reduce program administration costs. Specifically, the team was asked to review current processes and procedures associated with four focus areas:

- licensing/permitting,
- inspecting operations,
- biotoxin management, and
- issuing export certificates.

Building on work that has already been done, the team initially reviewed DOH standard operating procedures and process documents associated with the four focus areas. A complete list of reviewed documents is provided in Appendix A. In addition to document review, the team reviewed comments that were submitted during the public comment periods associated with the rulemaking process. The team developed a survey for industry which was posted on the Greene Economics web site. DOH sent an invitation letter to all the producers in the DOH database inviting them to complete the survey. Eleven responses were received. Drawing from the survey responses, and the public comments, license holders were contacted and invited to participate in one-on-one interviews. Nine interviews were conducted prior to the workshop. These interviews focused on gathering insights into their experiences and concerns with licensing, inspection, and certification processes as well as biotoxin testing.

The team used this information to design a four-day workshop series to conduct value stream mapping exercises with key staff involved in the license, inspection, and certification processes. Agendas and a complete list of attendees are provided in Appendix B.

The results of the value stream mapping activities, the identified recommendations, and process improvements are presented in the remainder of this report.

1. Introduction

In July 2024, DOH contracted with Greene Economics to perform a LEAN assessment of the Shellfish Licensing and Certification program to identify improvements and consider methods to offer data transparency and potentially reduce program administration costs. Specifically, the team was asked to review current processes and procedures associated with four focus areas:

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1.1. LEAN Overview

Rooted in the manufacturing and automotive sectors, LEAN is a management philosophy that focuses on improving efficiency and effectiveness by eliminating waste and activities that don't have value. A hallmark of the LEAN philosophy is that it always starts with the customer and what the customer values. A second key aspect of the LEAN philosophy is that employees are empowered to identify changes and make process recommendations that improve efficiency and reduce waste.

Application of the LEAN philosophy has expanded beyond the manufacturing environment and has been successfully applied in office and customer service environments. In the office and customer service context LEAN focuses on optimizing processes, eliminating unnecessary steps, streamlining steps, and improving workflow to increase efficiency and focusing on what is truly value added to the customer.

Whether in an industrial or office setting the basic elements of a LEAN assessment are the same. Figure 1 below outlines the steps in the process once a value stream has been selected for improvement and then moving clockwise through the steps.

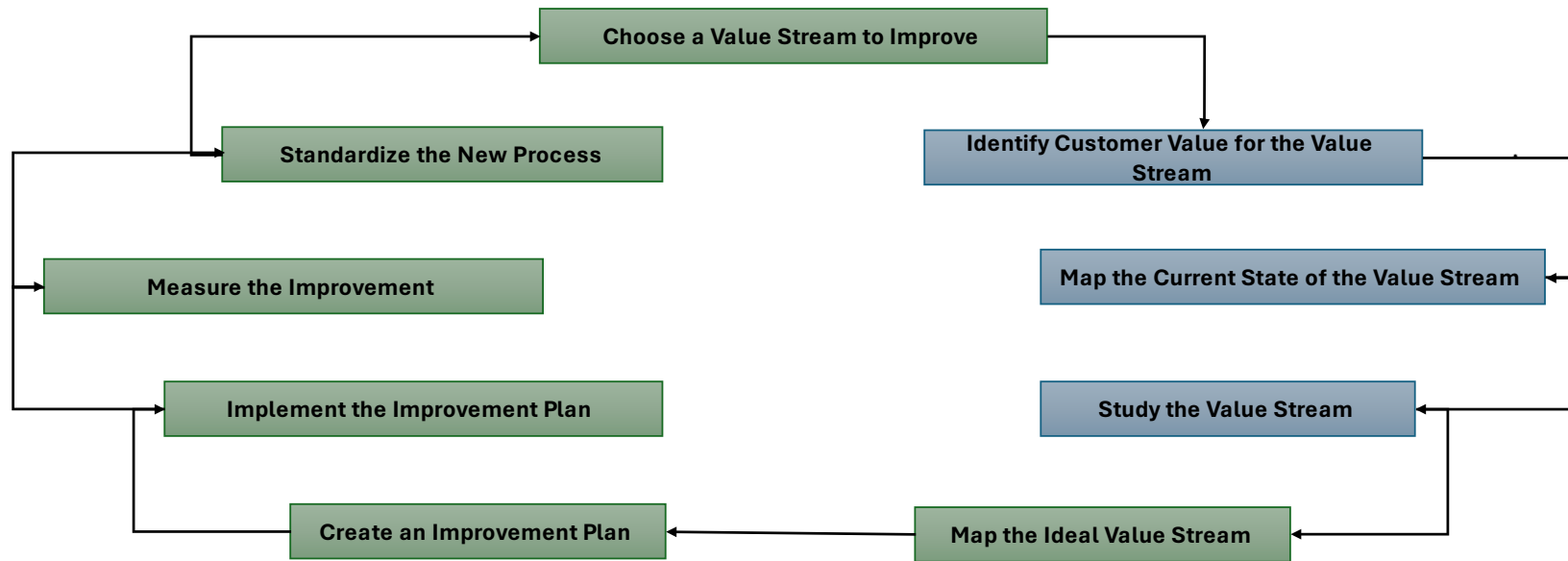


Figure 1. Standard Value Stream Mapping Process

Examples of applying LEAN principles in an office or document focused environment might include analyzing the flow of information and tasks to identify and address bottlenecks, identifying and eliminating redundancies in paperwork, streamlining long approval processes, establishing clear consistent processes and procedures for tasks, adopting the use of visual tools like dashboards and trackers to communicate process, identifying key metrics and identify potential issues and break down silos between departments to facilitate problem solving and smoother workflow.

1.1.1. Voice of the Customer

Understanding and prioritizing the needs of the customer or end user is a core principle of a LEAN analysis. This is because the customer, or end user should be the ultimate beneficiary of improvements that are made as a result of a LEAN assessment. The first step in a LEAN assessment is developing an understanding of how the customer experiences the process that is being evaluated, establishing what adds value for them, and where there are areas for improvement. This understanding informs the subsequent value stream mapping and process assessment. There are a number of ways to gather information and insights from customers regarding their experiences. Surveys and questionnaires (either online or in person) are a common way to gather information to develop an understanding of the customer experience. Conducting interviews and holding focus groups are also ways to collect information and dig deeper into issues and opportunities to identify root causes and establish priorities. Feedback forms and service evaluations are also tools that can be used to capture insights on the heels of a specific process or provision of a service. Finally, monitoring social media is also a way to collect insights and take the pulse of customer sentiment.

1.1.2. Value Stream Mapping

Value Stream— The value stream is the sequence of actions that are taken to deliver a product or service to a customer, from the initial request to the final delivery of the product or outcome.

Value stream mapping is a key tool and activity in LEAN. A value stream mapping exercise is an analysis of all of the steps in a process, including both information and product flow, that contribute to the creation of the final product. A LEAN assessment uses value stream mapping to understand the current state of operations (from the time a process starts until the final product is delivered to the customer). A value stream mapping exercise creates a comprehensive picture of the overall process, providing a visual illustration of each step. These exercises are typically conducted in partnership with employee teams. The process of creating a value stream map in partnership with the employee team makes processes visible, encourages conversation and communication and supports the identification of places where there are gaps, bottlenecks, redundancies, and opportunities for error.

The goal of a LEAN assessment is to identify and reduce waste. **“Waste”** is anything that reduces efficiency. From a LEAN perspective, there are eight specific types of waste, as illustrated in the figure below.

Overproduction	•Producing more of a product or service than is needed, or before it's needed
Waiting	•Wasted time waiting for the next step in the process
Transportation	•Unnecessary movements of products and materials
Over Processing	•More work, or higher quality work than is required by the customer
Excess Inventory	•Products and materials not required by the customer
Motion	•Any movement of people that does not add value to the product or service
Defects	•Not completing work right the first time
Underutilized People	•Not using skills talent or knowledge effectively

Figure 2. Eight Wastes¹

1.2. LEAN in Washington State

Washington has been applying LEAN principles to government since 2011 when Governor Christine Gregoire issued an executive order implementing LEAN processes at 27 executive cabinet agencies, including DOH.² In 2013 Governor Jay Inslee established Results Washington³ to further support innovation and a culture of continuous improvement, by increasing efficiency, decreasing operating costs, increasing employee morale, and increasing customer satisfaction.

Most recently, newly elected Governor Bob Ferguson reinforced this commitment to fostering a LEAN culture among state agencies with the issuance of Executive Order 25-03 “Improving Transparency and Building Efficiency in The State’s Permitting and Licensing Processes.”⁴

Washington has developed a series of trainings and instructional modules to guide the application of LEAN principles to state government in Washington. The concepts of value and explicit value are important aspects of LEAN in a governmental context. During a LEAN assessment, steps and processes are evaluated to determine whether or not they add explicit value to the customer. The goal is to retain steps and processes that add value and remove or improve those that do not.

¹ Wood, 2019. [here](#).

² Bray, Kari. Washington State Prepares to Examine Success of LEAN Approach. Sept. 2012. OregonLive. The Oregonian. Accessed Feb 21, 2025. Available [here](#).

³ Results Washington. Who We Are. Accessed Feb 21, 2025. Available [here](#).

⁴ Office of Governor Bob Ferguson. January 15, 20205. Executive Order 25-03. Available [here](#).

LEAN includes the concept of explicit value, which can only be met if three things exist:

1. The customer must care about it.
2. It was done right the first time.
3. It changes the service or product.

If something does not add value, then it is considered waste and should be removed or redesigned.

When considering these principles in the context of state government, it is important to recognize that sometimes there are necessary steps in a process that don't add explicit value but are still required. For example, if there is a regulatory requirement that a step be retained or performed in a particular sequence that step will still be necessary even if it does not meet the three criteria above. These types of steps will need to be retained.⁵ The key is to remove any steps that do not add value and are not necessary.

Figure 2 above identifies eight types of waste that are typically addressed during a LEAN assessment. In the context of office processes and governmental operations, another way to characterize these wastes is to group them into "office" and "process" waste as shown in **Figure 3** below.

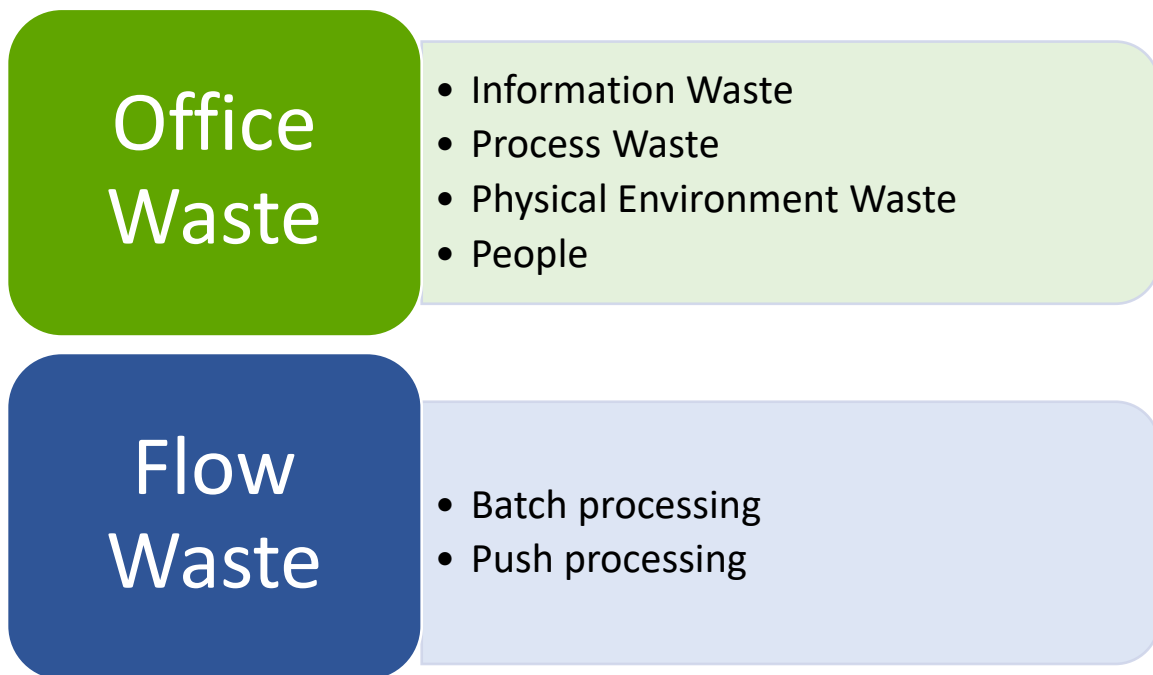


Figure 3. Types of Waste

⁵ Washington State Department of Enterprise Services YouTube Video, 2014. Introduction to LEAN Thinking. Chapter 1. Available [here](#).

Office waste can include inefficiencies or gaps in information, process, physical environment and people. These inefficiencies and gaps are presented in greater detail in Figures 4-7 below.

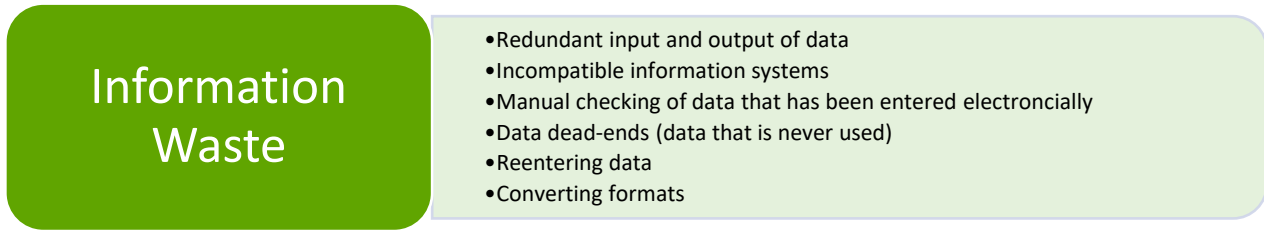


Figure 4. Office Waste—Information

In addition to the types of information waste shown in the figure above, unnecessary, unavailable, missing, unclear or incorrect data and data discrepancies are also considered to be types of “information waste”. Data safety issues are also part of this category.

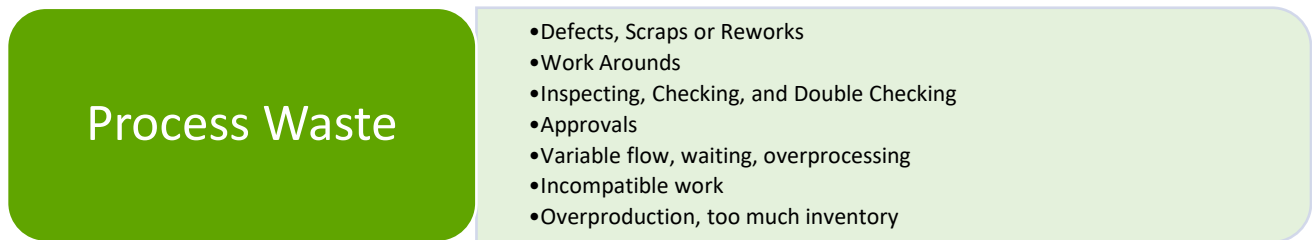


Figure 5. Office Waste—Process

Process waste focuses on the systems and procedures for moving information through the system. There are clear relationships between process waste and flow waste.

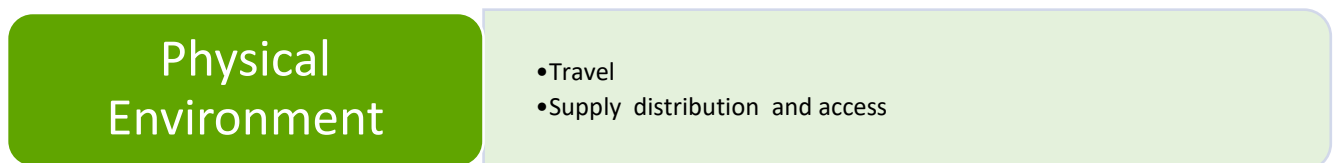


Figure 6. Office Waste—Physical Environment

Inefficiencies in the context of the physical environment typically have an impact on time. Unnecessary travel for meetings or because tasks and assignments are not geographically sequenced, wastes employee time and company resources (fuel, vehicles, etc.). Similar inefficiencies occur when resources (office supplies, test equipment etc.) are not located or collocated with the employees who use them.

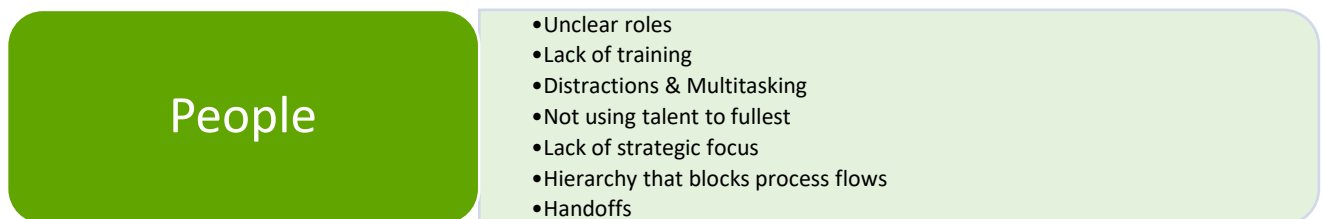


Figure 7. Office Waste—People

It is important to stress that people themselves are not waste. This type of waste refers to inefficient or incomplete use of time and talent. Not using people efficiently or effectively creates inefficiencies and waste, contributes to burnout and turnover, and reduces employee morale. Inefficient or unnecessary hierarchies and handoffs can introduce errors and impede process flow.

As shown in Figure 3 above, there are two types of flow waste. Flow waste occurs when things do not move quickly or continuously through the system, even if the steps themselves do add value. A hallmark of a LEAN culture is that nothing is produced or done until there is upstream demand for the product or service. Many offices and programs utilize a “batch” approach to processing. Employees are encouraged to hold applications or tasks until there is a backlog and then process multiples at the same time, or to use “batch processing”. This creates inefficiencies on several levels. First, the customer is left waiting for their outcome while the batch accumulates. Second the employee is also left waiting until critical mass is achieved, and then they are often overwhelmed trying to complete a large set of tasks all at once. The same cycle of delay and overwhelming occurs upstream as the next person in the chain waits for the downstream employee to push materials up the chain. Push processing refers to handing off work to the next person in the chain before they are ready for it. Using a “pull” system instead of a “push” system is most efficient and effective to reduce flow waste.

Evaluating processes to identify information and flow waste forms the basis of LEAN Value Stream Mapping assessment.

1.3. LEAN in DOH

The Department is a proponent of LEAN and applies LEAN principles to everyday tasks. Prior to 2020, DOH went through in-depth LEAN analyses for many of their processes. When the COVID-19 pandemic hit, DOH had to change many of their processes quickly using the existing tools they had. DOH has used LEAN principles while developing these new processes and has been open to going through the LEAN process further.

Improvements made as a result of a 2016 LEAN assessment process resulted in a 53 percent reduction in license renewal processing time, reducing it from an average of 13 to 6 days. In 2017 the Department conducted a Customer Service Satisfaction Survey⁶ that resulted in additional improvements to the Harvest Site Certification procedures and the License Renewal process.

⁶ Shellfish Licensing and Certification Section. 2017 Customer Satisfaction Survey Results. Available [here](#).

2. Shellfish Licensing

Washington is a member of the Interstate Shellfish Sanitation Conference (ISSC) and participates in the National Shellfish Sanitation Program (NSSP) which is a federal/state cooperative program that promotes public health protection, improves the sanitation of bivalve molluscan shellfish moving in interstate commerce, and ensures uniformity of state shellfish programs.⁷ The licensing process in Washington is designed to comply with the requirements of the ISSC and NSSP. At the state level, the regulatory framework and rule requirements that ensure alignment and compliance is detailed in Washington Administrative Code Chapter 246-282, Sanitary Control of Shellfish.⁸

The commercial shellfish program oversees the issuance of four types of commercial shellfish licenses that are available in Washington State: Harvester, Shellstock Shipper, Shucker-Packer, and Wholesale Shellstock Shipper.⁹ Regardless of the license, the initial licensing process begins with the completion and submittal of a common “Shellfish License Application” document (available [here](#)). Per the common application, the types of operations are defined as follows:

Harvester (HA): operations licensed as a Harvester can harvest shellstock and can only sell to Washington licensed commercial Shellstock Shippers and Shucker Packers. Harvesters cannot sell or ship shellfish to other states or countries. Harvesters cannot shuck shellfish, repack shucked shellfish, repack shellfish, or store shell stock in any location other than the approved growing area where the shellstock was harvested.

Shellstock Shipper (SS): Shellstock Shippers can commercially cultivate, harvest, buy, and sell shellstock. They can ship shellstock to other states and countries and can sell to retail. Shellstock Shipper operations cannot shuck shellfish or repack shucked shellfish. Subcategories are defined by the total acreage of all parcels that will be harvested. Only one of these subcategories can be selected:

- 0 to 49 Acres: Total parcel acreage of areas expected to harvest is between 0 and 49 acres.
- 50 plus Acres: Total parcel acreage of areas expected to harvest is 50 or more acres.

Shellstock Shipper – Wholesale Only: Wholesale only Shellstock Shipper operations are limited to purchasing shellstock and reshipping it in state, out of state, and to other countries. They are not authorized to cultivate or harvest shellstock.

Shucker-Packer (SP): Shucker Packers can perform all the activities allowed for Harvesters and Shellstock Shippers, plus they can shuck shellfish, pack shucked shellfish into jars or similar containers and repack shucked shellfish into different containers. Subcategories are defined by the total square footage of the processing plant. Only one of these sub- categories can be selected:

- Less than 2000 square feet,
- 2000 to 5000 square feet,
- greater than 5000 square feet.

⁷ US Food and Drug Administration. National Shellfish Sanitation Program (NSSP). Accessed Feb 20, 2025. Available [here](#).

⁸ Washington Administrative Code Chapter 246-282 WAC, Sanitary Control of Shellfish. Available [here](#).

⁹ Washington State Department of Health. Commercial Shellfish Licenses. Accessed Feb 20, 2025. Available [here](#).

Depending on the type of operation, additional supporting documentation is required as presented in Table 1 below.

Table 1. Application Documentation Requirements by License Type

Harvester	Shellstock Shipper	Shucker- Packer	Wholesale Shellstock Shipper
Initial License Application	Initial License Application	Initial License Application	Initial License Application
Plan of Operation (which includes)	Plan of Operation (which includes)	Plan of Operation (which includes)	Plan of Operation (which includes)
Map to the facility	Map to the facility	Map to the facility	Map to the facility
Proof of Harvester Training	Proof of Dealer Training	Proof of Dealer Training	Proof of Dealer Training
Harvest Site Certificate for Each Site	Harvest Site Certification Application (if applicable)	Harvest Site Certification Application (if applicable)	
Aquaculture Operational Plan (if applicable)	Aquaculture Operational Plan (if applicable)	Aquaculture Operational Plan (if applicable)	
Vibrio Harvest Plan (if applicable)	Vibrio Harvest Plan (if applicable)	Vibrio Harvest Plan (if applicable)	Vibrio Harvest Plan (if applicable)
	Wet Storage Plan of Operations (if applicable)	Wet Storage Plan of Operations (if applicable)	Wet Storage Plan of Operations (if applicable)
	Plant Interior Drawing including room locations and dimensions	Plant Interior Drawing including room locations and dimensions	Plant Interior Drawing including room locations and dimensions
	Approved HACCP Plan	Approved HACCP Plan	Approved HACCP Plan
	Proof of HACCP training	Proof of HACCP training	Proof of HACCP training

All required forms are available on the Commercial Shellfish License section of the [DOH website](#) and can be downloaded as fillable Word documents.

In addition to the License Application, the applicant must also submit payment at the time of application. In order to determine the appropriate fee, the applicant must locate the fee schedule document which can be found under the “Keep and Review” section of the page for each type of license ([here](#)) and determine the appropriate fees for the type of license they are seeking.

Once the forms are completed, the applicant is instructed to send the licensing documents and fee to the Accounts Receivable department at DOH.

Plans-of-Operation and the associated supporting documentation can also be mailed, emailed, or hand delivered to the Department of Health Shellfish Program, which has a different mailing address.

2.1. New License Application Processing

This section describes the process steps for moving new license applications through the approval process, presents the results of the value stream mapping exercise, and identifies opportunities and recommendations based on the value stream mapping exercise.

2.1.1. Process Overview

The Shellfish Licensing and Certification Program at DOH processes an average of ten new shellfish licenses a year. They have developed a four-page standard operating procedure document that outlines the steps for receiving and processing new license applications. That process is broadly described in Figure 8 below.

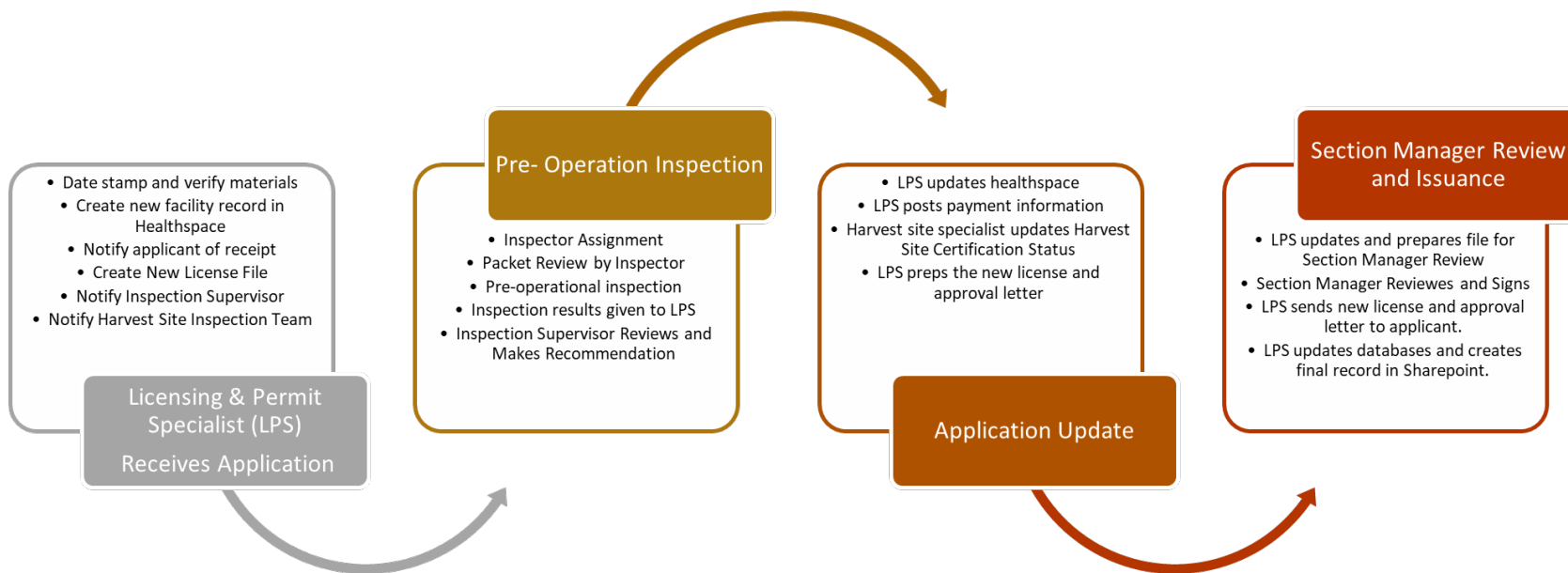


Figure 8. New Application Process Flow

2.1.2. Process Review

During the LEAN workshops, the Greene Economics team reviewed this process in detail with program staff in order to better understand the details of the operational flow. These findings are explored below.

Initial Intake for New Applicants

Applications arrive through two pathways. Applications may be received (via mail, email, or in person) either at the Revenue/Account Receivable Office or at the Program Office.

- If an application is received at the Revenue Office, the funds are processed, and the application packet is forwarded to the Shellfish Licensing and Certification Program Administrative Assistant (AA). The Program AA scans the application and notifies the Licensing and Permit Specialist (LPS) about the application. The LPS then begins the review process.
- If an application is received at the Program Office with funds included, the Program AA forwards the funds to Revenue and the LPS begins to process the application.
- If an application is received at the Program Office without funds, the Program AA forwards the application to the LPS. The LPS notifies the applicant that funds are missing and holds the application for 10 days. If funds are not received the application is returned. If funds are received the application moves forward for processing.

Initial Completeness Review

- The LPS reviews the applications for completeness. A complete application includes the license application, the appropriate plan of operations (and the associated supporting documentation), appropriate fee, and a harvest site application (if necessary).
- If the application is incomplete, the LPS notifies the applicant and holds the paperwork for 10 days. If the paperwork is corrected the application moves forward. If not corrected within 10 days, the paperwork is returned to the applicant.
- If the application is complete, the LPS notifies the applicant by sending an Acknowledgement Email and begins the review process.

Logging and Tracking Set Up

The LPS adds the application to the tracking system.

There are three primary tools used to track and manage information flows as applications move through the review process.

- New Application Tracker—the new application tracker is an Excel based tool, found on SharePoint, that the team uses to track and manage applications as they move through the stages of the review and approval process.
- HealthSpace—is the database where inspections are done and houses the contact information for each operation. It generates and stores licenses and associated letters.
- The Public Health Database (PHD)—is where Harvest Sites and various permits are kept. Harvest Site Certificates (HSCs) are generated from PHD. Records in PHD cannot be deleted, they can be updated or amended.

The team also uses SharePoint to store final documents and PDF versions of materials. These are known as “Licensing Files”. Prior to 2019 (pre-COVID pandemic) these records were paper copies. Now the records are kept on SharePoint.

There is also a tracker (on SharePoint) that the teams use to track and manage other applications/permits through the review and approval process.

Once an application is complete, the LPS:

- Creates a “new facility” record in Health Space and generates a new license checklist; and
- Creates a “new license” file in SharePoint where relevant documents are stored.

Initial Reviews

Once a record is created there are several initial notifications that the LPS initiates:

- If the application includes a harvest site certificate (HSC), the LPS forwards the harvest site application to the Harvest Site Certification team (the process for issuing a harvest site certification is detailed in a subsequent section of this review).
- The LPS notifies the Inspection Supervisor through an email that an inspector needs to be assigned. The Inspection Supervisor reviews each inspector’s workload and availability and assigns an inspector. The Supervisor informs the LPS via email who has been assigned.
- The LPS will then send a “Letter of Acknowledgment” email to the applicant letting them know their application has been received and letting them know who their assigned inspector is.

The goal is to have the Letter of Acknowledgment sent to the applicant within 10 days of receipt of a completed application packet.

Pre-Operation Site Inspection

Initial Inspection

- LPS updates the file in HealthSpace with the name of the inspector.
- LPS forwards the Plan of Operations to the inspector via email.
- The Inspector reviews the Plan of Operations and contacts the applicant to schedule a pre-operational site visit, usually within 5 business days of receipt of the Plan of Operations.

After the pre-operational inspection if no issues are identified,

- The Inspector signs the Plan of Operations as “approved for license;” and
- Informs the Inspection Supervisor via email that they have reviewed and approved the Plan of Operations.
- The Inspector emails the Plan of Operations and the pre-operational inspection report to the LPS who updates the applicant’s record in HealthSpace and updates the Application Tracker.

If issues are identified, the applicant has 30 days to address the areas of concern (additional extension may be granted at inspector discretion) and schedule a second site visit. If concerns have been addressed the inspector notes approval.

If issues are not addressed, the Plan of Operations is returned to the LPS who will issue a refund to the applicant. This is done by getting approval from Office management and submitting a form to Revenue to issue the refund. Refunds are typically issued by the agency in roughly 4 to 6 weeks.

Final Inspection Review

The LPS notifies the Inspection Supervisor that the licensing file, which now contains the pre-operational inspection and Plan of Operations, is ready for their review. The Inspection Supervisor reviews the documents and the pre-operational inspection. If all conditions for licensure are met, the Inspection Supervisor signs the plan of operations and notifies the LPS via email. The LPS updates status in the New Application Tracker and HealthSpace. If there are no harvest sites associated with the application, the licensing packet is reviewed by the Program Manager. This process is detailed in a subsequent section.

Harvest Site Certification

Once an application is deemed complete, at the same time that the Inspection team is notified, the LPS forwards the harvest site application paperwork to Harvest Site Certification (HSC) team and the review process begins. A detailed evaluation of the Harvest Site Certification process is provided in a subsequent section.

The LPS updates the New Application tracker to reflect the HSC status.

The HSC process includes a 30-day tribal review period.

Once the Inspector Supervisor review is complete (as stated in the “Final Inspection Review” section above), the LPS checks the HSC status with the HSC team.

- If the site inspection process is completed and approved before the 30-day tribal review period, the LPS can issue an approval letter with a harvest site application disclaimer (which provides the benefit of allowing other aspects of the licensed operation to move forward); or
- If the 30-day period has been completed the LPS prints the HSC from PHD and the approval letter from HealthSpace.

Section Manager Review

Once the Inspection Supervisor approves and, if applicable, the HSC processes are complete, the LPS prepares the licensing file for final approval by the Section Manager.

The file includes:

- License approval letter (generated from HealthSpace),
- A copy of the license (generated from HealthSpace),
- An approved plan of operations (with signatures from the assigned inspector and the Inspection Supervisor),
- Approved Harvest Site Certificate (generated from PHD), and
- A completed new license checklist (generated from HealthSpace).

The LPS also updates the application status in HealthSpace and updates the New Application Tracker. The Section Manager reviews and signs the documents and returns the file to the LPS.

Notification and Registration

- LPS saves the license and approval letter to their Licensing File in SharePoint.
- LPS emails the license, approval letter, and copy of the HSCs to the applicant.

2.1.3. Opportunities

The Value Stream Mapping exercise conducted in partnership with DOH staff during the four-day workshop identified several inefficiencies and opportunities associated with processing new license applications.

Initial Application documents are located in multiple places on the DOH website. The initial application is common to all types of licenses, but this is not immediately clear. The website landing page contains headers for each type of license ([here](#)). As the applicant scrolls down, there is a unique hyperlink to the required forms for each license type. Once an applicant chooses a license type the initial application form appears as the first document to be completed after clicking the link and repeats for each type of license (Harvester, Shellstock Shipper, wholesale Shellstock Shipper and Shucker-Packer). This creates the potential for an applicant to repeatedly complete the same form for each category of license, resulting in potential process and people waste for both the applicant and DOH staff. There is also the potential for information waste if multiple versions of the same document are completed.

Initial Application and Plan of Operation documents are sent to different addresses.

Applicants are directed to send the initial license application and associated fees to Accounts Receivable. Applicants are directed to send Plans of Operation and supporting documentation to the PO Box for the DOH Shellfish Program. There is also confusion in the wording on the Initial Application, which states that “other application materials’ can be sent to Accounts Receivable. These inconsistencies present opportunities for process, people and flow waste for both the applicant and DOH staff.

Plans of Operation are accepted through multiple channels.

Plans of Operation and accompanying documentation (proof of harvester training; harvest site certification applications; Aquaculture Operational Plans, Vibrio Harvest Plans, Wet Storage Plans, and HACCP training certification, and required dealer training certification depending on the type of license sought) can be submitted in hard copy (either mailing them in or in some cases they are hand delivered by the applicant or by an inspector), submitted by email, or submitted by fax. While this variety is intended to reflect flexible customer service, it introduces a level of process, people, information, and flow waste, particularly for DOH staff who have to review and route information coming in from multiple sources to multiple sources for review and approval.

There is duplication of information across multiple forms.

All of the forms including the Initial Application, the Plan of Operations, the Harvest Site Application, Aquaculture Operational Plans, Vibrio Harvest Plans, and Wet Storage Plans require some version of the following information:

Shellfish Operation		
Operation Name: <input type="text"/>	Phone: <input type="text"/>	Cell: <input type="text"/>
Email: <input type="text"/>	Email: <input type="text"/>	
Primary Contact Name: <input type="text"/>	Title: <input type="text"/>	
Tribal Affiliation (if applicable): <input type="text"/>		
Facility Address		
Street: <input type="text"/>	State: <input type="text"/>	Zip: <input type="text"/>
City: <input type="text"/>	Email: <input type="text"/>	Fax: <input type="text"/>
Mailing Address		
Street: <input type="text"/>	State: <input type="text"/>	Zip: <input type="text"/>
City: <input type="text"/>	Email: <input type="text"/>	Fax: <input type="text"/>
Address Where Records Are Maintained (if different from mailing address)		
Street: <input type="text"/>	State: <input type="text"/>	Zip: <input type="text"/>
City: <input type="text"/>	Email: <input type="text"/>	Fax: <input type="text"/>

Figure 9. Form Example

This redundancy and duplication of information is an example of information waste. It also results in process, people and flow waste for both the applicant and DOH staff.

Redundant input and output of data, re-entering data and converting formats

As observed throughout the value stream mapping exercise there are multiple instances of these types of information waste. Data from paper forms (whether received in hard copy or as PDFs attached to emails) is manually entered into multiple databases and spreadsheets, by multiple people. As forms move through the approval process multiple spreadsheets must be consulted and updated. Forms are generated electronically and then converted to PDFs which are either emailed or mailed to applicants.

Incompatible information systems, work arounds and overprocessing

The team uses two databases, a cloud platform and a shared drive, and multiple spreadsheet trackers to manage application flow through the process. In addition to the “people” waste associated with this repetition, each time information is hand keyed into a new system it introduces the possibility for error. The team also uses email, mail, TEAMS message, text message, and phone to communicate with each other and to notify applicants of errors and/or where their application is in the approval process. This also introduces opportunities for miscommunication, loss of information, delays of information, and potential errors.

Additional opportunities observed that are not directly aligned with office and flow waste concepts include the inability to produce forms in multiple languages and difficulty accessing and updating forms from the field.

2.1.4. Recommendations

Many of these issues could be resolved and streamlined through the development of a single online multi-step form or wizard that guides the user through the series of steps to complete the application. Drop down menus can also be used to make data entry easier and more accurate.

This type of form can also be structured so that applications cannot be submitted until all the necessary required fields are complete, reducing the need for DOH staff to circle back with applicants to make corrections.

This approach does not eliminate entirely the possibility for user input error (for example transposing numbers in a house address) but it does shift the QA/QC burden from DOH staff to the applicant.

Accessibility and language access issues can also be more easily addressed through this type of form.

Data input fields can be linked to a unique record that can be accessed, viewed, reviewed, approved and updated by multiple program staff in real time, eliminating the need for downloading, creating a PDF and emailing between staff to communicate information.

Finally, notifications and alerts can be integrated into the system so that applicants and DOH staff can be notified of actions that need to be taken, approvals that need to be granted, and information that needs to be provided, again, without the need for downloading, transcribing, creating PDF, emailing, etc.

DOH staff are fully aware of the inefficiencies and opportunities noted above and they have already taken considerable steps to eliminate redundancies and streamline processes.

The primary obstacle to their being able to address these issues is the data platform. Currently the two primary data platforms are PHD (Public Health Data) and HealthSpace. PHD requires WIFI and VPN to access it, making it difficult for staff to perform work from the field. The current version of HealthSpace requires hosting on a local server, which has limited access. DOH is in the process of migrating HealthSpace to the cloud and when that migration is complete, the cloud-based platform will have the capability to support the development and use of the type of form described above and can be accessed from anywhere. These data transformations and needs were observed across all aspects of the program and are discussed in more detail in the Data Needs Appendix to this report.

2.2. License Renewal

All licenses must be renewed annually. The license period and renewal dates are set by rule (WAC 246-282-012). Harvester licenses expire on March 31st. The other three, Shellstock Shipper, Wholesale Shellstock Shipper, and Shucker-Packer licenses, expire on June 30th. Shellstock Shippers, Wholesale Shellstock Shippers and Shucker-Packers are often referred to as “dealers”. After initial licensing, Shellstock Shippers are subject to inspections at least 2 times per year and at least 4 times per year for a Shucker-Packer. At least one inspection must have occurred within 120 days of the annual renewal. In 2024 DOH processed 320 renewal applications.

2.2.1. Process Overview

The general process for both groups/types of renewals is the same, but the dates and required materials are slightly different. The overall process is outlined in the table below.

Table 2. Harvester and Dealer License Renewal Process Outline

	Harvester Renewal (March 31)	Dealer Renewal (June 30)		
Activity	Date	Date	Action	Responsible Party
Initial Audit of Acreage and Number of Harvest Sites	January	April	Update HealthSpace and note fee changes	Harvest Site Specialist Licensing & Permit Specialist (LPS)
Develop Informational Insert	January	April		Section Manager and Inspection Supervisor
Prepare Draft License Renewal Packet	January	April	Draft renewal, reminder and final notice letters, cover letter, license renewal application form, renewal checklist, renewal tracker, information inserts	LPS
General Packet Review & Modification	January	April	Schedule meeting, review materials, implement edits	LPS, Section Manager, Inspection Supervisor, Inspectors, HSC Staff, IT Liaison
Renewal Packets Complied and Emailed for Each Applicant	1 st week of Feb	1 st week of May	Individual packets generated for each applicant; packets are automatically emailed to each operation	LPS
Ongoing Renewals	~February 15- July 15 th	~May 15- July 30 th	See Figure 9 for process detail	LPS, Section Manager, Inspection Supervisor, Inspectors, HSC Staff
Weekly Huddle	~February 15- July 15 th	~May 15- July 30 th	Update of renewals received, # in process, # incomplete, average processing time	LPS, Section Manager, Inspection Supervisor, Inspectors, HSC Staff
Renewal Reminder	March 15 th	June 15 th	Email reminder to operations	LPS
Initiate Expired License Process	April 2 nd	July 2 nd	Identify renewals that have not been completed, generate expiration notification, send notifications	LPS
Debrief and Process Review	End of May	End of July	Team Debrief	LPS, Section Manager, Inspection Supervisor, Inspectors, HSC Staff

The process flow for license renewal is outlined in **Figure 10** below.

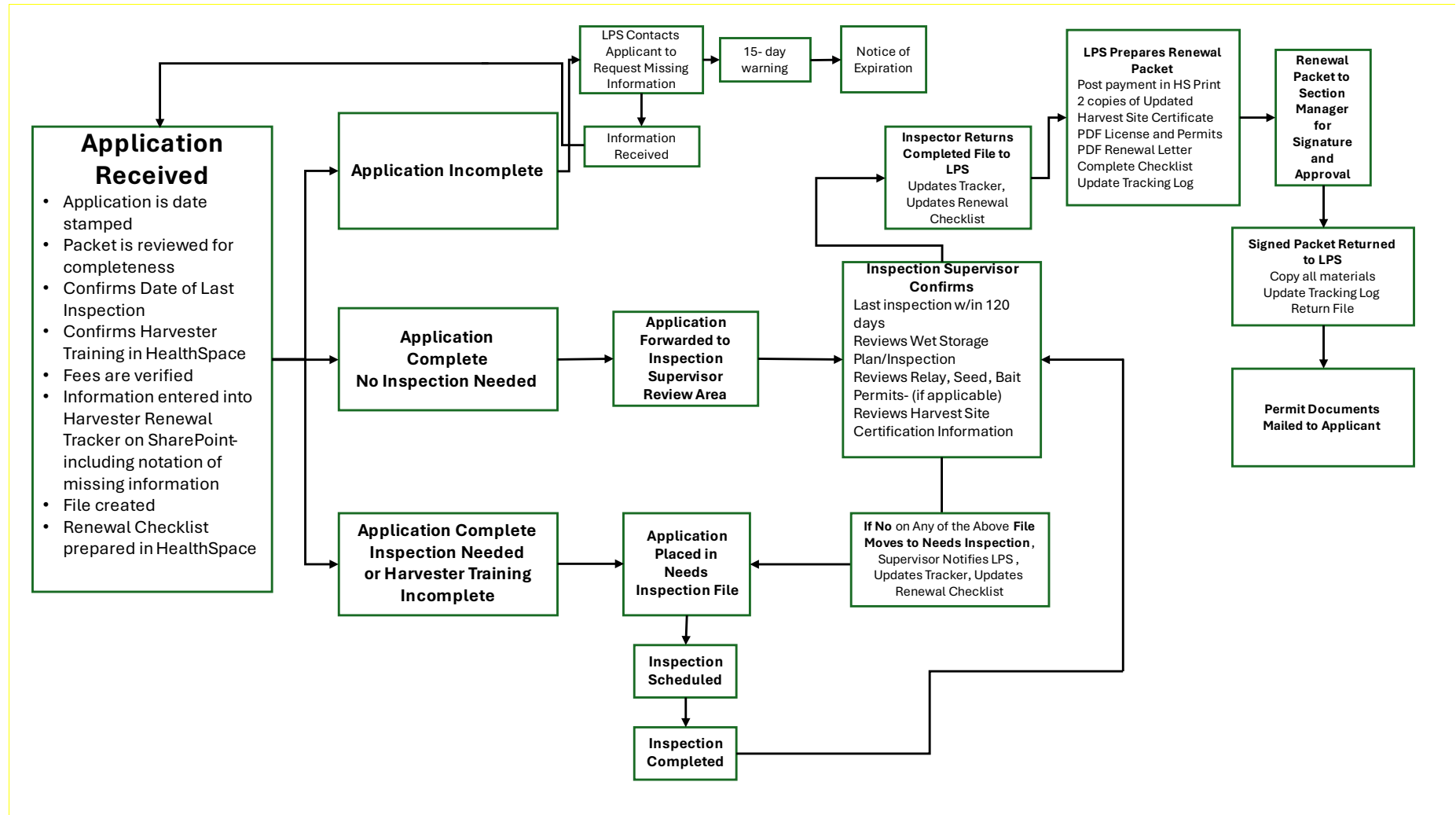


Figure 10. Process Flow for license renewal

In 2024 DOH began using an online system to generate and distribute renewal packets. Through the new system, renewal packets are automatically emailed to the operations. To complete payment for their renewal operations can now submit payments online, after creating a Secure Access Washington (SAW) account. The actual renewal paperwork must still be submitted in hard copy (again hard copies are mailed, emailed, faxed or submitted in person) and if there are any corrections those must be manually input and updated in the various databases by the LPS, who is only assigned to the program half time.

During renewal season, the inspection staff and the LPS meet weekly to review application statuses. These meetings are taking place concurrent with routine field inspections, inspections, new application processing, permit processing, and in some cases, assisting with response to a potential public health emergency (such as an illness outbreak investigation or biotoxin event).

2.2.2. Opportunities

Many of the same opportunities exist with renewals that exist with new license issuance. In particular, there are multiple tracking tools, databases, touch points and multiple instances of **redundant input and output of data, re-entering data and converting formats** as well as **incompatible information systems, work arounds, and overprocessing**.

2.2.3. Recommendations

The license renewal process is fundamentally a batch process, with all licenses being renewed during a defined window. Due to statutory restrictions, there is not currently the option to shift or stagger dates moving towards more of a pull system where licenses are renewed annually, but renewal dates are rolling and are based on data of issuance (liquor, cannabis, and drivers' licenses all follow this model, as do Transient Accommodation renewal licenses which are also processed by the LPS who supports DOH shellfish licensing).

However, as with the initial applications, once the cloud portal is in place the recommendation is that DOH explore developing a fully online renewal structure similar to the one used by the Department of Revenue to renew and update business licenses. As shown in **Figure 11** below through this 16-step process the applicant can renew multiple licenses, update contact information, and provide missing information (based on a prompt from the system). Once the renewal is approved (after an inspection has been done) the applicant can print both their license and a receipt.

9. If applicable, on the *City License Endorsement* page, review the information and complete the required fields.
10. Click **Next**.
11. Review the Trade Names, you can add or cancel names here, and then click **Next**.
12. On the *Endorsement/Fee Overview* page, review the fees.
 - If you have not renewed late in the last 24 months you qualify for the late penalty fee waiver. To request the late penalty fee waiver, select Yes. This waiver only applies to the Late Renewal Penalty on endorsements with an expiration date of July 31, 2023 or later.
 - If you have renewed late in the last 24 months you do not qualify for the late penalty fee waiver.
 - If you see a message stating you may qualify [learn more about the late penalty fee waiver](#) to determine if you qualify and how to request a penalty refund after you submit the renewal.
13. Click **Next**.
14. Review the information on the *Summary* page, then click **Next**.
15. Select the payment type you wish to use and follow the prompts. [More information on payment options](#).
 - Bank Account (ACH debit) will deduct the payment from the bank account you select on the next page.
 - Credit or Debit Card will charge the card you provide on the next page. A 3.25% processing fee is charged by a third party vendor for this service. Enter your email address. Click the **Enter Card Information** button to be redirected to a third party vendor to complete the transaction.
16. Review the information on the *Review & Submit* page, then click **Submit**.
17. On the *Confirmation* page, click **OK**.

Figure 11. Example Online Renewal Process

3. Inspections

The National Shellfish Sanitation Program (NSSP) Model Ordinance establishes the types and frequency of inspections that are required.¹⁰ The requirements and procedures used here in Washington are described in RCW 69.30.120 and WAC 246-282-092.

The Model Ordinance requires unannounced inspections. In some cases, this is not possible, but the program tries to meet this requirement. There are multiple different types of inspections.

- Pre-operational inspections are initial inspections that are required for companies to become licensed shellfish operators and are designed to determine the readiness of a company for licensure.
- Routine inspections occur at least once a year for Harvesters and Shellstock Shippers and 3 times a year for Shucker-Packers.
- Certification inspections must be completed within 120 days of an annual renewal for Shellstock Shippers and Shucker-Packers.

For each of these types of inspections, a report in HealthSpace is created.

When a licensed operation is not available to complete a pre-operational, routine, or certification inspection the inspection is classified as “attempted.” No violations can be recorded as a result of an attempted inspection.

If violations or concerns are identified during a routine or certification inspection, target dates for correction are established and a correction inspection may occur. These inspections are designed to ensure that violations have been corrected and concerns addressed. No new violations may be recorded during this type of inspection.

If numerous or critical violations have been identified, a “follow-up” inspection may be necessary. The need for these inspections must be established during a routine or certification inspection. These inspections may be unannounced.

If a complaint is received an inspection may occur to address the complaint. This type of inspection is only focused on the subject of the complaint and other issues could be addressed in a different type of inspection.

In addition to inspections a technical assistance meeting can be held to provide guidance and/or provide clarification.

DOH has five full-time equivalency (FTE) staff who perform work as inspectors, in addition to other duties. The department is structured to function with six. They are all located in Western Washington. The Inspection Supervisor manages the utilization and workflow of these inspectors and also conducts inspections as needed. Figure 8 (New License Application) and Figure 10 (License Renewal) identify the stages of the application and renewal process where inspections need to occur. Aquaculture (Figure 13) and Wet Storage (Figure 14) permits also require an inspection, which typically occurs in conjunction with the initial application inspection or a routine or certification inspection if these permits are being

¹⁰ National Shellfish Sanitation Program. NSSP Guide for the Control of Molluscan Shellfish: 2023 Revision. Available [here](#).

added to an existing license. The Inspection Supervisor utilizes HealthSpace, the New Application Tracker, and the Renewal Tracker to identify inspection needs and manage workflow.

As part of the application paperwork, applicants are asked to provide primary and secondary contact information as well as designate general days and hours of operation. This information is entered into HealthSpace and is used to coordinate workflows for unscheduled inspections.

3.1. Opportunities and Recommendations

For routine inspections, no opportunities for improvement for external communication between applicants and inspectors were identified. Similarly, because unscheduled inspections are by definition a “surprise” there should not be external notification of the inspection, so there are not modifications to the outreach process that should be made.

As with other aspects of the program, the use of multiple databases, multiple rounds of communication and notification, multiple channels for internal communications and transposition of data between formats all represent forms of process, people, information, and flow waste.

Migration to a data platform and using fillable form wizards as discussed in previous sections would eliminate redundancies between application documents and eliminate the need for duplication of data entry. Similarly, a cloud-based system could be structured to generate internal notifications alerting those up the chain of review and approval to status changes, moving the system from push to pull.

4. Harvest Site Certification

Anyone wishing to harvest commercial shellfish in Washington must have a Harvest Site Certificate for each site or parcel. The purpose of the certificate is for DOH to know who to contact when growing areas are closed for a public health emergency, such as biotoxin events, spill or wastewater system failures, etc. It also demonstrates that the harvester has the legal right to harvest shellfish from that parcel. Focusing on this certification, the application process is first summarized, and then opportunities are identified and recommendations presented.

4.1. Process Overview

Separate applications must be submitted for each harvest site. Applications must contain the name of the owner of the licensed operation as well as information related to the harvest site including a legal description of the property, and copies of any lease agreement(s) including signatures from the landowner and the harvesting operation. Applications can be found on the Department of Health website and are available in English and Spanish. Applications can be completed electronically and signed. Signed applications can be mailed, scanned, or attached to an email.

Treaty Tribes in Washington have the right to review pending harvest site applications. Applicants can complete a “Growers Notice of Intent to Harvest” form for this process. Applicants can submit the form with their harvest site application, or they can notify the Tribes directly. DOH will wait 30 days to approve a harvest site application to give tribes the chance to review the site.

Figure 12 below illustrates the process that the HSC team follows to review and approve HSC applications.

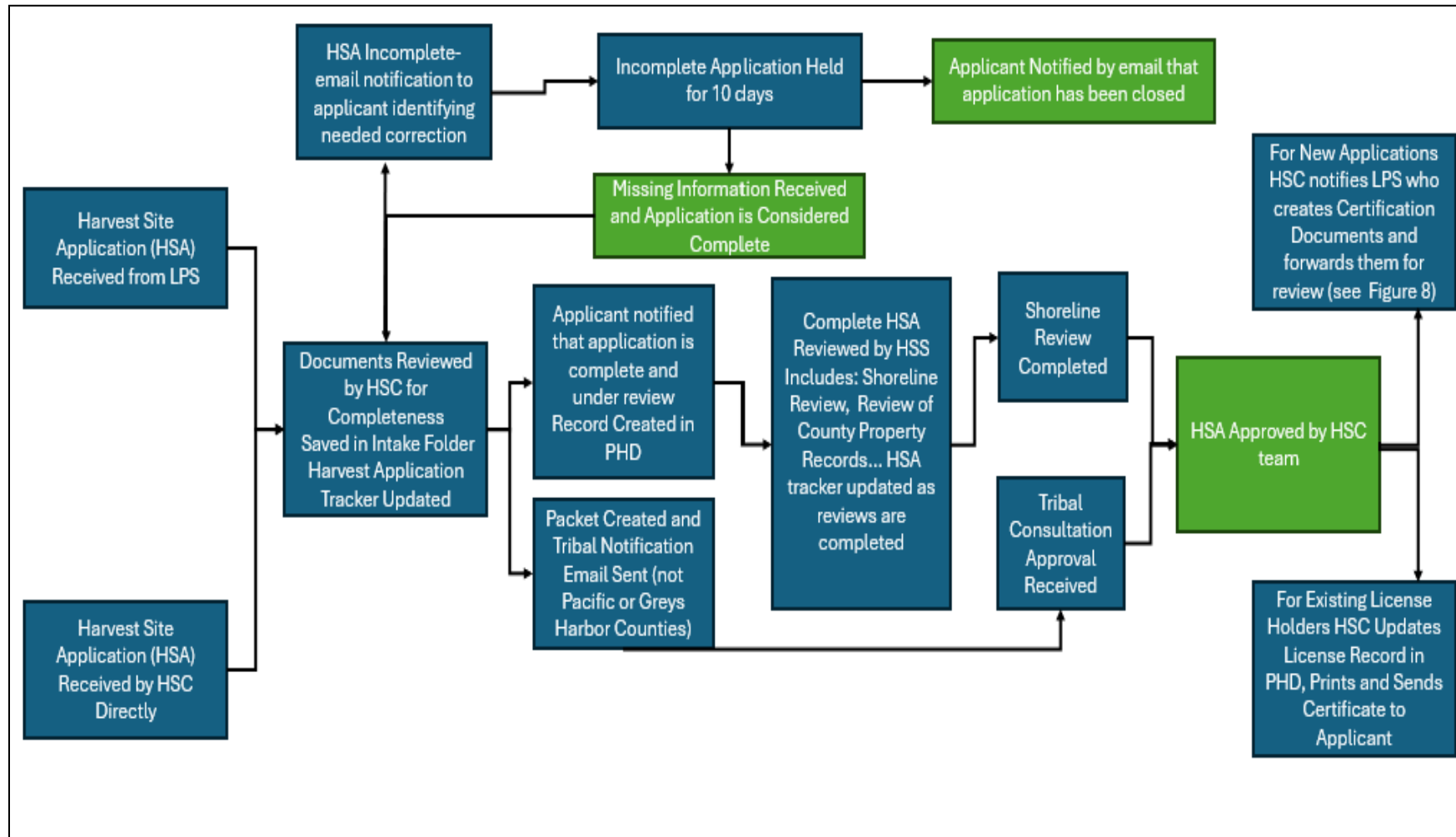


Figure 12. Harvest Site Certification Process Flow Chart

Harvest Site Applications (HSA) are submitted to the DOH LPS as part of an initial license application (see **Figure 8**). If a harvest site is being added to an existing license, the HSA may be routed through the LPS, submitted directly to the Harvest Site Specialist via email, or hand delivered by an inspector after a site visit. For initial licenses, once the application is received and reviewed the HSA(s) are forwarded to the HSC team and reviewed for completeness.

As noted above, there are multiple documents associated with a new license application. Documents are reviewed, scanned into a single PDF if necessary and saved in an “intake” folder on the “S” drive (an internal shared drive) and then data from the documents are entered into the “HSA Tracking Spreadsheet” in SharePoint. If the application is not complete, HSC staff contact the applicant to address the missing item(s). Regardless of the state of completion, the documents provided are entered into the tracker and a record is created.

If the submitted application is complete, then a second version of the application packet is created and used to initiate the Tribal Notification process. This second version is also saved on the S drive. Tribal notifications are batched and sent to the relevant tribal contacts daily when applicable.

At this time, applicants are notified by the HSC specialist by email that their materials have been received.

After applicants are notified, and concurrent with the 30-day tribal review period, the HSC team conducts a review of the application. This review includes searching existing databases which might include county tax records, WDFW databases, or DNR lease data, the DOH Shellfish Harvest Map Viewer (Shellview), the DOH data in the Public Health Database (PHD), to confirm the acreage, tidelands, and other information that has been provided on the application.

Once the parcel review has been completed and the 30-day review period has been satisfied, an approved HSC can be issued and a permanent record is finalized in PHD.

If harvest sites are requested as part of a new license application, the HSC is sent to the applicant along with the new license. If existing license holders are adding sites, the HSC is sent to the applicant by the HSC team through email when they are approved, and the new harvest sites are added to the license holders record in PHD.

4.2. Opportunities

The harvest site certification process has the same challenges and opportunities as the new license and license renewal processes.

Harvest Site Certification documents are located in multiple places on the DOH website and can be submitted in conjunction with multiple applications. It appears in conjunction with each type of license (Harvester, Shellstock Shipper, wholesale Shellstock Shipper and Shucker-Packer). This creates the potential for an applicant to repeatedly complete the same form for each category of license, resulting in process and people waste for both the applicant and DOH staff. There is also the potential for information waste if multiple versions of the same document are completed.

Documents are accepted through multiple channels.

Documents can be submitted in hard copy (either mailing them in or in some cases they are hand delivered by the applicant or by an inspector), submitted by email, or submitted by fax. While this variety is intended to reflect flexible customer service, it introduces a level of process, people,

information and flow waste, particularly for DOH staff who have to review and route information coming in from multiple sources to multiple sources for review and approval.

Redundant input and output of data, re-entering data and converting formats

As observed throughout the value stream mapping exercise there are multiple instances of these types of information waste. Data from paper forms (whether received in hard copy or as PDF's attached to emails) is manually entered into multiple databases and spreadsheets, by multiple people. As forms move through the approval process multiple spreadsheets must be consulted and updated. Forms are generated electronically and then converted to PDFs which are either emailed or mailed to applicants.

Incompatible information systems, work arounds and overprocessing

The team uses several databases including a cloud platform(PHD), a shared drive, and multiple spreadsheet trackers on SharePoint to manage application flow through the process. In addition to the people waste associated with this repetition, each time information is hand keyed into a new system it introduces the possibility for error.

The team also uses email, TEAMS, mail, text, and phone to communicate internally with each other and to notify applicants of errors and/or where their application is in the approval process. Having multiple options and redundancies introduces opportunities for miscommunication, loss of information, delay of information, and potential error, both within in DOH and between DOH and applicants.

Additional opportunities observed that are not directly aligned with office and flow waste concepts include the inability to produce forms in multiple languages and difficulty accessing and updating forms from the field.

4.3. Recommendations

As with initial license application and renewals, shifting to an online fillable form will address many of these opportunities.

This type of form can also be structured so that applications cannot be submitted until all of the fields are complete.

This approach does not entirely eliminate the possibility for user input error (for example transposing numbers in a house address) but it does shift the QA/QC burden from DOH staff to the applicant.

Accessibility and language access issues can also be addressed through this type of form.

Data input fields can be linked to a unique record that can be accessed, viewed, reviewed, approved and updated by multiple program staff in real time- eliminating the need for downloading, creating a PDF, and emailing between staff to communicate information.

Finally, notifications and alerts can be integrated into the system so that applicants and DOH staff can be notified of actions that need to be taken, approvals that need to be granted, and information that needs to be provided, again, without the need for downloading, transcribing, creating a PDF, emailing etc.

5. Export Certificates

Licensed Shellstock Shipper or Shucker Packer operations can export shellfish to other countries, but an export certificate may be required by the receiving country. The certificate lists information about the operation, who harvested the shellfish, how and where the shellfish is shipped, the type and quantity of shellfish in the shipment, the date and location where the shellfish was harvested, and the company purchasing the shellfish.

5.1. Process Overview

The process for requesting an export certificate is fully automated and online.

Operations who wish to request export certificates must have an account with Secure Access Washington (SAW). An account can be set up online and there is a guide on the DOH website to facilitate setting up that account.

Certificate requests are processed Monday through Friday between 8 a.m. and 5 p.m. Applications submitted before 4 p.m. are processed on the same business day. Applications are accepted up to five business days before the anticipated harvest date. Applications are processed and certificates are returned electronically within 4 hours of submission. Certificates are sent to the name and email that are on file with the SAW account. The recipient is responsible for printing the certificates in color, signing and affixing them to the shipments. Copies of certificates and voided certificates must be kept on site.

Certificates are \$55.00 per certificate and producers are billed monthly and payments are accepted through the SAW portal or by check.

5.2. Opportunities and Recommendations

The export certificate process is fully automated and online. The process functions well and no issues were identified with the system during the LEAN assessment.

6. Permitting

Aquaculture, Wet Storage, and Relay permits are all associated with specialized aspects of operations and are submitted in conjunction with Plans of Operation. These permits are all tied to Harvest Site Certificates. Relay permits can only be obtained by Shellstock Shippers and Shucker Packers (otherwise known as dealers).

6.1. Aquaculture Permits

Aquaculture is defined as cultivating shellfish in controlled conditions for human consumption. Cultivation includes propagation and growing of shellfish. These activities may occur in natural or man-made water bodies and include seed collection, production, and cultivation in natural water bodies when shellfish are held off the bottom such as the use of racks, bags, or cages, and when shellfish are held in man-made containers including tanks, ponds, or raceways. Aquaculture permits are tied to and must be listed on the operation's Harvest Site Certificate.

6.1.1. Process Overview

The Plan of Operation documents for Shellfish Harvester, Shellstock Shipper and Shucker Packer licenses all require the applicant to state whether or not they plan to use manmade aquaculture structures (question 12). If the answer is "yes" the applicant must submit an Aquaculture Operational Plan. The initial applications contain a link that directs the applicant to the "Shellfish Aquaculture Permit" page of the DOH website, where the applicant can download a fillable word form. As with other forms, the same information detailed in Figure 9 above is required. The instructions direct the applicant to submit the completed form either by email or to the program PO Box. The instructions do not clearly direct the applicant to submit this paperwork as part of their license application. Once the paperwork is received the process for review, inspection and issuance is outlined in **Figure 13** below.

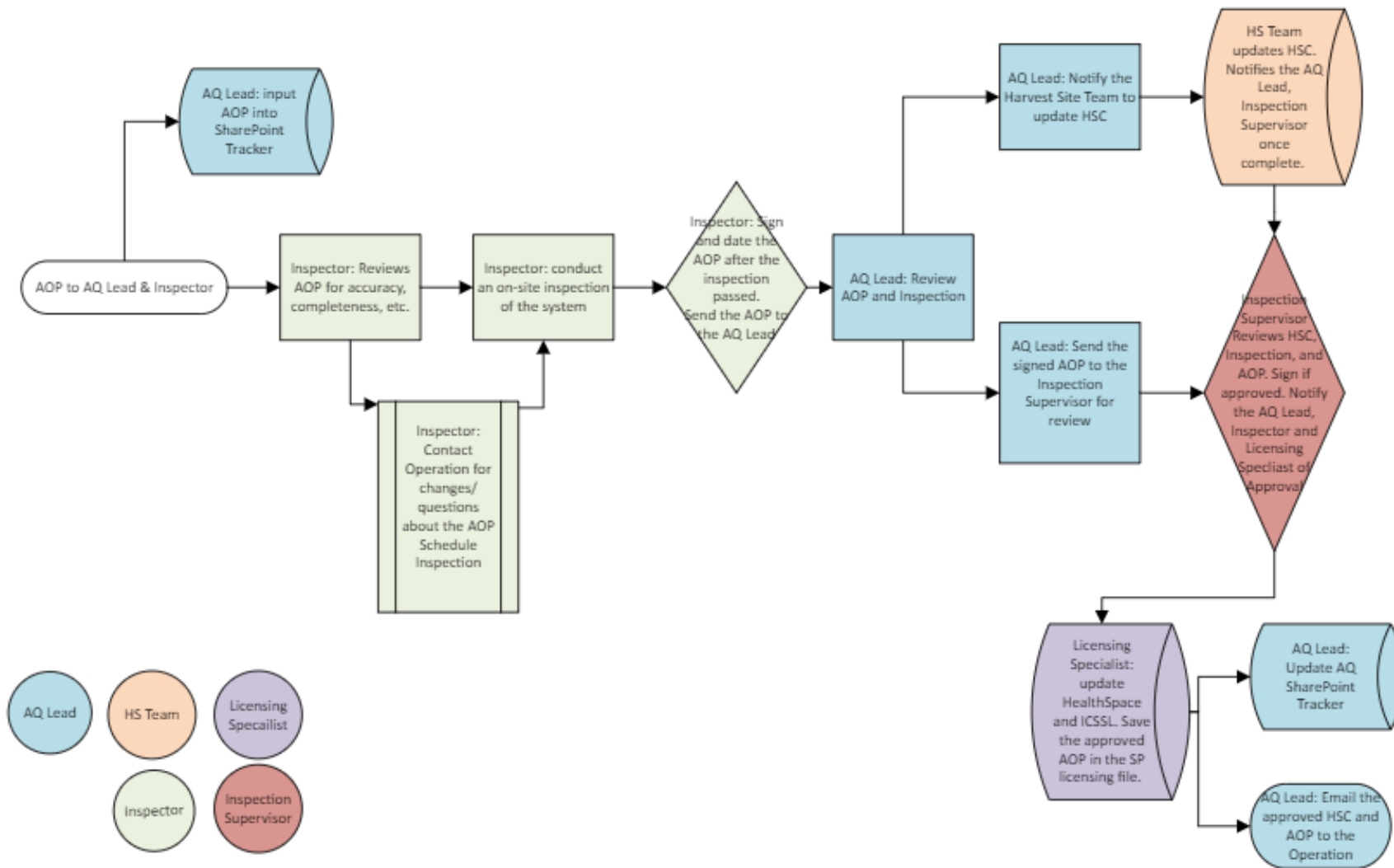


Figure 13. Aquaiculture Permit Process Flow

6.2. Wet Storage Permits

Wet storage permits are tied to and must be listed on the operation's Harvest Site Certificate. They permit the temporary storage of harvested (bagged and tagged) shellstock that has been moved from an original harvest site to another Approved or Conditionally Approved growing area. They can be land based or offshore and can utilize either manmade artificial seawater or growing area water from an Approved or Conditionally Approved (and open) area. Wet storage permits require submitting a Plan of Operations which can be found on the Department of Health website ([here](#)) and sometimes require a pre-operation inspection.

6.2.1. Process Overview

Dealers seeking wet storage permits must submit their application, which is a Wet Storage Plan of Operations, to DOH. Applications can be mailed, emailed or hand delivered during a site visit. Emailed plans are sent to a shared email inbox (shellfish@doh.wa.gov) that is monitored by the Inspector on call who then forwards the applications to the Wet Storage Lead. The Wet Storage Lead logs the Plan of Operations into the Permit Tracker on SharePoint and forwards the plan to the operation's assigned inspector. The inspector reviews the plan for completeness and schedules an inspection if one is required. An inspection is required for Flow-Through and Recirculating Wet Storage applications. If the inspector identifies errors or missing information on the application, the inspector contacts the applicant by phone, text, or email to request correction. The inspector also reviews the operation's Hazard Analysis and Critical Control Point (HACCP) plan and ensures "Wet Storage" is a critical control point.

Once an inspection, if required, is completed the inspector completes an inspection report in HealthSpace and forwards the completed inspection report and signed Plan of Operations to the Wet Storage Lead for review and signature. They will also update the Permit Tracker to reflect it is with the Wet Storage Lead for review.

The Wet Storage Lead performs a final review of the Plan of Operations and the inspection report to ensure everything is complete. If approved, the Wet Storage lead notifies the HSC team to add the permit to the operation's HSC. Once the permit is added, the HSC team notifies the Inspection Supervisor who then reviews and signs the permit. The Inspection Supervisor notifies the LPS, who updates HealthSpace and places a copy in the Licensing File in SharePoint. The LPS also updates the Interstate Certified Shellstock Shippers List to include the "WS" designation for the operation.

This process is outlined in **Figure 14** below

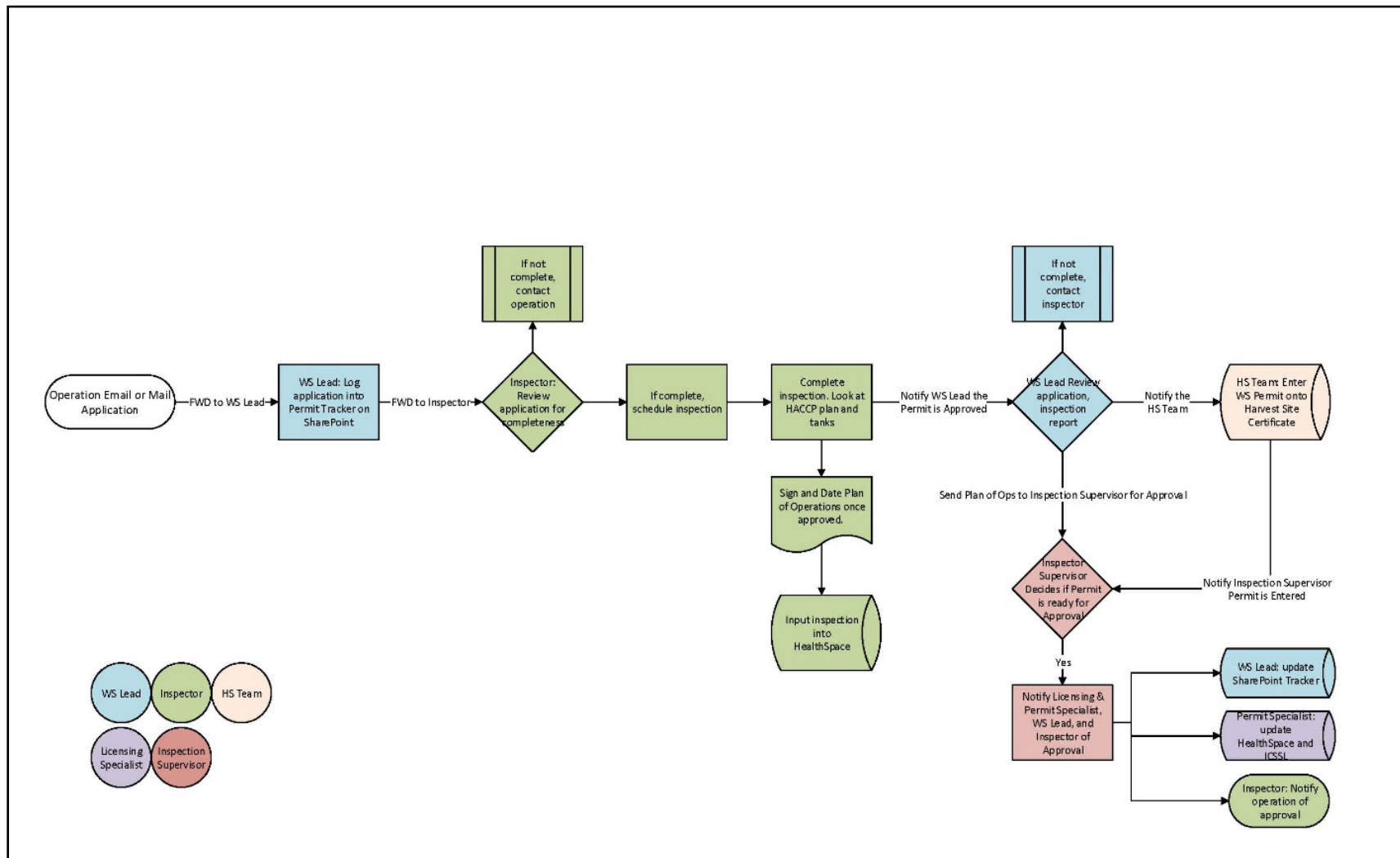


Figure 14. Wet Storage Application Process

6.3. Relay Permits

Relay permits are required when a commercial operator wants to harvest shellstock from an area that is classified as Restricted or Conditionally Approved but closed. The shellstock must be moved to an Approved or Conditionally Approved area that is classified as open so that the shellstock can be sold after an approved amount of time. Relay permits can only be obtained by dealers.

6.3.1. Process Overview

Applicants are instructed to mail the Relay Plan of Operations and supporting documentation including Harvest Site Certification applications (for harvest sites not already certified), maps and directions, as well as samples of record keeping documents. Applications can also be emailed to the general program email shellfish@doh.wa.gov.

Relay Plans are received and processed the same way that Aquaculture and Wet Storage.

Once a Relay Plan of Operations is received, the Relay Lead logs the application into the Permit Tracker on SharePoint. A file is created in the Relay Folder in SharePoint and the Plan of Operations documents are scanned, uploaded and stored in the folder.

As with other permit applications, the Relay Lead reviews the materials for completeness. If there are errors or missing materials the Lead reaches back to the applicant either by phone or email to request missing or incorrect information.

In addition to the Relay Plan of Operations, Harvest Site Certificate information must be submitted for both the original and the receiving harvest sites. If new Harvest Site Certifications are required, these documents are separated from the Plan of Operations packet and sent to the HSC team by the Relay Lead. The Relay Lead updates the Permit Tracker. These materials are also entered into the Harvest Site tracker by the Harvest Site Certification team and the application moves through the Harvest Site Certification process (see Figure 12 above). Once the HSC is approved the HSC lead notifies the Relay Lead.

In addition to confirming HSC status, a validation study may need to be done. If one is required, the Relay Lead coordinates with the applicant and the Public Health Lab in Shoreline to conduct the validation study, which is paid for with revenue from the general fund. Once the analysis is done, the Lab shares the results with the Relay Lead who then informs the operation. This study can occur concurrent with the 30-day Tribal Notification for Harvest Site Certification.

The Relay Lead notifies the HSC team by email once the validation study is complete. If the 30-day Tribal Notification period is complete the HSC team enters the Relay Permit information into PHD and notifies the LPS to update the operation's parent file in HealthSpace. A Relay Permit folder is also added to the operation's licensing file in SharePoint. The HSC team then emails the applicant the new Harvest Site Certificate with the Relay Permit approval. The Relay Lead (and Inspector, if a new application) are copied on the email. Relay Permits expire on the same date as the shellfish license expires.

This process is outlined in **Figure 15**.

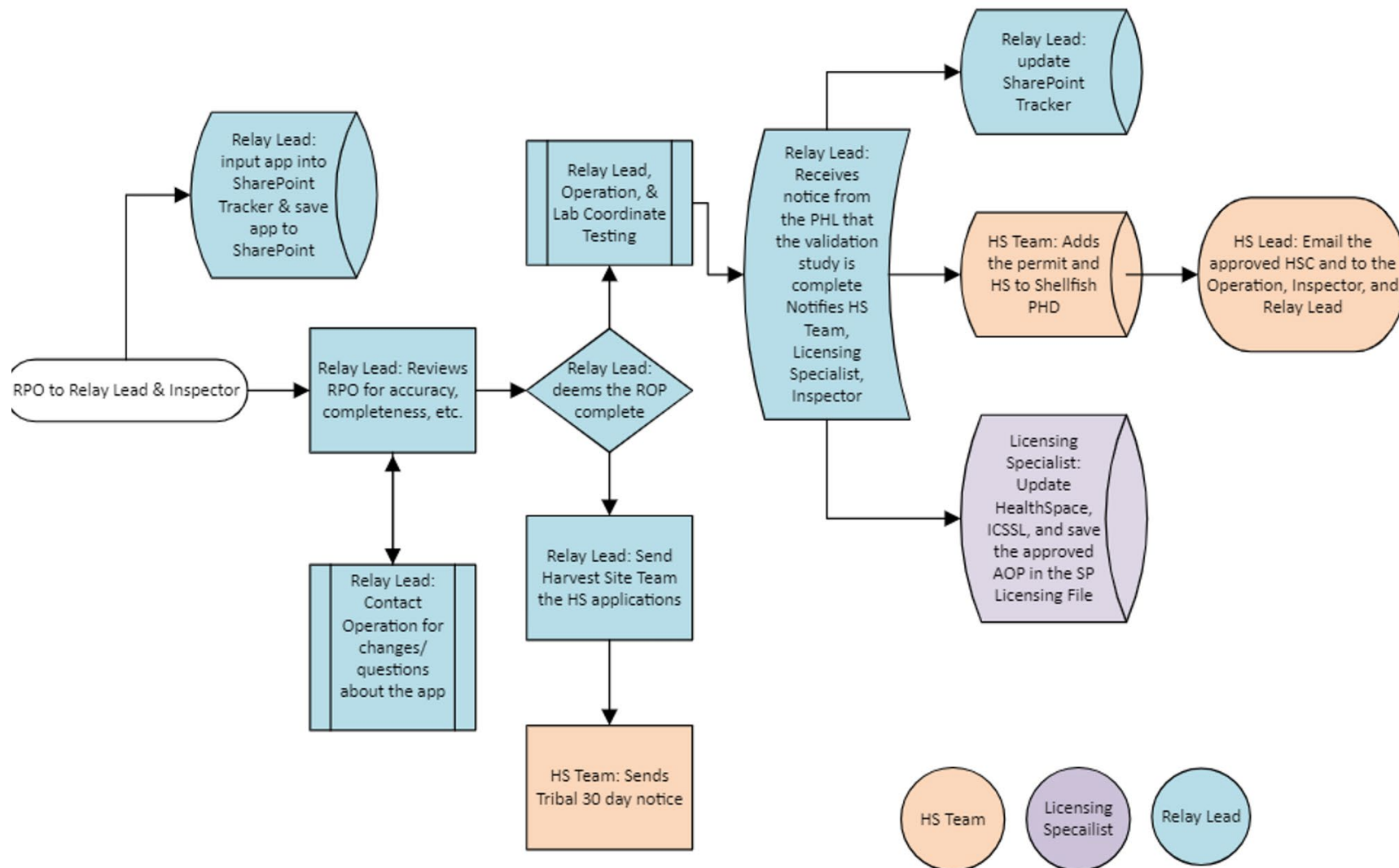


Figure 15. Relay Permit Application Process

6.4. Opportunities and Recommendations for Aquaculture, Wet Storage and Relay Permitting

As with New License Applications and Harvest Site Certificates, Aquaculture, and Wet Storage permit application documents are located in multiple places on the DOH website and can be submitted in conjunction with multiple applications. Documents are accepted through multiple channels. There is redundant input and output of data, re-entering data and converting formats and there are incompatible information systems, work arounds and overprocessing.

The team uses several databases including a cloud platform and a shared drive, and multiple spreadsheet trackers to manage application flow through the process. In addition to the “people” waste associated with this repetition, each time information is hand keyed into a new system it introduces the possibility for error.

The team also uses email, mail, TEAMS, text, and phone to communicate with each other and to notify applicants of errors and/or where their application is in the approval process. Again, introducing opportunities for miscommunication, loss of information, delay of information, and potential error.

Additional opportunities observed that are not directly aligned with office and flow waste concepts include the inability to produce forms in multiple languages and difficulty accessing and updating forms from the field.

As with license application and renewal, shifting to an online fillable form will address many of these opportunities. This type of form can also be structured so that applications cannot be submitted until all of the fields are complete.

This approach does not entirely eliminate the possibility for user input error (for example transposing numbers in a house address) but it does shift the QA/QC burden from DOH staff to the applicant.

Accessibility and language access issues can also be addressed through this type of form.

Data input fields can be linked to a unique record that can be accessed, viewed, reviewed, approved and updated by multiple program staff in real time- eliminating the need for downloading, creating a PDF, and emailing between staff to communicate information.

Similarly, notifications and alerts can be integrated into the system so that applicants and DOH staff can be notified of actions that need to be taken, approvals that need to be granted, and information that needs to be provided, again, without the need for downloading, transcribing, creating a PDF, emailing etc.

7. Biotoxin Testing

The Marine Biotoxin Program (MBP)¹¹ aims to protect Washington State citizens from instances of illness and death following the consumption of contaminated shellfish. Paralytic Shellfish Poisoning (PSP), Amnesic Shellfish Poisoning (ASP), and Diarrhetic Shellfish Poisoning (DSP) events can occur year-round, with little indication as to when toxicity levels might rise or fall. These events can result in severe negative public health impacts if not monitored closely and responded to swiftly, making efficiency and communication paramount to the program's success.

Biotoxin producing algae is naturally present in marine water, but usually not at levels of concentration that are harmful to people. However, when they become more abundant in the water, typically from May to October, they can accumulate in shellfish and become harmful to people. Biotoxin testing occurs consistently throughout the year at two-week intervals and increases in frequency between April and October or when a biotoxin event occurs.

There are two prongs to the testing program: phytoplankton monitoring and Sentinel Mussel testing.

Phytoplankton monitoring is done through testing water samples. Two organizations (Sound Toxins and the Olympic Region Harmful Algal Bloom Group (ORHAB)) maintain a network of volunteers who collect and test water samples from a network of sampling sites (<https://www.soundtoxins.org/sites.html> and <https://www.orhab.uw.edu/about-us/>). Sample results are shared with DOH staff, serving as an early warning indicator of potential increases in toxicity levels. This work is funded through grants and recreational shellfish license fees. Tribal partners voluntarily contribute to these programs and are provided supplies and training through ORHAB.

Regular testing for PSP, DSP, and ASP occurs at consistent two-week intervals via the Sentinel Mussel Program. Mussels are used because they will typically pick up evidence of toxins earlier than other marine organism. Samples are collected from mussels stationed at over 120 sites in Washington's growing areas. Commercial shellfish license fees and general fund revenue are used to support this work.

7.1. Process Overview

This assessment focused on the tracking, reporting, and communication aspects of the program, not on the protocols or operations of the lab itself. The process described in this section focuses on routine intake and testing through the Sentinel Mussel program. Processes associated with a biotoxin event are detailed in the next section.

Methods and procedures vary based on which toxin is being tested. All mussel samples are tested for PSP, DSP, and ASP toxins. Testing can be performed using the same shellfish sample material.

- PSP testing is done with live mice using a method called the Mouse Bioassay. Based on the time the mice die, the lab can extract the level of toxin present. The closure threshold for PSP is $\geq 80\mu\text{g}$ toxin per 100 grams shellfish.

¹¹ Department of Health. About the Biotoxins and Illness Prevention Program. Available here.

- DSP testing is done using Triple-quadrupole Tandem Mass Spectrometer and High-Performance Liquid Chromatography (HPLC). The closure threshold for DSP is $\geq 16\mu\text{g}$ toxin per 100 grams shellfish.
- ASP testing is done using High-Performance Liquid Chromatography (HPLC). The closure threshold for ASP is $\geq 20\text{ppm}$

When toxin results exceed the limits listed above, harvest areas must be closed, and product may need to be recalled. The MBP then coordinates frequent testing with operations to ensure the growing areas are safe to open after a biotoxin event.

As noted above, regular testing for PSP, DSP, and ASP occurs at consistent two-week intervals. Mussels are used because they typically pick up evidence of toxins earlier than other marine organisms. Samples are collected from mussels stationed at over 120 sites in Washington's growing areas. Mussel samples are collected via a network of DOH staff members, local health jurisdictions, tribes, commercial shellfish companies, and volunteers (<https://restorationfund.org/programs/biotoxin-monitoring/>) and are sent to the Public Health Lab (PHL) in Shoreline, where they are processed and tested. DOH provides training for volunteers and provides buckets, bags, icepacks, sample forms and prepaid shipping forms to support sample collection and submission. Samples can either be delivered by hand, submitted through the DOH internal consolidated mail service, or mailed (via UPS or FedEx) to the Lab.

The lab accepts samples Monday – Friday. Samples that are received before 11 am are processed and test results are available the same day. Preliminary results are available around 2 pm, with final results completed around 4 pm.

Once a sample is received a record is created in the Environmental Health Applications (EHAPPS) database. The sample is then shucked, weighed, and prepared for testing. Preliminary results are posted by the lab in EHAPPS. These results can be viewed by MBP staff at any time. Preliminary results are reviewed by lab staff and if there are indications of concern, lab staff proactively call or text MBP staff to alert them to a potential concern. If preliminary results are within normal ranges, EHAPPS is updated, results are reviewed and confirmed. Then, MBP staff send an email with a PDF of the final results to whomever submitted the sample. They also post a list of all sample results for the day to an external-facing SharePoint site, for Tribes, state, and federal agencies to access.

This routine process is outlined in **Figure 16** below.

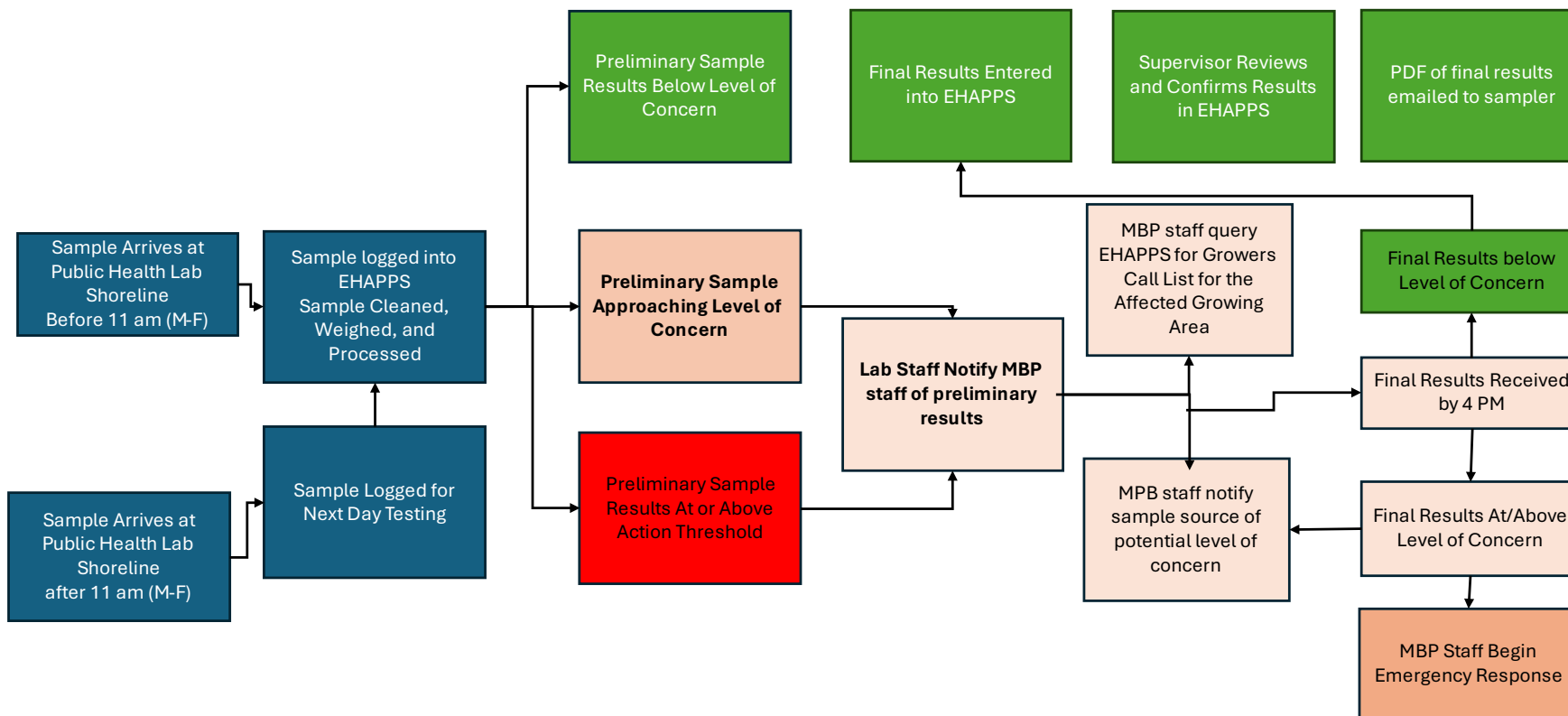


Figure 16. Routine Biotoxin Testing Process Flow

In parallel to the Sentinel Mussel program, DOH collaborates with two networks, Sound Toxins and the Olympic Region Harmful Algal Bloom Partnership (ORHAB), to regularly monitor phytoplankton in Puget Sound and on the coast. ORHAB collects and analyzes weekly (biweekly during peak biotoxin season) water samples from coastal beaches and bays. Sound Toxins collects water samples throughout Puget Sound every other week during the winter and weekly between March and October. Phytoplankton counts are shared with MBP staff. MBP and PHL staff are keenly aware of the need for timely and comprehensive communication when samples start to trend towards action levels and regularly are monitoring phytoplankton counts in order to identify increasing toxins. If water samples start to indicate increased levels of toxin producing phytoplankton, MBP staff are notified directly by Sound Toxins and ORHAB by phone, email or text.

Preliminary test results for mussel testing are typically available around 2 p.m. PST. As shown in Figure 16 if those preliminary test results are elevated, or are elevated relative to water quality trend data, Lab staff notify MBP staff. The MBP will then begin identifying growers who need to be contacted either for additional sampling or to initiate a closure (if final samples test above threshold levels). When final test results are available (usually by 4 PM PST) MBP staff are prepared to proceed either to an increased sampling regime or closure notification based on the final test results. This process is outlined in the next section.

7.2. Notification, Recall and Response

If preliminary sample results indicate cause for concern, then MBP staff are proactively notified (via phone call, email or text) by the lab staff. MBP staff typically search Shellview (an internal database) to identify affected growing areas and then query PHD to generate a list of growers in the affected area. MBP staff then notify (phone, email and/or text) the supplier of the sample and growers in the area that there may be a pending problem based on sample results. Additional samples are typically requested at this time. Depending on the types of shellfish being grown/harvested in an area, additional samples from other types of shellfish may be requested as well. During this phase, the decision of whether to harvest product may be left to the grower- with the knowledge that if sample results continue to trend upward and/or meet or exceed threshold levels, product may have to be recalled and or destroyed. MBP staff may require operations to embargo product until additional test results can be obtained.

If the samples meet or exceed threshold levels, then a commercial closure will be triggered. In addition to providing closure notification to growers in the affected areas, closure notifications are also shared (by email) with the Washington Department of Fish and Wildlife Enforcement Division and with Tribal Fisheries Offices. Depending on the nature of the event and recall local, state, and federal health authorities may also be notified.

If samples for only one species are above the action threshold, then the area will only be closed for that species. If two or more species are above the action threshold, then the entire area will be closed for all species.

During a closure event, samples results are reviewed daily and are communicated to the sample submitter. The MBP also posts a list of all sample results for the day to an external-facing SharePoint site, for Tribes, state, and federal agencies to access.

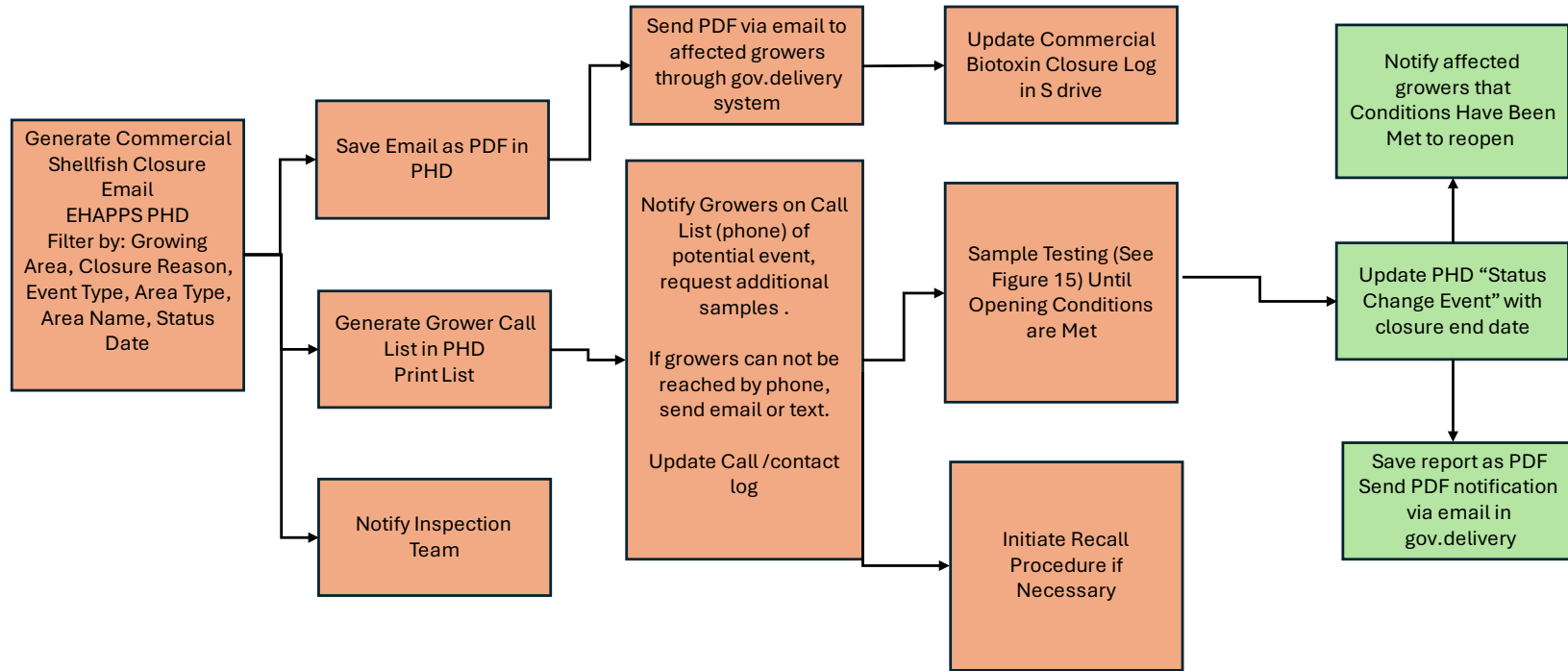


Figure 17. Emergency Biotoxin Testing Process Flow

All product harvested on or after the day the sample that resulted in a closure was collected must be recalled. Depending on the level of toxin in the sample and the trend data for preceding days, product harvested prior to the trigger sample was harvested may also need to be recalled.

An area remains closed until a minimum of two samples, one week apart, read below threshold action levels and do not show an increasing trend. Phytoplankton data may extend the length of a commercial closure if toxic cells remain in the growing area at elevated concentrations.

7.3. PSP Geoduck

Biotoxins can accumulate in the gut or viscera and neck or body meat of geoducks. Because some populations consume the viscera and some countries (Japan) only allow product that is completely toxin free (including the viscera) geoduck testing is typically based on levels in the viscera. If elevated PSP levels indicate the risk of geoduck meat contamination, the MBP may test the meat itself. For geoducks that are harvested from tracts in open areas that have a history of being impacted by biotoxins (particularly Clallam and Kitsap Counties) samples must be tested weekly. If other shellstock in an area test above the standard, additional geoduck testing may also be required.

If an area has been closed due to biotoxins, a minimum of two samples of viscera from 3-6 clams, collected between 7 to 10 days a part must test below the threshold for the area to reopen. Both samples must be below the closure threshold (80µg) or the area remains closed.

Because of the increased frequency of testing, commercial closures and the sampling protocol, a separate fee is assessed to cover the lab costs for this testing.

7.4. Opportunities & Recommendations

As with other aspects of the commercial shellfish licensing process, reliance on multiple databases and utilization of multiple methods of communication result in redundant input and output of data, re-entering data and converting formats, overprocessing and creating work arounds. These inefficiencies create waste and lead to staff burnout.

The value stream mapping exercise also revealed a significant overburdening of existing staff. Even if the process flow issues are addressed, current staffing levels are not sufficient to support sampling, notification, closures and re-opening efforts. As ocean temperatures rise, the window of concern for biotoxin events will increase as will the number of events. Events are occurring in areas that had not previously been impacted.^{12, 13, 14} Additional staff resources are needed not only to support existing workloads but to ensure that the team can support inevitable increased demand for their services.

¹² Shellfish and Climate Change. Washington Department of Health. Available [here](#).

¹³ Hintz, Megan. 2020. Facing Increased Health Risks of Harmful Algae Blooms: An Analysis of HAB dynamics and potential climate change related impacts to the Lummi Nation. Lummi Natural Resources Department, Harvest Management Division. Available [here](#).

¹⁴ Trainer, Vera. T. King. 2023. SoundToxins: A Research and Monitoring Partnership fir Harmful Phytoplankton in Washington State. Available [here](#).

8. Conclusions and Recommendations

The primary goal of a LEAN assessment is to identify opportunities to streamline processes, reduce waste, and improve customer experience. Customer focus is one of the hallmarks of this type of assessment.

There are two unique aspects of the Office of Environmental Health & Safety, Shellfish Licensing & Certification program.

First, the program has two primary “customers”: 1) the commercial shellfish operators who interact with the program to receive licenses and certifications and 2) the public who rely on the program’s inspection, testing, and monitoring services to ensure food safety.

Second, Washington is a member of the Interstate Shellfish Sanitation Conference (ISSC), enforcing the requirements set forth in FDA’s National Shellfish Sanitation Program Model Ordinance Guide for the Control of Molluscan Shellfish. Participation in this program not only ensures the highest standards for public health and safety, it also facilitates producers’ ability to ship and sell Washington shellfish products across the United States and internationally. From a LEAN assessment perspective, these factors influence the LEAN process because many of the processes, procedures, intervals and testing requirements of the program are in place in order to comply with ISSC standards and thus are not open to modification.

While the steps and requirements themselves cannot be modified, there are opportunities to streamline the intake and review processes associated with those steps as well as improve communication between staff managing review and approval and with applicants regarding application and review status.

For the LEAN assessment four processes were reviewed:

- licensing/permitting,
- inspecting operations,
- biotoxin management, and
- issuing export certificates.

No opportunities for process improvement were identified for the export certificate process, which is fully automated and on-line. In fact, the structure and functionality of this process illustrates the types of efficiencies that are needed across other aspects of the program and demonstrates that they can be achieved.

The LEAN assessment identified instances of process, people and flow waste that were common to three of the processes reviewed (licensing/permitting, inspection and biotoxin management). These included multiple channels and tools for receiving information, incompatible information systems, redundant input and output of data, re-entering of data and converting of formats, incompatible information systems (leading to workarounds) and overprocessing. Additional opportunities observed that are not directly aligned with office and flow waste concepts include the inability to produce forms in multiple languages and difficulty accessing, submitting or updating forms from the field.

Many of these issues can be resolved by updating the data platforms used to manage and track information. DOH currently utilizes four data platforms (a shared "S" drive, SharePoint, the EHAPPS, and HealthSpace).

The Shellfish program and the DOH IT department have been aware of many of the shortcomings of the current version of HealthSpace, and the program is well aware that their application processes need to be streamlined. These two teams are currently working with HS Govtech, the developer of the HealthSpace application, to configure a version of their new cloud-based HealthSpace product. This new version of HealthSpace should be better able to integrate with the existing systems and may allow data to be shared between the systems in both directions. However, the most significant improvements promised by this software upgrade are pitched to address the first two major friction points we identified.

As part of the HS Govtech contract, they have agreed to create data entry forms for each of the existing Shellfish applications. The DOH would be able to host these forms online, and in much the same way that a checkout page, will provide an error if you entered your card information incorrectly, these forms will provide basic error handling for issues like incorrect formatting or required fields being left unfilled. The data from these online forms would then be input directly into the Shellfish programs systems, without an individual needing to transcribe paper applications into a computer. This would go a very long way to reducing the repetitious and redundant work currently being done in the form of data entry and basic error correction by a team member.

These new forms provided via HealthSpace can be set up as decision-tree style questionnaires, making the forms easy to follow for those less accustomed to working with interactive documents, like a form-fillable PDF.

HS Govtech has estimated that the new product will be rolled out to the Shellfish program in approximately three months. Assuming it lives up to the currently stated expectations, it will go a long way to addressing the issues identified here.

Technology itself is not the complete solution, however. We have seen in the rollout of the online renewal and payment system that the analogue nature of the industry will likely make it resistant to these new processes. The decrease in direct human contact between the shellfish companies and the DOH Shellfish program could lead to harmful degradation in those critically important relationships. For this reason and others, we have further recommendations beyond just the implementation of the new HealthSpace system, and we have modifications to the HealthSpace rollout and integration as well.

To avoid creating a sense of depersonalization and disregard for growers and their needs, to facilitate the transition to a more fully online system, the program should designate a transition window and establish a single point of contact during the transition from paper applications and phone calls to online forms and automated systems.

In the interest of maintaining this sense of closeness and support, the Shellfish program should be provided with the necessary resources to establish a middle line between the fully online automated system and defaulting to accepting paper applications and payments. This middle line should be an easily accessible point of contact that allows shellfish companies to get direct support either by email, by phone, by video call, or possibly even by in-person workshops or site visits, where department staff can walk them through the use of the online systems and answer any questions they have. During this

phase program staff should be encouraged to direct all questions and troubleshooting to this resource. Workshops may be an especially useful tool for helping guide non-English-speaking shellfish company members, as it would condense the cost of translation services.

It is unlikely that the whole industry will get on board with this in the first year, but if this “middle line” program is well executed and helps maintain that sense of support and connection with the industry, then word of mouth could improve attendance in future years. As more companies, groups, and individuals become accustomed to the process, they will require less and less support, and the need for this program will diminish until either an acceptable medium is reached and the program can be ended, or the burden on DOH is so minimal that it no longer requires additional resources, and instead takes the form of a small number of phone calls per year to new users of the system.

A

Documents Reviewed

Complaint SOP

Office of Environmental Health & Safety. October 2020. Shellfish L&C Complaint: Inspector Follow-Up SOP. Available [here](#).

Department of Health. September 2020. Shellfish L&C Complaint Intake SOP. Available [here](#).

Department of Health. 2024. Complaint Processing. Available [here](#).

DOH Export Certificate Process

Department of Health. 2024. Posting Export Cert Payments by Check or Money Order. Available [here](#).

Department of Health. 2024. Shellfish Export Certificate Application (SECA) Admin Task Guide/Instructions. Available [here](#).

Department of Health. 2024. Shellfish Export Certificate Payment Guide. Available [here](#).

Enforcement SOP

Department of Health. February 2024. Critical & Repeat Violations SOP. Available [here](#).

Department of Health. February 2024. Enforcement Tracking. Available [here](#).

Department of Health. February 2024. Hold & Abatement Orders. Available [here](#).

Department of Health. February 2024. Patrol Program. Available [here](#).

Harvest Site Certificate Program

Department of Health. November 2022. HSC Program SOP. Available [here](#).

Department of Health. February 2024. Harvest Site Program SOP. Available [here](#).

Illness Tracking SOP

Department of Health. 2024. Shellfish Illness Tracking & Traceback. Available [here](#).

Inspection SOPs

Department of Health. 2024. Corrective Action SOP. Available [here](#).

Department of Health. 2024. Re-Inspection Guidance. Available [here](#).

Department of Health. February 2024. Environmental Assessment Procedures. Available [here](#).

Department of Health. 2024. HealthSpace Travel Time SOP. Available [here](#).

Department of Health. 2024. Inspection Types for Shellfish Inspectors. Available [here](#).

Department of Health. 2024. Shellfish Inspection SOP. Available [here](#).

Department of Health. February 2024. Inspection Writing SOP. Available [here](#).

Permitting

Department of Health. April 2024. Aquaculture Permit SOP. Available [here](#).

Department of Health. February 2024. Relay Permit Program SOP. Available [here](#).

Department of Health. February 2024. Wet Storage Permit SOP. Available [here](#).

B

Workshop Attendees and Agendas

Workshop Attendees

Day 1: Harvest Site Certification

Name	Department	Role
Grace Workman	DOH	Inspector & Harvest Site Lead
Erin Hull	DOH	Harvest Site Specialist
Dani Toepelt	DOH	Section Manager

Day 2: Biotoxin Management

Name	Department	Role
Jerry Borchert	DOH	Biotoxin Lead
Tracie Barry	DOH	Biotoxin Specialist
Daniel Chavez	Lab/DOH	Chemist
Jeff Lahti	Lab/DOH	Biotoxin Supervisor
Dani Toepelt	DOH	Section Manager

Day 3 & 4: Permitting and Certifications

Name	Department	Role
Grace Workman	DOH	Inspector & Harvest Site Lead
Curtis Villa	DOH	Inspection Supervisor
Dani Toepelt	DOH	Section Manager
Cari Franz-West	DOH	Inspector & Wet Storage/Relay Lead
Nathan Helman	DOH	Inspector & AQ Lead
Angie Robinson	DOH	Licensing and Permit Specialist



LEAN Assessment Workshop

for

Washington Department of Health

Commercial Shellfish Program

February 3, 2025

Day 1- Harvest Site and Export Certification Process Review

Goal: Identify and eliminate inefficiencies within the business process by focusing on activities that add value to the customer, ultimately improving efficiency, quality, and customer satisfaction while minimizing unnecessary steps and costs, all through a continuous improvement mindset. The primary objective is to understand what creates value from the customers' perspective and prioritize those activities, while protecting public health.

Key Points to Consider:

- **Waste Reduction** – identify and remove unnecessary steps, delays, and other forms of waste within a process,
- **Process Optimization**-streamline workflows and improve process flows to deliver services faster and more efficiently,
- **Employee Engagement**- empower employees to actively participate.

AGENDA

Time	Task
9:00-9:30	Introductions
9:30-10:00	Overview of LEAN process
10:00-12:00	Mapping Current Processes
12:00-1:00	LUNCH BREAK
1:00-2:00	Identifying Redundancies, Inefficiencies, and Gaps
2:00-3:00	Developing Strategies
3:00-4:00	Structuring New Processes
4:00-4:30	Next Steps

Housekeeping: Please put away cell phones. Stand up, move around, take breaks, as you need them. Be constructive. Respect diversity.

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LEAN Assessment Workshop

for

Washington Department of Health

Commercial Shellfish Program

February 4, 2025

Day 2- Biotoxin Management

Goal: Identify and eliminate inefficiencies within the business process by focusing on activities that add value to the customer, ultimately improving efficiency, quality, and customer satisfaction while minimizing unnecessary steps and costs, all through a continuous improvement mindset. The primary objective is to understand what creates value from the customers' perspective and prioritize those activities, while protecting public health.

Key Points to Consider:

- **Waste Reduction** – identify and remove unnecessary steps, delays, and other forms of waste within a process,
- **Process Optimization**-streamline workflows and improve process flows to deliver services faster and more efficiently,
- **Employee Engagement**- empower employees to actively participate.

AGENDA

Time	Task
9:00-9:30	Introductions
9:30-10:00	Overview of LEAN process
10:00-12:00	Mapping Current Processes
12:00-1:00	LUNCH BREAK
1:00-2:00	Identifying Redundancies, Inefficiencies, and Gaps
2:00-3:00	Developing Strategies
3:00-4:00	Structuring New Processes
4:00-4:30	Next Steps

Housekeeping: Please put away cell phones. Stand up, move around, take breaks, as you need them. Be constructive. Respect diversity.



LEAN Assessment Workshop

for

Washington Department of Health

Commercial Shellfish Program

February 5, 2025

Day 3 – AQ, Relay and Wet Storage Permitting

Goal: Identify and eliminate inefficiencies within the business process by focusing on activities that add value to the customer, ultimately improving efficiency, quality, and customer satisfaction while minimizing unnecessary steps and costs, all through a continuous improvement mindset. The primary objective is to understand what creates value from the customers’ perspective and prioritize those activities, while protecting public health.

Key Points to Consider:

- **Waste Reduction** – identify and remove unnecessary steps, delays, and other forms of waste within a process,
- **Process Optimization**-streamline workflows and improve process flows to deliver services faster and more efficiently,
- **Employee Engagement**- empower employees to actively participate.

AGENDA

Time	Task
9:00-9:30	Introductions
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1:00-2:00	Identifying Redundancies, Inefficiencies, and Gaps
2:00-3:00	Developing Strategies
3:00-4:00	Structuring New Processes
4:00-4:30	Next Steps

Housekeeping: Please put away cell phones. Stand up, move around, take breaks, as you need them. Be constructive. Respect Diversity.



LEAN Assessment Workshop

for

Washington Department of Health

Commercial Shellfish Program

February 6, 2025

Day 4- New License Issuance and Renewal

Goal: Identify and eliminate inefficiencies within the business process by focusing on activities that add value to the customer, ultimately improving efficiency, quality, and customer satisfaction while minimizing unnecessary steps and costs, all through a continuous improvement mindset. The primary objective is to understand what creates value from the customers' perspective and prioritize those activities, while protecting public health.

Key Points to Consider:

- **Waste Reduction** – identify and remove unnecessary steps, delays, and other forms of waste within a process,
- **Process Optimization**-streamline workflows and improve process flows to deliver services faster and more efficiently,
- **Employee Engagement**- empower employees to actively participate.

AGENDA

Time	Task
9:00-9:30	Introductions
9:30-10:00	Overview of LEAN process
10:00-12:00	Mapping Current Processes
12:00-1:00	LUNCH BREAK
1:00-2:00	Identifying Redundancies, Inefficiencies, and Gaps
2:00-3:00	Developing Strategies
3:00-4:00	Structuring New Processes
4:00-4:30	Next Steps

Housekeeping: Please put away cell phones. Stand up, move around, take breaks, as you need them. Be constructive. Respect Diversity.

C

Data Needs Analysis

The data transparency portion of the LEAN assessment focused on reviewing the internal technologies used by the DOH Shellfish program. Our team conducted meetings and interviews with the Shellfish program staff and DOH IT staff, gathered feedback from shellfish operators in the field, reviewed internal DOH documents, and followed various application processes ourselves in an attempt to identify areas of improvement. Most friction points were identified in the analogue nature of application processes and the issues some internal technologies had integrating with each other. We found that the paper-based application systems introduced opportunities errors and required a great deal of direct communication between the applicants and the department to ensure completeness and accuracy. Once submitted the total time re-entering data submitted on the applications added up to hundreds of person-hours per year. Additionally, we determined that the inability of some internal tools to communicate and share data between each other limited their usefulness to the department and forced workflows to be spread out across several tools. Through our interviews with the IT team, we found that work was already underway to address many of the identified pain points. The program is currently upgrading to a cloud-based version of the program's HealthSpace software. This upgrade is expected to take an estimated three to six months, has already been budgeted for and approved, and may also ease the implementation of further solutions we have identified to address the Shellfish program's needs.

Process

Our team hosted a LEAN workshop with members of the Shellfish program in early February to build the detailed view of the program used in our Analysis. As a part of this, we gathered information on the technologies used in the program's internal processes. Following the workshop, we met with Shellfish program manager Dani Toepelt and discussed how the program's internal systems were used in detail. This included a review of the processes by which all forms of applications, renewals, and payments were submitted, as well as the way internal tools and databases were used by the department to collect, store, access, and utilize information. This allowed us to begin identifying points of friction in existing workflows and identify potential solutions.

Following this, we met with the DOH IT team to discuss the current issues with Shellfish's systems, what possible solutions may look like, and what challenges they faced in implementing solutions of their own. The IT team introduced us to several important changes that were already ongoing, and we had a thorough discussion on the ways that upcoming planned improvements would address the identified issues, and the ways they may not.

Findings

Our team found numerous points of friction that could be addressed, with varying levels of potential for efficiency improvements. These can be broken down into three categories: Internal Repetition and Stunted Integration and External Interface. In this section, we will take a look at each of these issues, and review what measures the IT and Shellfish team are currently taking to address them.

Internal Repetition

A major point of friction we identified was the amount of repetitious work being done by department staff, partially as a result of the outmoded application processes. When paper applications are received, they do not remain purely on the paper, and the information contained within them is instead entered into internal databases and tracking tools, so it can be shunted to the appropriate persons and departments for further action. This data entry process is time-consuming on its own and made all the

more so by the fact that paper applications do not allow for any kind of error handling prior to being submitted. Any errors in the information submitted currently require Shellfish program staff to call the shellfish company that filed the application and discuss the issue one-on-one, potentially including a round of revisions to the application that will see it spend more time in the mail. The data entry itself takes an estimated average of fifteen minutes per application, with hundreds being submitted by paper every year. Given the minimum salaries for DOH office workers, as well as the number of applications, time for data entry, and making the very generous assumption that the time taken up in error correction is only equal to the time taken for data entry and not greater, as interviews have suggested, the cost of this repetitious work is likely upwards of \$4,000 per year, which is to say nothing of the opportunity cost of having a well-qualified member of the Shellfish team spend their time on this instead of tasks better suited to their capabilities.

Stunted Integration

Another major point of friction we identified throughout our search was the lack of communication between current Shellfish tools. EHAPPS (Environmental Health Applications) is a database and suite of related tools designed for collecting, storing, accessing, and utilizing environmental health data within the DOH. It is an internally built and managed system that requires users to be in-network to access data and tools, meaning that it cannot be accessed off-site by Shellfish team members. This poses a real issue as many team members are spending as much as 80 percent of their time on the road and in the field, performing inspections and working with shellfish companies.

The other major tool the Shellfish program uses, HealthSpace, is accessible remotely, but has its own suite of issues. Namely, while the version of HealthSpace currently used by the team is capable of pushing data to EHAPPS, and does so once or twice per day, it is not capable of pulling information from the database, and EHAPPS is not capable of pushing that information to HealthSpace. This means that workers in the field and others who rely on the system for some aspects of their jobs can enter information into HealthSpace and trust that it will be correctly incorporated into the DOH's internal systems but cannot use HealthSpace as a repository for any information that was not already manually entered into it.

This one-way communication between these two central systems diminishes the value of both of them, introducing the potential for delays in processing and further repetitious data entry work. It also means that there is no single repository where members of the team can go to access shellfish company information and therefore searches for company information must be divided between the two systems depending on what kind of application was submitted.

Observations and Recommendations

Our team was not the first to identify the most severe of these issues. The Shellfish program and the DOH IT department have been aware of many of the shortcomings of the current version of HealthSpace, and the program team is well aware that their application processes need to be streamlined. These two teams are currently working with a team at Govtech, the developer of the HealthSpace application, to create a version of their newer cloud-based HealthSpace product. This new version of HealthSpace should be better able to integrate with the existing EHAPPS systems and may allow data to be shared between the systems in both directions. However, the most significant improvements promised by this software upgrade are pitched to address the first two major friction points we identified.

As part of the HSGovtech contract, they have agreed to create data entry forms for each of the existing Shellfish applications. DOH would be able to host these forms online, and in much the same way that a checkout page will provide an error if you entered your card information incorrectly, these forms will provide basic error handling for issues like incorrect formatting or required fields being left unfilled. The data from these online forms would then be input directly into the Shellfish programs systems, without an individual needing to transcribe paper applications into a computer. This would go a very long way to reducing the repetitious and redundant work currently being done in the form of data entry and basic error correction by a team member.

These new forms provided via HealthSpace also can be set up as decision-tree style questionnaires, making the forms easy to follow for those less accustomed to working with interactive documents, like a form-fillable PDF.

HS Govtech has estimated that the new product will be rolled out to the Shellfish program in approximately three months. Assuming it lives up to the currently stated expectations, it will go a long way to addressing the issues identified here.

Technology itself is not the complete solution, however. We have seen in the rollout of the online renewal and payment system that the analogue nature of the industry will likely make it resistant to these new processes, and that the decrease in direct human contact between the shellfish companies and the DOH Shellfish program could lead to harmful degradation in those critically important relationships. For this reason and others, we have further recommendations beyond just the implementation of the new HealthSpace system, and we have modifications to the HealthSpace rollout and integration as well.

The third friction point observed through our engagements is related to adoption and acceptance of these technology upgrades.

External Interface

The external experience of a shellfish company using the program's application¹⁵ processes is quite “outmoded tech” by today’s standards. Given the context gathered from some interviews, the analogue nature of the Shellfish industry coupled with the close relationship these businesses have with the programs that ensure the safety of their products, makes these companies wary of systems that add a level of depersonalization between themselves and their DOH counterparts. Investment into a system that changes how they interface with the program has the potential to be seen as change for the worse with no tangible benefit. The change from a system whereby a member of the program will call and mail them to address errors and ensure accurate information to one where they simply enter data into an inanimate online form, may feel like a betrayal of those carefully fostered relationships.

Another way the outmoded nature of the industry impacts this transition is in technical comfort. Following the implementation of an online renewal and payment system last year, only 40 percent of the industry actually utilized it. This year, currently 60 percent have utilized the online payment platform. The online payment and renewal systems were the only ones publicly advertised by the program, but Shellfish also accepted paper applications and cash/cheque renewal fee payments on request, in order to accommodate those who could not use the new system.

¹⁵ Authors Note: Throughout this chapter, for the sake of brevity, the term “Application” will be used to refer to new license applications, harvest site certifications, and any other similar forms.

Additional Recommendations

Related to data, we have two additional recommendations to make that are not already addressed by the upgrades that can be implemented in conjunction with the new HealthSpace rollout. The first of these is to maintain that necessary human contact and ease the transition for shellfish companies adopting this new system. The second is to ensure that the DOH gets the most out of its investment in the cloud-based HealthSpace platform.

Maintaining Connections

The shellfish industry relies on the standards, sampling, testing, and information dissemination services provided and maintained by the DOH to ensure that the public can trust that shellfish will be safe to eat. To avoid creating a sense of depersonalization and disregard for growers and their needs, to facilitate the transition to a more fully online system, the program should designate a transition window and establish a single point of contact during the transition from paper applications and phone calls to online forms and automated systems.

In the interest of maintaining this sense of closeness and support, the Shellfish program should be provided with the necessary resources to establish a middle line between the fully online automated system and defaulting to accepting paper applications and payments. This middle line should be an easily accessible point of contact that allows shellfish companies to get direct support either by email, by phone, by video call, or possibly even by in-person workshops or site visits, where department staff can walk them through the use of the online systems and answer any questions they have. Shellfish program staff should be encouraged to direct all questions and troubleshooting to this resource. Workshops may be an especially useful tool for helping guide non-English-speaking shellfish company members, as it would condense the cost of translation services.

The team should take this opportunity to gently discourage the use of paper systems, to explain the burdens placed on the department as described herein, and to indicate that the money collected from shellfish company application fees and the taxes that support the DOH can be better allocated to projects that support the industry if it's not being used to fund redundant data entry.

It is unlikely that the whole industry will get on board with this in the first year, but if this "second line" program is well executed and helps maintain that sense of support and connection with the industry, then word of mouth could improve attendance in future years. As more companies, groups, and individuals become accustomed to the process, they will require less and less support, and the need for this program will diminish until either an acceptable medium is reached and the program can be ended, or the burden on DOH is so minimal that it no longer requires additional resources, and instead takes the form of a small number of phone calls per year to new users of the system.

Furthering the Value of HealthSpace

While the currently planned new edition of HealthSpace will address many of the problems we identified in its current form, it is not clear how it can be integrated with the existing EHAPPS systems. There are already pre-existing public-facing tools on EHAPPS that improve the efficiency of the Shellfish department, like the export certification system, and moving those to HealthSpace could be a costly endeavor. Throughout our discussions with Shellfish and IT team members, we were consistently told that people expected the cloud-based platform to better communicate with EHAPPS, but how this would work was unclear.

While one of the sticking points in this review has been the existence of redundancy and repetition, that is only an issue insofar as it requires resources that are in short supply. Data storage, especially on the level being used by the Shellfish program, is cheap. As such, it may make the most sense to simply increase the parity of information stored in HealthSpace and EHAPPS, as long as it can be done without measurably reducing the security of that information. If both databases regularly push updates to each other with the new information they've each gained from their use, then the existing EHAPPS tools could be easily integrated with the new HealthSpace forms, and via the HealthSpace cloud all that information would be accessible to team members in the field, should they need it.

As per that observation, it would likely be worth the IT department's time to estimate the cost of building such an integration in-house and then meet with the Govtech team to discuss a quote for building much the same integration from their side, if possible. Depending on the cost and the overall utility to the department, it may be worth investing general funds into such a system, especially as it could likely be used by other DOH programs that also use both HealthSpace and EHAPPS and would serve as a model for similar future investments into DOH data transparency projects. □