# Archipelago Protocol: Autonomous Token Buyback & Burn Engine

**Date:** January 2026
**Network:** Revshare & Solana Mainnet
**Status:** Architecture Complete

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## Executive Summary

Archipelago Protocol is a fully automated, on-chain revenue distribution and token buyback engine built on Solana. The protocol captures revenue from vault operations, deploys capital into Hylo's overcollateralized hyUSD staking system as the initial treasury strategy, and executes automated yield harvesting and Dailly token buyback and burn cycles—all without requiring manual intervention or centralized governance decisions.

This approach prioritizes **capital safety and yield sustainability** while maintaining a **clear, diversification roadmap** for future protocol expansion. By starting with Hylo's proven 15% APY stablecoin infrastructure, Archipelago establishes a defensible foundation before deploying into higher-yield (and higher-risk) protocols as TVL grows and operational maturity increases.

**Key Metrics (Launch Phase):**

- **Initial Strategy:** 100% Hylo hyUSD staking

- **Target APY:** 15% (conservative, sustainable)

- **Monthly Yield** (at $50k revenue): $625

- **Annual Buyback Capacity**: $7,500+

- **On-Chain Automation Cost**: ~$0.05/month

- **Fully Decentralized:** No central authority can modify payouts or yields

- **Diversification Timeline:** Phases in 2nd and 3rd protocols after 6 months of proven operations

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# 1. Problem Statement

## 1.1 Token Supply Inflation & Value Dilution

Most DeFi protocols operate with:

- **Perpetual token inflation** from emissions, incentives, and dev grants

- **No systematic capital recycling** to support buybacks

- **Governance overhead** requiring manual decisions on treasury allocation

This creates a "death spiral": emissions dilute value, token price declines, deflating incentives to hold or participate.

## 1.2 Capital Inefficiency & Risk in Early Treasuries

Traditional DeFi protocols struggle with:

- **Idle treasuries** earning 0–5% on stablecoins (USDC in wallets)
- **Over-diversification** creating operational complexity and monitoring burden
- **Premature concentration** in unproven yield protocols (e.g., launching with 20% in experimental protocols)
- **Cascading liquidations** from highly leveraged positions when market stress occurs
- **Manual rebalancing** requiring governance votes and delays

## 1.3 Lack of Transparent, Trustless Buyback Mechanisms

Current solutions:

- **Centralized buyback programs** that rely on a dev team to execute swaps (risk of rug/misuse)
- **Manually triggered governance votes** for each buyback (slow, inefficient)
- **No real-time accountability** for how much was actually burned (opaque accounting)
- **Risk of over-optimization** chasing higher yields that disappear when stressed

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# 2. Archipelago Protocol Solution

## 2.1 Architecture Overview

Archipelago Protocol addresses these problems via a **single smart contract** (BuybackEngine) that operates in **phases**:

**Phase 1: Hylo Anchor (Months 1–6)**

1. **Receives** 100% of protocol revenue from vault operations (SOL)
2. **Deploys** capital exclusively to Hylo's hyUSD staking (overcollateralized, proven)
3. **Harvests** yields daily via on-chain automation (Clockwork)
4. **Aggregates** yields into a buyback pool
5. **Executes** daily buybacks via Jupiter Aggregator
6. **Burns** tokens permanently (removes from circulation)

**Phase 2: Diversification (Months 6–12)**

- Add 2nd protocol (e.g., Orca stablecoin whirlpools) after 6 months of Hylo operations
- Allocate 20% to new protocol, maintain 80% in Hylo
- Implement additional monitoring infrastructure

**Phase 3: Multi-Protocol Growth (Month 12+)**

- Gradually introduce remaining protocols (Kamino, Raydium, Link, Experimental)
- Scale to full 6-protocol allocation as TVL and team capacity increase
- Implement advanced rebalancing logic

All steps are **fully automated, trustless, and on-chain**—no centralized intermediary required.

# 2.2 Core Mechanism: The Buyback Loop (Phase 1)

Protocol Revenue (SOL from Vaults)
↓
BuybackEngine Contract
├── Deploy to Hylo hyUSD Staking
└── Every 24 hours: Harvest yield
└── Every 7 days: Aggregate → Buyback → Burn

# 2.3 Initial Treasury Strategy: Hylo hyUSD Anchor

**Why Hylo First?**

| Aspect | Hylo | Alternatives |
|---|---|---|
| **APY** | 15% (sustainable) | Kamino: 25% (liquidation risk), Raydium: 18% (IL risk) |
| **Collateral** | 150%+ LST basket | Single-asset concentration |
| **Proven Track Record** | Live since 2024, $100M+ TVL | Newer protocols, less battle-tested |
| **Monitoring Burden** | Low (1 metric: CR ratio) | High (leverage, range efficiency, TVL trends) |
| **Liquidation Risk** | None (stablecoin denominated) | Yes (Kamino at 3x leverage) |
| **Operational Simplicity** | Straightforward staking | Complex rebalancing required |
| **Governance Overhead** | Minimal | Frequent rebalancing votes needed |

**Hylo Protocol Fundamentals:**

- **Mechanism:** Users deposit SOL/LSTs (JitoSOL, mSOL) as collateral, mint hyUSD stablecoin, earn yields from LST staking accrual
- **Yield Source:** Underlying SOL staking APY (currently ~8%) + protocol incentives (currently ~7%) = 15% total
- **Safety:** 150%+ collateral ratio requirement (if collateral value drops to 150%, position liquidated with buffer)

- **Risk:** LST depeg risk (JitoSOL/mSOL trade at 0.98–1.02x SOL), but protocol maintains 150% buffer
- **Maturity:** Launch in mid-2024, proven operations through 2025 market cycles

**Archipelago's Allocation:**

At launch:

- 100% of deployed capital → Hylo hyUSD staking
- Target deployment: $50k–$100k SOL equivalent
- Expected yield: 15% APY = $625/month (at $50k) to $1,250/month (at $100k)

**Safety Monitoring:**

Daily checks (automated):

- Hylo collateral ratio (alert if < 170%, emergency exit if < 150%)
- Hylo protocol TVL trend (alert if declining > 20% weekly)

Weekly checks (governance):

- Verify yields hitting 15% APY target
- Review accumulated buyback yield pool

Monthly checks (governance):

- Decide if conditions are ready for Phase 2 (6-month threshold)
- Adjust allocation within Hylo if needed (e.g., split 60% staking / 40% governance)

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# 3. Diversification Roadmap

## 3.1 Phase 2 Plan (Months 6–12)

**Trigger Conditions to Enter Phase 2:**

- ✓ 6+ months of proven Hylo operations without incident
- ✓ TVL reached $200k+
- ✓ Governance infrastructure stable (multisig operating smoothly)
- ✓ Team capacity to monitor 2 protocols

**Phase 2 Allocation (Proposed):**

| Protocol | Allocation | APY | Rationale |
|---|---|---|---|
| Hylo hyUSD | 80% | 15% | Proven anchor, reduce to de-risk |
| Orca Whirlpools (stables) | 20% | 12% | Stablecoin-only LP, low IL, proven AMM |

**Why Orca as 2nd Protocol?**

- **Safe:** Concentrated liquidity on USDC-USDT pairs eliminates volatile price IL
- **Proven:** Orca is mature Solana DEX, no major hacks since 2021
- **Complementary:** Different yield sources (trading fees vs. staking), reduces protocol risk
- **Low Monitoring:** Range efficiency is main metric (checked weekly)

**Phase 2 Implementation:**

1. Governance vote to approve Orca addition
2. Update BuybackEngine to deploy_to_orca() function
3. Redeploy 20% of capital from Hylo to Orca
4. Begin monitoring Orca range efficiency daily
5. Continue existing Hylo monitoring

**Phase 2 Expected Metrics:**

- Hylo yield: 80% × 15% = 12% of capital
- Orca yield: 20% × 12% = 2.4% of capital
- Blended APY: 14.4% (slight decline from 15%, acceptable for diversification benefit)
- Monthly yield: $625 → $600 (minimal reduction, but risk reduced)

# 3.2 Phase 3 Plan (Month 12+)

**Trigger Conditions:**

- ✓ 6+ months of Phase 2 operations without incident
- ✓ TVL reached $500k+
- ✓ Full team dedicated to treasury management
- ✓ Advanced monitoring infrastructure in place (Dune dashboards, health alerts)

**Phase 3 Allocation (Full Diversification):**

| Protocol | Allocation | APY | Monthly Yield (at $50k revenue) |
|---|---|---|---|
| Hylo hyUSD | 25% | 15% | $156 |
| Orca Whirlpools | 15% | 12% | $75 |
| Kamino 3x Leverage | 20% | 25% | $208 |
| Raydium Concentrated LP | 20% | 18% | $150 |
| Link Finance Aggregator | 15% | 15% | $94 |
| Experimental (Meteora/Flash) | 5% | 20% | $42 |
| **TOTAL** | **100%** | **17.4%** | **$725** |

**Phase 3 Rationale:**

- Hylo reduced to 25% (from 100%) as anchor remains strong

- Orca remains at 15% for stablecoin diversification

- Kamino introduced with strict health factor monitoring (min 2.5x)

- Raydium adds concentrated LP upside

- Link provides aggregator diversification

- Experimental capped at 5% for innovation exposure

**Phase 3 Implementation (Staggered):**

- Month 12: Add Kamino (20% allocation)

- Month 13: Add Raydium (20% allocation)

- Month 14: Add Link (15% allocation)

- Month 15: Add Experimental (5% allocation)

Each introduction requires governance vote + 1-month monitoring before next protocol added.

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# 4. Risk Management & Safety

## 4.1 Emergency Governance Controls

**Governance Multisig** can:

- **Pause protocol** → Stops all automations immediately (withdrawals enabled)

- **Update allocations** → Rebalance from one protocol to another (Phase 2+)

- **Emergency withdraw** → Extract up to $100k from treasury (safety valve)

- **Advance phase** → Vote to move from Phase 1 → Phase 2 → Phase 3 early if conditions met

No single signer can execute these—requires majority vote.

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# 12. Conclusion

Archipelago Protocol solves the "bootstrapping problem" in early-stage DeFi: **how to create sustainable, deflationary tokenomics without premature risk-taking or governance overhead**.

The **three-phase approach** offers the best balance:

**Phase 1 (Hylo Anchor):** Conservative, safe, proven. Establishes operational foundation.

**Phase 2 (Diversification):** Adds complementary yield source (Orca stablecoins). Reduces Hylo concentration.

**Phase 3 (Full Growth):** Achieves 17.4% blended APY across 6 protocols. Maximizes buyback velocity at scale.

By starting with Hylo's 15% sustainable yield and proven operations, Archipelago builds trust and operational competency. As the protocol matures, diversification creates more efficient capital deployment and reduces single-protocol risk.

The result:

- **Transparency:** 100% on-chain, auditable, no hidden mechanisms
- **Safety:** Staged diversification minimizes risk at each phase
- **Autonomy:** Fully automated, no human intervention required
- **Scalability:** Gas costs negligible, works at any TVL
- **Alignment:** Token holders benefit directly from protocol profitability (deflationary pressure = scarcity = price appreciation)

As Archipelago grows from $50k/month revenue through Phase 1, Phase 2, and into Phase 3, the buyback velocity scales proportionally creating a virtuous cycle where protocol success directly translates to token supply reduction and potential value appreciation.