

THE BIVALVE BULLETIN

Photo Credit: Mike Kuhman

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After the storms....Recovery of Florida's clam aquaculture industry

This time of year allows one to stop and reflect on the past year's activities as well as to begin planning for the new year. For many it will be hard to ever forget the 2004 hurricane season and its impact on clam farming. Today, payments for clam losses from crop assistance programs (NAP and crop insurance) have been made to growers and nurseries. Unfortunately, policy provision changes in 2004 to the pilot insurance program may have limited its financial protection of the industry. Last year growers purchased crop insurance to cover \$5 million in liabilities, 25% of the total crop coverage in the previous year. Additional financial assistance for the industry in the form of a Crop Disaster Program has yet to come (see article below). Further, inconsistencies in assistance programs have been daunting. However, thanks to the efforts and support of our Florida congressional delegation, a problem with sign-up dates for the Noninsured Crop Disaster Assistance Program was addressed. The USDA Farm Service Agency did extend deadlines (twice) to allow aquatic farmers to apply.

So what else can the industry expect this year during its recovery? Initial shortages of clam seed may occur as many hatcheries and nurseries were affected by hurricane damage. Some suppliers are rebuilding their facilities in anticipation of providing seed this year, some are not. On page 3 of this newsletter is the annual listing of Florida seed suppliers, down by 20% from last year. Market disruptions may also be anticipated as about half of this year's projected production has been lost. In times of adversity, other opportunities do arise. With that said, it may be time to evaluate other marketing alternatives for this industry. In this issue, one alternative—forward contracting—is introduced. Finally, on page 2 is a column reprinted from a small business adviser addressing crisis management. The bottom line...crises do occur, causing one to reevaluate their situation. In some cases, the exit strategy prevails. To those industry members who are moving on, seeking other careers or retiring, you will be missed. After all, Florida's clam farming industry is also a community. Good luck to all this year!

Sign-up for the USDA Crop Disaster Program anticipated in March 2005

In October 2004 Present Bush signed disaster legislation to provide additional financial assistance for producers who suffered crop losses in 2003, 2004 or 2005 caused by damaging weather. The Crop Disaster Program, or CDP, is fully funded under this legislation and is to be administered by the U.S. Department of Agriculture (USDA), Farm Service Agency. This agency also administers the Noninsured Crop Disaster Assistance Program, or NAP. However, these assistance programs are different and it is important for producers to understand these differences. According to the Farm Service Agency (FSA), sign-up to apply for the CDP is anticipated in late March 2005.

Preliminary information released on the CDP states provisions will be similar to those implemented in 2000. In that year, the CDP reimbursed producers for crop damages in excess of 35% of the crop inventory value at 60% of the average market price, or 65/60. By comparison, NAP reimburses qualifying losses at a coverage level of 50/55. The pilot crop insurance program for cultured clams also starts off at a protection level of 50/55 (referred to as catastrophic coverage), but allows a producer to buy up to levels of 75/100. CDP provisions will limit the producer to electing only one of the crop years listed above. Further, losses

in 2005 must be associated with the 2004 hurricane season. There is an \$80,000 per "person" payment limitation and a 95% payment cap applies.

The CDP will cover all clam crops as follows: 1) insured crops (field nursery in 2003 and growout in all qualifying years) under the pilot crop insurance program in Brevard, Dixie, Indian River and Levy Counties; 2) noninsured crops (growout) eligible for NAP coverage in Charlotte, Franklin, Lee, St. Johns and Volusia Counties; 3) noninsured crops (land-based nursery and field nursery) eligible for NAP coverage in all counties; and, 4) uninsured crops. The later category refers to those crops that were not eligible for either crop insurance or NAP, specifically in 2004 the field nursery clams in Brevard, Dixie, Indian River and Levy Counties. Also, this category allows producers who elected not to participate in existing programs to be eligible for CDP. However, the producer must provide sufficient crop records documenting losses, obtain FSA county committee approval, and agree to buy either crop insurance or NAP for the next two years. Under the first 3 categories, a clam producer with an approved NAP or crop insurance loss will immediately be eligible for a CDP payment when application is made. **Continued on Page 4**

CRISE\$ Business Management *By Dr. Jerry Osteryoung, The Jim Moran Institute for Global Entrepreneurship*

"Wisdom begins in wonder." -Socrates

Crises do not happen on a regular basis. However, they do happen frequently enough to warrant having a generic strategy in place for dealing with them when they occur. Some of the crises that I have seen entrepreneurs face are: losing a major customer; theft; loosing a key employee; not having enough cash for payroll; physical calamity (for example, fire, flood); and, computer malfunctions.

There are two elements that really differentiate a crisis from a non-crisis situation. A crisis has to have a major impact and it is unexpected. There is little way for you to be prepared or have a specific contingency plan for crises. When crises occur, and they will, as they are part of business and life, refrain from taking action immediately. The natural reaction in a crisis is to act, but this is not the best strategy, as action without contemplation can prove to be deadly. Of course, if you do not have time to consider alternatives, as in an emergency, then action is appropriate.

Here are **six** questions to contemplate in a crisis situation:

1. What steps can you take to minimize the effects of this crisis? Analyze the situation, and see what steps you can take to mitigate the crisis. If you have lost a key employee, what options are available to replace this employee (temp agencies, advertise for a new employee, etc.)? Be thinking of what you can do to minimize this impact. You might want to contact his/her customers or send them a letter. But you need to concentrate not on action, but on what options are available that will assist you to minimize this crisis.

2. How will this event impact the firm's profit and cash flow? Ascertain what the financial impact of the crisis is going to be on both profit and cash flow. This will help you

to anticipate financial problems and make you aware of how much money you can afford to spend to deal with the crisis.

3. Is there anything that you missed in seeing early warning signs of this crisis? It is very useful to go back and see if you could have detected the crisis before it broke open. If, for example, you just lost a major account, were there any signs along the way that you should have seen?

4. What can you learn from this experience? It is important to ask this question. If you just have lost some critical data, a good question to ask yourself is what can I do to prevent this from happening again? If you treat the crisis as a learning experience, you will walk away as a victor rather than a victim.

5. Does the business model need to be changed? It is so helpful to go through an analysis and ask yourself if a new business model may be necessary now. Sometimes a crisis compels you to change the business in a dramatic way that you might have been avoiding before. Firms that have lost major accounts find this question very useful. I have seen several entrepreneurs ask themselves this question and as a result they decided to significantly reduce the size or scope of their business.

6. Decide upon and take action. After you have considered all these factors, then and only then, take the desired course of action. A crisis can be dealt with if you have a generic plan on how you will respond to possible crises. The primary thing is to give yourself time to evaluate different ways of coping before you plow forward into action.

-Reprinted from *The Tallahassee Democrat*, January 17, 2003. View other business articles by Dr. Jerry Osteryoung online at the web site <http://www.cob.fsu.edu/jmi/articles/>.

Marketing Alternatives: Let's look at Forward Contracting *Compiled by Adam Trott, UF MAB student*

"Always drink upstream from the herd." -Chuck Adams

So what is a marketing alternative? A marketing alternative is defined as a procedure, mechanism and/or system through which a business may sell or influence the terms of sale of their products. There are many types of marketing alternatives used in commodity industries to help circumnavigate marketing problems ranging from traditional dockside cash markets to sophisticated contracting arrangements. Some examples of marketing alternatives used in agriculture and fisheries include organized exchanges, vertical integration, joint ventures, bargaining associations, marketing orders, marketing boards and forward contracting. These alternatives are not mutually exclusive so several may be used at one time. The intention of marketing alternatives is to secure the highest net long-term returns while minimizing uncertainty in the marketplace.

OK, so what is forward contracting? Forward contracting is a marketing alternative designed to stabilize and coordinate the sale of goods under one or several terms. This system of contracting enables the seller to obtain a price premium, while allowing both the seller and buyer to manage risk in

the form of guaranteed product and guaranteed price. Forward contracts can be informal or formal written agreements between the seller and buyer that specify the terms of quantities of product, timing of delivery, packaging, handling methods, payment methods and/or minimum acceptable quality. This type of agreement may or may not specify a specific price but rather may specify a basis in which to derive a price. Price calculations may use reported prices, such as those published by the National Marine Fisheries Service's Fishery Market News, as the base price and then stipulate premiums and discounts based on location and quality. Price premiums are only part of the advantages gained through forward contracts. There are also efficiencies gained from tight coordination of transactions between firms.

Agriculture has used forward contracting in the dairy, grain and livestock industries with great success. In doing so, these farmers and ranchers are able to lock in prices that guarantee profitability by assuring future delivery of a product of a specified quantity and quality. Soybean farmers, for example, are often forced to operate close to their cost of production. They cannot always sell their crop at **Continued on Page 4**

2005 Clam Seed Suppliers

These hatchery and nursery operations are supplying hard clam, *Mercenaria mercenaria*, seed to Florida growers this year. Contact suppliers for information on seed sizes, price, color variation and availability.

Atlantis Clam Farm - H, N

Merritt Island, FL 32952
Contact: Barry Moore
(321) 453-2685
watwzrd1@aol.com

Bay Shellfish Co. - H, N

Terra Ceia, FL 34250
Contact: Curt Hemmel
(941) 721-3887 or 722-1346 (Fax)
bayshellfish@earthlink.net

Brewer's Clams - H, N

Cocoa, FL 32927
Contact: Gray Brewer
(321) 632-4920 or 794-3746 (cell)

Cedar Creek Shellfish Farms - H, N

New Smyrna Beach, FL 32169
Contact: Mike Sullivan
(386) 426-0113 or 847-3202 (cell)
cedarcreek@ucnsb.net

Clams R' Us - N

Vero Beach, FL 32968
Contact: Joe Weissman
(772) 538-1051
Weissm_J@bellsouth.net

Cole's Clam Nursery - N

Placida, FL 33946
Contact: Dot Cole
(941) 697-3181

David Grudin - N

Cape Canaveral, FL 32920
Contact: David Grudin
(352) 250-0667
dgrud@yahoo.com

Harbor Branch Clams - H, N

Fort Pierce, FL 34946
Contact: Joe Weisman
(772) 538-1051
Weissm_J@bellsouth.net
or) Richard Baptiste
(772) 465-2400, ext. 414
baptiste@hboi.edu

Hydrosphere Research - H

Alachua, FL 32615
Contact: Craig Watts
(386) 462-7889
craig@hydrosphere.net

Kibbe & Company - N

St. James City, FL 33956
Contact: Roy Kibbe
(239) 283-1448

Ewan Leighton - N

Melbourne Beach, FL 32951
Contact: Ewan Leighton
(321) 288-8201
sleighton1@cfl.rr.com

Dan Leonard - N

Englewood, FL 34224
Contact: Dan Leonard
(941) 473-3292 or 270-2032 (cell)
clams@sunline.net

Orchid Island Shellfish Co. - N

Sebastian, FL 32958
Contact: Ed Mangano
(772) 589-1600

Pelican Inlet Aquafarms - H, N

Cape Coral, FL 33914
Contact: Edwin Connery
(239) 549-8014
highimage@aol.com

R & I Mariculture - N

Mims, FL 32754
Contact: Jed Illig
(321) 269-8508
raniclams@yahoo.com

Research Aquaculture - H, N

Stuart, FL 34997
Contact: Tom McCrudden
(561) 702-8159
or) Alligator Point, FL 32346
Contact: Andy Arnold
(850) 510-3866

SeaPerfect - H, N

Charleston, SC 29422
Contact: Knox Grant
(800) 728-0099
(843) 514-4232 (cell)
knoxgrant@seaperfect.com

Southern Cross Seafarms - H, N

Cedar Key, FL 32625
Contact: Bill Leeming
(352) 543-5980

In addition, check the:

East Coast Shellfish Hatchery and Nursery List 2004

Published by Gef Flimlin
Rutgers Cooperative Extension
1623 Whitesville Road
Toms River, NJ 08755
(732) 349-1152
flimlin@aesop.rutgers.edu

Remember seed obtained from out-of-state suppliers must meet best management practices pertaining to both disease prevention and genetic protection. For more information, view the Aquaculture BMPs Manual at www.FloridaAquaculture.com or contact Mark Berrigan, Division of Aquaculture, at (850) 488-4033.

**H - Hatchery
N - Nursery**

Forward Contracting (continued)

a profitable price due to price fluctuations throughout the year. To take advantage of these uncertain conditions, soybean farmers forward contract some of their production. Further, crop insurance gives these farmers confidence to contract a larger portion of their crop, thus creating higher prices for their product by guaranteeing the level of production. Crop insurance also provides a way for farmers to recoup losses accrued from a less than expected harvest which can then be used to help fulfill contract obligations.

So can forward contracting be used in clam farming? It is important for industries, like the Florida clam culture industry, that compete in open markets and receive minimal governmental support (i.e. price supports or subsidies) to maximize sales and minimize the cost of production while reducing fluctuations. Forward contracting may be used to accomplish this by increasing coordination and reducing risk.

Clam farmers can exploit forward contracts in two directions—"upstream" to wholesalers/distributors or "downstream" to suppliers. Farmers may choose to forward contract final products (i.e. harvestable clams) to wholesale buyers for several reasons. These could include 1) more accessible markets, 2) price premiums by insuring supply, 3) reduced peril from price fluctuations, and 4) reduced effort spent finding buyers. In turn, buyers may be able to establish agreements concerning the delivery, quantity and acceptance (i.e., size, grit, time to dock, etc.) of cultured clams. Other advantages to the wholesaler include reduction (but not elimination) of 1) supply acquisition risk, 2) costs of procurement, and 3) effort involved in finding clams during market surges. Farmers may forward contract inputs (i.e. clam seed) with hatcheries and other suppliers to 1) better plan deliveries, 2) operate more efficiently, and 3) obtain price discounts by locking in predetermined prices. Forward contracts may be used to manage risk by guaranteeing the supply of seed at a specific time, quality, quantity or price. In turn, this increase in coordination may allow hatcheries to operate more efficiently and reduce costs.

A major disadvantage clam farmers may face when forward contracting is the loss of flexibility and managerial control. For example, if prices for clams go up, the farmer is then unable to take advantage of the situation. Other disadvantages facing growers are a loss of some independence as a seller/buyer, as well as growers not involved in marketing contracts may find it harder to access markets.

Forward contracting in Florida's clam culture industry could allow for improved communications among hatcheries, suppliers, farmers and wholesalers, thus enabling reductions in risk and inefficiencies involved with transactions and spot markets. This may provide small businesses with the appropriate knowledge to plan farther into the future and enhance profitability.

Sources of Information: 1) John Nichols et al., 1980, *Marketing Alternatives for Fishermen*, Texas A&M University Sea Grant College Program, TAMU-SG-80-204, 45 pp. 2) Ashok Mishra and Janet Perry, 1999, *Forward Contracting of Inputs: A Farm-Level Analysis*, Journal of Agribusiness 17(2):77-91. 3) www.agricorp.com, *Forward Contracting*, Crop Insurance Fact Sheet. 4) Chuck Adams, 1998, *Marketing Alternatives for the Clam Aquaculture Industry*, UF Food and Resource Economics Dept.

Organic Shellfish: To be or not to be?

Federal standards and regulations on organic food production, processing and labeling for terrestrial livestock and crops were released by the U.S. Department of Agriculture (USDA) in 2002. However, the final regulation did not include any specific reference to aquaculture crops. Globally, interest in organic aquaculture production is growing as products are now farmed, certified and sold in Europe, Australia, New Zealand and Asia. These countries have recognized the increasing interest by consumers for organic seafood products and have developed independent standards and certification programs to actively market their products domestically and in the U.S.

The National Organic Aquaculture Work Group is made up of diverse aquaculture representatives and organic agriculture professionals assisting the USDA National Organic Program in developing organic standards for aquaculture products. Recently, this group was charged to develop standards for several aquatic species subgroups. Drafting principles and standards for organic shellfish products may seem intuitive. Since most bivalve shellfish grow in coastal waters and are "natural," it is assumed they should qualify as "organic." However, this is not so. Natural products of other agricultural crops do not necessarily qualify as organic, and where certifiable, must comply with rigid organic standards set in regulations. Further, there is a clear differentiation made by the USDA between organic and conventional production.

The NOAWG Shellfish Subgroup needs information from the shellfish aquaculture industry to mobilize the expertise and representation required to ensure organic standards for shellfish are addressed. The inclusion of organic standards for shellfish may offer a new production option that may be of interest to some producers either today or in the future. Specifically, the Shellfish Subgroup is requesting the following information from shellfish producers and industry groups who are interested in organic certification, if and when standards for shellfish production are developed. 1) Will an organic label on cultured shellfish product provide a benefit for a producer or wholesaler? 2) Can organically certified shellfish be distinctly differentiated from conventionally grown molluscs (consider inputs used, monitoring and other current practices)? 3) Would an organic label for molluscs be beneficial or detrimental to the overall shellfish industry? 4) Do you wish to assist in the development of any organic standards for shellfish aquaculture? 5) Do you want to be kept informed of progress and activities on this topic?

Please provide responses to Deborah Brister, NOAWG Co-chair, at e-mail: brist004@umn.edu, or Leslie Sturmer, NOAWG Shellfish Subgroup at e-mail: LNST@ifas.ufl.edu.

USDA Crop Disaster Program (continued)

If you are not currently registered with your county Farm Service Agency office, now is the time to do so. Check the October 2004 issue of *The Bivalve Bulletin* or USDA FSA's web site, www.fsa.usda.gov, to locate your local office.

RESEARCH UPDATE: Feeding Selectivity in the Hard Clam from Warm Water Habitats

Background: Bivalves are adept suspension filter-feeders and can modify phytoplankton, or algae, in estuarine waters. On the other hand, algae quantity and composition can have effects on bivalve feeding behavior, particle selection and clearance rates. Studies on bivalves have shown an ability to sort algal particles based on size and quality. There also appears to be variability among bivalve species in their ability to sort and preferentially ingest particles. Changes in food concentration may have an effect on clearance rates and, ultimately, growth and productivity of bivalves. While studies have shown algal composition to have an impact on clearance rates, temperature also has an effect. In a review on the ecology of the hard clam, researchers stated that temperature affected feeding rates. Feeding rates peaked at about 75-78°F, but fell abruptly above 80°F. Temperatures between 68-75°F were shown to be optimal for clam growth with decreasing growth rates outside this range. This is important since feeding rates are thought to be the physiological control on growth rates. There have been few studies to show what affect temperatures have on feeding selectivity, with those few carried out at 68°F or less.

Objective: To examine the effects of temperature and algae concentration on the clearance rates and feeding selectivity of the hard clam, *Mercenaria mercenaria*.

Methods: Adult (littleneck-sized) clams were fed combinations of three different algae: 1) *Isochrysis*—a large (10 microns) green flagellate, 2) *Tetraselmis*—a medium-sized (5 microns) brown flagellate, and 3) *Synechococcus*—a small (2 microns) blue-green algae. The first two algae are used in shellfish hatcheries; whereas, *Synechococcus* is a major bloom forming algae found in Florida's coastal waters. Clams were fed at two temperatures (68°F and 86°F). Some experiments also used two algal concentrations (low= 10^5 cells/mL; high= 10^6 cells/mL). Clearance rates were calculated by counting the decrease in algal cells in the water. The degree of acceptance (ingestion) or rejection (as pseudofeces) of particular algae was determined by comparing the proportions of the algae in the water and the pseudofeces.

Results: Temperature, algal combination and algal concentration had no effect on clearance rates. However, we found that all three variables – temperature, algal species and algal concentration – had an effect on the feeding selectivity of the clams. In other words, these variables had an effect on how “picky” the clams were in their feeding – whether they ingested an alga or rejected it as pseudofeces. For example, algal species had a significant effect on selectivity; clams selected larger algae for ingestion (*Isochrysis* and *Tetraselmis*) while discarding the smaller algae (*Synechococcus*) as pseudofeces. Concentration also had a significant impact; at the lower food concentration, clams had a greater capacity for selecting among algal species. At the higher food

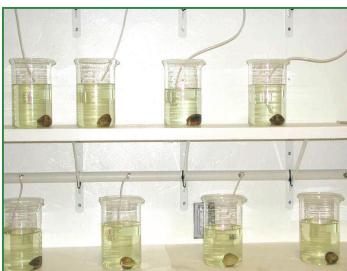
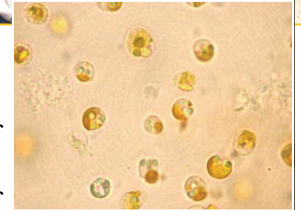
concentration, clams may have had to reject the algae species equally, simply to control the volume of food entering their gut. We found that clams were more selective at 68°F than at 86°F. At 68°F the clams were highly selective in what they ingested, while at 86°F they ingested the algal species equally.

Conclusions: Most studies of bivalve feeding have been conducted at water temperatures of 68°F or lower. However, water temperatures in the inshore coastal areas of Florida, where clams are cultured, can reach 86°F or more. Therefore, this is the first study to examine clearance rates and feeding selectivity of clams at subtropical temperatures that are found in Florida.

Our most interesting finding was that temperature had little effect on clearance rates but did have an effect on feeding selectivity. Normally, we would expect clearance rates to be greater at 86°F than at 68°F. The fact that the Florida clams did not show this pattern suggests their metabolic rates do not increase greatly over this temperature range; they are well-suited to the subtropical temperatures of Florida. We also found that feeding selectivity by the clams was greater at the lower temperature than at the higher temperature. This suggests that clams may have more control over what they ingest in the winter than in the summer. Due to their lack of selectivity at the higher temperatures, clams may be more likely to ingest less nutritious or even noxious algae species during the summer.

While we do not yet know the underlying causes of our findings, the feeding history of the clams, adaptation of clams to their environment, seasonal changes in digestive enzymes or changes in water viscosity with temperature may account for our observations. This study demonstrates the need for continued evaluation of Florida clams by indicating that the physiology of cultured clams in semi-tropical environments differs from populations of clams in cooler temperate environments.

This research was conducted in 2003-4 by Carla Beals in partial fulfillment of the Master of Sciences degree requirements from the University of Florida. For more information, contact Dr. Shirley Baker with the UF Department of Fisheries and Aquatic Sciences at (352) 392-9617, extension 264. Funding was obtained by the U.S. Department of Agriculture and Sigma Xi Grants-In-Aid. Thanks go to Harriet Smith Clams and Southern Cross SeaFarms for providing clams for this study.





CLAMunications



Shellfish UPDATE: Clams

Florida's hardshell clam industry took a beating during the four hurricanes that hit the state during August and September. The heavy storm rains will probably take a toll on 2005 production in Florida, but how much is anyone's guess. Fall is a key planting time for next year's crop and low salinity due to an abundance of freshwater in clam beds may have an effect on the seed. "My guess is that a certain percentage did not survive, but we don't know what yet," says Tim Parsons, sales/marketing director of Cherrystone AquaFarms in Cheriton, Virginia. Initial shortages may first appear around Christmas, when demand perks up after a fall lull. "The market won't see the full impact of the hurricanes until the middle of next year." Otherwise, Parson says, the clam market is healthy and vibrant. Both demand and supply have been growing steadily, and prices are stable, about 2 to 3 cents lower per pound than three years ago.

- SeaFood Business, November 2004

Massachusetts clam beds threatened by QPX

Hundreds of thousands of dollars worth of clams will have to be destroyed as part of an effort to save Massachusetts's multimillion dollar quahog (hard clam) aquaculture industry from a tiny parasite known as QPX, or quahog parasite unknown. The outbreak is confined to Wellfleet Harbor, with 3 out of the 25 aquaculture operations there having been

infected. The parasite destroys the clam meats, but is not harmful to humans or other shellfish species. Clams from infested operations will be removed and dumped at a landfill. Because the parasite goes dormant in winter and spreads as the water warms up, it is impossible to know yet whether destruction of the diseased clams would prevent spread of QPX to other shellfish beds. The prevailing wisdom from researchers is that the parasite can only survive in a dormant state in bottom sediment for a couple of years. Leaving an area fallow for that time period could end the infection.

-Fish Farming News, November/December 2004

Clam consumption up in 2003

Americans ate a record 16.3 pounds of seafood per capita in 2003, the highest consumption figure this protein category has seen since 1987, announced the National Oceanic and Atmospheric Administration. The increase is attributed to a rise in imported seafood as well as a result of the protein's heart-healthy reputation and the consistent price and supply of farmed species. The National Fisheries Institute also released their annual Top Ten list of America's favorite seafoods. Shrimp remains at the top of the most-popular-seafood list, with consumers eating an average of 4 pounds per person. Shrimp is followed by canned tuna at 3.4 pounds and salmon at 2.2 pounds. Clams rank 9th on the list at 0.52 pounds per person.

- SeaFood Business, October 2004

Check out annual CLAMMRS water quality graphs for 2002-03 at <http://shellfish.ifas.ufl.edu>, click on Pubs and Tools.

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