The Rehabilitation Professional 18(3), pp. 159–166

Vocational Rehabilitation Responds to the Horizon Disaster 2: Determining Wage Losses for Aquaculture[1] and Marine Fishery Workers

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Costs of the BP-Horizon disaster are still pending, including long-term psychosocial, environmental, and occupational costs. Related to occupational costs, the disaster has resulted in either work reduction, or complete job loss, particularly among aquacultural workers. The permanent effects of the spill on aquacultural products and public acceptance of these products are still pending, leaving open the potential for subsequent litigation related to compensation of wage loss for aquacultural workers. As such, the purpose of the present article is to offer an assessment of prospective methods that may be used to evaluate lost wages. It is suggested that while some methods may be conservative (under-report wages) and others liberal (over-report wages), specific methods will be tested in the courts; enabling vocational consultants to further develop techniques to accurately assess loss wages and vocational opportunities for aquacultural workers.

The field of vocational rehabilitation has offered numerous methodologies focused towards a singular goal: the establishment of wages for workers with disabilities (Senette & Smith, 2010; Williams, Dunn, Bast, & Giesen, 2006;). This task is a correlate of an evaluation of lost employability (Havranek, Grimes, Field, & Sink, 1994). As such, a vocational evaluation is completed through a clinical interview and various types of testing. Then, a comparison is made between transferable skills prior to and following an accident or injury (Havranek, Grimes, Field & Sink, 1994; Weed & Field, 1994). Labor market surveys or other vocational research completed following an injury may be used to evaluate opportunities and establish a wage earning capacity (Blackwell, et al., 2005; Dillman, 1989; Senette & Smith, 2010). While vocational rehabilitation has a historical foundation of provision of coordination for worksite modifications (Steinberg, Iezzoni, Conill, & Stineman, 2002) and career counseling (Owen & Fitch, 2003), it has also been applied in such circumstances as determination of employability following a workers' compensation injury (Bakkenson, 2004; Dunn & Growick, 2000; Spitznagel & Cody, 2004), or a personal injury claim (Williams, Dunn, Bast, & Giesen, 2006; Senette & Smith, 2010). As such, it is projected that vocational rehabilitation consultants will be further utilized by officers of the court to assess lost wages for fishermen witnessing lost wages as a result of the current disaster.

In forensic contexts, the courts have established parameters for acceptable practices of forensic experts; specifically the decisions of Frye (*Frye v. United States*, 1923), Kumho (*Kumho Tire Co. v. Carmichael*, 1999), and Daubert (*Daubert v. Merrell Dow Pharmaceuticals*, 1993). Essentially, experts must demonstrate the use of methodologies that are not only replicable but, also have been subject to peer review. Related to assessment of wages, several decisions have offered a framework for acceptable methods to establish wages (e.g., Williams, 2003). At present, there are neither replicable studies nor peer-reviewed methods for vocational consultants to reference. Multiple methods are available to evaluate lost wages for aquaculture and marine fishery workers, although these methods have neither been disseminated in public forums, nor scrutinized by peers. As such, the purpose of the present article is to identify various methodologies used to evaluate wages, and to identify their potential strengths and weaknesses.

Method 1: Review of Tax Records

Wage earning capacity may be established simply through review of actual tax receipts. Utilizing this method, an aquaculture or marine fishery worker could present a record of tax receipts for 3, 5, or 10 years, and an average can be obtained; allowing for calculation of value tables and any appropriate discounts. The main strength of this method is that wages are verifiable through tax records and likewise objective numbers are available for review. If multiple years are available, then various ranges and averages may be calculated. An economist may then offer multiple scenarios based on different averages. A negative component of this method is that numerous aquaculture and marine fisheries workers may not have completed tax records, not only for a year or two, but perhaps a lifetime. Workers in this industry have been known to operate primarily on a cash basis (Sahagun, 2010), leaving objective tax records unavailable. These workers may not have paid taxes due to a combination of factors, such as mistrust of the government; the behavior may be an accepted component of the culture, or simply because they choose not to pay taxes. However, for workers that have chosen to report wages and pay taxes, an objective measure of earned income may be available.

Case Example

Jim, 34, resides in Galliano, LA with his wife and their three children, ages 3, 12, and 16. He is a fourth generation shrimper. He has consistently recorded both expenses and income, and he utilizes an H & R Block facility in Houma, LA to file his annual taxes. A review of his income over the last 5 years is reported in Table 1. Using reported wages, multiple methods may be used to establish an average annual wage, including range ($8,535-$21,099), last two years ($12,759), last five years ($15,168), or other averages, each revealing a different number, further reflecting a wide difference in wages. Using these numbers, a forensic economist may offer multiple scenarios of wage loss and then present them to a jury or judge. Subsequently, these parties may use the information to make a decision regarding their perception of wage loss.

Method 2: Gross Receipts and Number of Producers in Parish

A second method to assess wages is the calculation of wages using a combination of gross receipts and published number of producers within individual parishes. Simplistically, if $10,000 was earned for harvesting oysters in 2009 in Plaquemines Parish and there are 10 oystermen in Plaquemines Parish, then this reflects an average annual wage of $1,000 per producer in 2009. A positive component of this method is that a direct calculation can be made between the number of producers and the actual receipts for an aquaculture or marine fisheries product. However, there are several negative components to this process. First, this process assumes both that the numbers of producers and the gross value of shellfish or other aquaculture products are accurate. If either of these factors is incorrect, then of course, the dividend of these products would be incorrect. Additionally, either of these components may be over- or underinflated, representing either inflation or deflation of projected wages. Second, this method assumes that producers all earn equal wages, specifically through fishing. It is common in South Louisiana for some workers to work offshore during the off-season, and work as fishermen when work is available. The percentage of time working specifically in fishing and alternative employment may vary significantly among producers, similarly resulting in different wages. Furthermore, any assumptions that a specific percentage of wages may be obtained through offshore employment may be limited due to the continued uncertainty of offshore drilling in the Gulf region (Brown, 2010). Third, while the percentage of time fishing may be similar between producers, the availability and use of equipment (i.e., boat size), may differ; further affecting both prospective catches and wages. In summary, while this method offers one form of calculation, numerous negative factors may also limit this as a wage earning capacity evaluation option.

Case Example

Oyster harvesting was suspended in Plaquemines Parish in June 2010. Suppose the Department of Health and Hospitals had barred the harvesting of oysters from 2010 to 2012, leaving 2009 as the last

Table 1
Review of Taxed Receipts (2003-2007)

	2003	2004	2005	2006	2007
Gross Income	$34,564	$54,231	$44,500	$24,990	$34,550
Expenses	$16,543	$33,222	$33,298	$16,455	$17,567
Net Income	$18,021	$21,099	$11,202	$ 8,535	$16,983

Table 2
Review Gross Income and Number of Producers (2005-2009)

	2005	2006	2007	2008	2009
Gross Income	$1,245,500	$2,354,699	$2,566,900	$2,455,678	$2,788,000
Number of Producer	25	30	30	27	22
Avg. Income Producer	$49,820	$78,489	$85,563	$90,951	$126,727

complete year that oysters will be harvested until 2012. One may also postulate that the Department of Wildlife and Fisheries registered 25 to 30 producers for 2005-2009 in Plaquemines Parish. Similarly, the *Louisiana Agricultural Summary* projected that reported gross income from oyster sales for these years would range from $1.25 million to $2.78 million (LSU Ag Center, 2009). Using this method, average gross annual wage per producer would range from approximately $50,000 to $127,000. As in the previous example, multiple averages and ranges could be obtained. Work-related expenses are not included in the Average Income numbers reported below, requiring further estimations on behalf of the displaced worker, vocational specialist, and economist.

Method 3: Gross Value and Number of Products Produced

Another means of calculating wages is to examine gross value relative to the number of products produced. The Louisiana Department of Wildlife & Fisheries as well as the National Marine Fisheries Service provide gross tickets within geographical areas as a measurement of aqua-products such as number of pounds of oyster meat, crawfish, crab, or shrimp. Accuracy of this information is based upon correctness of tickets and also linking individual tickets to individual producers.

Case Example

Sam, an oyster fisherman in Jefferson Parish, single, has lost access to harvesting oysters following the BP-Horizon disaster. He has not filed taxes since 2002. He has opted to file for indemnity benefits. While he has not reported taxes, he does have receipts for the number of sacks harvested. The average price per oyster sack across years was obtained from the Department of Wildlife and Fisheries. Based upon this information, Sam earned from $30,835 to $43,750, or an average of $34, 980. Additional years may be obtained to assess a wider range of receipts.

Method 4: Bureau of Labor Statistics

A fourth technique that may be used to assess wages utilizes data available through the Bureau of Labor Statistics (BLS). A positive component of this technique is, again, that an objective measure is available to reference wages. However, it is important to note that descriptors for fishermen are overly broad. As the descriptors are overly broad, accuracy related to wages is similarly poor. BLS data for "Fishers and Related Fishing Workers" is only available from three states – Washington, New Jersey, and Massachusetts. As well, the national averages for these occupations seem to be calculated using this limited sample. It is suggested that this represents a small sample, which cannot effectively represent statistically valid trends.

Method 5: O*Net

The fifth technique to assess wages is through utilization of the O*Net. Using O*Net, again, an objective measure is available. A weakness, again, is the lack of specificity regarding job duties and specific product harvested. Also, the O*Net does not account for regional differences in harvest rates. It should also be noted that O*Net relies heavily on BLS data as a source of wage information.

Table 3
Number of Sacks of Oysters Harvested, Average Annual Price per Sack, Est. Annual Income

	2005	2006	2007	2008	2009
Avg. Price Sack	$20.55	$22.66	$25.00	$23.90	$28.75
Sacks Harvested	1,500	1,656	1,750	1,323	1,333
Est. Annual Income	$30,825	$37,525	$43,750	$31,620	$38,324

Method 6: Self-Report

A sixth method to evaluate wages is self-report by the individual fishermen. Using this method, wages across years can be reported and, likewise, harvesters can be compensated. A positive component of this method is that workers are given an opportunity to report wages, allowing for an ecologically valid reference. However, numerous realities exist regarding this option. First, a worker may not be honest regarding their previous wages, leaving the consultant dependent on an unreliable reference. Second, particularly if a vocational consultant must testify in a jury trial, a court may not believe a consultant that reports that wages are accurate, especially if a jury views a plaintiff as "dishonest" for not reporting wages to the Internal Revenue Service. This option also offers a significant legal ramification for the aquaculture worker: If wages were not reported for taxation previously, then it is projected that any wages reported would be subject to forfeiture in whole or in part to amend taxes in arrears. Among the methods listed, it is projected that this would represent the least reliable technique. This method would require the consultant to depend on questionable data, and leave the plaintiff subject to prospective back taxes, fees, penalties, and potentially — jail time.

Discussion

While it is projected that several methods may be found to be conservative (i.e., estimate lower wage ranges) and many may be considered more liberal (i.e., estimate higher wages), caution should be aired in classifying these methods as liberal or conservative simply within the context of these examples. Rather, it is suggested that replications be completed with actual data, and then results be compared across methods to evaluate whether individual techniques over- or under estimate wages.

It is projected that some vocational consultants may not utilize any of the above methods, but rather, offer projections based strictly on personal opinion. For example, a vocational consultant may indicate "based on hours dedicated on behalf of my client to his work endeavors, the size of his boat, catches demonstrated across 2008-2009, and self-report by Mr. Peyton, it is my opinion that Mr. Peyton averaged $34,000 annually prior to the BP-Horizon disaster." While the Courts may offer a *Daubert* challenge to this simple personal opinion, and barring case law creating precedence for one technique over another, personal opinions may indeed offer an alternative to the options listed above. However, the vocational consultant should be expected to not only confirm information used as the basis of his or her opinion but, also establish expertise in the area of aquaculture economics and production.

It is projected that multiple secondary consultants will be utilized to establish wages for aquaculture and marine fishery workers. In addition to forensic economists, additional consults may include aquaculture specialists and also rural economists. It would be recommended that data utilized to evaluate wage loss be collaborated either with referenced materials, or additional experts. For example, consider using both product price and individual harvest rates (Method 3) to evaluate wages. If the product price is determined based upon an unreliable source, and an individual harvest rate is based on mere speculation on behalf of the worker, then one must consider the "garbage-in-garbage-out" concept. In other words, reliable conclusions cannot be made from unreliable data. Conversely, stronger conclusions may be made if figures used in the estimation of prospective wages are confirmed in collaboration with additional experts. However, it is important to note that information derived about production rates, seafood quality, and other information may not be available in the public domain, as information dissemination may be limited (Associated Press, 2010a), again prompting the need for the vocational consultant to confirm their information based on available resources.

As an example, assume that a vocational counselor has been hired by a plaintiff attorney to evaluate lost wages for an oysterman in Jefferson Parish. In 2009, an oysterman estimates that he brought in 1,500 sacks and received about $25.00 a sack, suggesting an income of $37,500. However, the defense attorney offers experts in both agricultural economics and aquaculture production. The agricultural economist expert indicates that prices for oysters ranged from $20 to $22 in 2004, representing an average cost of $21 per sack. Additionally, a representative from the Department of Wildlife and Fisheries indicates that this particular farmer logged receipts for 1,000 sacks of oysters in 2009. Using these two experts, the defense attorney, or the vocational rehabilitation consultant in collaboration with these experts, convincingly establishes that the farmer earned $21,000, not $37,000; not only bringing into question the methodology used by the vocational consultant used to establish wages, but also other opinions offered by the vocational expert, such as transferable skills, marketability of workers, and vocational prognoses.

A challenge of the present article was maintaining up-to-date knowledge of the spill and its concomitants, and similarly, determining if the framework of the article would change if it was deemed either that the spill or its aftermath were alleviated; or if the consequences from the spill were permanent. Presently, consensus is undetermined as to the long-term effects of this disaster (Associated Press, 2010b). John D. Rockefeller once said, "I always tried to turn a disaster into an opportunity." The present disaster offers such an opportunity: to evaluate

potential methodologies that may be used to assess wages for workers that are either unable to return to work following a disaster, or otherwise disenfranchised. Results of the present study may be applied to other areas of the country in the event of another oil spill or disaster, which may further affect fisheries; or to later class action lawsuits, such as situations in which a contaminate affects aquaculture and marine fisheries industries.

Conclusion

The effects of the BP-Horizon spill are still pending (Associated Press, 2010c). While funds have been apportioned by BP for the compensation of people along the coast, specific allocation of the funds are still uncertain, with both political and economic implications. Six methods have been discussed in the present article to evaluate wages for these workers. It is expected not only that vocational consultants, economists, attorneys, and actuaries will later critically evaluate these methods, but also, even greater scrutiny will occur within the courts.

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Footnote

[1] Aquaculture and Marine Fisheries represent two distinct vocational fields. The term "Aquaculture" has been used in this article to refer to both of these vocational fields, and similar derivatives (i.e., "Aqua-Culture", "Aqua Culture").

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