

Chapter 4. Allocation approaches

This chapter reviews three basic allocation approaches, and describes how and where they have been applied. It includes a sidebar about the monetary value of commercial allocations.

Split allocation

Under a split approach, use is distributed within two basic sectors, commercial and non-commercial. Sometimes there may be additional allocations for a “special” sector to provide for educational or service groups, and on some rivers “administrative use,” (research, patrol, and search and rescue-related trips) is a separate sector (although it rarely receives a set amount of use).

In the *commercial sector*, split use is further allocated among individual outfitters. Under most split systems, outfitters receive permits for a block of access rather than the simple privilege to operate. They generally control how they use their allocation, and can adjust their number of trips, group sizes, trip lengths, and scheduling as long as they don’t exceed other components of the use limit system (launches per day, group size limits, service days per year and so on).

In most cases, commercial allocations provided to original outfitters were not distributed through a market or a bid/prospectus program; in other words, outfitters could not initially purchase them. Technically speaking, commercial allocations are permitted and managed by an agency and cannot be sold. Historically, however, most allocations have remained with a business when it is sold to a new owner (agencies “transfer” the permit), and the value of these businesses has been enhanced by the allocation (Shelby, 1984). A quasi-market operates in these outfitter-to-outfitter transactions, allowing them to collect a windfall (sometimes labeled a “blue sky”) value. If one accepts that this occurs, outfitter-to-passenger transactions are a consequence and they operate in a market system that allows outfitters to capture the monetary value of access above and beyond the services they provide (boats, equipment, guides, etc.). This topic is further discussed in the sidebar at the end of this chapter.

In the *non-commercial sector*, the allocation is usually distributed via permits to permit applicants (individuals) who are typically representing a group of boaters (or will organize a group). The permit system is managed by an agency using essentially non-market rationing mechanisms (such as reservations, lotteries, queuing) to keep below per day, week, or per season use levels. In some cases, administrative attention is required throughout the year to release an appropriate number of non-commercial permits to stay below seasonal or annual limits.

Existing split allocation systems

Several issues have developed from the widespread use of split allocation systems:

- Split systems developed through “incremental” decision-making on most rivers, resulting in some unintended consequences. When use and impacts were low, there was little impetus to limit use. However, as use and impacts increased, outfitters were often the first and easiest type of use for managers to limit; the public is generally supportive of limiting commercial uses on public rivers, and may pressure agencies to adopt this approach. Adapting existing permit guidelines and practices, many managers essentially “certified” existing outfitters and then ensured that their historical use would be allowed. This created a *de facto* split system even in cases where non-commercial users were not initially limited. This strategy also may

have been widely adopted because managers shared information through an Interagency Whitewater Committee (a group of federal river managers; later it developed into the American River Management Society (ARMS) and then the River Management Society).

- Many split systems base their allocation percentages on historical baseline data (usually the proportions of use in the period immediately prior to use limits). The Grand Canyon split was originally based on historical use when limits were implemented in 1972-73, with adjustments in subsequent planning efforts (usually with some “negotiated” changes). Other split allocations with historically-based percentages include the Middle Fork Salmon, Selway, and Hells Canyon. There is no bias toward either sector with historically-based splits when they are first implemented (it reflects actual demand at that time), but changing demand in either sector can lead to disparities if percentages don’t also change.

Examples of rivers with a higher non-commercial split in terms of launches include the Selway, Smith, and Tuolumne. Among multi-day rivers, the Grand Canyon appears to have the highest proportion of use in the commercial sector; this is at least partially related to the advent of use limits when non-commercial river running was just starting to grow. Chapter 7 provides additional information about percentage splits on North American rivers.

- Other split systems provide 50% of launches, people, or user days to each sector. Although this division is “equal” (because there are two groups), it may be arbitrary or “unfair” if demand for the two sectors are not similar. Arguments over the demand or sizes of sectors are at the heart of many complaints about split systems; assessing demand is challenging because access is allocated through different (and probably non-comparable) systems.

Examples of current 50/50 split systems (as measured by number of launches) include the Main Salmon, Yampa, and the Green River in Desolation/Gray, although commercial use is higher in terms of the number of people because commercial group sizes are larger. Chapter 7 provides more information about these splits.

- Few agencies have substantially adjusted annual allocation percentages, even when evidence suggests demand has changed over time. When adjustments have occurred, as in Grand Canyon, they happen during planning efforts (every 10 to 15 years) and have been generally based on political considerations and negotiations with stakeholders rather than assessments of relative demand. Alternatives to “negotiated” adjustments include demand studies or self-adjusting registration systems that provide more accurate information about interest in different types of trips or waiting times for different types of trips.

Impacts and effects on user groups

Because split systems have been in effect for many years, it is possible to assess general impacts on different user groups. Below is a list of commonly-cited advantages and disadvantages of split systems, as well as commonly-cited reasons for having a commercial-leaning split or a non-commercial leaning split. Many of these come from public or stakeholder comments, so they are not necessarily documented, agreed upon by other stakeholders, or equally valuable (or detrimental).

Advantages

- ***Historical precedent.*** Many split systems were based on historical use levels when use was first limited (e.g., Grand Canyon in 1972-73). Users generally understand the system, including advantages and disadvantages. While some users appear unsatisfied with the unintended consequences of split systems or the proportions in existing splits, those impacts are generally known. In contrast, consequences and the proportions of use between sectors

under a common pool system are less well known. This “comfort” with “the way we’ve always done things,” is the basis for many of the other advantages listed below.

- ***Predictability and monetary gain for outfitters.*** Under a split system, outfitters receive a block of access and some freedom in how they use it. This allows them to schedule logistics and labor, plan long-term equipment needs, and develop the type of trips that most efficiently and profitably use their allocation. More importantly, it allows initial outfitters to capture the monetary value of access through outfitter-to-passenger transactions (after receiving initial allocations for free through non-market mechanisms).
- ***Limited competition among outfitters.*** Split allocation systems limit competition among outfitters because each receives an (usually) unchanging allocation. With a guaranteed market share, outfitters can focus their efforts on logistical efficiencies to improve profits rather than competing with other companies. This may limit the need for outfitter advertising and encourage cooperation between outfitters on the river (which may enhance safety and reduce on-river competition impacts).
- ***Guaranteed access and simple procedures for commercial passengers.*** Commercial passengers do not have to compete with non-commercial users in a split permit system to gain access, allowing them to avoid cumbersome procedures and uncertainty about whether they will receive a permit for a preferred date. Split allocation systems also provide regularly scheduled commercial trips, allowing passengers to reserve spaces on those trips through the pricing and reservation system run by outfitters.
- ***“Manageability” of use levels and impacts.*** Split systems generally provide more certainty about the pattern of trip types that will be launching each day, which can be managed to produce appropriate impact levels. Many impacts are related to the pattern of different trip types, and a split system that remains relatively constant from year-to-year produces a more predictable and thus easily-managed system.
- ***Agency administrative convenience.*** A split system may be easier for agencies to administer than a common pool system because access distribution to commercial passengers is “delegated” to commercial outfitters. The agency only has to oversee commercial allocations to a relatively smaller number of outfitters. With a common pool, however, there is only one system to operate, which can simplify other agency responsibilities.

Disadvantages

- ***Creation of separate and unequal allocation systems.*** A split system has two separate ways of distributing access that cannot treat users equally. Under the commercial system, users compete for space on trips through pricing and reservation mechanisms. In the non-commercial sector, users compete through various (mostly non-market) mechanisms depending on the river. In all cases, non-commercial mechanisms have fees and regulations that are often more complicated and cumbersome than reserving a trip with an outfitter.
- ***Commercial outfitters control and profit from distributing public access.*** A split system gives *de facto* control of some public access to private entities (outfitters), and this is generally sold to passengers (above and beyond the cost of other services). Outfitters also sell access rights when outfitting companies are sold (see sidebar below).
- ***Creates a “quasi-monopoly” among outfitters.*** Control of commercial access by a small number of outfitters creates a quasi-monopoly and raises the possibility of price collusion, although permits and/or concession contracts could (but rarely are) used to constrain such

practices. The benefits of a “quasi-monopoly” probably also lead outfitters to support *status quo* management and resist changes in how commercial trips are provided and distributed.

- ***Creates separate groups and encourages conflict.*** Split systems encourage users to identify with a sector and engage in debates over allocation. This may hamper communication or cooperation between these groups on the river. The allocation “debate” may also divert attention from other issues where there may otherwise be common ground.

Reasons for higher commercial allocations

- ***Provides access for people who can only take commercial trips.*** Commercial trips may provide access for people with disabilities, unskilled, inexperienced, or lack appropriate equipment. A split system can help encourage the availability of such trips.
- ***Encourages long-term commitment to the resource by outfitters.*** Guaranteed allocations for outfitters reward those with a history of use. With guaranteed allocations, outfitters may have a greater stake in reducing impacts and working cooperatively with agencies.
- ***The potential population of commercial passengers is larger.*** No study to date has effectively assessed relative demand for commercial and non-commercial use on permitted rivers. However, the number of people who *could* participate in a non-commercial trip (people with access to boats and the skills to run multi-day trips) is probably smaller than the number of people who *could* become commercial passengers (who pay for guides to provide such equipment and skills). Other factors may have greater influences on actual demand, but the initial size of potential populations may be relevant.

Reasons for higher non-commercial allocations

- ***Demand for non-commercial trips may be growing at faster rate.*** Even if the population of users is larger in the commercial sector, demand for non-commercial trips may be increasing at a faster rate. The inability of split allocation systems to adjust to changing demand is a becoming a major complaint. For example, fewer people running Grand Canyon were capable of organizing self-outfitted trips when use limits were first imposed, but the National Park Service (NPS) recognized the non-commercial sector had grown substantially when it increased non-commercial allocations in 1980 and 2006. (Note: the NPS did not increase non-commercial use at the expense of commercial use in either plan, and allocation decisions were not based on actual demand information; see case study in Chapter 8).
- ***Higher cost of commercial trips discriminates against the less wealthy.*** Commercial trips generally cost more and some studies show that commercial users have substantially higher incomes than non-commercial users (Hall & Shelby, 2000). Rough comparisons of non-commercial trips in Grand Canyon (using rented equipment) and commercial trip costs (including labor for crew) also suggest that commercial trips could be offered at lower prices and still produce a profit (GCPBA, 2003).
- ***Non-commercial users may “value” river opportunities more.*** The easy availability of commercial trips encourages passengers who might be satisfied with some other activity (e.g., a week at a resort), thereby displacing non-commercial users who are willing to spend considerable time, effort, or money to take a river trip – if access were available.

Common pool allocation

Under a common pool system, all river access is distributed through the same permit system. People interested in either commercial or non-commercial trips apply for launches through the managing agency, and if successful they choose to: 1) organize their own trip; 2) contract with an outfitter for a chartered trip; or 3) join scheduled commercial trips (hereafter called “tour trips”). For a tour trip to occur in a common pool system, there must be “enough” other passengers interested in the same trip on the same date who are successful in the permit system for a trip to “go.”

Existing common pool systems

Common pool systems are often the norm when allocating scarce big game hunting permits, but they are more rarely used in river settings. Hunting permits have traditionally been awarded to individuals, who have the choice to use a guide or organize the trip themselves. Hunting permits differ from river permits in allowing harvest of the animal rather than access, but the overall “product” is still a trip or experience. Guided hunting is also different from many rivers because most hunts are “charters” (a single group organized the trip), while many commercial river trips combine groups of passengers on “tour trips.” The effects of common pools on tour trips are a key challenge in implementing a common pool system.

Minnesota’s Boundary Waters Canoe Area Wilderness, Oregon’s Deschutes River, and two low use fishing permit systems (McCloud River in California and Duke’s Creek in Georgia) appear to be the only water-based areas in the U.S. with pure common pool systems. At least two other rivers (Oregon’s Illinois River and Montana’s Middle Fork Flathead) have suggested they will adopt common pools when defined carrying capacity standards are exceeded and use limits are enforced. Additional information about the Boundary Waters and Deschutes systems is provided in Chapter 8.

Impacts and effects on different user groups

It is challenging to assess specific impacts of a common pool approach for rivers in general. Many of the impacts depend on specific permit distribution mechanism (examined in Chapters 5 and 6), which further interacts with other elements of the use limit system (e.g., group sizes, trip lengths, and type of use restrictions). Existing use patterns or previous allocation systems are important considerations; a common pool system appears more workable for a river with lower use, no history of previous limits, and a smaller proportion of commercial use. With these caveats, the following commonly-cited advantages and disadvantages are associated with common pools.

Advantages

- ***No allocation preference by sector creates a “demand-responsive” system.*** By definition, common pools treat all individuals the same, so there is no “preference” for users from one sector versus the other. This eliminates real or perceived advantages, and equalizes the “percent of disappointment” (the proportion of each which is unsuccessful). However, specific distribution mechanisms within a common pool may differentially favor those who organize their own groups (non-commercial groups and charter commercial trips) compared to those interested in joining “tour trips.”

- **Market-based incentives and open competition in the outfitting industry.** Common pools do not give outfitters a guaranteed allocation, so they have incentives to provide high quality trips that attract successful permit applicants (who could otherwise choose to self-outfit). This may encourage reinvestment in outfitting equipment, improve the quality of trip features, increase the diversity of trip options, and lower trip costs – benefits for commercial passengers. However, increased competition may also reduce profit for outfitters, which may affect their services, capital investments, and trip offerings in other ways.

Determining the total financial impact on outfitters from a common pool system is challenging because there is a tension between the benefits of competition and the costs of uncertainty on investments and business practices. Some outfitters are likely to thrive by providing superior services in efficient ways, while others may not fare as well.

It is difficult to know the number of outfitters or the diversity and quality of trips that would be provided under a common pool system. These are information gaps likely to be filled only if more common pool systems occur (and agencies monitor their consequences).

- **Limits agency need for bid-prospectus processes to select outfitters or adjust their allocations.** Under split systems, access within the commercial sector is typically distributed among a small number of companies, most of whom received allocations at the time of initial use limitations. On some rivers, the number of outfitters and size of their allocations are periodically adjusted based on performance and utilization, but few use a formal bid-prospectus system that invites potential new outfitters to compete. A common pool system does not eliminate agency responsibility to certify outfitters and review their performance, but the size of an outfitters' allocation does not have to be managed because the market will do so (the number of successful permittees the outfitter can attract).
- **May encourage greater choice in outfitting services for permittees.** Many rivers have a small number of outfitters who offer fully-outfitted trips (although others may have dozens). Many offer both tour and charter trips but most do not rent equipment for non-commercial trips. However, an emerging industry (most notably in Grand Canyon and on the Main Salmon in Idaho) provides “partial outfitting” assistance to non-commercial trips (e.g., boat rental, equipment rental, shuttles, food buying and packing). Under a common pool approach, outfitters have greater flexibility to offer a range of services.
- **Provides access directly to the public; this eliminates the “selling” of allocations during outfitter transfers.** On many rivers, original permitted outfitters did not purchase the allocation they received. However, when those businesses are sold, their allocations have historically been “transferred” to the new owner. Even though federal regulations (e.g., BLM’s special use permit regulations (43 CFR 2930) and NPS’s concessions policies (NPS 1998; 36 CFR Part 51)) assert that allocations are not “owned” by outfitters and cannot be sold, it is clear that an allocation is a valuable component of an outfitter’s business (Shelby, 1984; see sidebar below). A common pool system may more directly distribute access to users; this would ensure allocations are not part of an outfitter business and could not be sold.
- **All permits are controlled by the managing agency.** A common pool system distributes permits directly from the agency to the public, without using outfitters as an intermediary; distributions are more transparent and uniform.

Disadvantages

- **Agency administration complexity.** A permit system that distributes access to both sectors is necessarily larger and more complex than one that allocates permits for only the non-

commercial side. Advances in electronic reservation processes are likely to be able to address this issue, but not without effort on the front-end as systems are developed (Shelby & Digennaro, 1995).

- ***Challenges associated with commercial “tour trips.”*** In many ways, people in commercial *charter groups* are similar to non-commercial groups. They travel in their own group, have formal or *de facto* trip leaders, and often have similar group sizes. They should have similar abilities to obtain permits from a common pool. In contrast, passengers wishing to join a commercial *tour trips* are organized differently. This raises: (1) fairness issues if they have to compete in the same pool with self-formed groups, (2) scheduling challenges, and (3) efficiency issues for outfitters.

Fairness issues: Tour trips combine individuals or small groups who do not want (or can't afford) to charter an entire trip. These independent groups might be too small to fairly compete with the charters and non-commercial groups under some potential common pool distribution mechanisms (e.g. weighted lotteries). Common pools make more sense when the size of commercial and non-commercial groups is similar (e.g., Boundary Waters), or when the proportion of tour trips appears small.

Scheduling issues. Under split systems, outfitters often schedule “tour trips” based on “hoped-for demand,” and then encourage potential passengers to reserve those dates. Under a common pool system, all the passengers have to obtain a permit to join such trips. If outfitters schedule (or are allowed to schedule) too many trips relative to “tour trip” demand, too few passengers will be successful and some trips would have to be cancelled. In this way, “tour trip” passengers are partially dependent upon other passengers’ success in the system.

Inefficiency issues. A related issue is the relative “inefficiency” of commercial trips with a common pool because each scheduled trip may not be filled to its “designed” size (if not enough prospective passengers secure a permit). Under a split system, the outfitter can easily add passengers if there is space (the outfitter controls their allocation). This may affect profit from tour trips under a common pool approach. It fails to use space on trips that are already going, thus reducing access and profit for logistical rather than impact-related reasons. Without monitoring, it is difficult to predict the extent of these inefficiencies or their effects on outfitter profitability under a common pool. If it is substantial, a mitigation option is to allow outfitters to add passengers per tour trip after enough passengers (who went through the common pool) have signed on to the initial trip (this is allowed on the Deschutes).

- ***Less predictable business climate for outfitters.*** Tour trip scheduling and efficiency issues are likely to add uncertainty to the outfitting industry, particularly if a common pool was instituted as a replacement for a split system. This may discourage longer term investments, although the extent of these impacts is difficult to predict.
- ***Increased advertising.*** In response to greater uncertainty, outfitters might increase marketing and advertising to encourage prospective tour group passengers to enter the common pool (or to convince successful permit applicants to charter commercial trips). This would increase their operating costs (which might affect the price of trips), as well as encourage higher demand for a place where demand already exceeds supply.
- ***Value/equity/intangibles from historical use.*** A common pool system does not provide priority access for any particular outfitter, so the system does not necessarily reward outfitters who have offered trips in the past. This may discourage some outfitters from

investing effort in conservation, safety, or interpretive contributions to the river's management.

- ***Common pools may increase paperwork for commercial passengers.*** Under split systems, commercial passengers essentially do not participate in a permit system. They organize their trips directly through outfitters, who have their own allocation and distribute space on trips through a pricing and reservations. As a way addressing this concern, common pools may allow outfitters to apply for permits on their clients' behalf (allowed on both the Lower Deschutes and in Boundary Waters Canoe Area Wilderness).
- ***Limits access for "spontaneous" commercial passengers.*** A common pool system (because of its larger size and complexity) may create an advantage for people or groups that can plan ahead and understand the intricacies of the permit process, although a common pool on the Lower Deschutes in Oregon addresses this by releasing percentages of "space on the river" close to launch dates.

Adjusting split allocation

Because split systems allocate use differently in commercial and non-commercial sectors, there is no mechanism to assess demand by sector or re-allocate between sectors. The concept of an "all-user registration" was developed during the 2003-2006 Grand Canyon planning process as a potential way to assess this demand (although it was removed from the final plan to provide "greater stability" in sector use levels from year to year). In essence, such a system could create an "adjusting split allocation" system. The following describes the overall concept and how it could be used to assess demand and better inform split adjustments of allocation percentages.

With a registration system, all potential users (commercial and non-commercial) would be required to register. These are the people who are ready to take a river trip in the near future (i.e., within two years).

At the time of registration, prospective users would be required to state their preference for commercial charter trips, commercial tour trips, or non-commercial trips; additional questions (where relevant) might ask about preference for group sizes, trip lengths, or motorized and non-motorized trips. This would provide definitive information about "initial trip type preferences" which could later be compared with the kinds of trips that people eventually take ("actual trip type distributions"). This would be the first time an agency using a split system could attempt to assess stated demand for different trip types; it would begin to bridge a fundamental information gap in the allocation debate.

The registration system could also track the percent of unsuccessful users and the length of time between initial registration, obtaining a permit, and actually taking a trip. This could provide information about inequities between sectors, a substantial improvement over other demand indicators.

Adjustments in the split could be made through a public adaptive management process that considers trip preference, waiting time information, or other factors, and could be "phased-in" over several years. The process could set limits on the potential change in launches, people, or user days to ensure that neither sector is decreased too fast or too far.

The idea would be to routinely adjust the number and type of trips based on relative demand, without creating too much change in any given year (allowing outfitters to plan for re-

allocations). Individuals who applied but did not obtain a permit could improve their chances in subsequent years because their preferences would influence future allocation adjustments.

Advantages

- ***Stable scheduling and efficiency for commercial “tour trips” (compared to a common pool system).*** Commercial tour trips could be scheduled by outfitters from their allocations, and registration would not prevent them from adding passengers to fill trips to designed capacity.
- ***Improved information about commercial trip preferences.*** Outfitters commonly suggest that existing trip types reflect market demand, but this cannot be substantiated under a split system (unless outfitters monitored and shared the number of people they “turn away”). An all-user registration system could assess demand for different types of commercial trips, helping outfitters to meet users’ needs.
- ***Equalizes the “complexity” involved with getting on a river trip.*** Although users could still use separate distribution systems, common registration equalizes some components involved in taking a trip (albeit by increasing the commercial passenger burden). All potential users would have to register and provide the same information, and fees for access to a public resource would be paid (transparently) to the managing agency rather than to outfitters.
- ***Trip type preference and waiting time information allows splits to be adjusted.*** Although users could still use separate distribution systems, the registration list could provide better information about demand in the two sectors. Demand for access may remain greater than supply, but adjustments could be used to equalize the “percent of disappointment” in each sector.

It is speculative to suggest which sector would actually “do better” under an adjusting system on any given river. Persuasive arguments have been heard from both sides in regard to Grand Canyon, but it probably depends on many factors including the river’s characteristics and the kinds of users it can attract, the costs of commercial trips (an easy way to change demand), how non-commercial sector use is allocated, and the types of trips available. Trial implementation (with careful monitoring) may be the only way to find out. An adaptive management component would need to accompany any trial of this system, perhaps with a “sunset” clause to abandon the program if certain potential negative consequences are realized.

- ***Market-based incentives in the outfitting industry.*** Because outfitters could lose part of their allocation if they do not attract future demand, they have incentives to provide high quality trips for less cost. They may improve features, increase options, and lower costs; these are benefits for commercial passengers. However, increased competition might reduce profit, which may affect services, capital investments, and trip offerings in other ways.

Determining the total financial impact on outfitters from an adjusting system is challenging because there is a tension between the benefits of market-based competition and the negative effects of uncertainty on outfitters’ investments and business practices. Some outfitters are likely to thrive by providing superior services in efficient ways, increasing demand for their type of trips.

It is speculative to state how the diversity, cost, or quality of trips are likely to change on any given river under an adjusting system. It depends on what the data show, how agencies respond to demand, and how outfitters respond to those changes. This is another information gap that probably cannot be filled without trial implementation of an all-user registration system.

- ***Re-establishes some agency control over access in both sectors.*** An adjusting system would return control of the amount of commercial access to the public agency responsible for it. Although this increases overall administration costs (because agencies handle distributions that outfitters handled previously), it ensures a more uniform distribution of access between the sectors.

Disadvantages

- ***Agency administration complexity.*** An all-user registration system would probably require a major administrative effort. A registration list that included commercial passengers and non-commercial participants (not just trip leaders) could exceed thousands of names in a given year. Electronic data management can handle this kind of information, but front-end development of the protocols is likely to be substantial.
- ***Less predictable business climate and potential lost allocation for outfitters.*** An adjusting split system would add uncertainty to the outfitting industry, particularly during a transition phase. It might take two to five years after implementation to collect sufficient information to help make defensible adjustments, and those might have to be phased-in to reduce business uncertainty or other impacts.
- ***Increased advertising.*** In response to greater uncertainty, outfitters might increase marketing and advertising to encourage prospective passengers to register and take trips. This could increase operating costs (which could affect the price of trips) and encourage higher demand for a place where demand already appears to exceed supply.
- ***Price-cutting to increase demand.*** Outfitters might decrease prices to create greater demand, even if this diminished short run profits. This might preclude non-commercial users who do not have a pricing mechanism with which they can “compete.” Over the long run, however, outfitters will have to balance the benefits of a larger allocation (via lower pricing) versus profits.
- ***Debate over appropriate measures of demand and/or measures of use.*** Decisions about how to compare sector splits (e.g., by launches, users, or user days) would need to be resolved. This debate could focus on real information about demand rather than speculation.
- ***Problems allocating use within the commercial sector after adjustments.*** A static split allocation system maintains the relative sizes of individual outfitter allocations. If adjustments occur, which outfitter might gain or lose launches when adjustments occur?
- ***Increases complexity for commercial users.*** Under most split systems, commercial passengers do not have to participate in a permit system. They organize their trips through outfitters, who have their own allocation and who distribute space on their trips through a pricing and reservation system.
- ***Increases complexity for non-commercial users that are not trip leaders.*** Under most split systems, only trip leaders (applicants on the waiting list) participate in the permit system; their fellow participants do not have to register.

The monetary value of commercial allocations

When carrying capacities were first implemented on rivers in the 1970s and early 1980s, most agencies developed allocation systems that approximated the “existing” split between commercial and private use. They did not anticipate that separate allocations might have unintended consequences. Agencies allocated blocks of access (e.g., user days or launches) among “certified” outfitters, who then distributed that access to their passengers. The general intent was to allow outfitters to take approximately the same number of passengers as in the past; there was little discussion about whether an initial allocation had monetary value, or whether outfitters should be able to “capture” that value.

Selling the real property and intangible assets of an outfitting business (client lists, access to quality employees) is no problem, but most agencies prohibit the sale of an allocation or permit. Instead, the permit is relinquished to the agency with the understanding that the permit will be reissued (or “transferred”) to the buyer if they meet agency qualifications (Loomis, 1980; Shelby, 1984). However, the buyer in these cases is clearly interested in paying for the real property, the other assets, **and** the value of the permit (which is needed to offer trips). The agency's refusal to officially recognize the permit sale allows all parties to avow that the business and not permits are being sold, but it also creates a de facto quasi- or black-market for such permits.

Although recent sales analyses have not been published, sales of businesses with associated permits on four western rivers in the late 1970's suggest permits have considerable value beyond equipment and other business assets, and the values are greater on higher demand rivers (Shelby, 1984). The Grand Canyon permit for 10,000 user days “sold” in 1978 was worth about \$500,000, with the other assets worth about \$400,000. If this is adjusted to current prices, the 2007 access value of a 10,000 user day permit is nearly \$1.6 million.

If an agency simply approves such sales (historically, few have been turned down), the value of the initial allocation is captured by the seller and paid by the buyer. Buyers have to eventually recover the cost of purchasing the company that has value above and beyond its equipment and reputation. They may be able to accomplish this through pricing to present passengers (above and beyond the cost of providing services and a reasonable profit), or through a future sale of the company (anticipating that the permit will continue to increase in value). Most outfitters and some agency staff that administer commercial use recognize this value as the “windfall” or the “blue sky” (retirement) value associated with the permit.

Different agencies apply different procedures for assessing outfitter sales and associated permit transfers, and it is beyond the scope of this report to describe the details. Based on interviews with agency staff, some agency reviews of outfitter sales may examine whether a sale value is “appropriate” based on the value of equipment, intangible assets, or other aspects of the business (e.g., competition agreements, business plans, past performance, business references, or sale price relative to annual revenues), but agency discretion rather than specific financial standards characterize these reviews (even so, they have been upheld in legal settings; see chapter 9).

In many other cases, reviews are more cursory, and focus on simply “qualifying” the buyer. Although outfitter sales have been denied for a “price too high” relative to equipment and revenues, these actions are exceedingly rare and undocumented. Agencies may expressly prohibit the sale of permits and sometimes

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Commercial allocation value (continued)

conduct analyses to prevent “unreasonable” transfers, but observers recognize that allocations are a commonly a substantial component of outfitter sales.

It is rational for outfitters to take advantage of this system. Most work hard to build sustainable businesses, and they are not responsible for the fact of higher demand than supply, or agency decisions to limit outfitters or their use (and subsequent allocations). Only philanthropists wouldn't sell a valuable allocation if they were allowed to do so. Similarly, new outfitters that purchase companies with allocations pay for *de facto* access and it is rational and necessary to protect those investments through the trip prices they charge (which might be lower if they didn't have to cover the “cost” of obtaining an allocation).

Agencies also see some benefits from this system. Allowing outfitters to capture the value of access probably works toward outfitter stability, and “guaranteed” access for outfitters can limit uncertainty and contribute to profitability. There is little public benefit from outfitters that are failing, and successful outfitters support higher quality services or “give back” to the river.

However, this system may allow outfitters to capture and control a valuable public good (a block of access) originally offered at no cost, and new outfitters have to pay for that value and pass the costs on to the public (providing a substantial “entry barrier” to the industry. The important question is, “Is this good public policy?”

This is not the first public resource where such a system has developed. Some public fishery, grazing, and mining permit systems provide vested or preferential rights to individuals that later become sellable (although the rules vary substantially). For other resources, government captures some of the “fair market value” and returns revenue to the public sector (e.g., timber sales, leases for oil and gas production). There are several models for managing private use of public resources, but which is right for allocating river use?

Common pool approaches offer one way to disentangle allocations from sales (see earlier discussion in this chapter). Other approaches could have agencies reclaim allocations when an outfitting business sells, and offer the allocations in a bid-prospectus system or in common pools. Both of these models are strongly opposed by outfitters and their trade organizations (see Chapter 8) for the reasons described above.

Other attempts to constrain the monetary value of allocations focus on fee structures that help capture allocation value to return to managing the river. Nearly all land-managing agencies require outfitters to pay fees (usually per person or a percent of gross revenues), and those are used to “recapture” some of the public value. Market-like mechanisms that allow some outfitters to increase their allocations at the expense of others (by using “shared pools” of allocation within the commercial sector; having outfitters lose unused allocations) also discourages inflation of the monetary value of access.

Another alternative is to allow unused commercial allocation to be used by other outfitters or within the non-commercial sector (a small version of a common pool). Dispersing un-used allocation could occur on a temporary basis (i.e., in that year only), or on a more permanent basis (once an outfitter fails to use part of an allocation, it could be forever placed in a common pool). These mechanisms essentially adjust allocation splits based on demand, so outfitters would have less certainty that they will be able to retain an allocation indefinitely if they don't use it. In essence, they prevent outfitters from holding allocations for speculative purposes.

Chapter 5. Primary distribution mechanisms

This chapter reviews six mechanisms for allocating use (pricing or price-based auctions, reservations, pure lotteries, weighted lotteries, queuing, and points-based auctions). It includes sidebars on “mixing mechanisms” and “allocating use among outfitters in a split allocation system.”

Pricing and price-based auctions

Nowadays people know the price of everything and the value of nothing.
Oscar Wilde

Pricing is the most familiar mechanism used to allocate resources in market economies. In the simplest terms, a market adjusts supply or price until supply equals demand. In the case of river access supply is often limited by the carrying capacity. Theoretically, when demand is great, the price rises until those unwilling or unable to pay withdraw from the market.

Public outdoor recreation and river resources are generally not allocated through market-based pricing (particularly in the non-commercial sector). For most multi-day river trips, access is conceptually considered a “public good” which is not reserved only for those willing and able to pay the highest price. The general “national park or public lands” concept runs counter to the notion that such goods should be “commercialized,” even though there are also long traditions of allowing some commercial activities (and market-based pricing) in these settings.

Examples of permits or concession-type contracts that allow such market-driven activities on public land include ski areas on Forest Service land and lodges at National Parks. Some campgrounds on public land also operate in quasi-markets where fees may play some role in allocating use, although pricing practices and goals are complex and vary by agency and location (Loomis & Walsh, 1997).

Market *pricing* is a major component of *commercial allocations in split systems*. It is usually combined with reservations because price alone does not perfectly limit demand to available supply (an outfitter’s allocation). Conceptually, small business economics suggests outfitters should offer prices that “clear the market,” ensuring that they spend minimal effort responding to demand that they cannot meet. However, their prices are sometimes limited by agencies that use concession or commercial license regulations to constrain prices and ensure a “competitive market result” in a monopolistic market structure (Loomis & Walsh, 1997). It is outside the scope of this report to review policies or regulations (which vary by agency and area) or their effects on outfitter price structures. As discussed in the sidebar at the end of the last chapter, decisions to employ a split allocation approach and grant access to outfitters (rather than employ a bid-prospectus system to recover the value of allocations), ensures that a pricing component will be present on the commercial sector side.

However, pricing also could play a role in the *non-commercial sector of a split system* or a common pool. *Price-based auctions* could: 1) allocate a portion of the non-commercial permits through an auction; 2) recover some costs of administering the permit system and lower fees for other users; or 3) assist with overall river management costs).

Price-based auctions are sometimes used in wildlife management. Non-profit game conservation organizations (e.g., Rocky Mountain Elk Foundation, Foundation for North American Wild

Sheep) have worked with state game agencies to fund wildlife management efforts by auctioning a few permits each year for high demand hunts (Scrogin, Berrens, and Bohara, 2000). The permits are sold at auctions, and prices for some permits exceed \$200,000 (e.g., the average bid for a Montana big horn sheep permit is \$149,000 over the past 20 years).

For very high demand rivers (e.g., Grand Canyon, Middle Fork Salmon, Selway), a similar program might offer a small number of permits (e.g., one to five per year) through an internet-based auction. The permit could be awarded to the highest dollar bid, which could be from an individual, a group, or commercial outfitter. Trip(s) could then be conducted as commercial or non-commercial, as long as they met other regulations for type of trip, trip size, and trip duration. To the extent allowed by state or federal laws, revenue from the permit auctions could then be used to administer other aspects of the permit system, to support resource management in the river corridor, or to reduce fees for other users. We think auctioned permits might generate bids of \$10,000 to \$20,000 for some trips (depending upon the river, number of permits available, and odds of securing a permit through other mechanisms, etc.).

Advantages

- ***Encourages users to prioritize their values.*** Pricing in the commercial sector presumably selects passengers who place a higher value on river trips. Priced-based auctions in the non-commercial sector would provide a *small* number of permits (e.g., 1 to 5 per year) to those who place high value on trips (with little effect on those unwilling or able to pay the high bids).
- ***Requires users who want access to pay for it.*** Pricing would help off-set the cost of providing river management, rather than having taxpayers subsidize the pursuits of river runners.
- ***Provides information about the value of a river trip.*** A pricing-based auction would provide some real information about the value of this otherwise non-market good. Resource economists are likely to be interested in outcomes from such auctions, which might help estimate economic value of recreation opportunities and suggest data-based permit or concession fees.

Disadvantages

- ***Discriminates against the less wealthy.*** The currency in a pricing mechanism is money, which is not distributed evenly through society and some would say should not be used to distribute public goods.
- ***Those who pay the most may not value the resource most.*** The ability to compete in a pricing system may not be correlated with people who value trips.
- ***Likely legal hurdles.*** It does not appear that federal agencies can sell permits through auctions, although wildlife hunting examples suggests that some government agencies have developed a system that meets legal scrutiny.
- ***Commercializes river running opportunities.*** A permit auction is likely to strongly link money and the river running experience, and some would say a “public resource shouldn’t be sold.” This is an issue in the commercial sector, and many stakeholders may balk at developing this connection in the non-commercial sector.

Reservations

I'm planning to be spontaneous tomorrow.
Steven Wright

Aside from pricing, reservations are one of the most common ways scarce goods are distributed in modern life. Reservations are a kind of first-come/first served queue, where being “first in line” gives priority, but the queuing is done “virtually.” Reservations are used to ration seats on airplanes and at performances, and for space in hotels and restaurants – they are, by far, the most common way that scarce goods are distributed in the travel industry. While the details of these systems vary widely, they all place a premium on advanced planning.

Reservation systems have been used to ration backcountry permits or public use cabins, and are a component in the allocation of passenger space on commercial river trips. For non-commercial river trips, reservations are less common (see Chapter 7), despite being well-accepted by users (Shelby et al., 1982; see also Chapter 9).

There are many issues involved in developing a reservation system. Detailed reviews of each issue are beyond the scope of this report, and interactions between them can produce very different consequences. Additional information on these topics is provided in Shelby & Digennaro (1995).

- **Use control period:** When would use be limited? Most systems apply reservations to an entire use season, but they could be used for shorter periods (e.g., high use days based on past use as on the Lower Deschutes, weekends only on the Lower Youghigheny). The main trade-off is complexity (if the control period is limited) vs. over-regulation (limits may not be needed on all days).
- **Opening date:** When will reservations be taken? Systems can offer reservations year round, but some open six months (or less) before the first available dates. There are administrative costs for longer open periods, as well as repercussions on cancellation and no show rates if dates are out of sync with user planning horizons. The Lower Deschutes offers “multiple opening dates” where some reservations are available a long time (e.g., six months) ahead, while others are available closer to the date (e.g., two weeks, two days). Such systems can serve those with longer and shorter planning horizons.
- **Reservation mode (sometimes labeled accessibility):** How would reservations be taken? Walk-in, phone, and internet options are the major choices. Administrative and “show up” costs are typically highest for walk-in access, while phone and internet access are more convenient. The trend is toward internet-based reservations, but this reduces the “interface opportunity” between agencies and users, and may have other implications such as “no shows” (see sidebar in Chapter 6).
- **Reservation policy:** Would permits be offered to groups or individuals? Requiring individuals to name everyone in a group reduces “speculative trips” but is more cumbersome for agencies and users. In the travel industry, it is common to name “some” people (e.g., the head of the family, one person for a hotel room) but not everyone. Offering trips to a single trip leader minimizes transactions, matches how people plan trips, and allows flexibility (for trip members and alternate trip leaders).
- **Transfer policy:** Can permits be transferred to others? Non-transferability reduces permit trading, speculation, and the creation of a secondary market, but is less flexible for users. Transfers have the potential to create value in the permit (which could be sold).

- **Reservation fees and terms:** How much would a reservation cost and could people make more than one at a time? Limiting transactions or the number of reservations available at one time creates greater opportunity for others, but may not fit with a river where people take multiple trips per season (e.g., Deschutes, Arkansas). There are also administrative costs for tracking multiple reservations.
- **Confirmation policy:** Is confirmation required, and if so, when? This requirement could minimize no shows and increase the number of permits available in a secondary system (which can benefit short-term planners). The trade-off is limited flexibility for users, plus increased administrative costs.
- **Cancellation policy:** Would there be refunds of reservation fees, or penalties for failing to cancel? Refunds require greater administrative effort, and may complicate the system. But keeping fees may penalize people who “legitimately” cancel a trip or encourage people to “no show” rather than cancel (which works against efficient use of the total allocation).
- **No show policy:** Would there be penalties for not using a reservation? This can discourage “no shows,” but has administrative and enforcement costs.
- **Waiting list policy:** Would there be a list and how will it work? Short-term waiting lists allow the agency to notify users as cancellations or other permits become available, but there are administrative costs. Multi-year waiting lists allow users to “stand in line” over the long term, which can have a variety of consequences (see case study on the Grand Canyon waiting list in Chapter 8).

Advantages

- **Any applicant can get a chance to go (sometime).** Lotteries do not guarantee an applicant will ever obtain a permit, but a reservation system allows anyone to reserve a date (although it may be far in the future).
- **Efficient and considered fair (when demand and supply are in balance).** When supply is similar to demand (and reservations are not made too far out in front of when people would use them), reservations assure applicants of a permit and a relatively short wait. When demand substantially outstrips the number of permits, the planning horizon needed to successfully compete for a permit can become “unreasonable.” People make reservations not knowing whether they will be able to conduct the trip when the time comes, leading to speculation and higher numbers of cancellations and no shows.
- **More control over scheduling.** Reservations provide greater control over scheduling a preferred date than lotteries (where they may have to list more than one).
- **Flexible applicants can get permits.** Some believe that reservations may lead to higher cancellation rates, but cancellation policies and secondary distribution systems can make those available to others (see Chapter 6). In addition, limited examples suggest reservations lead to lower cancellation rates. On the Green through Desolation the cancellation rate went from over 50% (under a lottery system) to less than 5% with a new reservation system (Willis, personal communication, 2007).

Disadvantages

- **Understandability issues.** Depending upon the details, reservation systems can be complex to manage or use. Each rule change or system nuance may be designed to address specific problems, but can be unwieldy.

- ***Too complex.*** Tracking users, multiple releases of dates, fees, confirmations, and cancellations are cumbersome and require sophisticated administration systems. Based on the experience of the Lower Deschutes, start-up costs for such systems can be high, but once they have been developed and “de-bugged,” web-based software should minimize long-term costs.
- ***Long waits prevent realistic trip planning.*** The further ahead one needs to make reservations to assure a trip, the less realistic trip planning will be. Maintaining multi-year waiting lists (or taking reservations years in advance) was a failure in Grand Canyon (see case study in Chapter 8) and has been discontinued. Other rivers (e.g., Green in Desolation, Westwater) have also jettisoned waiting lists (although these operated within a single season only – were not carried over from year to year).
- ***Long waits favor less spontaneous users.*** Reservations and waiting list systems favor those who can plan ahead at the expense of those who are more spontaneous (although secondary distribution systems can be developed to provide a substantial allocation to spontaneous users).
- ***Onerous or punitive rules.*** Layers of policies to minimize the number of people who might otherwise “work the system” may create onerous rules and bureaucracies. To the extent these are only applied to non-commercial users, they are an unequal burden (commercial users do not face most of these rules).

Pure lotteries

Lottery: A tax on people who are bad at math.
Ambrose Bierce

Lotteries are the “classic” non-market mechanism for allocating scarce resources when equality is the goal and the commodity cannot be subdivided. In a pure lottery, each individual receives an equal chance to obtain the commodity, in this case a permit to run the river.

Pure lotteries are the most commonly used rationing mechanism on multi-day rivers (at least 13 rivers employ pure lotteries to distribute their permits; see Chapter 7). Most require prospective applicants to compete during the winter for specific dates in the following summer/fall.

Lotteries generally “encourage” all the prospective members of a group to apply (assuming the fees are not too onerous), because more entries create better odds. Boaters have been known to organize “permit parties” to complete applications and strategize about preferred dates, which can create excess cancellations if more than one in the group is successful. With a pure lottery the probabilities of success are not modified by past success or other variables, and users re-apply each year.

In addition to several issues described for reservations, lottery mechanisms must include decisions about:

- ***Application period and drawing date.*** Analogous to reservation opening dates, these decisions define when people can apply and when the drawing will be held. Application dates farther from trip date increase planning horizons, limit spontaneous users, and increase cancellations and no shows.
- ***One vs. many lotteries.*** A lottery could choose winners from the entire pool of applicants and then give preferred dates to them. But most river lotteries operate as “mini-lotteries,”

where applicants that apply for each date compete for that date. There is usually a single lottery for the year (most common), but it is possible to have several lotteries spaced throughout the year covering shorter periods (so they occur closer to the trip date).

- ***Individual vs. group applications.*** As with reservations, allowing one person to represent an entire group decreases administrative efforts. However, multiple applications from a group increases the chances of obtaining a permit.
- ***Lottery application mechanics.*** How will applicants apply (paper, phone, internet) and how will the agency choose winners in a random but equitable way (choices range from “cards from a hat” to electronic random number generation)?
- ***Fee, confirmation, and cancellation/no show issues.*** There are similar issues to those discussed for reservations (see previous section).

Advantages

- ***Lotteries are in common use.*** Lotteries have long been used to allocate game hunting permits, and are the most often-used system for multi-day river permits. However, they are relatively rare in the travel industry (e.g., for hotel rooms, flights, or access to popular sights), where reservations are dominant. Lotteries on rivers have withstood legal challenges, are generally considered a “fair” non-market mechanism, and are well-understood and easy to explain.
- ***Lotteries serve equality goals.*** By definition, “pure” lotteries give equal consideration to all who apply.
- ***Lotteries can handle group applications.*** It is possible to have a lottery to handle group rather than individual applications (thus minimizing multiple applications), although most agencies do not.
- ***Pure lotteries are less administratively challenging.*** Pure lotteries can handle a large number of applications, and computers can easily randomize the choice of successful applicants. This makes them easy and cheap to administer, particularly if applicants enter data electronically.
- ***Lotteries favor those who can plan ahead and organize their group.*** Lotteries put a premium on organizing groups in advance of the application deadlines, and strategically choosing dates that are: a) desirable for your group and b) undesirable for other competing groups.

Disadvantages

- ***Pure lotteries give no advantage to those who have been unsuccessful in the past (or haven’t been down a river recently).*** An idealized “equity” goal may suggest that people who have been trying unsuccessfully to obtain a permit should have improved chances over those who have taken a trip recently (a weighted lottery can accomplish this; see below).
- ***Lotteries discourage spontaneous use.*** Because they must be held in advance of the launch dates to give time for people to organize trips, lotteries put a premium on advance planning and discourage “spontaneous” use. Releasing a proportion of permits through a secondary system can address this issue (see Chapter 7).
- ***Perceived chances of success are lower with pure lotteries.*** Pure lotteries provide few variables that users can control to improve their chances. A study of backpacker and river runner permit system preferences suggests reservations and pricing were preferred over

lotteries and on-site queuing, apparently because users felt they had more ability to control their chances (Shelby et al, 1982).

- **Poor odds in a pure lottery.** Odds of success are low in lotteries for high demand rivers like the Selway and Middle Fork Salmon. Based on the 3% “success rate,” a single person applying for a Middle Fork or Selway permit would get a permit about once every 30 years (although many groups may submit several applications, improving their group’s odds).
- **“Over-applying” and “lottery synergy.”** Lotteries may become “a game unto themselves” possibly creating a synergy among potential river runners that leads them to apply for more trips than they realistically plan to take (Willis, 2008). One potential scenario is for a group to apply to many rivers for the same vacation week and draw more than one permit, causing them to cancel all but one.

Weighted lotteries

With weighted or modified lotteries, probabilities are altered to better meet “fairness” goals. The logistics of a weighted lottery are similar to a pure lottery, with the exception of the weighting system. A weighted lottery system could increase the odds for previously unsuccessful applicants, or weights could be given for other applicant characteristics (e.g., groups willing to take shorter trips, go in smaller groups, or those who had not been down the river recently) to address other management goals.

Advantages

- **Weighted lotteries have been used in natural resource settings.** Most rivers have pure rather than weighted lotteries. But several wildlife agencies consider past success or “points” systems based on other hunter characteristics, and bear viewing at Alaska’s McNeil River has used a type of weighted system in the past (see case study in Chapter 7). The Grand Canyon also uses a weighted lottery, although it may be a couple of years before the range of effects will be understood and can be evaluated (see case study in Chapter 7).
- **Weighted lotteries serve “fairness” goals.** A weighted lottery increases odds for specified applicants in order to be “more equitable or fair” than a pure lottery.
- **Weighted lotteries can handle group applications.** It is possible to design a lottery to handle a group rather than individual applications, thus minimizing multiple applications.

Disadvantages

- **Weighted lotteries discourage spontaneous use.** As with pure lotteries, weighted lotteries put a premium on advance planning and discourage spontaneous use. Releasing a proportion of permits through a secondary system can address this issue.
- **Group composition pressures.** A weighted lottery that awards permits to groups (e.g., the current Grand Canyon system for boaters that were on the multi-year waiting list) puts a premium on forming groups with other people who have been unsuccessful in the past. This may affect the composition of applicant groups, shifting to groups cobbled together based on “wait points.” Private boater websites have formed to facilitate these group-forming efforts, possibly creating “non-commercial tour trips” consisting of people who do not know each other very well. The social dynamics in these groups differ, which may affect trip impacts or safety.

- **Administration challenges.** “Weighting” applications is more complex and more difficult to explain to users or develop among managers. Specific details are beyond the scope of this report, and include privacy concerns (tracking by identification numbers). Case studies for Grand Canyon and McNeil River in Chapter 7 offer some options.

Points-based auctions

A “points-based auction” is a mechanism where people earn “waiting points” for the length of time they are registered, and the points become a form of “currency” that can be used to “bid” for permits. Groups having people with more time on the registration list are more successful than groups with less time. The concept was conceived by non-commercial boaters interested in overhauling Grand Canyon’s waiting list system, and further developed through the 2003-2006 planning process. The concept has been incorporated into the transition options from the Grand Canyon waiting list to the new weighted lottery system. A broader conceptual points-based auction system is described below.

- “Waiting points” are earned by *individuals* for each year they applied but did not take a trip. However, applications for permits are made by *groups* (a roster of trip participants). Members of a group pool their collective waiting points to compete for a permit.
- Points-based auctions are compatible with a common pool or within the non-commercial sector of a split system.
- Groups compete for specific dates in a certain time period. Comparisons occur for each date in sequence, and the group with the highest number of points is offered a permit. After they receive an offer they no longer compete for any other date (and their “points” are “spent”). Individuals who bid with groups but fail to obtain a permit continue to accumulate points for future bids (but groups can change in future years).

Advantages

- **Favors those who have been registered longer.** This recognizes the equity goal of providing a greater share of permits to those who have been unable to get on the river.
- **Favors users who can “network” better.** People organizing others who have been waiting a long time will be more successful.
- **May serve efficiency goals by increasing trip size averages.** Because groups with more points can bid more, this system encourages larger group sizes. This maximizes the number of people going down river for a specified number of launches.

Disadvantages

- **Pressure to increase group sizes.** Points-based auctions tend to increase group sizes, because groups with more people can amass more points. This may work against other management goals (larger groups may have greater resource or social impacts) or desired experience quality (large groups may have different social dynamics and personal benefits).
- **Group composition pressures.** A points-based auction encourages forming groups with other people who have been waiting a long time, which may affect group composition (see discussion for weighted lotteries).
- **Greater complexity and cost.** A points-based auction system is necessarily complex. At a minimum, it must track information about those who register but remain unsuccessful, raising privacy concerns. Electronic programs can handle this, but it is not simple.

Queuing or first-come/first-served

Time is the scarcity, and it's the commodity we can't create any more of.
Jim Mitchell

An “on-site” first-come/first-served queuing system is common in modern life (e.g., at the grocery store check-out or ice cream shop) and in many recreation settings (e.g., at ski lifts, amusement parks, or entrance stations to parks). However, most of these “lines” form at facilities where the wait is likely to be short and potential users can judge waiting time and their willingness to wait. Many river settings require time and effort to get to the site and information about “queue length” and chances of success are probably unavailable.

Several recreation programs use a first-come/first-served system (e.g., backcountry permits in Yellowstone, Glacier, or Denali) with queues at backcountry offices at park gateways or nodes. In general, a limited number of permits are offered for different zones or campsites, and users queue up a short time in advance (e.g., 24 or 48 hours).

On rivers, queues are rarely employed as a primary distribution mechanism, but they are often part of the secondary system (where cancelled or no show permits are available to those who are waiting). Queues usually form at agency offices, although in some cases (e.g., McCloud River Preserve, Lower Youghigheny) they occur at the river.

Advantages

- ***Favors those who live closer to the river.*** Queues serve idealized equality goals because theoretically everyone has equal amounts of time to spend in lines. However, those who live closer spend less of their time getting to the queue.
- ***Favors those with more “free” time.*** Those with less structured lives (e.g., those with flexible work or school schedules) may have time or be more willing to spend it traveling to or standing in lines (Schomaker & Leatherberry, 1983).
- ***May provide benefits to a local economy.*** In places where people remain in an area for several days to participate in queues, their additional expenditures could provide a modest economic boost (Robertson, 2003).

Disadvantages

- ***Disfavors users that live farther from the river or have less “free” time.*** (For the reasons described above).
- ***Puts a premium on information about queue length.*** Decisions about whether to join a queue often rest on information about waiting time or chances for success.
- ***Requires users to travel to a queue without guarantees that they will be able to take a trip.*** Uncertainty is a problem with queuing systems. Most users do not want to prepare for a trip and travel and stand in a line that may not produce a permit. Such systems are better where the queue distributes higher demand space (e.g., a better launch time on the Lower Youghigheny, a more desirable segment on the Rogue), but alternatives are available for the unsuccessful.
- ***On-site administrative effort.*** An on-site queue requires administrative facilities and staff at a potentially remote location. Queues at agency offices are usually less remote, but they may have other trade-offs.

On mixing mechanisms

Most rivers use a single primary distribution mechanism, but some people suggest “mixing mechanisms” (allocating “blocks” of permits with two or more different systems to diversify who “wins” and “loses” under an overall program). Mixing allocation mechanisms is analogous to “optimal taxation theory,” which advocates a balance of tax types (e.g., sales, personal income, corporate, and property) to provide economic stability and minimize impacts on one specific group.

A “mixed system” specifically refers to multiple primary distribution mechanisms. A different secondary distribution mechanism to distribute unused permits (cancellations and no shows) can be used to accomplish similar “diversification” goals.

The primary downside of mixing mechanisms is complexity of the overall system, with greater administrative costs for agencies and more complex procedures for users. If a mixed mechanism system is proposed, simplicity and understandability are particularly important.

Some mechanisms mix better than others. Without reviewing the full matrix of choices, two “mixes” appear likely to be complementary:

- **Price-based auctions with reservations or lotteries.** Price-based auctions are designed to allocate a few permits to help pay for other parts of a relatively expensive allocation system. This is likely to be more successful for longer, high-demand “iconic” river trips like the Grand Canyon or Middle Fork Salmon, where bid prices would be higher.
- **Queuing with reservations or lotteries.** Reservations or lotteries primarily favor those who can plan ahead, while queuing favors more spontaneous users, those with less structured lives, or those who live close to the river. Mixing these mechanisms provides “alternative paths” for different types of users.

In contrast, a couple of mixes are less likely to be complementary:

- **Weighted lotteries or points-based auctions with pure lotteries.** Weighted lotteries and points-based auctions serve equity goals (to favor those who have not been successful in the past) and run counter to the equality goal of a pure lottery. All of these systems allocate permits well in advance of trips, which do not favor spontaneous users.
- **Lotteries and reservations.** Both place a premium on planning, so combining does not diversify benefits to different groups.

It is also possible to “mix” split and common pool approaches by developing a split system but with a third allocation dedicated to a common pool. Rivers that allow cross-sector use of cancellations is a smaller version of how these mixes might work, but to be effective they would need to grow to about 30 to 50% of all use. “Partial common pools” could be used to transition between a split and a full common pool approach (allowing the common pool to grow as commercial or non-commercial allocations are not used or when commercial permits come up for availability), or applied for certain parts of the year (e.g., for winter and spring launches in Grand Canyon) to explore how well they work.

Allocating use among outfitters in a split system

There are challenging issues related to allocating use among outfitters in a split system. This includes deciding which outfitters will get a permit and the amount of use that will be allocated to each permit holder. Most allocations to outfitters are initially based on historical use. As use shifted, outfitters sometimes “sold” their allocations, or other schedules or trips changed, so agencies developed more sophisticated ways of allocating and scheduling outfitter use. A few observations about these mechanisms and what they accomplish follow:

- ***The level of oversight depends on river and trip characteristics.*** If commercial trips are more homogenous in terms of length and season (e.g., day trips on a high density river), allocations are relatively simple (e.g., launches per day) and less oversight is necessary. But if outfitters compete for higher demand times or offer trips of different lengths and sizes, more agency control of the process may be appropriate.
- ***Fewer outfitters reduces complexity.*** Some rivers have few outfitters (e.g., the Chattooga has three) while others have many (e.g., the Lower Deschutes has over 100). Regardless, the number has implications for allocation scheduling. It is easier to schedule trips when the “bidders” are fewer and have histories with each other. As the number increases, more sophisticated systems for bidding dates may be needed (e.g., on the North Fork American, outfitters bid in order through three rounds).
- ***Annual scheduling meetings.*** If the number of outfitters is relatively small (e.g., under 15 or so), annual face-to-face meetings can be a very effective tool for scheduling. Some of these are organized by agencies (e.g., North Fork and Middle Fork American) while others have been internal to the commercial sector with less agency oversight (e.g., Grand Canyon before the recent Colorado River Management Plan).
- ***Utilization policies.*** Most systems assess whether outfitters use their allocations from year to year. On some rivers, outfitters that do not use a certain proportion may lose some of their allocation in future years (temporarily or permanently). This discourages “holding” an allocation for its “windfall” value and makes unused space available to other users (other outfitters or in the non-commercial sector). These policies are challenging on rivers where use levels fluctuate widely from year to year because of weather, flows, fires, and outfitters have strongly advocated for regulations that average utilization over multiple years.
- ***Flexibility policies.*** Some systems allow informal launch “date trading” among outfitters to reduce inefficiencies and promote flexibility. The trade-off is that outfitters gain additional control over access rights and trip scheduling, which may encourage secondary markets (where outfitters trade dates for money).



The Nature Conservancy Preserve on the Lower McCloud River, California operates a “10 anglers at one time” capacity that is allocated through a combination reservation and “walk-in” queuing system.

6. Secondary distribution systems

This chapter covers systems for re-distributing unused permits from cancellations or “no shows.” It begins with the steps for designing a secondary distribution system. It then focuses on specific distribution mechanisms, including waiting list notifications, supplemental auctions or lotteries, call-in or internet reservations, and on-site queuing. A sidebar addresses philosophical issues and unintended consequences of elaborate systems that may be “over-focused” on the “business” of permits.

Cancellations and “no shows” are inevitable under most permit systems. Reasons include natural phenomena (e.g., weather, flow levels), participant health (e.g., a trip leader or boat operator becomes sick or injured), logistics snafus (e.g., vehicle break down, equipment damage, shuttle coordination), or changes in priorities or schedules. The issue is how to handle them.

There are two challenges in designing a secondary distribution system. The first is understanding the frequency and timing of cancellations and no shows, then encouraging users to inform agencies when they are not going to use their permit (which frees it up for others). The second focuses on distribution objectives (e.g., full utilization vs. serving equity goals) and mechanisms for meeting those objectives.

Encouraging “cancellation notification”

Agencies have several “carrots” and “sticks” to *encourage users to return their permits* as soon as they decide they will not use them. Potential “carrots” include:

- **Full or partial fee refunds.** Assuming user fees have been paid upon receiving the permit, a graduated refund schedule provides incentives to cancel as soon as permittees know they can’t take the trip (Willis & Swanson, 2000). Cut-off dates should be linked to reasonable planning horizons (so new permittees will have enough time to organize a trip). However, based on limited discussions with travel industry representatives, most fees are too low for a refund to provide a “useful carrot” (cruise ship and resorts require several hundred dollars in “upfront” money) (Willis, 2008).
- **Full or partial “points refunds.”** If the primary system uses a weighted lottery or points-based auction, the points used to obtain the initial permit might partially be restored on a graduated scale (again linked to planning horizons).
- **Deferred trip dates.** Agencies can offer a permittee another date in the future if they cancel with sufficient time.
- **Access to the secondary system for another date.** Instead of guaranteeing a new trip date, permittees that cancel early enough can be offered access to the secondary system that disposes of other newly available permits (giving them some hope they can reschedule).

Potential “sticks” include:

- **Penalty fees.** Agencies can assess penalty fees that are charged if you cancel after a certain date. (Note: these may not be legal from a public agency, although they are common in the travel industry and might be developed within agencies as a “performance bond.”)
- **“Bad user” lists.** Agencies can track users who cancel or no show, and sanction them if they re-apply for a permit (e.g., no show users cannot apply for a permit for one year). Penalties can be graduated to encourage users to notify agencies as early as possible. Because “bad

user” lists rarely prevent a person from taking a trip (they just prevent a person from being a permit applicant), this “stick” is unlikely to be very effective.

Some users will be interested in “forgiveness” for “reasonable excuses.” Agencies generally apply their professional judgment when assessing these claims, but American Whitewater has suggested developing a panel of private boaters (“a jury of one’s peers”) to pass judgment (Robertson, 2003). Regardless of the mechanism, the goal is encourage people to “do the right thing” by notifying agencies as soon as they need to cancel a trip, not punish users legitimately unable to follow through with trip plans.

Secondary distribution objectives

Secondary systems can be designed to meet different management objectives. One issue is whether the system should try to maximize use of permits, or try to decrease crowding or other impacts by not reallocating cancelled permits. A second issue is whether the system should increase opportunities for specific types of users (e.g., those unsuccessful in the primary system, “spontaneous users,” or other identifiable groups). These two objectives are examined below.

Maximizing utilization vs. decreasing impacts

Some agencies are committed to allowing as much use as their capacity allows. They actively encourage full utilization through multiple user-friendly contacts, flexible rules (e.g., allowing unused space in one sector to be used by another, allowing users to trade schedule dates), or “overbooking” trips. The objective of this strategy is to increase opportunities while still honoring the capacity. The disadvantage is that capacity is reached a higher percentage of the time. If a capacity defines the point when acceptable conditions become unacceptable, full utilization ensures near-marginal conditions more often.

An alternative is to let the cancellations and no shows occur at a higher rate to improve the quality of experiences for those who get on the river. To the extent that trips are cancelled and are not replaced, others will have fewer encounters and less competition for campsites. However, with good information about cancellation rates and use-impact relationships, agencies may be able to strike a balance between utilization and limiting impacts.

Specific mechanisms that fully utilize an allocation depend on the character of the river, users, trips, and the timing of cancellations. In general, multiple methods for users to “pick-up” cancelled or no show best achieves full utilization. In contrast, “overbooking” may work well if cancellation rates are uniform and predictable, but it can create over- or under-utilization if those are more variable.

Targeting specific user groups

With the frequency and timing of cancellations understood, the issue shifts to developing “fair” ways of distributing them. A secondary mechanism can complement a primary system (e.g., by targeting unsuccessful applicants) or serve other goals (e.g., equality). In most cases, the goal is to develop secondary systems that provide “alternate paths” to permits, thereby avoiding a “single way” system that favors certain types of users.

Mechanisms

There appear to be four basic types of secondary distribution mechanisms, each of which has implications for utilizing allocations and targeting specific user groups. The following describes concepts and lists major advantages and disadvantages.

Waiting lists (with agency notifications)

Agencies at several rivers used to keep annual waiting lists of lottery applicants that were unsuccessful. The idea was to notify people when cancelled permits became available (before cancelled permits were made available to a wider public). Because cancellations rates for these lottery systems commonly exceeded 50%, many permits were often available. These waiting lists were usually “cleared” by the end of the season (but not carried over). Annual waiting lists were distinct from the multi-year waiting list operated in the Grand Canyon (where demand was substantially higher and was not met in any given year, thus lengthening the list each year).

When cancellations are rare and the number of unsuccessful applicants is small, it is reasonably efficient to fill cancellations from this list. In most cases, agencies notified people by phone, offering “personalized” service. But as the number of unsuccessful applicants increased, the agency administrative burden increased also, and many people on waiting lists didn’t accept permits that became available. In response, most of these programs have been discontinued (Willis & Swanson, 2000), and the few that remain (most notably Hells Canyon and the Salt River) allow people to remain on a waiting list for a single date only (minimizing agency effort to notify many on a waiting list about an opening).

Advantages

- ***Ability to distribute cancellations on short notice.*** Agencies can begin soliciting prospective permittees as soon as they know about a cancellation, and are not required to “track” availability.
- ***Creates low burden on users.*** The agency assumes responsibility for notifying potential new permittees, who simply respond to an offer.
- ***Transparent benefits to primary system applicants.*** The system rewards those who applied in the primary system, and highlights the primary system as the main gateway to a permit.

Disadvantages

- ***Substantial administrative costs.*** Agency responsibility for notification is a greater administrative burden than when users contact the agency.
- ***Inefficient focus on users less interested in short planning horizons.*** People who apply to primary systems are likely to have longer planning horizons and be less spontaneous. This makes them less likely to use cancellation permits which become available. Some cancellations may not be re-filled, which works against full utilization.
- ***Fails to complement the primary mechanism.*** Reserving cancellation permits for those who applied through the primary system does not provide an alternate path to permits. As Willis & Swanson (2000) note, agencies using these systems tend to wait for people on the list to make up their minds about a cancellation, while others who are “ready to go” are not even asked.

Supplemental points-based auctions or lotteries

Points-based auctions, pure lotteries, or weighted lotteries are primary mechanisms that can be used to distribute cancellations through “supplemental” auctions or lotteries. The new Grand Canyon system attempts to offer all its launch dates in supplemental weighted lotteries. The agency notifies primary system applicants of the upcoming supplemental lottery, and those people can form groups to compete in the weighted system (which favors those who have not taken a trip recently or were on the old waiting list for many years). The timing for the supplemental mechanisms needs to fit with user planning horizons to be effective.

Advantages

- ***Uses the same mechanism as the primary distribution.*** If consistency is important, adopting the same system for cancellation permits makes sense; users and agencies can focus on a single set of rules.
- ***Favors people who have previously applied for a trip.*** The system rewards those who applied in the primary system, highlighting the primary mechanism as the gateway to a permit.
- ***Supplemental lotteries or auctions can be crafted to serve equity goals.*** Operating weighted lotteries or points-based auctions allows agencies to favor users who have been unsuccessful.

Disadvantages

- ***Poor ability to distribute cancellations on short notice.*** Auctions and lotteries require more lead time for agencies and users, discouraging participation on short notice. The problem is exacerbated on more logistically complicated rivers (e.g., Grand Canyon, Middle Fork Salmon). This mechanism also doesn’t address no shows that occur on the day of a trip. This mechanism alone is unlikely to achieve full utilization.
- ***May involve substantial administrative costs.*** Supplemental lotteries are distinct “events,” which require administrative effort. Although such lotteries can be semi-automated with internet interactions, supplemental lottery costs are probably comparable to call-in reservation programs (see below), which may still be needed to distribute “last minute” cancellations.
- ***Fails to complement the primary mechanism.*** Using the same mechanism as the primary distribution provides little diversity in the “path” to a permit. The most likely “losers” are spontaneous users with short planning horizons.

Call-in or web-based reservations

The most common secondary distribution systems make cancellations available by phone or web-based reservations. Agencies provide information about availability, and users are responsible for checking these and making reservations. In most cases, permits are awarded to individuals (who then organize the rest of their group).

Advantages

- ***Ability to distribute cancellations on short notice.*** Agencies can post cancellations as soon as they happen, and users can make reservations immediately after. The only constraint is staffing time for the call-in number (which web systems eliminate).

- **Moderate administrative burden.** Although call-in systems require some administrative effort (a dedicated line and staff), these can be limited (many agencies constrain them to weekday mornings). Web-based systems offer greater automation and lower costs (after set up).
- **Systems can be crafted to serve other goals.** Agencies can constrain who is eligible to participate, such as previously unsuccessful applicants or people who applied in the primary system. Grand Canyon’s secondary system over the past decade offered earlier opportunity to those higher on the waiting list. If equality is preferred over equity, cancellation permits can be offered with no constraints.
- **Offers a “permit path” for more spontaneous users.** Although reservations in general place a premium on planning, cancellation permits generally have much shorter planning horizons.
- **Relatively efficient administration.** Although the system requires a separate phone line/web-page and announcements of available launches, easy-to-understand rules minimize calls until launches become available.

Disadvantages

- **Unable to address no shows.** As “nimble” as a call-in system may be, it is unlikely to fill a no show that happens the day of the launch, particularly at more remote rivers.
- **Phone-based vs. web-based interactions.** If a call-in system is used, there are costs to staff it. If a web-based system is used, personal interaction between agency staff and the user is lost.

On-site queuing

The final method of filling cancellation permits is on-site queuing (first-come/first-served). Identical to the method described under primary distribution mechanisms (see above); this is probably the most effective way to utilize “no shows,” which occur the day of the launch. However, it generally works best for rivers that are: (1) not remote (minimizing the cost of users traveling to the queue without knowing if they will be successful); (2) have ample substitute activities (so users who fail to obtain a permit will have other things to do); and (3) have high cancellation rates (the queue moves fast).

The “business” of allocating use

The stump speech is familiar: A successful businessman promises to right the wrongs of government by “running it like a business.” But what kind of business? Successful businesses vary in their ability to maximize sales, minimize costs, produce high quality goods, or provide the best customer service – and it is usually impossible to maximize all these goals at once.

The usual criticism of government targets “inefficiency” of bureaucracies, suggesting that programs involve too much “red tape” for users. Being “simple to understand” and “easy to use” are common goals for permit systems, possibly urging agencies toward centralized allocation systems. This might simplify the “rules,” allow more automation, and provide economies of scale. But agencies should be careful about the trade-offs. Centralized, uniform systems can work against customer service, local knowledge, or responsiveness. A “business model” may also distract agencies from their primary objectives. Some worry that river managers spend too much time distributing permits and too little time thinking about how to provide high quality trips.

Concerns about “being fair” and making sure users don’t “work the system” often lead to complex lists of incrementally-developed rules and penalties; these may sour agency relationships with the public. The goal is a system that pays attention to how users organize trips – their planning horizons, assembling a group, equipment needs, necessary flexibility, etc.

An accounting-type evaluation can measure the costs of permit programs or their efficiency in utilizing capacity. However, a “quality of service” evaluation is also important. River and recreation management was developed from a service-oriented philosophy that is in sharp contrast to the resource commodity models of timber and range management. Evaluating an allocation system should include both efficiency and quality of service.